Cognition 254 (2025) 105950

Contents lists available at ScienceDirect

Cognition

journal homepage: www.elsevier.com/locate/cognit

Discourse-based constraints on long-distance dependencies generalize across constructions in English and French

Elodie Winckel [a,*], Anne Abeillé [b], Barbara Hemforth [b], Edward Gibson [c]

[a] Friedrich-Alexander Universität Erlangen-Nürnberg, Germany
[b] CNRS & Université Paris Cité, LLF, France
[c] Massachusetts Institute of Technology, USA

ARTICLE INFO

Keywords:
Clefts
Subject islands
Filler-gap constructions
Information structure
English
French

ABSTRACT

The article presents four acceptability judgment experiments that evaluate novel predictions of the Focus-Background Conflict constraint (Abeillé et al. 2020, Cognition) with respect to the acceptability of long distance dependencies for so-called "subject islands" in English and French. In contrast with syntactic accounts, the Focus-Background Conflict constraint predicts differential behavior across different constructions. The current paper tests a novel prediction of this theory, in a construction that has not yet been tested experimentally: *it*-clefts. Experiment 1 shows that elements in clefted clauses are not uniformly backgrounded, contrary to a standard assumption in the syntax / discourse literature. Experiments 2–4 tested long-distance dependency relations in relative clauses and clefts. In both languages, there is strong evidence of a cross-construction difference when comparing the two constructions with each other: extraction of the subject complement out of a subject NP was super-additively difficult in clefts, but not in relative clauses, as predicted by the Focus-Background Conflict constraint.

1. Introduction

Long-distance dependency structures have played an important role in theories of syntax across languages. Such structures – often called filler-gap constructions or extractions – involve a fronted constituent — the "filler" — that appears in another position in a declarative clause. In English, wh-questions (1a), relative clauses (1b) and it-clefts (1c) are filler-gap constructions[1]:

(1) a. What$_{filler}$ are you reading _?
b. the book [which$_{filler}$ you read _]
c. It's a book which$_{filler}$ I'm reading _.

Following Ross (1967), linguists have observed that it is often less acceptable for a filler to be associated with a position in certain constituents, e.g., subjects (2a), adjuncts (2b) or relative clauses (2c):

(2) a. * What$_{filler}$ car were [the hoods of _] damaged by the explosion? (Ross, 1967: 242)
b.?? What$_{filler}$ did you laugh [while reading _]?
c.?? What$_{filler}$ did you meet the stranger [who was reading _]?

Such constituents were then called "islands" to the proposed syntactic movement process (Ross, 1967). Starting with Chomsky (1973, 1977), there have been many syntactic theories trying to explain the unacceptability of these kinds of examples: Subjacency (Chomsky, 1977), Constraints on Extraction Domains (Huang, 1982), Barriers (Chomsky, 1986), Relativized Minimality (Rizzi, 1990), the Minimal Link Condition (Chomsky, 1995), and the Phase Impenetrability Condition (Chomsky, 2001). According to each of these theories, island extractions are unacceptable based purely on their syntactic configurations, independent of the meaning of the particular construction (Boeckx, 2012; Schütze et al., 2015).

A recent challenge to the syntax-based proposals was made by Abeillé et al. (2020). They showed that extractions from parts of subjects are sensitive to the construction type, as illustrated by (3) and (4).

(3) wh-question
a. From subject:? Which sportscar did [the color of _] delight the baseball player?
b. From object: Which sportscar did the baseball player love [the color of _]?

(4) relative clause

* Corresponding author.
E-mail address: elodie.winckel@fu-berlin.de (E. Winckel).

[1] To clarify the interpretation of the examples, we indicate the canonical position of the filler as _ in the examples in (1), without necessarily committing to a movement analysis (see Sag & Fodor, 1994 for a discussion).

https://doi.org/10.1016/j.cognition.2024.105950
Received 25 July 2023; Received in revised form 19 August 2024; Accepted 4 September 2024
Available online 27 September 2024

a. From subject: The dealer sold a sportscar, of which [the color _] delighted the baseball player.

b. From object: The dealer sold a sportscar, of which the baseball player loved [the color _].

In both English and French, Abeillé et al. (2020) found that extractions out of subjects are rated as much worse than extractions out of objects in *wh*-questions, as in the indicated judgments in (3). But there was no corresponding difference for relative clauses, as in (4).[2] Sprouse et al. (2016) found a similar contrast for Italian. These results are not consistent with the syntax-based theories that predict that extractions in relative clauses should have similar acceptability effects as *wh*-questions.

In this paper, we test further predictions of a variant of the Focus-Background Conflict constraint, formulated as follows:

(5) Focus-Background Conflict constraint (revised version): An extracted element should not be more focused than its (non-local) governor. Hence the greater the difference in focus between a focused element and its less focused governor, the more infelicitous the dependency will be.

We assume that the different pieces of information delivered by an utterance can be placed on a scale from 'backgrounded' (i.e., old or given) information to 'focused' (i.e., new) information, so that 'focus' and 'backgrounded' are gradient values (Cuneo & Goldberg, 2023; Tonhauser et al., 2018). Furthermore, the 'topic' (i.e., what the sentence is about) is typically backgrounded (but this depends on the context). According to the FBC constraint, extractions from subject positions in *wh*-questions like (3a) should be penalized because the extracted element (*which sportscar*) is focused, and its governor (the subject) is by default an unfocused (backgrounded) constituent. The extraction in (3b) should be more acceptable because the governor of the extracted element (the object) is here focused.[3] In contrast, there is no violation of the Focus-Background Conflict constraint when extracting from subject positions in relative clauses, because the filler (*of which*) is not focused in the relative clause. The discourse status of the filler (i.e., the relative word or phrase) is independent of the discourse status of its antecedent (*a sportscar*). The status of the antecedent only depends on its role in the main clause: it will be more topical as a subject and more focused as an object. The filler in the relative clause is neither focused nor backgrounded per se. If anything, Kuno (1976: 420; Kuno, 1987: 15), Gundel (1974); Gundel, 1988: 79), and Lambrecht (1994: 130) suggest that the filler in the relative clause is a topic.[4]

This version of the Focus-Background Conflict constraint is very similar to the version proposed in Abeillé et al. ("The more focused an element, the more focused the constituent it is part of"), inspired from Selkirk (1984)'s prosodic focus projection, except that it only targets extracted elements: filler-gap constructions. The original was stated so as to apply more broadly, but other research has shown that the constraint may not apply to non-extraction constructions, such as in-situ questions. In-situ questions such as (6) are indeed widely accepted in acceptability judgments studies (Winckel et al., 2023 for English and Mandarin; Winckel, 2024: Experiment 11 for French; Chaves & Putnam, 2020: chap. 3 for a review).

(6) a. CLUE: In the eyes of the baseball player, the color of the large sportscar simply could not compete with the way the small sportscar shone shockingly brightly in the sunlight.

QUIZMASTER: The color **of which sportscar** delighted the baseball player because of its surprising luminance?

b. La couleur de quelle décapotable enchante le footballeur à cause de sa luminosité ?

the color of which convertible delights the football-player at cause of its luminance

This is not the first discourse-based proposal to account for island effects (cf. Erteschik-Shir, 1973; Kuno, 1987; Deane, 1991; Goldberg, 2006; Chaves & Putnam, 2020; Cuneo & Goldberg, 2023 for other discourse-based proposals). For example, prior to Abeillé et al., Goldberg (2006, 2013) proposed backgroundedness to be an important factor to explain island phenomena (see also Ambridge & Goldberg, 2008; Cuneo & Goldberg, 2023):

(7) *Backgrounded Constituents are Islands (BIC):* Constructions are islands to long-distance dependency constructions to the extent that their content is backgrounded within the domain of the long-distance dependency construction. (Cuneo & Goldberg, 2023: 2)

Although (5) and (7) have similarities, these two hypotheses are based on different premises. Goldberg and her colleagues assume that all filler-gap dependencies foreground the filler. According to them, extracting an element makes it prominent, which they equate with foregrounding (Deane, 1991 makes a similar proposal). As a consequence, the BIC does not predict the contrast between relative clauses and *wh*-questions. However, Abeillé et al.'s assumption, which we share in the present article, is that only certain filler-gap constructions are focalizing/foregrounding the filler. While we consider *wh*-questions and *it*-clefts as focalizing/foregrounding constructions, topicalization or relative clause constructions do not imply foregrounding per se.

The Focus-Background Conflict constraint provides a plausible explanation for the observed contrasts in English and French (and similar contrasts observed by Sprouse et al., 2016 in Italian). But Abeillé et al.'s explanation of the cross-construction differences was somewhat *post-hoc*: the theory was constructed based on the empirical crosslinguistic observations which lacked an explanation in all current approaches. In order to properly test this theory, it needs to be evaluated on further constructions, where the discourse properties make different predictions. Hence we explore *it*-cleft constructions here. *It*-clefts closely resemble relative clauses syntactically, but their meaning involves focalizing the fronted element. *It*-clefts therefore provide a test of the Focus-Background Conflict constraint: this constraint predicts that extraction out of subject position in an *it*-cleft should be less acceptable relative to extraction out of object position while there should be no penalty for out of subject extraction in relative clauses (to be elaborated below).

Furthermore, the existence of *it*-cleft constructions poses a potential problem for discourse-based hypotheses like (5) or (7), and other similar approaches. *It*-clefts are focalizations/extractions from a clause (the *that*-clause in English), which is generally assumed to be backgrounded/presupposed. If the clause in an *it*-cleft is presupposed / backgrounded, then it should be impossible to extract from parts of such clauses, according to either Goldberg's hypothesis or the Focus-Background Conflict constraint. We will show that the *that*-clause in an *it*-cleft is not uniformly backgrounded, contrary to a standard assumption in the literature. Thus extractions in *it*-clefts per se do not violate either Goldberg's hypothesis or the Focus-Background Conflict constraint.

[2] Additionally to their difference in construction type, examples (3) and (4) differ in extraction type, since the former has preposition stranding and the latter does not. For English *wh*-questions, preposition stranding tends to be the preferred strategy, whereas relative clauses are more common with pied-piping. Despite this difference in usage, we will test in our experiments both extraction types. In Abeillé et al.'s experiment on English, relativization out of the subject received lower ratings with preposition stranding than with pied-piping.

[3] It is worth noting that the Focus-Background Conflict constraint does not constrain extraction of the subject itself (*What bothers you?*) since the governor (*bothers*) is not backgrounded.

[4] We consider the filler in a wh-relative clause to be the relative word or phrase, and not the antecedent. The antecedent of the relative clause is coreferent to the missing element, but it is not the filler: in *the man to whom I talk*, the filler is a prepositional phrase (*to whom*), corresponding to the missing complement of *talked*, while the antecedent is a noun phrase (*the man*). As pointed out by Borsley (1997), Sag (2010), among others, a relative clause may or may not have a filler corresponding to the extracted element: in *the man I saw*, there is no filler corresponding to the missing complement of *saw*.

2. Cleft constructions: *it*-clefts and *c'est*-clefts

There are several types of clefted constructions in English. Here we will focus on *it*-clefts, such as (7).

(8) [It's his key] [(that) John lost _].

It-clefts consist of the sequence [*it is / was*] followed by an element X (called the 'pivot') followed by a *that*-clause (Destruel et al., 2019). The *that*-clause has the structure of a relative clause, with a gap corresponding to the pivot (Pollard & Sag, 1994: 260), and not that of a complement *that*-clause (*I think that… the claim that…*). But unlike a relative clause, the *it*-cleft is an obligatory complement of the copula 'be', and not a modifier of an antecedent noun.

As in English, there are several types of clefts in French. We are interested here in *c'est*-clefts like (8), which are similar to *it*-clefts in English.

(9) [C'est ce livre] [que Susanne a lu _].

it is this book that Susanne has read

C'est-clefts have the form [*c'est* + pivot + *que*-clause] (Combettes, 2021; Lambrecht, 1994).[5]

2.1. Information structure of it-clefts

Typically, the pivot of an *it*-cleft is focused (Prince, 1978; Lambrecht, 2001 a.o.), generally a 'contrastive' or 'corrective focus' (see discussion in Destruel, 2012; Destruel et al., 2019). Furthermore, exhaustivity is a property often associated with contrastive focus. In (8), the pivot receives an exhaustive interpretation with respect to the proposition expressed by the *that*-clause (John losing something), such that there are no further relevant alternatives beyond those expressed by the pivot (*his keys*). In other words, sentence (8) can be paraphrased *John lost only his key* (see Destruel et al., 2015; Horn, 1981).

Following Prince (1978: 884), it is usually assumed that the *that*-clause contains presupposed information (which is typically assumed as backgrounded). Using a negation test (c.f. Ambridge & Goldberg, 2008, Cuneo & Goldberg, 2023), Prince claims that the scope of the negation of the main clause falls on the focused constituents, not (or, more precisely, less) on the backgrounded constituents. If one negates (8), the content *John lost something* remains true even if the *it*-cleft is negated, see (10). This suggests that the scope of the negation does not include the content of the *that*-clause, therefore that this content is presupposed.

(10) It wasn't his key that John lost.

- Did John lose his key? (No)
- Did John lose something? (Yes)

Note that *it*-clefts may challenge discourse-based approaches, which propose that it is infelicitous to extract a focused element from a backgrounded position. If, as suggested by the negation test, the *that*-clause is backgrounded, a discourse-based theory may conclude that extraction from the *that*-clause is impossible. This conclusion is obviously incorrect, because this would make clefts in general infelicitous. In (8) '*his key*' is the extracted element and '*that John lost*' is purported to be backgrounded.

However, we follow an alternative hypothesis: the content of the *that*-clause is not uniformly backgrounded, even though the negation test in (10) may not be sensitive enough to test subtle differences of information structure status within the *that*-clause. Our first experiment is designed to evaluate this hypothesis:

(11) *The it-cleft information structure hypothesis*: The *that*-clause of the cleft is not uniformly backgrounded but follows the same information structure as a simple declarative clause: its subject is more backgrounded than its VP (main verb and object(s)).

If the *that*-clause is not uniformly backgrounded, then the Focus-Background Conflict constraint (5) would be compatible with *it*-cleft constructions.[6]

2.2. Similarities and differences between clefts and relative clauses

There are many similarities between *it*-clefts and relative clauses. For example, it is easier to process the extraction of whole subjects vs. whole objects in both (see Hakes et al., 1976; Holmes & O'Regan, 1981; Just et al., 1996; Gibson, 1998, on relative clauses; see Reichle, 2014, on French; and Gordon et al., 2001; Samo & Merlo, 2021, on English it-clefts).

The *that*-clause of an English *it*-cleft is syntactically similar to *that*-relative clauses. Furthermore, like relative clauses, *that* is optional, see (7), except for subject gaps. The *que*-clause in French *c'est*-clefts is also syntactically similar to a relative clause introduced by *que*. Unlike English, *que* is not optional in either French relative clauses nor *c'est*-clefts.

However, there are also several differences between *it*-clefts and relative clauses. Unlike ordinary relative clauses (12b), *that*-clauses and *que*-clauses are obligatory in *it*-clefts and *c'est*-clefts.

(12) a. It is this book *(that Susan read).

b. I read the book (that Susan read).

This is why the *that*-clause is analyzed as a complement of *be* in *it*-clefts (Pollard & Sag, 1994; Sag, 2010), whereas relative clauses are (optional) adjuncts to the antecedent noun (Borsley, 1997; Sag, 2010).[7]

This obligatoriness comes from the semantics of *it*-clefts, which is different from that of relative clauses. Relative clauses add propositional content to the propositional content of the main clause. A main clause and its subordinate relative clause are therefore necessarily (at least) biclausal: '*I read a book and Susan read it*' is a paraphrase of (12b). On the contrary, *it*-clefts are semantically monoclausal (pace Bresnan & Mchombo, 1987): the main event is the one expressed by the *that*-clause, while the *it is* is semantically empty (Lambrecht, 1994). The propositional content of (12a) is thus 'Susan read this book', like a simple declarative clause. Thus the *that*-clause cannot be omitted in (12a).

3. Experiment 1: information structure inside the *that*-clause of an *it*-cleft

In addition to the negation test of backgroundedness mentioned above, Erteschik-Shir (2007: 39) proposes another test, the liar test, as in (13):

(13) a. Sam said: John wrote a book about Nixon. Which is a lie — it was about a rhinoceros.

[5] We focus here on *that/que it*-clefts (i); English as well as French also have another kind of *it*-cleft, with a *wh*-relative clause (ii):(i) a. It is to John that/*who(m) I talkedb. C'est à Jean que j'ai parlé.It is to Jean that I AUX talked(ii) a. It is John [to whom/*that I talked].b. C'est Jean à qui j'ai parlé.It is Jean to who I AUX talkedIn French, out of context, it is difficult to tell (iib) apart from presentative clauses, with referential 'ce' and a bona fide relative clause. This is why we do not consider them here. In French, they are less frequent than the *it*-cleft in (ib) and belong to a more formal register (Combettes, 2021).We also leave aside non-typical uses of *it*-clefts, such as "informative-presuppositional" English *it*-clefts (*It is through these conquests that the peasantry became into a single form of dependent lord-tenant relationship.* (Prince, 1978: 900)) and all-focus French c'est-clefts (*C'est le téléphone qui sonne!* 'The phone is ringing!') (Lambrecht, 1994).

[6] An anonymous reviewer remarked that *wh*-questions as well might well have their content backgrounded, such that the interrogative *What did John lose?* presupposes that John lost something. It might therefore be the case that even *wh*-questions challenge discourse-based approaches. Here again, we can hypothesize that, though presupposed to a certain degree, the content of the *wh*-question is not uniformly backgrounded.

[7] Another difference between French *c'est*-clefts and relative clauses is that extraction out of the *qui/que*-clause from clefts seems to be possible (i) while it is not out of ordinary relative clauses (ii):(i) J'ai déjà un chat dont [c'est moi qui ai trouvé [le prénom _]]. 'I already have a cat of-which it is me who has found [the name _]' (c'est-cleft)(www.chevalannonce.com, 16 july 2014)(ii) *J'aime le prénom que j'ai adopté un chat [qui portait _]'I like the name that I adopted a cat [who had _]' (ordinary relative clause)

b. Sam said: John destroyed a book about Nixon. #Which is a lie — it was about a rhinoceros.

The liar test provides information about what in a sentence is the "potential focal domain", in Erteschick-Shir's terms, which bears some similarity with Lambrecht (1994)'s 'asserted content' or Potts (2005)'s 'at-issue content', and which we take as the inverse of backgroundedness: An element that is part of the focal domain will not be backgrounded and vice versa. An element that is part of the focal domain can be questioned or negated. The subject matter of a book is part of the focal domain: when someone writes it, it can be questioned and it passes the liar test in (14a). But it is not (in a neutral context) if someone destroys it, it is difficult to question and it fails the liar test in (14b).

(14) a. What did John write a book about _?

b. #What did John destroy a book about _? (Cattell, 1979: 168)

The liar test allows us to test the *it*-cleft information structure hypothesis formulated in (11) and identify the internal information structure of the *that*-clause.[8] Indeed, if the VP is more focused than the subject, we expect the VP of a *that*-clause to pass the liar test more easily than its subject.

We conducted an experiment in which native English-speaking participants were prompted to perform a variant of the liar test. The task took the form of an acceptability judgment task.

3.1. Method

3.1.1. Materials

We presented to the participants stimuli that took the form of a dialog. The first line of the dialog was an *it*-cleft, in which the pivot is either the subject or the direct object. The second line of the dialog (i.e., the liar test) contradicted the propositional content of the first line, using a contrastive negation that targets either the subject or the direct object. This second line was not a full sentence, but only a fragment, following the pattern [No, NP].

This resulted in a 2 × 2 design, in which the negation in the second line targeted either the pivot or part of the *that*-clause from the first line, and either a subject or a direct object. We gathered participants' acceptability judgments with respect to the second line of the dialog (see below). One example of our stimuli is given in (15).

(15) a. Negation of the object of the *that*-clause
- It was the teenager that boarded the train.
- No, the airplane.

b. Negation of the subject of the *that*-clause
- It was the train that the teenager boarded.
- No, the old lady.

c. Negation of the (object) pivot
- It was the train that the teenager boarded.
- No, the airplane.

d. Negation of the (subject) pivot
- It was the teenager that boarded the train.
- No, the old lady.

3.1.2. Predictions

Our hypothesis in (11) predicts different results for negating the direct object of the *that*-clause (15a) than the subject of the *that*-clause (15b). We therefore expect (15b) to be rated lower than (15a). The negation of the pivot (15c + d) serves as a control measure to ensure that the NP presented as an alternative is equally suitable for both the negated subject and the negated object. We do not expect any difference between (15c) and (15d).

We therefore predict a difference-of-differences in ratings, i.e. an interaction effect between the position of the negated element (pivot or *that*-clause) and its function (subject or object), such that negating the subject in a *that*-clause should receive the lowest ratings.

3.1.3. Procedure

There were 24 experimental items, resulting in a total of 96 distinct dialogs. Each participant saw only one of the conditions of an item following a latin square design interspersed with 36 distractors. The distractors were presented in the form of short dialogs, which were similar in appearance to the experimental items, but with variations in negated elements. One example of a distractor is reproduced in (16).

(16) - It was the weatherman that was shocked by the tornado.
- No, bored.

Each dialog (both experimental items and distractors) was followed by a comprehension question. These questions were crafted in such a way as to elicit attention from the participants, without specifically targeting the negation test. For example, after viewing one of the dialogs presented in (15), the participant would have to answer the comprehension question in (17):

(17) Did the first sentence say that the teenager got on something? (correct answer = Yes)

Participants took part in the study online. It was an acceptability rating procedure with the following instructions:

> *Each scenario consists of a context sentence followed by a contradictory statement. Please rate the contradictory statement for how natural it sounds, given the context sentence. Please also answer the comprehension question.*

The rating scale had seven possible radio button responses with the responses later converted to numbers from 1 to 7 as follows:

1. Extremely unnatural; 2. Unnatural; 3. Somewhat unnatural 4. Neutral; 5. Somewhat natural; 6. Natural; 7. Extremely natural.

3.1.4. Participants

We recruited 99 participants on Amazon.com's Mechanical Turk using the Turkolizer software from Gibson et al. (2011). All participants were paid for their participation. Participants were asked to indicate their native language, but payment was not contingent on their responses to this question.

We included only data from participants who lived in the US, were native English speakers and had at least 75 % accuracy on the comprehension questions. This resulted in analyzing data from 59 participants.[9]

3.2. Results

For all experimental data in this paper, the statistical analysis was performed using the R Statistical Software (R Core Team, 2023). We used the package tidyverse (version 2.0.0; Wickham et al., 2019) for data manipulation. Whisker plots are plotted using ggplot2 (version 3.4.4; Wickham, 2016). In order to compute Bayesian Cumulative Link Models, we used the package brms (version 2.20.4; Bürkner, 2017; Bürkner, 2018; Bürkner, 2021), and the package bayestestR for model diagnostics (version 0.13.1; Makowski et al., 2019). The seed we used for each model was arbitrary (it reflects the time of the day the model was first computed). The R scripts are available in the OSF repository.

On average, participants rated negation of the object in the *that*-

[8] It is worth emphasizing that the liar test (and a similar test, the negation test) are used differently in the literature on syntactic islands, e.g., Ambridge and Goldberg (2008) or Cuneo and Goldberg (2023). Under the assumption that backgroundedness could be equivalent to islandhood, the goal of these studies is to determine whether a constituent is backgrounded or not.

[9] The decline in data quality on Amazon's Mechanical Turk over recent years, attributed to increased IP address falsification and potential bot usage, has led to the high participant omission rates reported in this paper. We may add that large language models (e.g., GPT-3) were not yet available to the large public in 2020 when we ran the experiments reported here, such that comprehension questions were still a reliable exclusion criterion.

clause highly similar to the control conditions (4.9 vs 5.1 for negating the subject pivot, 4.9 for negating the object pivot). Negating the subject in the *that*-clause was rated less acceptable than the other three conditions (4.6). (see Figure 1)

We used a Bayesian Cumulative Link Model to compare the position of the negated element crossed with its syntactic function. Position was coded 0.5 for the pivot and − 0.5 for the *that*-clause. Syntactic function was coded 0.5 for objects and − 0.5 for subjects. We included random slopes for participants and items. In all models in this paper, we used non-informative flat priors and ran the model with 4 chains and 8000 iterations per chain. Convergence diagnostics indicate good model fit, with R-hat for all parameters close to 1, suggesting convergence.

Here and in all subsequent Bayesian models, we will report the 95 % credible interval to interpret the model's posterior distribution as well as the probability of beta being different from zero (defined as the probability for beta to be either higher - for positive intercept - or lower - for negative intercept - than zero). If zero is not encompassed in the 95 % credible interval, we take this as strong evidence for an effect. Table 1. reports the distribution of the estimated values of these models.

We see strong evidence for a main effect of position, such that negating the pivot is rated higher than negating the element that is in the *that*-clause. There is no evidence for a main effect of syntactic function. We observed, however, strong evidence for a significant interaction effect. Additional simple effect models show that this is due to the fact that, on the one hand, there is no strong evidence for a difference between negating the subject and negating the object when the pivot is negated (acceptability of negating the object is actually slightly lower than negating the subject: $\widehat{\beta} = -0.2784$, CrI = [−0.7276, 0.1633], P($\beta <$ 0) = 0.9015), while, on the other hand, when an element of the *that*-clause is negated, negating the object is more acceptable than negating the subject ($\widehat{\beta} = 0.3725$, CrI = [0.029, 0.7275], P($\beta > 0$) = 0.9829).

3.3. Discussion

The results of this experiment show that the *that*-clause is not uniformly backgrounded as assumed in much of the linguistic literature: as stated in our hypothesis in (11), there is informational structure inside the *that*-clause of a cleft, which is similar to that of a declarative clause, with the subject more backgrounded than the VP. It is less acceptable to apply the liar test directly to an element that is the subject of the *that*-clause, because this is the most backgrounded element.

Table 1
Mean results, range of the 95 % credible interval and probability of beta being different from zero for the Bayesian Cumulative Link Models crossing position of the negated element with its syntactic function.

	Estimated mean value	95 % credible interval	P($\beta \neq$ 0)
position of the negated element (pivot vs. *that*-clause)	0.432	0.153 to 0.710	0.998
syn. Function of the negated element (subject vs. object)	0.0687	−0.238 to 0.376	0.68
position: syn. Function	−0.647	−1.15 to −0.147	0.994

A consequence of this observation is that *it*-clefts are not ruled out by discoursed-based approaches to islands (Goldberg, 2006) nor by the Focus-Background Conflict constraint in (5). Extractions are more or less acceptable depending on the size of the clash between the extracted element and the phrase it is extracted from. For example, when clefting the whole subject (*It was the teenager that boarded the train.*), the extracted element depends on the VP. The results of the liar test show that the VP is not strongly backgrounded. Hence, the clash between the VP and the focalized subject is weak. The same is true for clefting complements or adjuncts. Hence, discourse-based approaches to extraction constraints are not incompatible with the existence of cleft constructions.

The main effect of position that we observe in our experiment is a straightforward consequence of the function of an *it*-cleft: the pivot of an *it*-cleft is the most focused and thus least backgrounded element of the proposition. Thus it receives higher ratings in the liar test.

More important for our question is that the Focus-Background Conflict constraint is not only compatible with clefts but it makes important predictions with respect to them. Because the *that*-clause has a gradient information structure, focalization (i.e., in this case, extraction) should be more or less acceptable, depending on which constituent the focused element is part of. The prediction is that, as in *wh*-questions, focalizing the complement of a subject should be less acceptable than focalizing the complement of an object (the latter being itself more focalized as shown in our experiment). Thus, we expect to observe a "subject island effect" for clefts.

In order to make this prediction, we need to assume that a violation

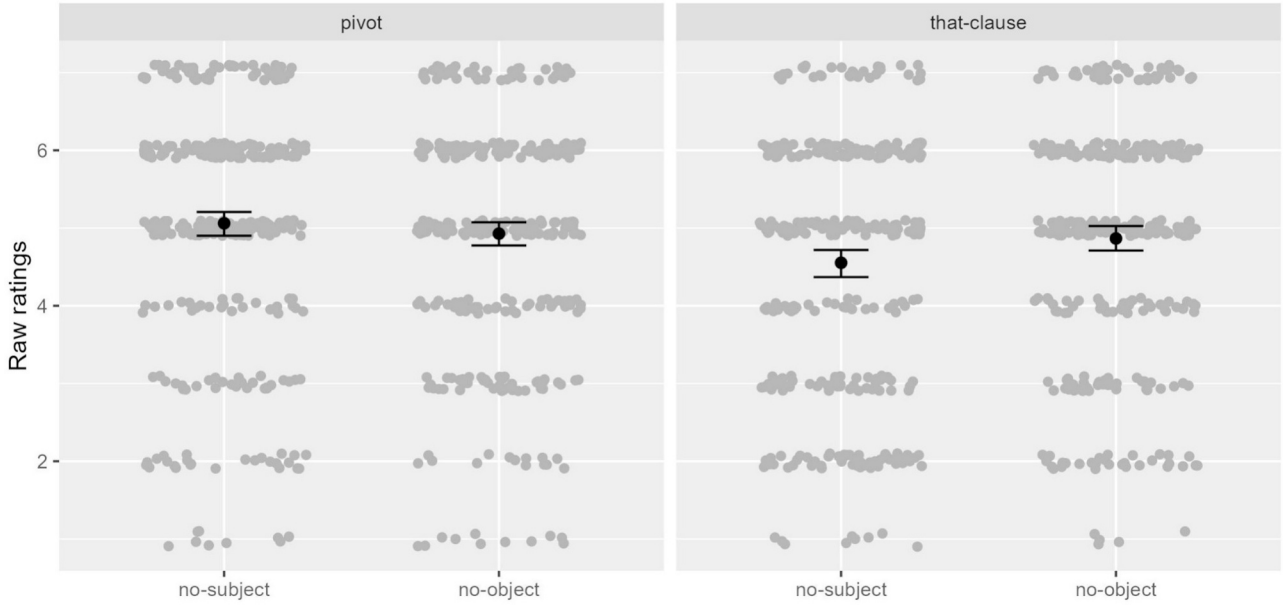

Fig. 1. Condition means and 95 % confidence intervals for acceptability ratings of all conditions in Experiment 1 (liar task for *it*-clefts).

of the Focus-Background Conflict constraint is perceived by native speakers as an odd way to package the information, thus resulting in lower acceptability judgments. This has been the core assumption in experimental work on discourse-based approaches to islands so far (a.o. Ambridge & Goldberg, 2008; Goldberg, 2013; Abeillé et al., 2020; Cuneo & Goldberg, 2023).

We will test this prediction in the following sections. First, we will present two experiments on English: one on *it*-clefts (Experiment 2) and one on relative clauses (Experiment 3). In Experiment 4, we will then investigate French *c'est*-clefts, which will be discussed in relation to an experiment on French relative clauses in Abeillé et al. (2020). Section 5 provides an evaluation of the findings of these three new experiments with respect to the Focus-Background Conflict constraint.

4. Experiment 2: testing extraction out of subject and object in English *it*-clefts

As discussed in the introduction, Abeillé et al. (2020) proposed the Focus-Background Conflict constraint in order to account for the variability of acceptability of extractions out of subject position, depending on the function of the extraction construction. Subjects had been presumed to be syntactic positions from which extraction was impossible: so-called 'islands' to extraction (Chomsky, 1973; Chomsky, 1986; Chomsky, 2001 a.o.). This assumption was based on contrasts observed between sentences such as (18a) and (18b). Both (18a) and (18b) have a gap in the same kind of noun phrase, but (18b), with a gap in the subject noun phrase, is degraded compared to (18a), with a gap in the object noun phrase.

(18) a. Which book do they criticize [the author of _]?
b. *Which book does [the author of _] face criticisms?

Syntactic approaches to long-distance extraction phenomena assume that the contrast in (18) will be valid regardless of the construction at hand. This is not the case according to the Focus-Background Conflict constraint: some filler-gap constructions imply a focus of the extracted element, but not all.

In particular, following Jackendoff (1972) and Kuno (1976), Abeillé et al. assume that (fronted) *wh*-questions put the extracted element into focus. Hence a *wh*-question that includes an extraction out of the preverbal subject violates the Focus-Background Conflict constraint and is infelicitous. On the other hand, relative clauses do not constrain the discourse status of the extracted element, and thus relativizing out of the subject does not violate the Focus-Background Conflict constraint.

Thus far, Abeillé et al.'s proposal has been evaluated only with respect to *wh*-questions and relative clauses. But it makes predictions with respect to other extraction constructions, including *it*-clefts. In an *it*-cleft, the pivot is a (contrastive) focus, so *it*-clefts are constructions in which the extracted element is focused, like *wh*-questions. Because Experiment 1 shows that the subject of the *that*-clause is more backgrounded than the VP, the Focus-Background Conflict constraint predicts that extraction out of subject position should be worse than extraction out of object position, just as in *wh*-questions.

4.1. Method

4.1.1. Materials

Following many studies on syntactic islands (e.g., Abeillé et al., 2020; Liu et al., 2022; Sprouse et al., 2016; Vincent et al., 2022), we crossed extraction type (extraction of the whole noun phrase (NP) vs. extraction out of the NP) with extraction site (NP subject vs. NP object). Among these four conditions, the Focus-Background Conflict constraint predicts that only one – the "island" configuration, i.e. extraction out of the subject NP – should be rated especially low, such that there should be an interaction between extraction type and extraction site.

Abeillé et al. (2020) found that extraction of NPs with preposition stranding is less acceptable across constructions than extraction of PPs. We included constructions with and without preposition stranding in this experiment as well. We thus adopted a 4*2 design. First of all, we tested two types of extractions, with and without preposition stranding. Example (19) illustrates preposition stranding (subject vs. object condition), while example (20) shows the same item in the non-stranding condition (PP extracted).

(19) a. P-stranding, subj
It is this kind of problem that [a solution to _] astonished all the participants.
b. P-stranding, obj
It is this kind of problem that all the participants admire [a solution to _].

(20) a. PP-extracted, subj
It is to this kind of problem that [a solution _] astonished all the participants.
b. PP-extracted, obj
It is to this kind of problem that all the participants admire [a solution _].

In addition to the extraction of the whole subject/object, which can be considered as a grammatical baseline, we added an ungrammatical control condition with a preposition missing. (21) illustrates the grammatical and (22) the ungrammatical conditions.

(21) a. whole NP, subj
It is a solution to this kind of problem that _ astonished all the participants.
b. whole NP, obj
It is a solution to this kind of problem that all the participants admire _.

(22) a. ungram, subj
It is this kind of problem that a solution astonished all the participants.
b. ungram, obj
It is this kind of problem that all the participants admire a solution.

The item presented above in (19–22) uses the preposition *to*. We tested complements of the noun introduced by various prepositions: for a total of 16 different items, seven with the preposition *to*, five with the preposition *for* and four with the preposition *over*. An example of each preposition in the condition subject + PP extracted is given in (23). A list of the complete materials is in the appendix.

(23) a. It is **to** this kind of problem that [a solution _] astonished all the participants.
b. It is **for** the coming competition that [the training _] exhausted my son.
c. It is **over** this kind of terrorism that [a victory _] would surprise the army.

Following the design of materials in Abeillé et al. (2020), the main verbs for the items are always pairs of experiencer-subject and experiencer-object psychological verbs, which allows the subject and object conditions to be semantically similar, and thus the extracted element to be relevant to the same degree for the main event of the clause (e.g., *admire* and *astonish* in (19)–(22)). In addition, Chaves (2012) has shown that the extracted element must be relevant to the main event of the clause, which is less probable for complements of animate agentive subjects: "Since the subject is an agent or an actor, it initiates or controls the event, and is therefore the most relevant participant for the assertion. But if the subject is not an agent or actor, then it is easier for a phrase other than the subject to be construed as relevant." (Chaves, 2012: 310–311). Thus, the materials were designed so that the extraction was out of inanimate NPs, in order to make the extraction more plausible.

There was a simple comprehension question for each of the 16 target items, meant as an attention-check. We used the same comprehension question for each version of an item. For example, the question for the item in (19–22) above is given in (24):

(24) Did the participants ignore this kind of problem? (correct answer = No)

Eight of the target items had "Yes" answers and the other eight had "No" answers.

There were also 24 distractor items, having a variety of sentence types, most of which were acceptable, such as "*The board of directors announced that the business acquisition strategy was proceeding as planned.*". There were simple yes-no questions for these materials too. E.g., "*Did the board of directors make an announcement?*" (correct answer = Yes).

4.1.2. Procedure

The procedure was an acceptability rating procedure with the following instructions:

> *Ratings and comprehension questions for 40 sentences: Please read each sentence, and then answer the question immediately following. Finally rate the sentence for how natural it is.*

The naturalness/acceptability ratings were presented as seven choices corresponding to seven radio buttons ranging from "Extremely unnatural" to "Extremely natural" (see procedure for Experiment 1). There was a yes-no comprehension question following each trial. The experiment took approximately 20 min to complete.

4.1.3. Predictions

Because *it*-clefts are constructions in which the filler corresponds to a focus referent, the Focus-Background Conflict constraint predicts an important discourse clash when extracting part of the more backgrounded subject. Thus, it predicts that extraction out of the subject should be less acceptable than extraction out of the (less backgrounded) object. Extraction out of the subject should however be more acceptable than the ungrammatical control at least for cases without preposition stranding. Furthermore, it has been shown before that subject clefts are more frequent than object clefts crosslinguistically (Samo & Merlo, 2021) and we expect this subject cleft preference to be reflected in our acceptability judgments. In statistical terms, this means that the Focus-Background Conflict constraint predicts an interaction between type of extraction (NP extraction vs. sub-extraction out of NP) and function (NP subject vs. object) on the one hand and between grammaticality (sub-extraction and non-grammatical) and function (subject vs. object) on the other.

Other accounts – e.g. traditional syntactic accounts on the subject island constraint – also expect an "island effect" when extracting out of the subject. The main difference is that syntactic accounts predict it to be ungrammatical (as low as ungrammatical controls) while our account predicts them to be infelicitous (not necessarily lower than ungrammatical controls).

4.1.4. Participants

We recruited 158 participants on Amazon.com's Mechanical Turk using the Turkolizer software from Gibson et al. (2011). All participants were paid $3 USD for their participation. They were asked to indicate their native language, but payment was not contingent on their responses to this question.

Following normal standards in our labs, we included only data from participants who (a) lived in the US, (b) were native English speakers and (c) had at least 75 % accuracy on the comprehension questions. This resulted in analyzing data from 84 participants after applying our exclusion criteria.

4.2. Results

Fig. 2 gives an overview of the results of the Acceptability Judgment task.

4.2.1. Model for preposition stranding

We used a Bayesian Cumulative Link Model to compare the extraction conditions with preposition stranding to their grammatical (i.e., extraction of the whole NP) and ungrammatical (i.e., missing preposition) counterparts. Syntactic function is coded −0.5 for the object condition and 0.5 for the subject condition. The factor extraction type has three levels, and is dummy coded with P-stranding as baseline (baseline coded 0, non-baseline coded 1). We included random slopes for participants and items. Convergence diagnostics indicate good model fit, with R-hat for all parameters close to 1, suggesting convergence. Table 2. reports the distribution of the estimated values of these models.

We observe strong evidence for an interaction effect between syntactic function and extraction type when comparing extraction conditions to grammatical controls. Additional simple effect models reveal that there is no evidence for a difference between extraction conditions and grammatical controls for objects ($\widehat{\beta} = -0.0877$, CrI = [−0.627, 0.449], P($\beta < 0$) = 0.365), while there is evidence that the grammatical controls are rated higher than the extraction condition for subjects ($\widehat{\beta} = 2.33$, CrI = [1.70, 2.99], P($\beta > 0$) = 1). The effect was therefore in the expected direction (corresponding to an island effect), such that extracting out of the subject was rated less natural than would be expected based on the main effects alone.

Furthermore, we observed strong evidence for a main effect of syntactic function such that the object conditions received higher ratings than the subject conditions (i.e., the estimate is negative). There is strong evidence that extractions with preposition stranding received lower ratings than extractions of the whole NP (i.e., the estimate is positive). Therefore, while whole NP extraction was judged more natural for subjects, extraction out of objects was judged more natural than extraction out of subjects. There is strong evidence that extractions with preposition stranding received higher ratings than the ungrammatical controls. This main effect is however modulated by an interaction with syntactic function.

4.2.2. Model for PP extracted

Second, we fit another Bayesian Cumulative Link Model to compare the extraction conditions with PP extracted to their grammatical (i.e., extraction of the whole NP) and ungrammatical (i.e., missing preposition) counterparts. Syntactic function is coded −0.5 for the object condition and 0.5 for the subject condition. The factor extraction type has three levels, and is dummy coded with P-stranding as baseline (baseline coded 0, non-baseline coded 1). We included random slopes for participants and items. Convergence diagnostics indicate good model fit, with R-hat for all parameters close to 1, suggesting convergence. Table 3. reports the distribution of the estimated values of these models.

There was again strong evidence for an interaction effect between syntactic function and extraction type when we compare the extraction condition with the non-extraction control condition. Additional simple effect models show that this interaction comes from a preference in ratings for the grammatical control for subjects ($\widehat{\beta} = 1.44$, CrI = [0.854, 2.05], P($\beta > 0$) = 1), while there no strong evidence for such a preference for objects ($\widehat{\beta} = 0.272$, CrI = [−0.284, 0.817], P($\beta > 0$) = 0.841). This is again the expected "island effect" when extracting out of the subject.

Furthermore, the models show strong evidence for a main effect of syntactic function such that the object conditions received higher ratings than the subject conditions (i.e., estimate is negative). There is strong evidence that extractions with PP extracted received lower ratings than extractions of the whole NP and higher ratings than their ungrammatical controls. There was no evidence for an interaction with syntactic function when comparing with ungrammatical controls.

4.3. Discussion

The subject preference for simple clefts follows the results from Samo and Merlo (2021), and is compatible with the Focus-Background Conflict constraint since the subject depends on the VP (which is less backgrounded than the subject, see Experiment 1).

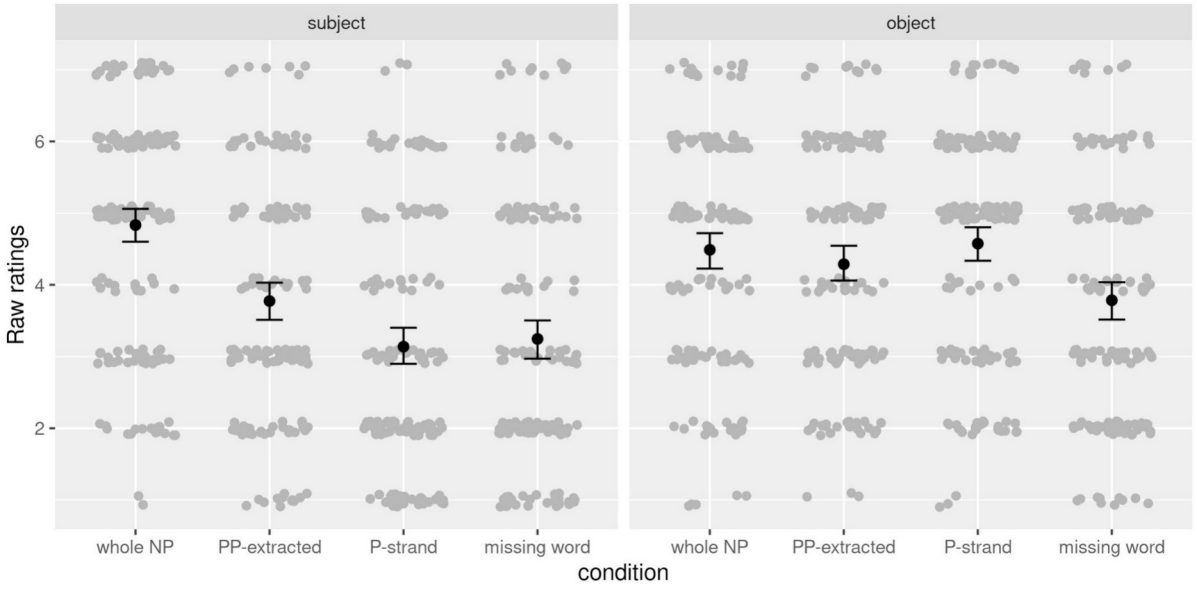

Fig. 2. Condition means and 95 % confidence intervals for acceptability ratings of all conditions in Experiment 2 (English it-clefts).

Table 2
Mean results, range of the 95 % credible interval and probability of beta being different from zero for the 8000 Bayesian Cumulative Link Models crossing extraction type with syntactic function for preposition stranding.

	Estimated mean value	95 % credible interval	P($\beta \neq 0$)
extraction type (P-strand vs. whole NP)	1.14	0.770 to 1.53	1
extraction type (P-strand vs. missing word)	−0.503	−0.922 to −0.105	0.992
syn. Function	−1.99	−2.58 to −1.39	1
extraction type (P-strand vs. whole NP): syn. Function	2.50	1.72 to 3.30	1
extraction type (P-strand vs. missing word): syn. Function	1.19	0.535 to 1.84	1

Table 3
Mean results, range of the 95 % credible interval and probability of beta being different from zero for the 8000 Bayesian Cumulative Link Models crossing extraction type with syntactic function for PP extracted.

	Estimated mean value	95 % credible interval	P($\beta \neq 0$)
extraction type (PP extracted vs. whole NP)	0.863	0.473 to 1.26	1
extraction type (PP extracted vs. missing word)	−0.872	−1.30 to −0.441	1
syn. Function	−0.733	−1.37 to −0.0876	0.986
extraction type (PP extracted vs. whole NP): syn. Function	1.27	0.468 to 2.09	0.998
extraction type (PP extracted vs. missing word): syn. Function	−0.131	−0.799 to 0.541	0.652

The predictions of the Focus-Background Conflict constraint were borne out, given that we observed interaction effects for both kinds of extractions, such that extraction out of the subject was worse than extraction out of the object and worse than grammatical controls. Extractions out of the subject where the whole PP is extracted were still rated higher than ungrammatical controls, as predicted.

However, extractions out of the subject with preposition stranding were rated as low as ungrammatical controls. This could be a cue that there is an additional factor playing a role for extraction with preposition stranding.

The results of Experiment 2 only show that there is a 'subject island effect' in *it*-clefts. As such, the results are compatible with accounts on subject islands other than the Focus-Background Conflict constraint. However, we will see in Experiment 3 below, that relative clauses behave differently.

5. Experiment 3: testing extraction out of subject and object in English relative clauses (various prepositions)

The results of Experiment 2 on *it*-clefts present a clear contrast with Abeillé et al. (2020)'s results on relative clauses. Indeed, Abeillé et al. observed no degradation when extracting full PPs out of the subject in relative clauses, compared to out of the object. But the materials from Experiment 2 differed from those in Abeillé et al.'s study in two ways: (i) the constructions under consideration in our materials were *it*-clefts and not relative clauses; and (ii) the noun complements in our materials were introduced by various prepositions: *over*, *to*, and *for* (e.g., (23)), whereas the noun complements in Abeillé et al.'s study were all *of*-PPs.[10]

In Experiment 3, we sought to test relative clauses with the same noun+preposition pairs as in Experiment 2.

This experiment also tests whether Abeillé et al. (2020)'s lack of island effect in relative clauses may be biased by their use of preposition *of*. This addresses two different hypotheses: (i) that *of*-PP may mark a general topic, and (ii) that *of*-PP may be extraposed.

As for (i), different authors (a.o., Longobardi, 1991; Broekhuis, 2006; Jurka, 2010; Uriagereka, 2012) have suggested that acceptable cases of extractions out of the subject may not be true extractions. In their view, the fronted element is not extracted, but a hanging topic, and thus limited to prepositions meaning 'about' or 'a propos'. Thus, a sentence

[10] We did run a pilot study testing the extraction *of*-PPs complements in *it*-clefts in English as a parallel to Abeillé et al.'s study. However, the critical conditions were rated very low by native speakers, regardless of the syntactic function. For this reason, results are difficult to interpret. We provide a short description of the study and its results in the Appendix: Experiment 2B.

like (25a) might actually be equivalent to (25b). This is dubious since it assumes that the syntactic structure underlying (25a) would be (25c),[11] which does not seem acceptable:

(25) a. The dealership sold a sportscar of which the color delighted the football player.

b.? The dealership sold a sportscar about which the color delighted the football player.

c.?? Of the sportscar, the color delighted the football player.

Another problem with this hypothesis is that it assumes that the preposition is not selected by the noun. This is why we chose different prepositions than 'of', which are clearly selected by the noun. In our materials, for example (26), it would be impossible to replace the preposition *to* with another preposition (e.g. *from*, *over*, *in*) (see also Haegeman et al., 2014: 86–88).

(26) The mediator considered a problem, to/*from/*over/*in which [the solution _] astonished the participants.

Actually, some acceptable examples like (27) have been given in the literature with other prepositions than *of* or *about*, but they have not been tested experimentally.

(27)a. Which problem will [a solution to _] never be found? (Chaves, 2012: 301)

b. That is the lock to which [the key _] has been lost. (Levine & Hukari, 2006: 291)

The second hypothesis (ii) (suggested to us by Richard Hudson) is that the *of*-PP complement is first extraposed before being extracted. Hence, the syntactic structure underlying the relative clause in (25a) would actually be (28a). Under this approach, Abeillé et al.'s material would not test extraction out of the subject but out of the VP. This hypothesis aims to account for the contrast with preposition stranding, since no extraposition is possible in this case (28b)

(28) a.?[The color _] delighted the football player [of the (new) sportscar].

b. *[The color of _] delighted the baseball player [the (new) sportscar].

Notice however that this theory is at odds with freezing theories which tend to explain that nothing can be extracted/moved out of a moved/extracted constituent (Hartmann et al., 2018; Müller, 1998; Wexler & Culicover, 1980). The idea that the *of*-PP complement of the subject might be extraposed before being extracted does not seem to hold with other prepositions, since (29) is unacceptable.[12]

(29) *[The solution _] astonished the participants [to the problem].

Thus Experiment 3 serves two purposes: First, it evaluates whether Abeillé et al. (2020)'s results for English relative clauses hold with other prepositions selected by the noun and for which the hanging-topic explanation is not plausible, like *to*, *over* and *for*. Second, it provides direct evidence with respect to our main hypothesis (that "island effects" can only be found for focalizing constructions) using materials fully parallel to *it*-clefts in Experiment 2.

5.1. Method

5.1.1. Materials

We adopted the same 4*2 design as in Experiment 2, adapting the material to relative clauses. Example (30) shows the kind of sentences we used with preposition stranding (subject vs. object condition), while example (31) shows the same item in the non-stranding condition (pied-piping). (32) illustrates the grammatical and (33) the ungrammatical controls.

(30) a. P-stranding, subj

The mediator considered a problem, which [the solution to _] astonished the participants.

b. P-stranding, obj

The mediator considered a problem, which the participants admired [the solution to _].

(31) a. PP-extracted, subj

The mediator considered a problem, to which [the solution _] astonished the participants.

b. PP-extracted, obj

The mediator considered a problem, to which the participants admired [the solution _].

(32) a. whole NP, subj

The mediator considered the solution to a problem, which astonished the participants.

b. whole NP, obj

The mediator considered the solution to a problem, which the participants admired _.

(33) a. ungram, subj

The mediator considered a problem, which the solution astonished the participants.

b. ungram, obj

The mediator considered a problem, which the participants admired the solution.

The experimental items were presented as a Latin square design pseudo-randomized with 24 distractors.

5.1.2. Procedure

We used the same procedure as in Experiment 2.

5.1.3. Predictions

Contrary to *it*-clefts, the filler in a relative clause is not a focus referent. If anything, it is the topic of the relative clause, and therefore backgrounded. That is why there is no violation of the Focus-Background Conflict constraint when relativizing out of the subject. The Focus-Background Conflict constraint therefore predicts that the results of Experiment 3 should differ from the results of Experiment 2. In particular, extractions out of the subject should not be less acceptable than extractions out of the object. Thus, we expect main effects (whole NP extraction being more acceptable than extraction out of a subject or object, which is itself more acceptable than the ungrammatical controls), but no interaction.

In parallel to Experiment 2, we include PP-extracted and preposition-stranded materials in our experiment. Several studies have tested subject islands in non-focalizing filler-gap constructions and found a disadvantage for extractions out of the subject. These studies all include preposition stranding.[13] However, languages that do not use preposition stranding (such as Italian and French) showed a difference between *wh*-questions and relative clauses. More importantly, the English studies run by Abeillé et al. (2020) directly compared the two strategies, PP-extraction and preposition stranding. Only when testing extraction with preposition stranding (34), they replicated the subject penalty found by previous studies (a.o. Sprouse et al., 2016). This condition was

[11] Besides (25c), other underlying structures may come to mind, such as (i), mentioned by an anonymous reviewer, which is acceptable.(i) Speaking of the sportscar, the color delighted the football player.However, if (i) was the underlying structure for (25a), then (ii) should be an underlying structure for (iii). (ii) Speaking of the sportscar, its color delighted the football player.(iii) *The dealership sold a sportcar of which its color delighted the football player.The contrast in acceptability between (iii) and (25a) shows that a hanging topic cannot be turned into a relative clause that easily.

[12] We did not test empirically the unacceptability of sentences such as (29). The intuitive judgments on them seem rather solid.

[13] Sprouse et al. (2016) tested English wh-questions and relative clauses (only with preposition stranding), and observed an superadditive effect in both cases. Kush et al. (2019) did not test relative clauses, but topicalizations, which is also a non-focalizing filler-gap construction and thus according to the Focus-Background Conflict constraint should yield no subject penalty. They tested Norwegian, which is a language whose only strategy is to use preposition stranding. They also found a superadditive effect.

rated as low as ungrammatical controls.

(34) a.??Which sportscar did [the color of _] delight the baseball player?

b.??The dealer sold a sportscar, which [the color of _] delighted the baseball player.

According to Abeillé et al., there is therefore a specific constraint on preposition stranding that makes extractions out of the subject less acceptable, but this seems to be independent of the analyses usually put forward to explain "subject islands". The constraint imposed by preposition stranding on extraction from part of subjects does not seem categorical, since some reported examples like (35) are acceptable.

(35) There are certain topics that [jokes about _] are completely unacceptable. (Levine & Sag, 2003: 252 fn. 6)

Furthermore, preposition stranding seems to be more acceptable with a verbal subject, see (36).

(36) The Joker is a fascinating character who [spending time with _] is a treat. (Culicover & Winkler, 2022: 2077)

Different explanations for this particularity of preposition stranding have been proposed (see Chaves (2012) and Abeillé et al. (Abeillé et al., 2020: 10) for a processing explanation, and Haegeman, Jiménez-Fernández & Radford (Haegeman et al., 2014: 96) for a syntactic "freezing" explanation). Since we also compare the two extraction strategies, we expect to replicate Abeillé et al.'s results and have a penalty when extracting out of the subject, but only with preposition stranding.

If these predictions turn out to be true, then the results will resemble those observed for the English relatives in Abeillé et al. (2020). However, if the results of Abeillé et al. were biased by the use of the preposition *of*, then the results should resemble those of Experiment 2, with an interaction effect for the extracted PP material.

5.1.4. Participants

We recruited 160 paid participants on Amazon.com's Mechanical Turk using the Turkolizer software from Gibson et al. (2011). Participants were asked to indicate their native language, but payment was not contingent on their responses to this question. We kept the answer from 68 participants after applying our exclusion criteria.

5.2. Results

Fig. 3 gives an overview of the results of the Acceptability Judgment task.

5.2.1. Model for preposition stranding

We used a Bayesian Cumulative Link Model to compare the extraction conditions with preposition stranding to their grammatical (extraction of the whole NP) and ungrammatical (missing preposition) counterparts. Syntactic function was coded −0.5 for the object condition and 0.5 for the subject condition. The factor extraction type has three levels, and is dummy coded with P-stranding as baseline (baseline coded 0, non-baseline coded 1). We included random slopes for participants and items. Convergence diagnostics indicate good model fit, with R-hat for all parameters close to 1, suggesting convergence. Table 4 reports the distribution of the estimated values of these models.

We found strong evidence for an interaction effect between syntactic function and extraction type when comparing the extraction conditions to the grammatical non-extraction controls. Additional simple effect models show that extractions out of the subject were rated lower than their grammatical controls ($\widehat{\beta} = 1.29$, CrI = [0.681, 1.9], $P(\beta > 0) = 1$), while there is less strong evidence for a difference in acceptability between extractions out of the object and their grammatical controls ($\widehat{\beta} = 0.556$, CrI = [−0.0556, 1.18], $P(\beta < 0) = 0.964$). The interaction effect found here is hence similar to the one in Experiment 2.

Furthermore, we see strong evidence for a main effect of syntactic function such that the object conditions received higher ratings than the subject conditions. There is strong evidence that the extraction with preposition stranding was rated lower than the extraction of the whole NP. No strong evidence was found for a difference between the extraction with preposition stranding and the ungrammatical controls nor for an interaction with syntactic function.

5.2.2. Model for PP extracted

We used a Bayesian Cumulative Link Model to compare the extraction conditions with the whole PP extracted to their grammatical and ungrammatical counterparts. Syntactic function was coded −0.5 for the object condition and 0.5 for the subject condition. The factor extraction type has three levels, and is dummy coded with PP-extracted as baseline (baseline coded 0, non-baseline coded 1). We included random slopes for participants and items. Convergence diagnostics indicate good model fit, with R-hat for all parameters close to 1, suggesting convergence. Table 5 reports the distribution of the estimated values of these models.

We did not find evidence for an interaction effect between extraction type and syntactic function ($P(\beta < 0) = 0.63$). This result is in line with our predictions.

We did not see strong evidence for a main effect of syntactic function either: subject and object conditions were rated similarly. There is strong evidence that the extraction with PP extracted was rated higher than the ungrammatical control, but only weak evidence that it was rated lower than the extraction of the whole NP.

5.2.3. Model comparing Experiment 2 & 3 (PP-extracted)

Finally, in order to compare the results of Experiment 3 and Experiment 2 with the PP extracted, we used a Bayesian Cumulative Link Model with data from both experiments, but only the PP extracted conditions and the grammatical control conditions.[14] The model contains a three-way interaction between extraction type (coded −0.5 for PP-extracted and 0.5 for the extraction of the whole PP), syntactic function (coded −0.5 for object and 0.5 for subject) and construction (i.e., experiment, coded −0.5 for it-clefts and 0.5 for relative clauses). We included random slopes for participants and items. Convergence diagnostics indicate good model fit, with R-hat for all parameters close to 1, suggesting convergence. Table 6. reports the distribution of the estimated values of these models.

We see strong evidence for a three-way interaction effect between extraction type, syntactic function and construction, which can be explained by the lack of a superadditive effect between extraction type and syntactic function for relative clauses in Experiment 3 compared to the it-clefts in Experiment 2.

Furthermore, we replicated the strong evidence for a main effect of extraction type already observed in the models for the individual experiments: the grammatical controls were rated higher than the PP-extracted conditions. There is no evidence for a main effect of syntactic function and of construction: participants rated the subject and object conditions similarly and there were similar ratings in both experiments. We also replicated the strong evidence for an interaction effect between extraction type and syntactic function (as in Experiment 2) and we found strong evidence for an interaction effect between extraction type and construction.

5.3. Discussion

The results of our Experiment 3 are similar to the results obtained by Abeillé et al. (2020) for their Experiment 1, which also investigated the acceptability of relative clause extractions out of subject and object positions, but all using the preposition *of* to mark the extracted element. The new results undermine the possible objections that Abeillé et al.

[14] We only look at PP extracted items because it is the preferred option in English for relative clauses and *it*-clefts (see discussion), but a model with pied-piping is available in the R code.

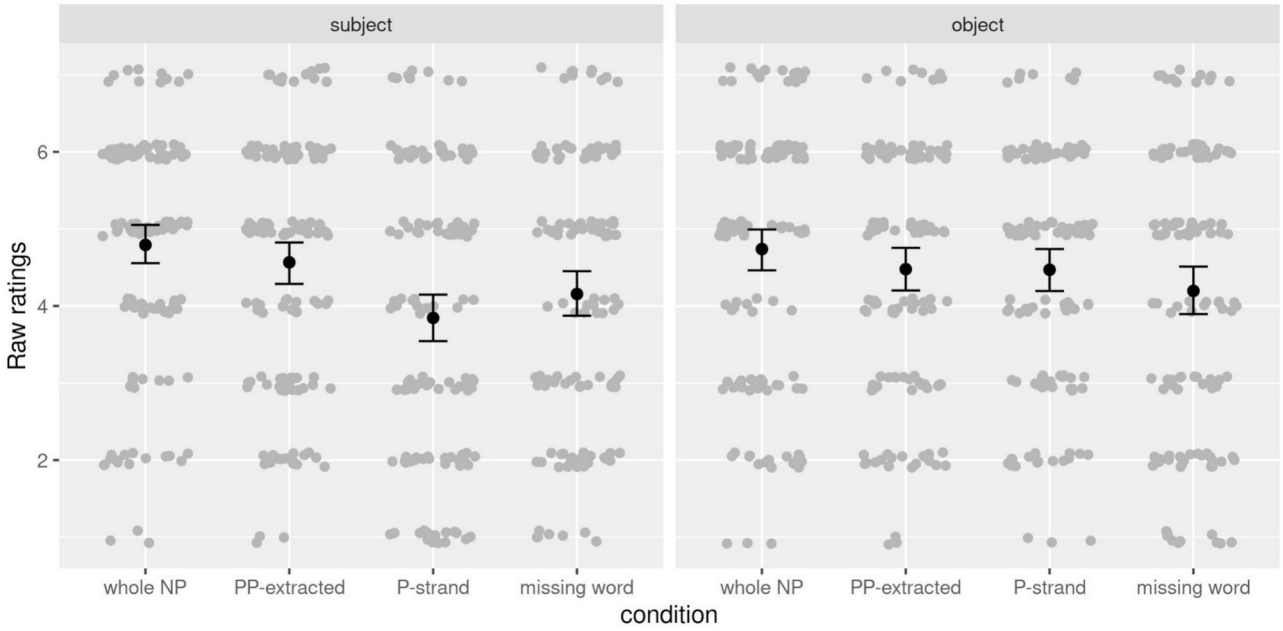

Fig. 3. Condition means and 95 % confidence intervals for acceptability ratings of all conditions in Experiment 3 (English Relative clauses).

Table 4
Mean results, range of the 95 % credible interval and probability of beta being different from zero for the 8000 Bayesian Cumulative Link Models crossing extraction type with syntactic function for preposition stranding.

	Estimated mean value	95 % credible interval	P($\beta \neq 0$)
extraction type (P-strand vs. whole NP)	0.978	0.449 to 1.51	1
extraction type (P-strand vs. missing word)	0.102	−0.276 to 0.493	0.7
syn. Function	−0.871	−1.42 to −0.312	0.998
extraction type (P-strand vs. whole NP): syn. Function	0.843	0.132 to 1.56	0.988
extraction type (P-strand vs. missing word): syn. Function	0.741	−0.0831 to 1.59	0.962

Table 5
Mean results, range of the 95 % credible interval and probability of beta being different from zero for the 8000 Bayesian Cumulative Link Models crossing extraction type with syntactic function for PP extracted.

	Estimated mean value	95 % credible interval	P($\beta \neq 0$)
extraction type (PP extracted vs. whole NP)	0.346	−0.124 to 0.816	0.934
extraction type (PP extracted vs. missing word)	−0.510	−0.931 to −0.086	0.991
syn. Function	0.118	−0.486 to 0.725	0.653
extraction type (PP extracted vs. whole NP): syn. Function	−0.125	−0.885 to 0.625	0.630
extraction type (PP extracted vs. missing word): syn. Function	−0.235	−1 to 0.528	0.738

(2020)'s results were driven by their use of the preposition *of*, since the same pattern of data was observed with extractions of PPs headed by other prepositions like *to*, *over* and *for*.

We did not observe any degradation in extraction out of the subject when the whole PP complement is extracted. On the other hand, extraction with preposition stranding seems problematic out of subjects. Thus, it appears that it is not the extraction out of the subject that is

Table 6
Mean results, range of the 95 % credible interval and probability of beta being different from zero for the 8000 Bayesian Cumulative Link Models crossing extraction type, syntactic function and construction for the PP extracted conditions of English Experiments 2 and 3.

	Estimated mean value	95 % credible interval	P($\beta \neq 0$)
extraction type	0.643	0.307 to 0.994	1
syn. Function	−0.0316	−0.454 to 0.376	0.565
construction	0.474	−0.102 to 1.05	0.949
extraction type: syn. Function	0.674	0.0273 to 1.31	0.978
extraction type: construction	−0.606	−1.23 to 0.0174	0.972
syn. Function: construction	0.163	−0.492 to 0.819	0.702
extraction type: syn. Function: construction	−1.46	−2.52 to −0.421	0.996

problematic. Huddleston & Pullum (2002:630) assert that preposition stranding is impossible inside subjects.[15] On the basis of corpus data, Hoffmann (2011: 119 fn. 3) finds that extraction out of the subject is only possible with pied-piping, and suggests that this comes from a more general ban on preposition stranding in preverbal positions:

(37) a. I always eat a snack before the game.
b. Can you tell me which game you always eat a snack [before _]?
c. Before the game, I always eat a snack.
d.??Can you tell me which game [before _] you always eat a snack?
e. Can you tell me [before which game] you always eat a snack?

Since only the position of the adverbial has been manipulated in (37), the infelicitous status of (37d) shows that it is not the syntactic function of the NP out of which the extraction takes place that is at issue. Rather, P-stranding any preverbal element is perhaps disfavoured. Furthermore, preposition stranding seems to be possible inside verbal subjects, confirming that the stranded preposition should follow a verb, see example (36).

[15] A reviewer suggested that there may be a more general ban on non-final preposition-stranding. In some of our items, the object-condition had a non-final P-stranding (*It was the coming election that I confessed anxiety over _ for months*, see Appendix), and there was no difference with items with a final P-stranding as (30b).

Although very similar from a syntactic point of view, PP-extractions out of the subject for relative clauses are not penalized like the extractions out of the subject for *it*-clefts tested in Experiment 2, as shown by the three-way interaction between extraction type, syntactic function and construction type when we compare both experiments. The Focus-Background Conflict constraint predicts this cross-construction difference. No purely syntactic approach we know of explains the contrast between Experiment 2 and Experiment 3.

6. Experiment 4: testing French *c'est*-clefts

Despite some differences in usage, we assume that the information structure of French *c'est*-clefts is similar to the one of English *it*-clefts.[16] Therefore, we assume that the VP inside the *that*-clause is less backgrounded than the subject.

The Focus-Background Conflict constraint predicts a cross-construction difference, but no cross-linguistic difference between constructions which share a common discourse status. Indeed, Abeillé et al. (2020) found similar results for extractions out of the subject in French and in English: they found no interaction effects for French relative clauses, and a strong interaction effect in *wh*-questions. Thus, the extraction out of the subject of the relative clause in (38) is not degraded compared to a similar extraction out of the object.

(38) Le nouvel assistant prépare des dossiers dont [la clarté _] rassure l'avocat pendant le procès.

the new assistant prepares the cases of.which the clarity reassures the lawyer during the trial.

Their results for relative clauses, from their Experiment 4, are illustrated in Fig. 4.

In example (38), *dont* is not a pronoun but a complementizer (Godard, 1988). *Dont* relative clauses are known to allow for extraction out of the subject since Godard (1988), see (39a). Abeillé, Hemforth and Winckel (2016) have shown that this is the most frequent use of *dont* in contemporary French (more frequent than extraction of the complement of the verb), with corpus occurrences like (39b).

(39) a. C'est un philosophe dont [un portrait _] se trouve au Louvre. (Godard, 1988: 47)

it is a philosopher of.which a portrait REFL finds in.Le Louvre

'this is a philosopher of whom a portrait is in the Louvre '

b. Les premiers étaient des coopératives dont [les membres _] exploitaient sous forme privée des lopins de terre. (FrenchTreeBank; Abeillé et al., 2019)

the first were some cooperations of.which the members exploited under form private some parts of land

'The first ones were cooperations of which the members exploited on a private basis some land parts.'

It has sometimes been argued that *dont* has special properties, and that extractions out of the subject with other pronouns are not possible (Heck, 2009; Tellier, 1990; Tellier, 1991). However, Abeillé and Winckel (2020) found many corpus examples of relative clauses like (40) in which the extracted element was a PP introduced by the preposition *de* and the pronoun *qui*. They found no such extractions with *de qui* interrogatives.

(40) […] un des responsables, de ses amis, de qui [le père _] a ses entrées dans la police (Frantext, Garat, 2010)

'one of the persons in charge, a friend of his, of whom the father has connections with the police'

Abeillé & Winckel (2020: sec. 6.2) also tested relativizations out of the subject in French with *de qui*, with sentences like (41).

(41) J'ai un voisin de qui [la compagne _] connaît ma cousine.

I have a neighbor of whom the partner knows my cousin

(Abeillé & Winckel, 2020: 290)

The results were quite similar for extraction with *dont* and extraction with *de qui*. Extraction with *de qui* was in general (subject and object combined) much less accepted by speakers than extraction with *dont*. But the authors found no interaction effect.

6.1. Method

6.1.1. Materials

Because the prepositions do not match between English and French, it is not useful to translate the materials from Experiments 2 and 3 into French. Instead, we used French materials similar to the ones in Abeillé et al. (2020).

Since French does not have preposition stranding, we adopted a 3*2 design, the same as in the French Experiment on relative clauses in Abeillé et al. (2020), crossing three extraction types (extraction of the whole NP, extraction of PP, ungrammatical control) with two syntactic functions (subject and object). Example (42) shows the kind of sentences we used in the subject conditions, and example (43) shows the same item in the object conditions.

(42) a. PP-extracted, subj

C'est de ce dossier que [la clarté _] rassure l'avocat pendant le procès.

It is of this case that the clarity reassures the lawyer during the trial.

b. whole NP, subj

C'est la clarté de ce dossier qui _ rassure l'avocat pendant le procès.

It is the clarity of this case that reassures the lawyer during the trial.

c. ungram, subj

C'est ce dossier que la clarté rassure l'avocat pendant le procès.

It is this case that the clarity reassures the lawyer during the trial.

(43) a. PP-extracted, obj

C'est de ce dossier que l'avocat apprécie [la clarté _] pendant le procès.

It is of this case that the lawyer appreciates the clarity during the trial.

b. whole NP, obj

C'est la clarté de ce dossier que l'avocat apprécie _ pendant le procès.

It is the clarity of this file that the lawyer appreciates during the trial.

c. ungram, obj

C'est ce dossier que l'avocat apprécie la clarté pendant le procès.

It is this case that the lawyer appreciates the clarity during the trial.

We tested the *c'est*-cleft version of the 24 items of Abeillé et al. (2020). The design also contained two practice items (marked as such) at the beginning of the experiment and 24 distractors mixed with the 24 experimental items.

Two thirds of the items (experimental items and distractors) were followed by a yes/no comprehension question. For example, the item presented in (42)–(43) was followed by the question in (44):

(44) Est-ce que le dossier est confus ?" ('Is the file confusing?') (correct answer = No)

6.1.2. Procedure

We implemented the experiment on the Ibex Farm platform originally developed by Drummond (2010) and maintained on a local server by Achilles Falaise at Université Paris Cité. The four experimental conditions and the fillers were pseudo-randomly mixed for each participant following a Latin square design, such that each participant saw each item in only one condition and that two items of the same condition did not follow each other.

Participants were instructed to rate sentences based on how natural

[16] Differences in usage are related to the relative frequency of the construction in English and French. *C'est*-clefts are much more common in French than in English, and all-focus (out-of-the-blue) *c'est*-clefts are common in French as well (Destruel, 2012; Destruel et al., 2019; Lambrecht, 1994).

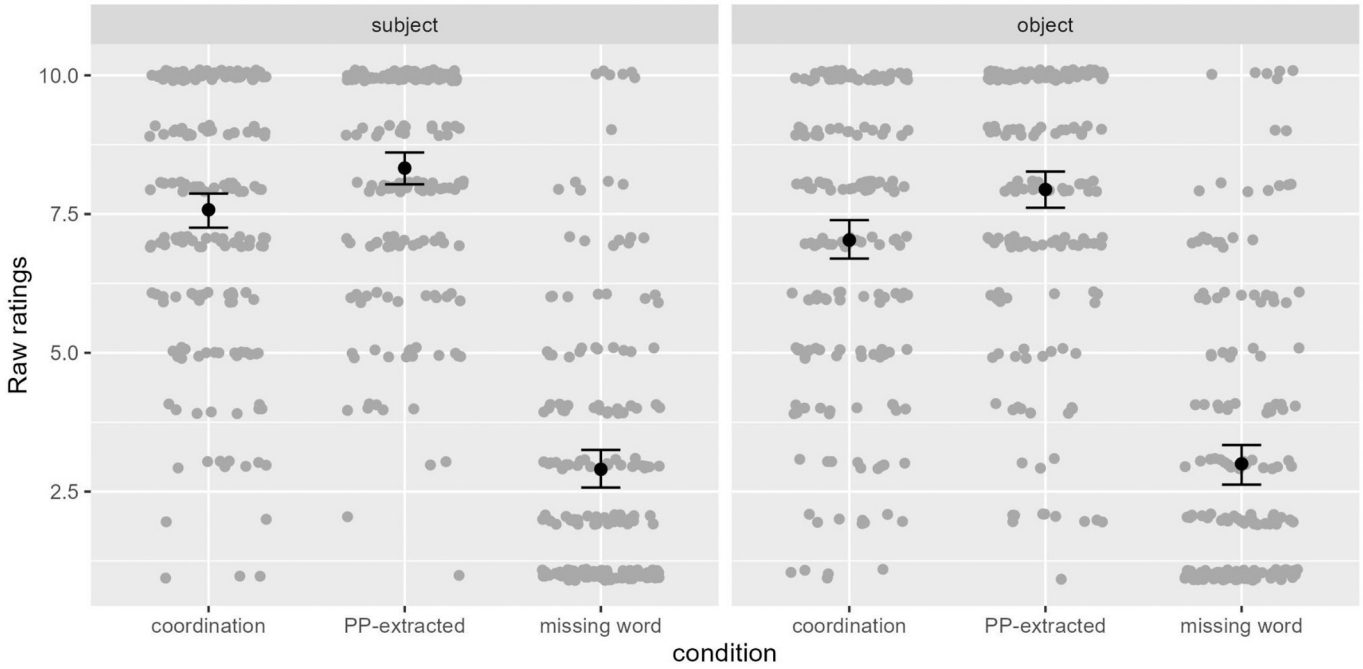

Fig. 4. Condition means and 95 % confidence intervals for acceptability ratings of all conditions in Abeillé et al. (2020)'s Experiment 4 (French relative clauses). There is a difference between the grammatical control conditions used in this paper, and those by Abeillé et al. (2020) who used coordinations, e.g. (i):
(i) Le nouvel assistant prépare des dossiers et [leur clarté _] rassure l'avocat pendant le procès the new assistant prepares the cases and their clarity reassures the lawyer during the trial
Participants seem to favor subordination over coordination (see Fig. 4), probably because the latter is stylistically marked. Notice that *dont*-relative clauses are very frequent in written French (Abeillé & Winckel, 2020).

they were on a scale from 0 ("bad") to 10 ("good"), and then had to answer a comprehension question on $^2/_3$ of the items.[17] The experiment took approximately 20 min to complete.

6.1.3. Predictions

The Focus-Background Conflict constraint's predictions for focalizing out of subjects are similar in French and English. In particular, the Focus-Background Conflict constraint predicts an interaction between type of extraction (NP extraction vs. PP extraction out of NP) and function (NP subject vs. object) on the one hand and between grammaticality (extraction of PP and ungrammatical) and function (subject vs. object) on the other.

Note, however, that these predictions contrast with the results found by Abeillé et al. (2020) in their experiment on relative clauses. Indeed, if there is no fundamental difference between the different types of extraction, one should expect no interaction effect.

6.1.4. Participants

We recruited 70 participants for this experiment. They were recruited on Prolific (https://app.prolific.co) and were paid £2.25.

Our exclusion criteria beforehand were that the participants should (a) have grown up in a French-speaking country, (b) be native monolingual French speakers and (c) achieve at least 75 % accuracy on the comprehension questions. No participant needed to be excluded following these criteria. Hence, we present here the results based on a sample size of 70 French speakers.

[17] In similar studies, a 7-point scale is commonly used. We have observed that French speakers tend to find a 10-point scale more comfortable, likely due to its prevalence in the French school system.

6.2. Results

Fig. 5 gives an overview of the results of the Acceptability Judgment task.

6.2.1. Model for Experiment 4

We used a Bayesian Cumulative Link Model to compare the extraction conditions (baseline) to their grammatical (extraction of the whole NP) and ungrammatical (missing preposition) counterparts. Syntactic function was coded −0.5 for the object condition and 0.5 for the subject condition. The factor extraction type has three levels, and is dummy coded with PP-extracted as baseline (baseline coded 0, non-baseline coded 1). We included random slopes for participants and items. Convergence diagnostics indicate good model fit, with R-hat for all parameters close to 1, suggesting convergence. Table 7 reports the distribution of the estimated values of these models.

Strong evidence for an interaction effect between syntactic function and extraction type was observed for the extraction conditions relative to the grammatical controls. In this case, additional simple effect models reveal that the interaction comes from the fact that the subject condition is rated higher than the object condition for the grammatical controls ($\widehat{\beta} = 0.6598$, CrI = [0.0963, 1.236], $P(\beta > 0) = 0.9886$), while it is rated lower than the object condition for PP-extracted ($\widehat{\beta} = -1.6377$, CrI = [−2.2172, −1.1042], $P(\beta < 0) = 1$).

Furthermore, we see strong evidence for a main effect of syntactic function such that the object conditions received higher ratings than the subject conditions. There is strong evidence that the extraction from the NP condition was rated lower than the extraction of the whole NP. Thus, extraction of the whole NP was judged more natural for subjects than for objects while extraction out of the subject was judged less natural than out of the object. There is also strong evidence that the extraction from NP condition was rated better than the ungrammatical controls, modulated by an interaction with syntactic function.

Model comparing Experiment 4 to the relative clause data from

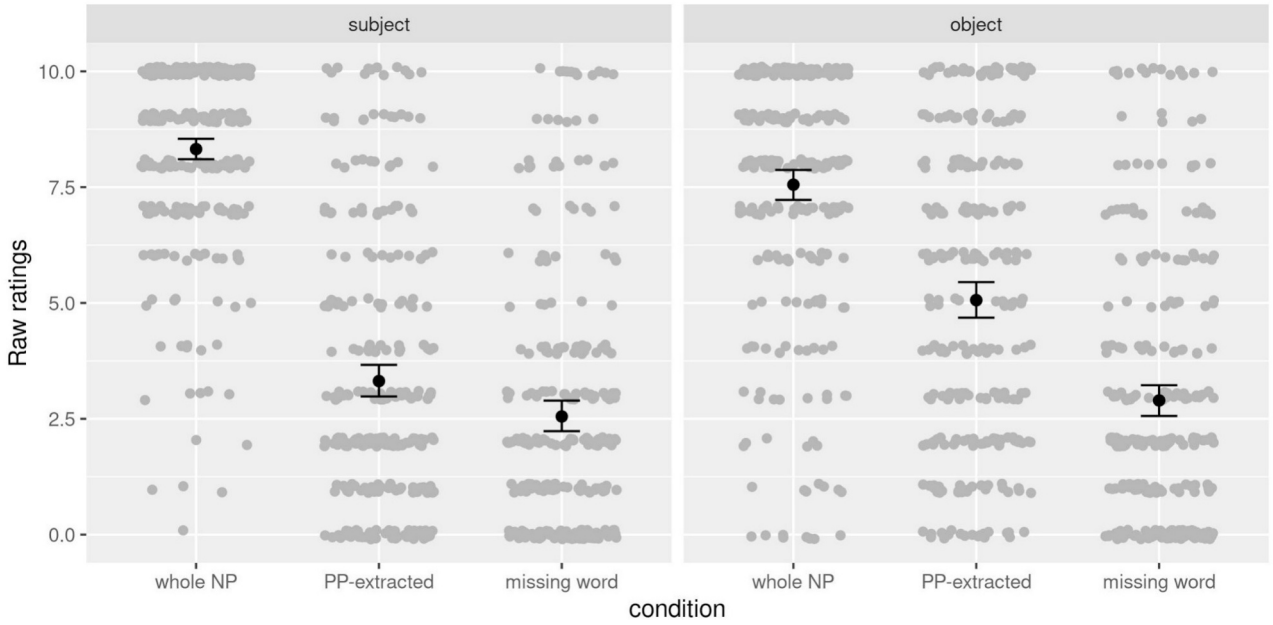

Fig. 5. Condition means and 95 % confidence intervals for acceptability ratings of all conditions in Experiment 4 (French c'est-clefts).

Table 7
Mean results, range of the 95 % credible interval and probability of beta being different from zero for the 8000 Bayesian Cumulative Link Models crossing extraction type with syntactic function for French *c'est*-clefts.

	Estimated mean value	95 % credible interval	P($\beta \neq 0$)
extraction type (P-strand vs. whole NP)	3.79	3.13 to 4.46	1
extraction type (P-strand vs. missing word)	−1.77	−2.28 to −1.26	1
syn. Function	−1.75	−2.27 to −1.25	1
extraction type (P-strand vs. whole NP): syn. Function	2.34	1.57 to 3.12	1
extraction type (P-strand vs. missing word): syn. Function	1.27	0.652 to 1.91	1

Abeillé et al. (2020)**:** In order to offer a comparison with relative clauses as we did for English in section 4.2 by comparing Experiment 2 and 3, we used the data from Abeillé et al. (2020, Experiment 4). We used a Bayesian Cumulative Link Model with data from both French experiments. The model contains a three-way interaction between extraction type (coded −0.5 for PP-extracted and 0.5 for the extraction of the whole PP), syntactic function (coded −0.5 for object and 0.5 for subject) and construction (i.e., experiment, coded −0.5 for it-clefts and 0.5 for relative clauses). Convergence diagnostics indicate good model fit, with R-hat for all parameters close to 1, suggesting convergence. Table 8 reports the distribution of the estimated values of these models.

Table 8
Mean results, range of the 95 % credible interval and probability of beta being different from zero for the 8000 Bayesian Cumulative Link Models crossing extraction type, syntactic function and construction for the French Experiment 4 and Abeillé et al. (2020)'s Experiment 4.

	Estimated mean value	95 % credible interval	P($\beta \neq 0$)
extraction type	1.79	1.35 to 2.24	1
syn. Function	−0.0861	−0.385 to 0.211	0.716
construction	1.59	0.887 to 2.30	1
extraction type: syn. Function	1.38	0.849 to 1.93	1
extraction type: construction	−4.80	−5.61 to −4.01	1
syn. Function: construction	0.999	0.456 to 1.56	1
extraction type: syn. Function: construction	−2.29	−3.39 to −1.22	1

Again, we observe strong evidence for a three-way interaction, which confirms that the interaction effect between extraction type and syntactic function is stronger for *c'est*-clefts than for relative clauses.

Furthermore, there was strong evidence for a main effect of extraction type: the controls were rated higher than the extraction out of an NP. There was no evidence for a main effect of syntactic function: participants rated the subject and object conditions similarly. There was strong evidence for a main effect of construction, such that relative clauses were rated higher than clefts, contrary to English.

6.3. *Discussion*

Our experiment on French *c'est*-clefts gave similar results to our Experiment 2 on English clefts (without preposition stranding). In both experiments, we observed an interaction between extraction (control vs. extraction out of the NP) and syntactic function (of the NP out of which the extraction takes place). This result confirms the Focus-Background Conflict constraint's predictions that this focalizing construction should disfavor extractions out of the subject.

Since we compared above English *it*-clefts and relative clauses, we did the same for French *c'est*-clefts with relative clauses (using previous results by Abeillé et al.). We again observed a three-way interaction. Contrary to the null interaction effects in French relative clauses, which are difficult to interpret, the three-way interaction confirms that there is a difference between the results of both experiments. Since the model takes into account participants as a random factor, the difference remaining between the two experiments is the construction itself. We can therefore confirm that there is a construction difference with respect to subject islands, in French as well as in English.

7. General discussion

The fact that some constructions are islands for extraction has been seen as a syntactic phenomenon going back to Chomsky (1973, 1977). However, alternative approaches challenge this view more and more (see Liu et al., 2022 for an overview). A promising alternative comes from discourse-based approaches which propose that a mismatch in information structure leads to the unacceptability of many island

structures (Erteschik-Shir, 1973; Goldberg, 2006). Since the same piece of information cannot be simultaneously backgrounded and foregrounded, this approach offers an explanation of 'island phenomena' based on cognitive mechanisms (i.e., the need to distinguish between salient and incidental information). In the present paper, we have looked at *it*-clefts in French and English to answer two questions regarding our specific proposal of a discourse-based approach as formulated in the Focus-Background Conflict constraint (Abeillé et al., 2020). First, we tested the possibility that the general acceptability of *it*-clefts is incompatible with most discourse-based approaches since they are by definition focalizations out of a backgrounded clause (the *that*-clause). Second, the Focus-Background Conflict constraint has been shown to explain observed cross-construction differences (*wh*-questions and relative clauses) but it needed to be applied to a variety of constructions for which it makes predictions.

Are *it*-clefts actually a problem for discourse-based approaches? It is usually assumed that the *that*-clause of an *it*-cleft is fully and uniformly backgrounded. However, we showed in Experiment 1 that backgroundedness is not binary but comes in degrees: the results show that some parts of the *that*-clause are more susceptible to being negated than others, from which we can conclude that they are not backgrounded to the same extent. In fact, the information structure of the *that*-clause is similar to that of declarative sentences, with the subject being more backgrounded than the VP. It is therefore not a problem for the Focus-Background Conflict constraint that some elements can be extracted to form an *it*-cleft.

The Focus-Background Conflict constraint predicts that extraction from backgrounded subjects is less acceptable for focalizing extraction constructions than for non-focalizing ones, since focalizing parts of background constituents is less acceptable. This is the way in which the Focus-Background Conflict constraint accounts for the phenomenon known as "subject islands". If we can show that the subjects in a *that*-clause are more backgrounded than the VP, this means that the Focus-Background Conflict constraint predicts a "subject island" effect for *it*-clefts (but not for relative clauses that are syntactically similar). The data showing a "subject island" effect in *wh*-questions are robust, but *it*-clefts are less well tested. The results of Experiment 2 on English and Experiment 4 on French *it*-clefts show that judgments are indeed degraded when extracting out of subjects in *it*-clefts. Importantly for the Focus-Background Conflict constraint, Experiment 3, on relative clauses, shows clearly different judgments, replicating Abeillé et al.'s results with different materials.

In Experiment 3, we found empirical evidence to contradict another possible counter-argument against our proposition: At first sight, a possible syntactic explanation for the acceptability of extractions out of subjects in relative clauses might be that relative clauses do not involve extraction. Indeed, some researchers assume that relative clauses with pied-piping are not extractions (Longobardi, 1991; Broekhuis, 2006; Jurka, 2010; Uriagereka, 2012 a.o.). But this hypothesis applies only to certain noun complements (some with the preposition *of* or *about*; Haegeman et al., 2014: 86–88). This hypothesis does not apply to the materials used in our Experiment 3, which used other prepositions.

As far as we are aware, the Focus-Background Conflict constraint is the only current theory that predicts acceptability differences among extractions depending on the construction. Our paper adds to the body of evidence showing cross-construction differences: Sprouse et al. (2016) found differences with respect to subject island in Italian and to adjunct island in English, with *wh*-questions showing island effects, and not relative clauses, while experiments by Kush et al. (2018, 2019) and Kobzeva et al. (2022) show a similar cross-construction difference for adjunct islands in Norwegian (for an overview, see Liu et al., 2022: 508–512).[18]

We have tested the predictions of the Focus-Background Conflict constraint on subject islands on relative clauses, interrogatives and *it*-clefts. It is important going forward to test extraction types in other constructions, for example topicalization. In addition, other island effects (e.g., adjunct islands) should be explored. The Focus-Background Conflict constraint predicts that the discourse status of the extraction site should affect acceptability. Several groups are currently investigating these possibilities (Kush et al., 2019; Gibson et al., 2021; Namboodiripad et al., 2022 a.o.).

It's important to emphasize that the experiments we report here are conducted on typologically similar languages, English and French. The underlying theory, however, because it involves cognitive constraints that can be expected to be universal, makes broader claims. An anonymous reviewer drew our attention to recent research in Kaqchikel Mayan (Heaton et al., 2016) and Tagalog (Pizarro-Guevara & Wagers, 2020) showing subject/object asymmetries in *wh*-questions and not in relative clauses, which echoes the results presented here. As in English and French, the origin of these differences may lie in information structure and the different discourse functions of the constructions.

Funding

This work is supported by:

- the Alexander von Humboldt Foundation as part of the research program "Individual differences in language acquisition and attainment";
- the German Research Foundation as part of the research training group 'Dimensions of constructional space', grant number GRK 2839;
- Labex EFL, a public grant overseen by the French National Research Agency (ANR) and the IdEx Université de Paris - ANR-18-IDEX-0001;
- a grant from the National Science Foundation Linguistics Program (BCS-2020840) "Evaluating meaning-based explanations of syntactic island effects cross-linguistically" to E.Gibson.

CRediT authorship contribution statement

Elodie Winckel: Writing – original draft, Visualization, Methodology, Formal analysis. **Anne Abeillé:** Writing – review & editing, Conceptualization. **Barbara Hemforth:** Writing – review & editing, Methodology, Conceptualization. **Edward Gibson:** Writing – original draft, Methodology, Conceptualization.

Data availability

Data and analysis used in this article are provided under the following link: https://osf.io/nbx92/

Acknowledgements

We would like to express our gratitude to the participants of the AMLAP 2019, CUNY 2020, Linguistic Evidence 2020, and ICCG 2021 conferences. We would like to extend special thanks to Manfred Krifka,

[18] As observed by a reviewer, Cuneo and Goldberg (2023) failed to find differences between relative clauses and *wh*-questions for different English 'island' structures, including adjunct islands. However, they did not test subject islands, and their relative clause items were more complex than their (monoclausal) declarative and interrogative counterparts. Data on adjunct islands cited here show that the cross-construction differences are not limited to subject islands.

Daniel Büring and Andy Barss for their remarks on the information structure of *it*-clefts.

Appendix A. Appendix

A.1. Experiment 2B on the extraction of of-PP complements in it-clefts

A.1.1. Materials

In a pilot study, we adapted the English material from Abeillé et al. (2020) as *it*-clefts, as a parallel to Experiment 4 for French. We adopted the same 4*2 design as in Experiment 2 and 3, crossing syntactic function (subject / object) and extraction type (extraction of the whole NP / extraction of the *of*-PP out of the NP / extraction out of the NP with preposition stranding / ungrammatical control with a missing preposition).

Example (40) shows the kind of sentences we used in the subject conditions, and example (41) shows the same item in the object conditions.

(45) a. PP-extracted, subj
It was of the files that the neatness impressed the lawyers.
b. P-stranding, subj
It was the files that the neatness of impressed the lawyers.
c. whole NP, subj
It was the neatness of the files that impressed the lawyers.
d. ungram, subj
It was the files that the neatness impressed the lawyers.

(46) a. PP-extracted, obj
It was of the files that the lawyers appreciated the neatness.
b. P-stranding, obj
It was the files that the lawyers appreciated the neatness of.
c. whole NP, obj
It was the neatness of the files that the lawyers appreciated.
d. ungram, obj
It was the files that the lawyers appreciated the neatness.

We tested the same 24 items as in Experiment 4, with the same comprehension questions.

A.1.2. Procedure

The procedure was the same as in our Experiments 2 and 3 on English. A total of 39 participants were recruited for this study and, after applying our exclusion criteria, data from 30 participants were retained for analysis.

A.1.3. Predictions

Our predictions for this study were congruent with those of Experiment 2. Specifically, for PP-extraction, the Focus-Background Conflict constraint hypothesis predicts that extraction out of the subject should be rated lower than extraction out of the object, and it predicts an interaction effect compared to the grammatical baseline. In this regard, *it*-clefts are expected to exhibit different results when compared to the parallel study on relative clauses conducted by Abeillé et al. (2020).

A.1.4. Results

Fig. 6 gives an overview of the results of the Acceptability Judgment task.

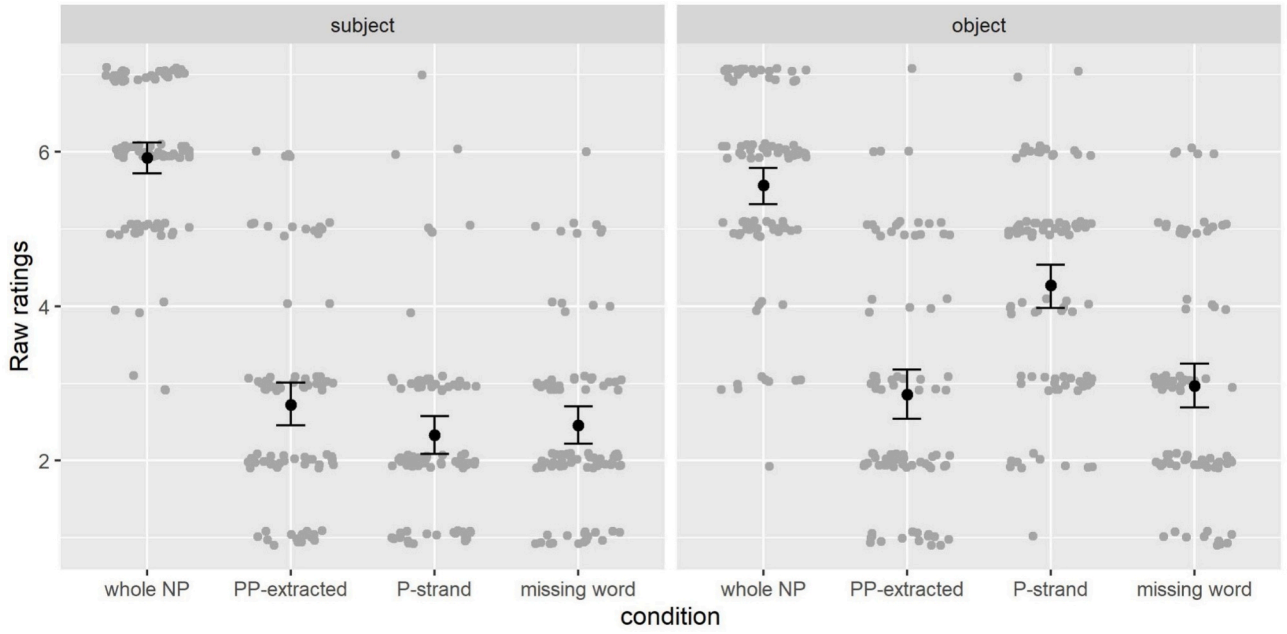

Fig. 6. Condition means and 95 % confidence intervals for acceptability ratings of all conditions in Experiment 2B (English *it*-clefts with extraction of *of*-PP).

A.1.5. Model for preposition stranding

We used a Bayesian Cumulative Link Model to compare the extraction conditions with preposition stranding to their grammatical (i.e., extraction of the whole NP) and ungrammatical (i.e., missing preposition) counterparts. Syntactic function was coded −0.5 for the object condition and 0.5 for the subject condition. The factor extraction type has three levels, and is dummy coded with P-stranding as baseline (baseline coded 0, non-baseline coded 1). We included random slopes for participants and items. Convergence diagnostics indicate good model fit, with R-hat for all parameters close to 1, suggesting convergence. Table 9 reports the distribution of the estimated values of these models.

Table 9
Mean results, range of the 95 % credible interval and probability of beta being different from zero for the 8000 Bayesian Cumulative Link Models crossing extraction type with syntactic function for preposition stranding.

	Estimated mean value	95 % credible interval	P(beta ≠ 0)
extraction type (P-strand vs. whole NP)	4.70	3.81 to 5.63	1
extraction type (P-strand vs. missing word)	−1.08	−1.77 to −0.411	0.999
syn. Function	−3.64	−4.47 to −2.86	1
extraction type (P-strand vs. whole NP): syn. Function	4.32	3.29 to 5.42	1
extraction type (P-strand vs. missing word): syn. Function	2.62	1.61 to 3.67	1

With respect to preposition stranding, the results are very similar to those we observed in Experiment 2, despite the prepositions being different. Specifically, there is strong evidence for an interaction effect between syntactic function and extraction type when comparing extraction conditions to grammatical controls. Additional simple effects show that there is indeed a subject preference in the grammatical controls ($\widehat{\beta} = 0.7464$, CrI = [0.027, 1.6431], P($\beta > 0$) = 0.9785), while there is an object preference for the preposition stranding conditions ($\widehat{\beta} = -3.431$, CrI = [−4.5846, −2.4504], P($\beta < 0$) = 1).

A.1.6. Model for PP extracted

Second, we used a Bayesian Cumulative Link Model to compare the extraction conditions with PP extracted to their grammatical (i.e., extraction of the whole NP) and ungrammatical (i.e., missing preposition) counterparts. Syntactic function was coded −0.5 for the object condition and 0.5 for the subject condition. The factor extraction type has three levels, and is dummy coded with P-stranding as baseline (baseline coded 0, non-baseline coded 1). We included random slopes for participants and items. Convergence diagnostics indicate good model fit, with R-hat for all parameters close to 1, suggesting convergence. Table 10 reports the distribution of the estimated values of these models.

Table 10
Mean results, range of the 95 % credible interval and probability of beta being different from zero for the 8000 Bayesian Cumulative Link Models crossing extraction type with syntactic function for PP extracted.

	Estimated mean value	95 % credible interval	P(beta ≠ 0)
extraction type (P-strand vs. whole NP)	5.82	4.60 to 7.14	1
extraction type (P-strand vs. missing word)	−0.0737	−0.561 to 0.408	0.618
syn. Function	−0.213	−0.881 to 0.443	0.737

(*continued on next page*)

Table 10 (*continued*)

	Estimated mean value	95 % credible interval	P(beta ≠ 0)
extraction type (P-strand vs. whole NP): syn. Function	0.922	−0.0149 to 1.88	0.972
extraction type (P-strand vs. missing word): syn. Function	−0.840	−1.9 to 0.164	0.951

Here, the results for the interaction effects when comparing extraction conditions to grammatical controls are just below the threshold we set (a probability of 0.972, while our threshold would be 0.975). Even if there is therefore weak evidence for an interaction, the interaction is driven by the control conditions. Additional simple effects show indeed that there is strong evidence for a preference for subjects in the grammatical controls (see above), while there is no such preference to be found for the PP extracted conditions ($\widehat{\beta} = -0.17$, CrI = [−0.8215, 0.486], P($\beta < 0$) = 0.6969). This is therefore not the typical pattern of island effects.

However, we observe that the results of the extraction conditions are judged at the same level as the non-grammatical conditions: neither a main effect nor an interaction effect could be observed.

A.1.7. Conclusion

It is difficult to draw conclusions from the results of experiment 2B. *It*-clefts with *of*-PP seem dispreferred by native speakers in general. Therefore, we have chosen to primarily focus on the results of Experiment 2. However, it is important to note that extractions out of the object with preposition stranding stand out distinctively from the other conditions, suggesting that this construction may be particular.

A.2. Stimuli for Experiment 1

Item 1
Negation of an element of the that-clause + object:
- It was the girl that kicked the football.
- No, the soccer ball.
Negation of an element of the that-clause + subject:
- It was the football that the girl kicked.
- No, the boy.
Negation of the pivot + object:
- It was the football that the girl kicked.
- No, the soccer ball.
Negation of the pivot + subject:
- It was the girl that kicked the football.
- No, the boy.

Item 2
Negation of an element of the that-clause + object:
- It was the man that wrote the story.
- No, the poem.
Negation of an element of the that-clause + subject:
- It was the story that the man wrote.
- No, the woman.
Negation of the pivot + object:
- It was the story that the man wrote.
- No, the poem.
Negation of the pivot + subject:
- It was the man that wrote the story.
- No, the woman.

Item 3
Negation of an element of the that-clause + object:
- It was the woman that made the cake.
- No, the pie.
Negation of an element of the that-clause + subject:
- It was the cake that the woman made.
- No, the man.
Negation of the pivot + object:
- It was the cake that the woman made.
- No, the pie.
Negation of the pivot + subject:
- It was the woman that made the cake.
- No, the man.

Item 4
Negation of an element of the that-clause + object:
- It was the superintendent that managed the warehouse.
- No, the storeroom.
Negation of an element of the that-clause + subject:
- It was the warehouse that the superintendent managed.

- No, the director.
Negation of the pivot + object:
- It was the warehouse that the superintendent managed.
- No, the storeroom.
Negation of the pivot + subject:
- It was the superintendent that managed the warehouse.
- No, the director.

Item 5
Negation of an element of the that-clause + object:
- It was the first customer that purchased the popular novel.
- No, the magazine.
Negation of an element of the that-clause + subject:
- It was the popular novel that the first customer purchased.
- No, the second customer.
Negation of the pivot + object:
- It was the popular novel that the first customer purchased.
- No, the magazine.
Negation of the pivot + subject:
- It was the first customer that purchased the popular novel.
- No, the second customer.

Item 6
Negation of an element of the that-clause + object:
- It was the teenager that boarded the train.
- No, the airplane.
Negation of an element of the that-clause + subject:
- It was the train that the teenager boarded.
- No, the old lady.
Negation of the pivot + object:
- It was the train that the teenager boarded.
- No, the airplane.
Negation of the pivot + subject:
- It was the teenager that boarded the train.
- No, the old lady.

Item 7
Negation of an element of the that-clause + object:
- It was the architect that sipped the water.
- No, the coffee.
Negation of an element of the that-clause + subject:
- It was the water that the architect sipped.
- No, the designer.
Negation of the pivot + object:
- It was the water that the architect sipped.
- No, the coffee.
Negation of the pivot + subject:
- It was the architect that sipped the water.
- No, the designer.

Item 8
Negation of an element of the that-clause + object:
- It was the barber that closed the window.
- No, the door.
Negation of an element of the that-clause + subject:
- It was the window that the barber closed.
- No, the manicurist.
Negation of the pivot + object:
- It was the window that the barber closed.
- No, the door.
Negation of the pivot + subject:
- It was the barber that closed the window.
- No, the manicurist.

Item 9
Negation of an element of the that-clause + object:
- It was the electrician that stole the hammer.
- No, the screwdriver.
Negation of an element of the that-clause + subject:
- It was the hammer that the electrician stole.
- No, the carpenter.

Negation of the pivot + object:
- It was the hammer that the electrician stole.
- No, the screwdriver.
Negation of the pivot + subject:
- It was the electrician that stole the hammer.
- No, the carpenter.

Item 10

Negation of an element of the that-clause + object:
- It was the maid that cleaned the oven.
- No, the refrigerator.
Negation of an element of the that-clause + subject:
- It was the oven that the maid cleaned.
- No, butler.
Negation of the pivot + object:
- It was the oven that the maid cleaned.
- No, the refrigerator.
Negation of the pivot + subject:
- It was the maid that cleaned the oven.
- No, butler.

Item 11

Negation of an element of the that-clause + object:
- It was the wife that lost the diamond.
- No, the emerald.
Negation of an element of the that-clause + subject:
- It was the diamond that the wife lost.
- No, the husband.
Negation of the pivot + object:
- It was the diamond that the wife lost.
- No, the emerald.
Negation of the pivot + subject:
- It was the wife that lost the diamond.
- No, the husband.

Item 12

Negation of an element of the that-clause + object:
- It was the dog that broke the bowl.
- No, the plate.
Negation of an element of the that-clause + subject:
- It was the bowl that the dog broke.
- No, the cat.
Negation of the pivot + object:
- It was the bowl that the dog broke.
- No, the plate.
Negation of the pivot + subject:
- It was the dog that broke the bowl.
- No, the cat.

Item 13

Negation of an element of the that-clause + object:
- It was the boy that ate the pizza.
- No, the lasagna.
Negation of an element of the that-clause + subject:
- It was the pizza that the boy ate.
- No, the girl.
Negation of the pivot + object:
- It was the pizza that the boy ate.
- No, the lasagna.
Negation of the pivot + subject:
- It was the boy that ate the pizza.
- No, the girl.

Item 14

Negation of an element of the that-clause + object:
- It was the child that opened the door.
- No, the window.
Negation of an element of the that-clause + subject:
- It was the door that the child opened.
- No, the old lady.
Negation of the pivot + object:

- It was the door that the child opened.
- No, the window.
Negation of the pivot + subject:
- It was the child that opened the door.
- No, the old lady.

Item 15

Negation of an element of the that-clause + object:
- It was the carpenter that sharpened the saw.
- No, the knives.
Negation of an element of the that-clause + subject:
- It was the saw that the carpenter sharpened.
- No, the contractor.
Negation of the pivot + object:
- It was the saw that the carpenter sharpened.
- No, the knives.
Negation of the pivot + subject:
- It was the carpenter that sharpened the saw.
- No, the contractor.

Item 16

Negation of an element of the that-clause + object:
- It was the nanny that folded the blanket.
- No, the sheets.
Negation of an element of the that-clause + subject:
- It was the blanket that the nanny folded.
- No, the mother.
Negation of the pivot + object:
- It was the blanket that the nanny folded.
- No, the sheets.
Negation of the pivot + subject:
- It was the nanny that folded the blanket.
- No, the mother.

Item 17

Negation of an element of the that-clause + object:
- It was the mother that cleaned the table.
- No, the floor.
Negation of an element of the that-clause + subject:
- It was the table that the mother cleaned.
- No, the father.
Negation of the pivot + object:
- It was the table that the mother cleaned.
- No, the floor.
Negation of the pivot + subject:
- It was the mother that cleaned the table.
- No, the father.

Item 18

Negation of an element of the that-clause + object:
- It was the secretary that bought the stamps.
- No, the envelopes.
Negation of an element of the that-clause + subject:
- It was the stamps that the secretary bought.
- No, the manager.
Negation of the pivot + object:
- It was the stamps that the secretary bought.
- No, the envelopes.
Negation of the pivot + subject:
- It was the secretary that bought the stamps.
- No, the manager.

Item 19

Negation of an element of the that-clause + object:
- It was the postal worker that drove the truck.
- No, the van.
Negation of an element of the that-clause + subject:
- It was the truck that the postal worker drove.
- No, the delivery man.
Negation of the pivot + object:
- It was the truck that the postal worker drove.

- No, the van.
Negation of the pivot + subject:
- It was the postal worker that drove the truck.
- No, the delivery man.

Item 20

Negation of an element of the that-clause + object:
- It was the executive that bought the watch.
- No, the bracelet.
Negation of an element of the that-clause + subject:
- It was the watch that the executive bought.
- No, the lawyer.
Negation of the pivot + object:
- It was the watch that the executive bought.
- No, the bracelet.
Negation of the pivot + subject:
- It was the executive that bought the watch.
- No, the lawyer.

Item 21

Negation of an element of the that-clause + object:
- It was the defendant that bungled the case.
- No, the appeal.
Negation of an element of the that-clause + subject:
- It was the case that the defendant bungled.
- No, the lawyer.
Negation of the pivot + object:
- It was the case that the defendant bungled.
- No, the appeal.
Negation of the pivot + subject:
- It was the defendant that bungled the case.
- No, the lawyer.

Item 22

Negation of an element of the that-clause + object:
- It was the teacher that wrote on the blackboard.
- No, the whiteboard.
Negation of an element of the that-clause + subject:
- It was the blackboard that the teacher wrote on.
- No, the student.
Negation of the pivot + object:
- It was the blackboard that the teacher wrote on.
- No, the whiteboard.
Negation of the pivot + subject:
- It was the teacher that wrote on the blackboard.
- No, the student.

Item 23

Negation of an element of the that-clause + object:
- It was the professor that presented the background experiments.
- No, the new experiments.
Negation of an element of the that-clause + subject:
- It was the background experiments that the professor presented.
- No, the graduate student.
Negation of the pivot + object:
- It was the background experiments that the professor presented.
- No, the new experiments.
Negation of the pivot + subject:
- It was the professor that presented the background experiments.
- No, the graduate student.

Item 24

Negation of an element of the that-clause + object:
- It was the famous singer that recorded the new song.
- No, the old song.
Negation of an element of the that-clause + subject:
- It was the new song that the famous singer recorded.
- No, the new singer.
Negation of the pivot + object:
- It was the new song that the famous singer recorded.
- No, the old song.

Negation of the pivot + subject:
- It was the famous singer that recorded the new song.
- No, the new singer.

A.3. Stimuli for Experiment 2

Item 1
PP-extracted + subject: It is over the British project that the vote concerns most Europeans.
P-stranding + subject: It is the British project that the vote over concerns most Europeans.
ungram + subject: It is the British project that the vote concerns most Europeans.
whole NP + subject: It is the vote over the British project that concerns most Europeans.
PP-extracted + object: It is over the British project that most Europeans discuss the vote.
P-stranding + object: It is the British project that most Europeans discuss the vote over.
ungram + object: It is the British project that most Europeans discuss the vote.
whole NP + object: It is the vote over the British project that most Europeans discuss.
Item 2
PP-extracted + subject: It is over this kind of terrrorism that a victory would surprise the army.
P-stranding + subject: It is this kind of terrrorism that a victory over would surprise the army.
ungram + subject: It is this kind of terrrorism that a victory would surprise the army.
whole NP + subject: It is a victory over this kind of terrrorism that would surprise the army.
PP-extracted + object: It is over this kind of terrrorism that the army would love a victory.
P-stranding + object: It is this kind of terrrorism that the army would love a victory over.
ungram + object: It is this kind of terrrorism that the army would love a victory.
whole NP + object: It is a victory over this kind of terrrorism that the army would love.
Item 3
PP-extracted + subject: It was over the outcome of the election that anguish paralyzed Mrs. Gallion for three days.
P-stranding + subject: It was the outcome of the election that anguish over paralyzed Mrs. Gallion for three days.
ungram + subject: It was the outcome of the election that anguish paralyzed Mrs. Gallion for three days.
whole NP + subject: It was anguish over the outcome of the election that paralyzed Mrs. Gallion for three days.
PP-extracted + object: It was over the outcome of the election that Mrs. Gallion felt anguish for three days.
P-stranding + object: It was the outcome of the election that Mrs. Gallion felt anguish over for three days.
ungram + object: It was the outcome of the election that Mrs. Gallion felt anguish for three days.
whole NP + object: It was anguish over the outcome of the election that Mrs. Gallion felt for three days.
Item 4
PP-extracted + subject: It was over the coming election that anxiety afflicted me for months.
P-stranding + subject: It was the coming election that anxiety over afflicted me for months.
ungram + subject: It was the coming election that anxiety afflicted me for months.
whole NP + subject: It was anxiety over the coming election that afflicted me for months.
PP-extracted + object: It was over the coming election that I confessed anxiety for months.
P-stranding + object: It was the coming election that I confessed anxiety over for months.
ungram + object: It was the coming election that I confessed anxiety for months.
whole NP + object: It was anxiety over the coming election that I confessed for months.
Item 5
PP-extracted + subject: It is for this kind of person that your sympathy surprised everybody.
P-stranding + subject: It is this kind of person that your sympathy for surprised everybody.
ungram + subject: It is this kind of person that your sympathy surprised everybody.
whole NP + subject: It is your sympathy for this kind of person that surprised everybody.
PP-extracted + object: It is for this kind of person that everybody criticized your sympathy.
P-stranding + object: It is this kind of person that everybody criticized your sympathy for.
ungram + object: It is this kind of person that everybody criticized your sympathy.
whole NP + object: It is your sympathy for this kind of person that everybody criticized.
Item 6
PP-extracted + subject: It is for the coming competition that the training exhausted my son.
P-stranding + subject: It is the coming competition that the training for exhausted my son.
ungram + subject: It is the coming competition that the training exhausted my son.
whole NP + subject: It is the training for the coming competition that exhausted my son.
PP-extracted + object: it is for the coming competiton that my son hates the training.
P-stranding + object: it is the coming competiton that my son hates the training for.
ungram + object: it is the coming competiton that my son hates the training.
whole NP + object: it is the training for the coming competiton that my son hates.
Item 7
PP-extracted + subject: It is for this building that a plan seduced the mayor.
P-stranding + subject: It is this building that a plan for seduced the mayor.
ungram + subject: It is this building that a plan seduced the mayor.
whole NP + subject: It is the plan for this building that seduced the mayor.
PP-extracted + object: It is for this building that the mayor approved a plan.

P-stranding + object: It is this building that the mayor approved a plan for.
ungram + object: It is this building that the mayor approved a plan.
whole NP + object: It is the plan for this building that the mayor approved.

Item 8

PP-extracted + subject: It is for this new sport that a passion inspired many students.
P-stranding + subject: It is this new sport that a passion for inspired many students.
ungram + subject: It is this new sport that a passion inspired many students.
whole NP + subject: It is a passion for this new sport that inspired many students.
PP-extracted + object: it is for this new sport that many students felt a passion.
P-stranding + object: it is this new sport that many students felt a passion for.
ungram + object: it is this new sport that many students felt a passion.
whole NP + object: it is a passion for this new sport that many students felt.

Item 9

PP-extracted + subject: It is for this disease that a cure would please the young people all over the world.
P-stranding + subject: It is this disease that a cure for would please the young people all over the world.
ungram + subject: It is this disease that a cure would please the young people all over the world.
whole NP + subject: It is a cure for this disease that would please the young people all over the world.
PP-extracted + object: It is for this disease that the young people would applaud a cure all over the world.
P-stranding + object: It is this disease that the young people would applaud a cure for all over the world.
ungram + object: It is this disease that the young people would applaud a cure all over the world.
whole NP + object: It is a cure for this disease that the young people would applaud all over the world.

Item 10

PP-extracted + subject: It is to this kind of disaster that the public reaction shocked the citizens.
P-stranding + subject: It is this kind of disaster that the public reaction to shocked the citizens.
ungram + subject: It is this kind of disaster that the public reaction shocked the citizens.
whole NP + subject: It is the public reaction to this kind of disaster that shocked the citizens.
PP-extracted + object: It is to this kind of disaster that the citizens questioned the public reaction.
P-stranding + object: It is this kind of disaster that the citizens questioned the public reaction to.
ungram + object: It is this kind of disaster that the citizens questioned the public reaction.
whole NP + object: It is the public reaction to this kind of disaster that the citizens questioned.

Item 11

PP-extracted + subject: It is to this kind of project that opposition would occupy the Senate for a month.
P-stranding + subject: It is this kind of project that opposition to would occupy the Senate for a month.
ungram + subject: It is this kind of project that opposition would occupy the Senate for a month.
whole NP + subject: It is opposition to this kind of project that would occupy the Senate for a month.
PP-extracted + object: It is to this kind of project that the Senate would discuss opposition for a month.
P-stranding + object: It is this kind of project that the Senate would discuss opposition to for a month.
ungram + object: It is this kind of project that the Senate would discuss opposition for a month.
whole NP + object: It is opposition to this kind of project that the Senate would discuss for a month.

Item 12

PP-extracted + subject: It is to this kind of problem that a solution astonished all the participants.
P-stranding + subject: It is this kind of problem that a solution to astonished all the participants.
ungram + subject: It is this kind of problem that a solution astonished all the participants.
whole NP + subject: It is a solution to this kind of problem that astonished all the participants.
PP-extracted + object: It is to this kind of problem that all the participants admire a solution.
P-stranding + object: It is this kind of problem that all the participants admire a solution to.
ungram + object: It is this kind of problem that all the participants admire a solution.
whole NP + object: It is a solution to this kind of problem that all the participants admire.

Item 13

PP-extracted + subject: It is to these problems that answers impress our students.
P-stranding + subject: It is these problems that answers to impress our students.
ungram + subject: It is these problems that answers impress our students.
whole NP + subject: It is answers to these problems that impress our students.
PP-extracted + object: It is to these problems that our students expect answers.
P-stranding + object: It is these problems that our students expect answers to.
ungram + object: It is these problems that our students expect answers.
whole NP + object: It is answers to these problems that our students expect.

Item 14

PP-extracted + subject: It is to this kind of issue that challenges attract competitors.
P-stranding + subject: It is this kind of issue that challenges to attract competitors.
ungram + subject: It is this kind of issue that challenges attract competitors.
whole NP + subject: It is challenges to this kind of issue that attract competitors.
PP-extracted + object: It is to this kind of issue that competitors like challenges.
P-stranding + object: It is this kind of issue that competitors like challenges to.
ungram + object: It is this kind of issue that competitors like challenges.
whole NP + object: It is challenges to this kind of issue that competitors like.

Item 15
PP-extracted + subject: It is to this apartment that a key would benefit the new residents.
P-stranding + subject: It is this apartment that a key to would benefit the new residents.
ungram + subject: It is this apartment that a key would benefit the new residents.
whole NP + subject: It is a key to this apartment that would benefit the new residents.
PP-extracted + object: It is to this apartment that the new residents need a key.
P-stranding + object: It is this apartment that the new residents need a key to.
ungram + object: It is this apartment that the new residents need a key.
whole NP + object: It is a key to this apartment that the new residents need.
Item 16
PP-extracted + subject: It is to this kind of family that gifts amazed the public on Christmas Day.
P-stranding + subject: It is this kind of family that gifts to amazed the public on Christmas Day.
ungram + subject: It is this kind of family that gifts amazed the public on Christmas Day.
whole NP + subject: It is gifts to this kind of family that amazed the public on Christmas Day.
PP-extracted + object: It is to this kind of family that the public approved gifts on Christmas Day.
P-stranding + object: It is this kind of family that the public approved gifts to on Christmas Day.
ungram + object: It is this kind of family that the public approved gifts on Christmas Day.
whole NP + object: It is gifts to this kind of family that the public approved on Christmas Day.

A.4. Stimuli for Experiment 3

Item 1
PP-extracted + subject: The media presented the British project, over which the vote concerns most Europeans.
P-stranding + subject: The media presented the British project, which the vote over concerns most Europeans.
ungram + subject: The media presented the British project, which the vote concerns most Europeans.
whole NP + subject: The media presented the vote over the British project, which concerns most Europeans.
PP-extracted + object: The media presented the British project, over which most Europeans discussed the vote.
P-stranding + object: The media presented the British project, which most Europeans discussed the vote over.
ungram + object: The media presented the British project, which most Europeans discussed the vote.
whole NP + object: The media presented the vote over the British project, which most Europeans discussed.
Comprehension question: Were Europeans discussing the British project? Yes.
Item 2
PP-extracted + subject: The radio host discussed the kind of terrorism, over which a victory would surprise the army.
P-stranding + subject: The radio host discussed the kind of terrorism, which a victory over would surprise the army.
ungram + subject: The radio host discussed the kind of terrorism, which a victory would surprise the army.
whole NP + subject: The radio host discussed a victory over the kind of terrorism, which would surprise the army.
PP-extracted + object: The radio host discussed the kind of terrorism, over which the army would love a victory.
P-stranding + object: The radio host discussed the kind of terrorism, which the army would love a victory over.
ungram + object: The radio host discussed the kind of terrorism, which the army would love a victory.
whole NP + object: The radio host discussed a victory over the kind of terrorism, which the army would love.
Comprehension question: Does this sentence mention a potential victory? Yes.
Item 3
PP-extracted + subject: My friends were talking about the outcome of the election, over which a feeling of anguish paralyzed Mrs. Gallion for three days.
P-stranding + subject: My friends were talking about the outcome of the election, which a feeling of anguish over paralyzed Mrs. Gallion for three days.
ungram + subject: My friends were talking about the outcome of the election, which a feeling of anguish paralyzed Mrs. Gallion for three days.
whole NP + subject: My friends were talking about a feeling of anguish over the outcome of the election, which paralyzed Mrs. Gallion for three days.
PP-extracted + object: My friends were talking about the outcome of the election, over which Mrs. Gallion felt a feeling of anguish for three days.
P-stranding + object: My friends were talking about the outcome of the election, which Mrs. Gallion felt a feeling of anguish over for three days.
ungram + object: My friends were talking about the outcome of the election, which Mrs. Gallion felt a feeling of anguish for three days.
whole NP + object: My friends were talking about a feeling of anguish over the outcome of the election, which Mrs. Gallion felt for three days.
Comprehension question: Did the election cause stress to Mrs. Gallion? Yes.
Item 4
PP-extracted + subject: My neighbors were concerned about the coming election, over which some strong anxiety afflicted me for months.
P-stranding + subject: My neighbors were concerned about the coming election, which some strong anxiety over afflicted me for months.
ungram + subject: My neighbors were concerned about the coming election, which some strong anxiety afflicted me for months.
whole NP + subject: My neighbors were concerned about some strong anxiety over the coming election, which afflicted me for months.
PP-extracted + object: My neighbors were concerned about the coming election, over which I confessed some strong anxiety for months.
P-stranding + object: My neighbors were concerned about the coming election, which I confessed some strong anxiety over for months.
ungram + object: My neighbors were concerned about the coming election, which I confessed some strong anxiety for months.
whole NP + object: My neighbors were concerned about some strong anxiety over the coming election, which I confessed for months.
Comprehension question: Did the election cause me some mental stress? Yes.
Item 5
PP-extracted + subject: The therapist was talking about a person, for which your sympathy surprised everybody.

P-stranding + subject: The therapist was talking about a person, which your sympathy for surprised everybody.
ungram + subject: The therapist was talking about a person, which your sympathy surprised everybody.
whole NP + subject: The therapist was talking about your sympathy for a person, which surprised everybody.
PP-extracted + object: The therapist was talking about a person, for which everybody criticized your sympathy.
P-stranding + object: The therapist was talking about a person, which everybody criticized your sympathy for.
ungram + object: The therapist was talking about a person, which everybody criticized your sympathy.
whole NP + object: The therapist was talking about your sympathy for a person, which everybody criticized.
Comprehension question: Did you have sympathy for this kind of person? Yes.

Item 6

PP-extracted + subject: My family was worried about the coming competition, for which the training exhausted my son.
P-stranding + subject: My family was worried about the coming competition, which the training for exhausted my son.
ungram + subject: My family was worried about the coming competition, which the training exhausted my son.
whole NP + subject: My family was worried about the training for the coming competition, which exhausted my son.
PP-extracted + object: My family was worried about the coming competiton, for which my son hates the training.
P-stranding + object: My family was worried about the coming competiton, which my son hates the training for.
ungram + object: My family was worried about the coming competiton, which my son hates the training.
whole NP + object: My family was worried about the training for the coming competition, which my son hates.
Comprehension question: Was the training tough for my son? Yes.

Item 7

PP-extracted + subject: The city planners were raising questions about a building, for which a plan seduced the mayor.
P-stranding + subject: The city planners were raising questions about a building, which a plan for seduced the mayor.
ungram + subject: The city planners were raising questions about a building, which a plan seduced the mayor.
whole NP + subject: The city planners were raising questions about a plan for a building, which seduced the mayor.
PP-extracted + object: The city planners were raising questions about a building, for which the mayor approved a plan.
P-stranding + object: The city planners were raising questions about a building, which the mayor approved a plan for.
ungram + object: The city planners were raising questions about a building, which the mayor approved a plan.
whole NP + object: The city planners were raising questions about a plan for a building, which the mayor approved.
Comprehension question: Was the mayor interested in a plan for the building? Yes.

Item 8

PP-extracted + subject: The visitors from China introduced a new sport, for which a passion inspired many students.
P-stranding + subject: The visitors from China introduced a new sport, which a passion for inspired many students.
ungram + subject: The visitors from China introduced a new sport, which a passion inspired many students.
whole NP + subject: The visitors from China introduced a passion for the new sport, which inspired many students.
PP-extracted + object: The visitors from China introduced a new sport, for which many students felt a passion.
P-stranding + object: The visitors from China introduced a new sport, which many students felt a passion for.
ungram + object: The visitors from China introduced a new sport, which many students felt a passion.
whole NP + object: The visitors from China introduced a passion for the new sport, which many students felt.
Comprehension question: Were the students interested in the new sport? Yes.

Item 9

PP-extracted + subject: The medical congress evaluated the disease, for which a cure would please the young people all over the world.
P-stranding + subject: The medical congress evaluated the disease, which a cure for would please the young people all over the world.
ungram + subject: The medical congress evaluated the disease, which a cure would please the young people all over the world.
whole NP + subject: The medical congress evaluated the cure for the disease, which would please the young people all over the world.
PP-extracted + object: The medical congress evaluated the disease, for which the young people would applaud a cure all over the world.
P-stranding + object: The medical congress evaluated the disease, which the young people would applaud a cure for all over the world.
ungram + object: The medical congress evaluated the disease, which the young people would applaud a cure all over the world.
whole NP + object: The medical congress evaluated the cure for the disease, which the young people would applaud.
Comprehension question: Were the young people disappointed in a cure? No.

Item 10

PP-extracted + subject: The talk show host analyzed the kind of disaster, to which the public reaction might shock the citizens.
P-stranding + subject: The talk show host analyzed the kind of disaster, which the public reaction to might shock the citizens.
ungram + subject: The talk show host analyzed the kind of disaster, which the public reaction might shock the citizens.
whole NP + subject: The talk show host analyzed the public reaction to the kind of disaster, which might shock the citizens.
PP-extracted + object: The talk show host analyzed the kind of disaster, to which the citizens questioned the public reaction.
P-stranding + object: The talk show host analyzed the kind of disaster, which the citizens questioned the public reaction to.
ungram + object: The talk show host analyzed the kind of disaster, which the citizens questioned the public reaction.
whole NP + object: The talk show host analyzed the public reaction to the kind of disaster, which the citizens questioned.
Comprehension question: Was the public reaction to the disaster expected? No.

Item 11

PP-extracted + subject: The politician wanted to explore the project, to which the opposition might occupy the Senate for a month.
P-stranding + subject: The politician wanted to explore the project, which the opposition to might occupy the Senate for a month.
ungram + subject: The politician wanted to explore the project, which the opposition might occupy the Senate for a month.
whole NP + subject: The politician wanted to explore the opposition to the project, which might occupy the Senate for a month.
PP-extracted + object: The politician wanted to explore the project, to which the Senate might discuss the opposition for a month.
P-stranding + object: The politician wanted to explore the project, which the Senate might discuss the opposition to for a month.
ungram + object: The politician wanted to explore the project, which the Senate might discuss the opposition for a month.

whole NP + object: The politician wanted to explore the opposition to the project, which the Senate might discuss for a month.
Comprehension question: Might the Senate ignore this kind of project? No.

Item 12

PP-extracted + subject: The mediator considered a problem, to which the solution astonished the participants.
P-stranding + subject: The mediator considered a problem, which the solution to astonished the participants.
ungram + subject: The mediator considered a problem, which the solution astonished the participants.
whole NP + subject: The mediator considered the solution to a problem, which astonished the participants.
PP-extracted + object: The mediator considered a problem, to which the participants admired the solution.
P-stranding + object: The mediator considered a problem, which the participants admired the solution to.
ungram + object: The mediator considered a problem, which the participants admired the solution.
whole NP + object: The mediator considered the solution to a problem, which the participants admired.
Comprehension question: Did the participants ignore this kind of problem? No.

Item 13

PP-extracted + subject: The teachers tackled some problems, to which the answers impressed our students.
P-stranding + subject: The teachers tackled some problems, which the answers to impressed our students.
ungram + subject: The teachers tackled some problems, which the answers impressed our students.
whole NP + subject: The teachers tackled the answers to some problems, which impressed our students.
PP-extracted + object: The teachers tackled some problems, to which our students expect the answers.
P-stranding + object: The teachers tackled some problems, which our students expect the answers to.
ungram + object: The teachers tackled some problems, which our students expect the answers.
whole NP + object: The teachers tackled the answers to some problems, which our students expect.
Comprehension question: Did the students write the answers? No.

Item 14

PP-extracted + subject: The discussants mulled over an issue, to which some challenges might attract some competitors.
P-stranding + subject: The discussants mulled over an issue, which some challenges to might attract some competitors.
ungram + subject: The discussants mulled over an issue, which some challenges might attract some competitors.
whole NP + subject: The discussants mulled over some challengse to an issue, which might attract some competitors.
PP-extracted + object: The discussants mulled over an issue, to which some competitors might like some challenges.
P-stranding + object: The discussants mulled over an issue, which some competitors might like some challenges to.
ungram + object: The discussants mulled over an issue, which some competitors might like some challenges.
whole NP + object: The discussants mulled over some challengse to an issue, which some competitors might like.
Comprehension question: Did the challenges scare away the competitors? No.

Item 15

PP-extracted + subject: The superintendant was responsible for the apartment, to which a key would benefit the new residents.
P-stranding + subject: The superintendant was responsible for the apartment, which a key to would benefit the new residents.
ungram + subject: The superintendant was responsible for the apartment, which a key would benefit the new residents.
whole NP + subject: The superintendant was responsible for a key to the apartment, which would benefit the new residents.
PP-extracted + object: The superintendant was responsible for the apartment, to which the new residents need a key.
P-stranding + object: The superintendant was responsible for the apartment, which the new residents need a key to.
ungram + object: The superintendant was responsible for the apartment, which the new residents need a key.
whole NP + object: The superintendant was responsible for a key to the apartment, which the new residents need.
Comprehension question: Did the new residents lose the key? No.

Item 16

PP-extracted + subject: The newspaper reported about the family, to which some gifts amazed the public on Christmas Day.
P-stranding + subject: The newspaper reported about the family, which some gifts to amazed the public on Christmas Day.
ungram + subject: The newspaper reported about the family, which some gifts amazed the public on Christmas Day.
whole NP + subject: The newspaper reported about some gifts to the family, which amazed the public on Christmas Day.
PP-extracted + object: The newspaper reported about the family, to which the public approved some gifts on Christmas Day.
P-stranding + object: The newspaper reported about the family, which the public approved some gifts to on Christmas Day.
ungram + object: The newspaper reported about the family, which the public approved some gifts on Christmas Day.
whole NP + object: The newspaper reported about some gifts to the family, which the public approved on Christmas Day.
Comprehension question: Were the families amazed by the gifts? No.

A.5. Stimuli for Experiment 4

Item 1

PP-extracted + subject: C'est de cette activité que certains aspects menacent la santé des employés.
whole NP + subject: C'est certains aspects de cette activité qui menacent la santé des employés.
ungram + subject: C'est cette activité que certains aspects menacent la santé des employés.
PP-extracted + object: C'est de cette activité que les employés craignent certains aspects pour leur santé.
whole NP + object: C'est certains aspects de cette activité que les employés craignent pour leur santé.
ungram + object: C'est cette activité que les employés craignent certains aspects pour leur santé.

Item 2

PP-extracted + subject: C'est de ce classement que l'impact inquiète les enseignants pour leur université.
whole NP + subject: C'est l'impact de ce classement qui inquiète les enseignants pour leur université.
ungram + subject: C'est ce classement que l'impact inquiète les enseignants pour leur université.

PP-extracted + object: C'est de ce classement que les enseignants redoutent l'impact pour leur université.
whole NP + object: C'est l'impact de ce classement que les enseignants redoutent pour leur université.
ungram + object: C'est ce classement que les enseignants redoutent l'impact pour leur université.

Item 3

PP-extracted + subject: C'est de ce désert que la splendeur émerveille mes enfants à chaque pas.
whole NP + subject: C'est la splendeur de ce désert qui émerveille mes enfants à chaque pas.
ungram + subject: C'est ce désert que la splendeur émerveille mes enfants à chaque pas.
PP-extracted + object: C'est de ce désert que mes enfants apprécient la splendeur à chaque pas.
whole NP + object: C'est la splendeur de ce désert que mes enfants apprécient à chaque pas.
ungram + object: C'est ce désert que mes enfants apprécient la splendeur à chaque pas.

Item 4

PP-extracted + subject: C'est de cet appartement que le prix surprend le jeune couple, parce qu'il est. bien trop élevé.
whole NP + subject: C'est le prix de cet appartement qui surprend le jeune couple, parce qu'il est. bien trop élevé.
ungram + subject: C'est cet appartement que le prix surprend le jeune couple, parce qu'il est. bien trop élevé.
PP-extracted + object: C'est de cet appartement que le jeune couple discute le prix, parce qu'il est. bien trop élevé.
whole NP + object: C'est le prix de cet appartement que le jeune couple discute, parce qu'il est. bien trop élevé.
ungram + object: C'est cet appartement que le jeune couple discute le prix, parce qu'il est. bien trop élevé.

Item 5

PP-extracted + subject: C'est de ce bureau que la taille déçoit le nouvel employé, parce qu'il ressemble à un placard.
whole NP + subject: C'est la taille de ce bureau qui déçoit le nouvel employé, parce qu'il ressemble à un placard.
ungram + subject: C'est ce bureau que la taille déçoit le nouvel employé, parce qu'il ressemble à un placard.
PP-extracted + object: C'est de ce bureau que le nouvel employé critique la taille, parce qu'il ressemble à un placard.
whole NP + object: C'est la taille de ce bureau que le nouvel employé critique, parce qu'il ressemble à un placard.
ungram + object: C'est ce bureau que le nouvel employé critique la taille, parce qu'il ressemble à un placard.

Item 6

PP-extracted + subject: C'est de ces fleurs que la beauté réconforte la famille pendant l'enterrement.
whole NP + subject: C'est la beauté de cette fleur qui réconforte la famille pendant l'enterrement.
ungram + subject: C'est cette fleur que la beauté réconforte la famille pendant l'enterrement.
PP-extracted + object: C'est de cette fleur que la famille admire la beauté pendant l'enterrement.
whole NP + object: C'est la beauté de cette fleur que la famille admire pendant l'enterrement.
ungram + object: C'est cette fleur que la famille admire la beauté pendant l'enterrement.

Item 7

PP-extracted + subject: C'est de cette pyramide que la hauteur impressionne les visiteurs pendant leur voyage.
whole NP + subject: C'est la hauteur de cette pyramide qui impressionne les visiteurs pendant leur voyage.
ungram + subject: C'est cette pyramide que la hauteur impressionne les visiteurs pendant leur voyage.
PP-extracted + object: C'est de cette pyramide que les visiteurs admirent la hauteur pendant leur voyage.
whole NP + object: C'est la hauteur de cette pyramide que les visiteurs admirent pendant leur voyage.
ungram + object: C'est cette pyramide que les visiteurs admirent la hauteur pendant leur voyage.

Item 8

PP-extracted + subject: C'est de cette décapotable que la couleur enchante le footballeur à cause de sa luminosité.
whole NP + subject: C'est la couleur de cette décapotable qui enchante le footballeur à cause de sa luminosité.
ungram + subject: C'est cette décapotable que la couleur enchante le footballeur à cause de sa luminosité.
PP-extracted + object: C'est de cette décapotable que le footballeur adore la couleur à cause de sa luminosité.
whole NP + object: C'est la couleur de cette décapotable que le footballeur adore à cause de sa luminosité.
ungram + object: C'est cette décapotable que le footballeur adore la couleur à cause de sa luminosité.

Item 9

PP-extracted + subject: C'est de cette grillade que l'odeur indispose le nouveau serveur, parce qu'il est végétarien.
whole NP + subject: C'est l'odeur de cette grillade qui indispose le nouveau serveur, parce qu'il est végétarien.
ungram + subject: C'est cette grillade que l'odeur indispose le nouveau serveur, parce qu'il est végétarien.
PP-extracted + object: C'est de cette grillade que le nouveau serveur déteste l'odeur, parce qu'il est végétarien.
whole NP + object: C'est l'odeur de cette grillade que le nouveau serveur déteste, parce qu'il est végétarien.
ungram + object: C'est cette grillade que le nouveau serveur déteste l'odeur, parce qu'il est végétarien.
Comprehension question: Est-ce que le nouveau serveur mange de la viande ?

Item 10

PP-extracted + subject: C'est de cette fenêtre que la forme trouble le maçon, parce qu'elle n'est pas parfaitement symétrique.
whole NP + subject: C'est la forme de cette fenêtre qui trouble le maçon, parce qu'elle n'est pas parfaitement symétrique.
ungram + subject: C'est cette fenêtre que la forme trouble le maçon, parce qu'elle n'est pas parfaitement symétrique.
PP-extracted + object: C'est de cette fenêtre que le maçon désapprouve la forme, parce qu'elle n'est pas parfaitement symétrique.
whole NP + object: C'est la forme de cette fenêtre que le maçon désapprouve, parce qu'elle n'est pas parfaitement symétrique.
ungram + object: C'est cette fenêtre que le maçon désapprouve la forme, parce qu'elle n'est pas parfaitement symétrique.
Comprehension question: Est-ce que la fenêtre est symétrique ?

Item 11

PP-extracted + subject: C'est de ce colis que le poids étonne le livreur, parce qu'il ne lui semblait pas si lourd.
whole NP + subject: C'est le poids de ce colis qui étonne le livreur, parce qu'il ne lui semblait pas si lourd.
ungram + subject: C'est ce colis que le poids étonne le livreur, parce qu'il ne lui semblait pas si lourd.
PP-extracted + object: C'est de ce colis que le livreur sous-estime le poids, parce qu'il ne lui semblait pas si lourd.

whole NP + object: C'est le poids de ce colis que le livreur sous-estime, parce qu'il ne lui semblait pas si lourd.
ungram + object: C'est ce colis que le livreur sous-estime le poids, parce qu'il ne lui semblait pas si lourd.
Comprehension question: Est-ce que le colis est lourd ?

Item 12

PP-extracted + subject: C'est de cette innovation que l'originalité enthousiasme mes collègues sans aucune raison.
whole NP + subject: C'est l'originalité de cette innovation qui enthousiasme mes collègues sans aucune raison.
ungram + subject: C'est cette innovation que l'originalité enthousiasme mes collègues sans aucune raison.
PP-extracted + object: C'est de cette innovation que mes collègues admirent l'originalité sans aucune raison.
whole NP + object: C'est l'originalité de cette innovation que mes collègues admirent sans aucune raison.
ungram + object: C'est cette innovation que mes collègues admirent l'originalité sans aucune raison.
Comprehension question: Est-ce que les collègues ont raison d'être enthousiastes?

Item 13

PP-extracted + subject: C'est de ce canyon que la profondeur effraye le guide, lorsqu'il y jette une pierre.
whole NP + subject: C'est la profondeur de ce canyon qui effraye le guide, lorsqu'il y jette une pierre.
ungram + subject: C'est ce canyon que la profondeur effraye le guide, lorsqu'il y jette une pierre.
PP-extracted + object: C'est de ce canyon que le guide déplore la profondeur, lorsqu'il y jette une pierre.
whole NP + object: C'est la profondeur de ce canyon que le guide déplore, lorsqu'il y jette une pierre.
ungram + object: C'est ce canyon que le guide déplore la profondeur, lorsqu'il y jette une pierre.
Comprehension question: Est-ce que le guide est au bord d'un canyon ?

Item 14

PP-extracted + subject: C'est de cet échafaudage que l'instabilité angoisse les propriétaires, malgré le discours rassurant de l'entrepreneur.
whole NP + subject: C'est l'instabilité de cet échafaudage qui angoisse les propriétaires, malgré le discours rassurant de l'entrepreneur.
ungram + subject: C'est cet échafaudage que l'instabilité angoisse les propriétaires, malgré le discours rassurant de l'entrepreneur.
PP-extracted + object: C'est de cet échafaudage que les propriétaires désapprouvent l'instabilité, malgré le discours rassurant de l'entrepreneur.
whole NP + object: C'est l'instabilité de cet échafaudage que les propriétaires désapprouvent, malgré le discours rassurant de l'entrepreneur.
ungram + object: C'est cet échafaudage que les propriétaires désapprouvent l'instabilité, malgré le discours rassurant de l'entrepreneur.
Comprehension question: Est-ce que les propriétaires se font du souci pour un balcon ?

Item 15

PP-extracted + subject: C'est de cette fleur que la couleur charme les vieilles dames durant leur promenade matinale.
whole NP + subject: C'est la couleur de cette fleur qui charme les vieilles dames durant leur promenade matinale.
ungram + subject: C'est cette fleur que la couleur charme les vieilles dames durant leur promenade matinale.
PP-extracted + object: C'est de cette fleur que les vieilles dames aiment la couleur durant leur promenade matinale.
whole NP + object: C'est la couleur de cette fleur que les vieilles dames aiment durant leur promenade matinale.
ungram + object: C'est cette fleur que les vieilles dames aiment la couleur durant leur promenade matinale.
Comprehension question: Est-ce que les vieilles dames se promènent le matin ?

Item 16

PP-extracted + subject: C'est de ce mur que la fragilité terrifie les voisins, parce qu'il menace de s'écrouler.
whole NP + subject: C'est la fragilité de ce mur qui terrifie les voisins, parce qu'il menace de s'écrouler.
ungram + subject: C'est ce mur que la fragilité terrifie les voisins, parce qu'il menace de s'écrouler.
PP-extracted + object: C'est de ce mur que les voisins constatent la fragilité, parce qu'il menace de s'écrouler.
whole NP + object: C'est la fragilité de ce mur que les voisins constatent, parce qu'il menace de s'écrouler.
ungram + object: C'est ce mur que les voisins constatent la fragilité, parce qu'il menace de s'écrouler.
Comprehension question: Est-ce que le mur est abîmé ?

Item 17

PP-extracted + subject: C'est de ce studio que le coût affole les jeunes acheteurs, car ils ont un revenu limité.
whole NP + subject: C'est le coût de ce studio qui affole les jeunes acheteurs, car ils ont un revenu limité.
ungram + subject: C'est ce studio que le coût affole les jeunes acheteurs, car ils ont un revenu limité.
PP-extracted + object: C'est de ce studio que les jeunes acheteurs critiquent le coût, car ils ont un revenu limité.
whole NP + object: C'est le coût de ce studio que les jeunes acheteurs critiquent, car ils ont un revenu limité.
ungram + object: C'est ce studio que les jeunes acheteurs critiquent le coût, car ils ont un revenu limité.
Comprehension question: Est-ce qu'il s'agit d'un trois pièces ?

Item 18

PP-extracted + subject: C'est de cette recette que la simplicité ravit les apprentis depuis des générations.
whole NP + subject: C'est la simplicité de cette recette qui ravit les apprentis depuis des générations.
ungram + subject: C'est cette recette que la simplicité ravit les apprentis depuis des générations.
PP-extracted + object: C'est de cette recette que les apprentis aiment la simplicité depuis des générations.
whole NP + object: C'est la simplicité de cette recette que les apprentis aiment depuis des générations.
ungram + object: C'est cette recette que les apprentis aiment la simplicité depuis des générations.
Comprehension question: Est-ce que la recette est nouvelle ?

Item 19

PP-extracted + subject: C'est de cette histoire que le charme séduit le public, parce qu'elle lui va droit au cœur.
whole NP + subject: C'est le charme de cette histoire qui séduit le public, parce qu'elle lui va droit au cœur.
ungram + subject: C'est cette histoire que le charme séduit le public, parce qu'elle lui va droit au cœur.
PP-extracted + object: C'est de cette histoire que le public savoure le charme, parce qu'elle lui va droit au cœur.
whole NP + object: C'est le charme de cette histoire que le public savoure, parce qu'elle lui va droit au cœur.
ungram + object: C'est cette histoire que le public savoure le charme, parce qu'elle lui va droit au cœur.

Comprehension question: Le public se moque-t-il de l'histoire ?

Item 20

PP-extracted + subject: C'est de ce missile que la précision alarme les Coréens, après l'échec des négociations de paix.
whole NP + subject: C'est la précision de ce missile qui alarme les Coréens, après l'échec des négociations de paix.
ungram + subject: C'est ce missile que la précision alarme les Coréens, après l'échec des négociations de paix.
PP-extracted + object: C'est de ce missile que les Coréens craignent la précision, après l'échec des négociations de paix.
whole NP + object: C'est la précision de ce missile que les Coréens craignent, après l'échec des négociations de paix.
ungram + object: C'est ce missile que les Coréens craignent la précision, après l'échec des négociations de paix.
Comprehension question: Est-ce que les Japonais ont peur ?

Item 21

PP-extracted + subject: C'est de cette réception que la magnificence éblouit les journalistes comme prévu.
whole NP + subject: C'est la magnificence de cette réception qui éblouit les journalistes comme prévu.
ungram + subject: C'est cette réception que la magnificence éblouit les journalistes comme prévu.
PP-extracted + object: C'est de cette réception que les journalistes commentent la magnificence comme prévu.
whole NP + object: C'est la magnificence de cette réception que les journalistes commentent comme prévu.
ungram + object: C'est cette réception que les journalistes commentent la magnificence comme prévu.
Comprehension question: Est-ce que la réception est de mauvais goût ?

Item 22

PP-extracted + subject: C'est de ce diamant que la pureté fascine le marchand, parce qu'il brille de mille feux.
whole NP + subject: C'est la pureté de ce diamant qui fascine le marchand, parce qu'il brille de mille feux.
ungram + subject: C'est ce diamant que la pureté fascine le marchand, parce qu'il brille de mille feux.
PP-extracted + object: C'est de ce diamant que le marchand constate la pureté, parce qu'il brille de mille feux.
whole NP + object: C'est la pureté de ce diamant que le marchand constate, parce qu'il brille de mille feux.
ungram + object: C'est ce diamant que le marchand constate la pureté, parce qu'il brille de mille feux.
Comprehension question: Est-ce que le diamant est pur ?

Item 23

PP-extracted + subject: C'est de ce cabinet que la propreté rassure les patients quand ils entrent.
whole NP + subject: C'est la propreté de ce cabinet qui rassure les patients quand ils entrent.
ungram + subject: C'est ce cabinet que la propreté rassure les patients quand ils entrent.
PP-extracted + object: C'est de ce cabinet que les patients remarquent la propreté quand ils entrent.
whole NP + object: C'est la propreté de ce cabinet que les patients remarquent quand ils entrent.
ungram + object: C'est ce cabinet que les patients remarquent la propreté quand ils entrent.
Comprehension question: Le cabinet du médecin est-il sale ?

Item 24

PP-extracted + subject: C'est de ce dossier que la clarté rassure l'avocat pendant le procès.
whole NP + subject: C'est la clarté de ce dossier qui rassure l'avocat pendant le procès.
ungram + subject: C'est ce dossier que la clarté rassure l'avocat pendant le procès.
PP-extracted + object: C'est de ce dossier que l'avocat apprécie la clarté pendant le procès.
whole NP + object: C'est la clarté de ce dossier que l'avocat apprécie pendant le procès.
ungram + object: C'est ce dossier que l'avocat apprécie la clarté pendant le procès.
Comprehension question: Est-ce que le dossier est confus ?

References

Abeillé, A., Clément, L., & Liégeois, L. (2019). Un corpus annoté pour le français : le French Treebank. *TAL Traitement Automatique des Langues, 60*.

Abeillé, A., Hemforth, B., & Winckel, E. (2016). Les relatives en dont du français: études empiriques. In F. Neveu, G. Bergounioux, M.-H. Côté, J.-M. Fournier, L. Hriba, & S. Prévost (Eds.), *27. 5e Congrès Mondial de Linguistique Française (SHS Web of Conferences)*. https://doi.org/10.1051/shsconf/20162714011

Abeillé, A., Hemforth, B., Winckel, E., & Gibson, E. (2020). Extraction from subjects: Differences in acceptability depend on the discourse function of the construction. *Cognition, 204*, Article 104293. https://doi.org/10.1016/j.cognition.2020.104293

Abeillé, A., & Winckel, E. (2020). French subject island? Empirical studies of "dont" and "de qui". *Journal of French Language Studies, 1–26*. https://doi.org/10.1017/S0959269520000137

Ambridge, B., & Goldberg, A. E. (2008). The island status of clausal complements: Evidence in favor of an information structure explanation. *Cognitive Linguistics, 19*(3). https://doi.org/10.1515/COGL.2008.014

Boeckx, C. (2012). *Syntactic islands (key topics in syntax)*. Cambridge, UK: Cambridge University Press.

Borsley, R. D. (1997). Relative clauses and the theory of phrase structure. *Linguistic Inquiry, 28*(4), 629–647. The MIT Press.

Bresnan, J., & Mchombo, S. A. (1987). Topic, pronoun, and agreement in Chicheŵa. *Language, 63*(4), 741. https://doi.org/10.2307/415717

Broekhuis, H. (2006). Extraction from subjects: some remarks on Chomsky's "On phases". In O. Grammar (Ed.), *Hans Broekhuis, Norbert Corver, Riny Huybregts, Ursula Kleinhenz & Jan Koster* (pp. 59–68). Berlin, Boston: DE GRUYTER. Organizing Grammar.

Bürkner, P.-C. (2017). **Brms** : An *R* package for Bayesian multilevel models using *Stan*. *Journal of Statistical Software, 80*(1). https://doi.org/10.18637/jss.v080.i01

Bürkner, P.-C. (2018). Advanced Bayesian multilevel modeling with the R package brms. *The R Journal, 10*(1), 395. https://doi.org/10.32614/RJ-2018-017

Bürkner, P.-C. (2021). Bayesian item response modeling in *R* with **brms** and *Stan*. *Journal of Statistical Software, 100*(5). https://doi.org/10.18637/jss.v100.i05

Cattell, R. (1979). On extractability from quasi-NPs. *Linguistic Inquiry, 10*(1), 168–172. MIT Press.

Chaves, R. P. (2012). An expectation-based account of subject islands and parasitism. *Journal of Linguistics, 49*(2), 297–344.

Chaves, R. P., & Putnam, M. T. (2020). *Unbounded dependency constructions: Theoretical and experimental perspectives*. Oxford University Press.

Chomsky, N. (1973). Conditions on transformations. In S. Anderson, & P. Kiparsky (Eds.), *A festschrift for Morris Halle* (pp. 232–285). New York: Winston.

Chomsky, N. (1977). On wh-movement. In P. W. Culicover, T. Wasow, & A. Akmajian (Eds.), *Formal syntax* (pp. 71–132). New York: Academic Press.

Chomsky, N. (1986). *Barriers*. Mass: MIT Press.

Chomsky, N. (1995). *The minimalist program (Current studies in linguistics)* (Vol. 28). Cambridge, Mass: The MIT Press.

Chomsky, N. (2001). Derivation by phase. In M. Kenstowicz (Ed.), *Ken Hale: A life in language (current studies in linguistics)* (pp. 1–52). The MIT Press. https://doi.org/10.7551/mitpress/4056.001.0001.

Combettes, B. (2021). Les constructions clivées et pseudoclivées. In A. Abeillé, & D. Godard (Eds.), *La grande grammaire du français: GGF, 1957–1967. 1re édition. Arles: Actes sud*. Imprimerie Nationale Éditions.

Culicover, P. W., & Winkler, S. (2022). Parasitic gaps aren't parasitic, or, the case of the uninvited guest. *The Linguistic Review, 39*(1), 1–35. https://doi.org/10.1515/tlr-2021-2080

Cuneo, N., & Goldberg, A. E. (2023). The discourse functions of grammatical constructions explain an enduring syntactic puzzle. *Cognition, 240*, Article 105563. https://doi.org/10.1016/j.cognition.2023.105563

Deane, P. (1991). Limits to attention: A cognitive theory of island phenomena. *Cognitive Linguistics, 2*(1), 1–63.

Destruel, E. (2012). The French c'est-cleft: An empirical study on its meaning and use. In C. Piñon (Ed.), *Empirical issues in syntax and semantics 9 (selected papers from CSSP 2011)* (pp. 95–112).

Destruel, E., Beaver, D. I., & Coppock, E. (2019). It's not what you expected! The surprising nature of cleft alternatives in French and English. *Frontiers in Psychology, 10*, 1400. https://doi.org/10.3389/fpsyg.2019.01400

Destruel, E., Velleman, D., Onea, E., Bumford, D., Xue, J., & Beaver, D. (2015). A cross-linguistic study of the non-at-issueness of exhaustive inferences. In F. Schwarz (Ed.), *Experimental perspectives on presuppositions (studies in theoretical psycholinguistics)* (pp. 135–156). Cham: Springer International Publishing. https://doi.org/10.1007/978-3-319-07980-6_6.

Drummond, A.. Internet Based EXperiments (IBEX). http://spellout.net/ibexfarm.

Erteschik-Shir, N. (1973). *On the nature of island constraints*. MIT.

Erteschik-Shir, N. (2007). *Information structure: The syntax-discourse Interface*. Oxford: Oxford University Press.

Gibson, E. (1998). Linguistic complexity: Locality of syntactic dependencies. *Cognition, 68*, 1–76.

Gibson, E., Hemforth, B., Winckel, E., & Abeillé, A. (2021). Acceptability of extraction out of adjuncts depends on discourse factors. In *Poster presented at the 34th annual CUNY sentence processing conference, virtually at the University of Pennsylvania*. https://www.cuny2021.io/2021/02/24/148/.

Gibson, E., Piantadosi, S., & Fedorenko, K. (2011). Using mechanical Turk to obtain and analyze English acceptability judgments. *Lang & Ling Compass, 5*(8), 509–524.

Godard, D. (1988). *La syntaxe des relatives en français (Science du langage)*. Paris: Eddu Centre national de la Recherche Scientifique.

Goldberg, A. E. (2006). *Constructions at work*. Oxford: Oxford University Press.

Goldberg, A. E. (2013). Backgrounded constituents cannot be extracted. In J. Sprouse, & N. Hornstein (Eds.), *Experimental syntax and island effects*. Cambridge University Press.

Gordon, P. C., Hendrick, R., & Johnson, M. (2001). Memory interference during language processing. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 27*(6), 1411–1423. https://doi.org/10.1037/0278-7393.27.6.1411

Gundel, J. K. (1974). *The Role of Topic and Comment in Linguistic Theory*. University of Texas. Ph.D. Thesis.

Gundel, J. K. (1988). *The role of topic and comment in linguistic theory*. New York: Garland Publishing.

Haegeman, L., Jiménez-Fernández, Á. L., & Radford, A. (2014). Deconstructing the subject condition in terms of cumulative constraint violation. *The Linguistic Review, 31*, 73–150.

Hakes, D. T., Evans, J. S., & Brannon, L. L. (1976). Understanding sentences with relative clauses. *Memory & Cognition, 4*(3), 283–290. https://doi.org/10.3758/BF03213177

Hartmann, J., Jäger, M., Kehl, A., Konietzko, A., & Winkler, S. (Eds.). (2018). *Freezing: Theoretical approaches and empirical domains*. De Gruyter. https://doi.org/10.1515/9781501504266.

Heaton, R., Deen, K., & O'Grady, W. (2016). The status of syntactic ergativity in Kaqchikel. *Lingua, 170*, 35–46. https://doi.org/10.1016/j.lingua.2015.10.006

Heck, F. (2009). On certain properties of pied-piping. *Linguistic Inquiry, 40*(1), 75–111.

Hoffmann, T. (2011). *Preposition placement in English: A usage-based approach (Studies in English language)*. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511933868

Holmes, V. M., & O'Regan, J. K. (1981). Eye fixation patterns during the reading of relative-clause sentences. *Journal of Verbal Learning and Verbal Behavior, 20*(4), 417–430. https://doi.org/10.1016/S0022-5371(81)90533-8

Horn, L. R. (1981). Exhaustiveness and the semantics of clefts. In *, 11. North East Linguistics Society* (p. 10).

Huang, C.-T. J. (1982). *Logical relations in Chinese and the theory of grammar*. Cambridge, Mass: MIT. Ph.D. Thesis.

Huddleston, R., & Pullum, G. (Eds.). (2002). *The Cambridge Grammar of the English language*. Cambridge, UK: Cambridge University Press.

Jackendoff, R. (1972). *Semantic interpretation in generative Grammar*. Cambridge, Massachusetts: MIT Press.

Jurka, J. (2010). *The importance of being a complement*. University of Maryland.

Just, M. A., Carpenter, P. A., Keller, T. A., Eddy, W. F., & Thulborn, K. R. (1996). Brain activation modulated by sentence comprehension. *Science, 274*(5284), 114–116. https://doi.org/10.1126/science.274.5284.114. American Association for the Advancement of Science.

Kobzeva, A., Sant, C., Robbins, P. T., Vos, M., Lohndal, T., & Kush, D. (2022). Comparing island effects for different dependency types in Norwegian. *Languages, 7*(3), 197. https://doi.org/10.3390/languages7030197. Multidisciplinary Digital Publishing Institute.

Kuno, S. (1976). Subject, theme, and the speaker's empathy - a reexamination of relativization phenomena. In C. N. Li (Ed.), *Subject and topic* (pp. 417–444). New York, NY: Academic Press.

Kuno, S. (1987). *Functional syntax – Anaphora, discourse and empathy*. Chicago, IL & London: The University of Chicago Press.

Kush, D., Lohndal, T., & Sprouse, J. (2018). Investigating variation in island effects: A case study of Norwegian wh-extraction. *Natural Language & Linguistic Theory, 36*(3), 743–779. https://doi.org/10.1007/s11049-017-9390-z

Kush, D., Lohndal, T., & Sprouse, J. (2019). On the island sensitivity of topicalization in Norwegian: An experimental investigation. *Language (Baltimore), 95*(3), 393–420.

Lambrecht, K. (1994). *Information structure and sentence form : Topic, focus, and the mental representations of discourse referents (Cambridge studies in linguistics 71)*. Cambridge: University Press.

Lambrecht, K. (2001). A framework for the analysis of cleft constructions. *Linguistics, 39*(3), 463–516. https://doi.org/10.1515/ling.2001.021. De Gruyter Mouton.

Levine, R. D., & Hukari, T. E. (2006). *The Unity of unbounded dependency constructions (CSLI lecture notes)*. Stanford University: CSLI Publications.

Levine, R. D., & Sag, I. A. (2003). Some empirical issues in the Grammar of extraction. In S. Müller (Ed.), *Proceedings of the HPSG-2003 conference, Michigan State University, East Lansing* (pp. 236–256). Stanford: CSLI Publications. https://doi.org/10.21248/hpsg.2003.14.

Liu, Y., Winckel, E., Abeillé, A., Hemforth, B., & Gibson, E. (2022). Structural, functional, and processing perspectives on Linguistic Island effects. *Annual Review of Linguistics, 8*(1), 495–525. https://doi.org/10.1146/annurev-linguistics-011619-030319

Longobardi, G. (1991). Extraction from NP and the proper notion of head government. In A. Giorgi, & G. Longobardi (Eds.), *Vol. 57. The syntax of noun phrases: Configuration, parameters, and empty categories (Cambridge studies in linguistics)* (pp. 57–112). Cambridge [England] ; New York: Cambridge University Press.

Makowski, D., Ben-Shachar, M., & Lüdecke, D. (2019). bayestestR: Describing effects and their uncertainty, existence and significance within the Bayesian framework. *Journal of Open Source Software, 4*(40), 1541. https://doi.org/10.21105/joss.01541

Müller, G. (1998). *Incomplete category fronting: A derivational approach to remnant movement in German*. Dordrecht: Kluwer.

Namboodiripad, S., Cuneo, N., Kramer, M. A., Sedarous, Y., Bisnath, F., Sugimoto, Y., & Goldberg, A. (2022). Backgroundedness Predicts Island status of non-finite adjuncts in English. In *, 44(44). Proceedings of the annual meeting of the cognitive science society*. https://escholarship.org/uc/item/236280w2 (13 March, 2023).

Pizarro-Guevara, J. S., & Wagers, M. (2020). The predictive value of Tagalog voice morphology in filler-gap dependency formation. *Frontiers in Psychology, 11*. https://doi.org/10.3389/fpsyg.2020.00517

Pollard, C. J., & Sag, I. A. (1994). *Head-driven phrase structure grammar (Studies in contemporary linguistics)*. Stanford, California: Center for the Study of Language and Information.

Potts, C. (2005). *The logic of conventional Implicatures (Oxford studies in theoretical linguistics)*. Oxford: Oxford University Press.

Prince, E. (1978). A comparison of wh-clefts and it-clefts in discourse. *Language, 54*, 883–906.

R Core Team. (2023). *R: A language and environment for statistical computing*. Vienna, Austria: R Foundation for Statistical Computing. https://www.R-project.org/.

Reichle, R. V. (2014). Cleft type and focus structure processing in French. *Language, Cognition and Neuroscience, 29*(1), 107–124. https://doi.org/10.1080/01690965.2012.746464

Rizzi, L. (1990). *Relativized minimality (linguistic inquiry monographs)* (Vol. 16). Cambridge, Mass: MIT Press.

Ross, J. R. (1967). *Constraints on variables in syntax*. Cambridge. MA: MIT. Ph.D Thesis. http://hdl.handle.net/1721.1/15166

Sag, I. A. (2010). English filler-gap constructions. *Language, 86*(3), 486–545. https://doi.org/10.1353/lan.2010.0002

Sag, I. A., & Fodor, J. D. (1994). Extraction without traces. In R. Aranovich, W. Byrne, S. Preuss, & M. Senturia (Eds.), *Proceedings of the thirteenth west coast conference on formal linguistics* (pp. 365–384). Stanford: CSLI Publications.

Samo, G., & Merlo, P. (2021). Intervention effects in clefts: A study in quantitative computational syntax. *Glossa: a journal of general linguistics, 6*(1). https://doi.org/10.16995/glossa.5742

Schütze, C. T., Sprouse, J., & Caponigro, I. (2015). Challenges for a theory of islands: A broader perspective on Ambridge, pine, and Lieven. *Language, 91*(2), e31–e39. https://doi.org/10.1353/lan.2015.0014

Selkirk, E. O. (1984). *Phonology and syntax: The relation between sound and structure*. Cambridge, Mass: MIT Press.

Sprouse, J., Caponigro, I., Greco, C., & Cecchetto, C. (2016). Experimental syntax and the variation of island effects in English and Italian. *Natural Language & Linguistic Theory, 34*(1), 307–344. https://doi.org/10.1007/s11049-015-9286-8

Tellier, C. (1990). Subjacency and subject condition violations in French. *CLinguistic Inquiry, 21*, 306–311.

Tellier, C. (1991). *Licensing theory and French parasitic gaps (Studies in natural language and linguistic theory)* (Vol. v. 26). Dordrecht, The Netherlands and Boston: Kluwer Academic Publishers.

Tonhauser, J., Beaver, D. I., & Degen, J. (2018). How projective is projective content? Gradience in Projectivity and at-issueness. *Journal of Semantics, 35*(3), 495–542. https://doi.org/10.1093/jos/ffy007

Uriagereka, J. (2012). *Spell-out and the minimalist program (Oxford linguistics)*. Oxford New York: Oxford University Press.

Vincent, J. W., Sichel, I., & Wagers, M. W. (2022). Extraction from English RCs and cross-linguistic similarities in the environments that facilitate extraction. *Languages, 7*(2), 117. https://doi.org/10.3390/languages7020117. Multidisciplinary Digital Publishing Institute.

Wexler, K., & Culicover, P. W. (1980). *Formal principles of language acquisition*. Cambridge, MA: MIT Press.

Wickham, H. (2016). *ggplot2: Elegant graphics for data analysis*. New York: Springer. https://ggplot2.tidyverse.org.

Wickham, H., Averick, M., Bryan, J., Chang, W., McGowan, L., François, R., Grolemund, G., et al. (2019). Welcome to the Tidyverse. *Journal of Open Source Software, 4*(43), 1686. https://doi.org/10.21105/joss.01686

Winckel, E. (2024). *French subject islands*. Language Science Press.

Winckel, E., Mao, R., Yu, H., Abeillé, A., Hemforth, B., & Gibson, E. (2023). Examining the role of information structure in in-situ interrogatives. In *Poster presented at the 16th international cognitive linguistics conference*. Heinrich Heine University Düsseldorf. https://iclc16.github.io/abstracts/ICLC16_BoA.pdf (26 June, 2024).