Clefts: Quite the contrary![1]

Emilie DESTRUEL — *University of Iowa*
David BEAVER — *University of Texas at Austin*
Elizabeth COPPOCK — *University of Gothenburg and Swedish Collegium for Advanced Study*

Abstract.

Much of the previous literature on English it-clefts – sentences of the form 'It is X that Z' – concentrates on the nature and status of the exhaustivity inference ('nobody/nothing other than X Z'). This paper concerns the way in which it-clefts signal contrast. We argue that it-clefts signal a type of contrast that does not merely involve a salient antecedent, as on more traditional characterizations of contrast such as those of e.g. Kiss (1998) and Rooth (1992), but also involves a conflict between the speaker's and the hearer's beliefs, as under the characterization of contrast given by Zimmermann (2008, 2011), which we term *contrariness*. Results of a felicity judgment experiment suggest that clefts do have a preference for contrariness, and one which has a gradient effect on felicity judgments: the more strongly interlocutors appear committed to an apparently false notion, the better it is to repudiate them with a cleft.

Keywords: English it-clefts, contrast, interlocutors' expectations, existential inference.

1. Introduction

As discussed by Horn (1981: 127), Halvorsen (1978) identified three meaning components for English it-clefts of the form "It is X that V-ed". Consider the following example:

(1)   It's David who smiled.
    a.   David smiled.
    b.   Someone smiled.
    c.   No one other than David smiled.

The cleft sentence (1) gives rise to the three implications in (1a)-(1c): the PREJACENT INFER-ENCE (1a), i.e. the proposition expressed by the canonical form 'X V-ed', an EXISTENTIAL INFERENCE (1b) such that there exists an X who V-ed, and an EXHAUSTIVITY INFERENCE (1c), such that X identifies the sole (or maximal) entity that holds of V. A great deal of the subsequent work on clefts has been dedicated to the exhaustivity implication, aiming both to give a precise characterization of its content and to identify its discourse status, i.e. whether it is conventionally encoded within the cleft itself or arises from pragmatic reasoning on the discourse context (e.g. Halvorsen 1978, Atlas and Levinson 1981, Wedgewood 2007, Velleman et al. 2012, Büring and Kriz 2013, Destruel et al. 2015).

But clefts have also been posited to express a *contrast*, and indeed this tradition dates back to the work in which the term "cleft" was first introduced. Thus we find in Jespersen (1927), which is perhaps the first general treatment of clefts, "A cleaving of a sentence by means of *it is*

(often followed by a relative pronoun or connective) serves to single out one particular element of the sentence and very often, by directing attention to it and bringing it, as it were, into focus, to mark a contrast. (Jespersen 1927: 147f.). Later work discussing clefts' contrastive function includes É. Kiss 1998, Patten 2012: 85ff, Destruel and Velleman 2014, and Umbach 2004, p. 4 who follows É. Kiss.

In the literature, the notion of *contrast* is often discussed in relation to two other primitives of information structure, topic and focus. Since clefts are known to be focus-marking devices, we will be interested in contrast in focus-related contexts. We take focus to be the part of the sentence that evokes a set of alternatives relevant for the interpretation of that sentence, and which is taken to be salient by the speaker (Rooth, 1985, 1992; Krifka, 2007). Now, turning to contrastive focus, several definitions have been offered. For É. Kiss (1998: 267), a so-called *identificational focus* has the feature [+contrastive] "if it operates on a closed set of entities whose members are known to the participants of the discourse... In this case, the identification of a subset of the given set also identifies the contrasting complementary subset." Rooth (1992) defines contrast as a subcase of a more general notion of focus; for Rooth, a phrase α should be taken as contrasting with a phrase β if the ordinary semantic value of β is a subset of the focus semantic value of α.

But, as Zimmerman (2008) points out, the two approaches described above do not fully predict when contrast-marking constructions such as clefts will be used. In languages as diverse as Finish and Hausa, which are argued to use clefts to indicate exhaustivity or the presence of an antecedent, canonical sentences can sometimes be used when an exhaustive meaning is intended and an explicit antecedent is present—as illustrated in Hausa in example (2) (taken from Zimmerman 2008: 351). This suggests that there may not be a strict one-to-one correspondence between a certain focus interpretation, i.e. here contrastive, and the way in which it is realized grammatically.

(2) a. You will pay 20 naira.
     b. A'a, zâ-n   biyaa shâ   bìyar̃ nèe.
         no, FUT-1SG pay   fifteen PRT
         'No, I will pay [fifteen.]$_f$'

As opposed to Kiss and Rooth, Zimmerman (2008) argues for a notion of contrast that calls on *hearer expectation*, i.e. whereby a focused constituent α is a contrastive focus whenever the speaker assumes that "the hearer will not consider the content of α or the speech act containting α likely to be(come) common ground" (Zimmerman, 2008: 9). Since it relates to speaker and hearer belief, it can be thought of as *doxastic contrast*, but to avoid confusion with existing notions of contrast, we will use the term *contrariness*.

With these distinctions in mind, let us distinguish among three imaginable hypotheses:

- Hypothesis A: The meaning components identified by Halvorsen (1978) (the Halvorsen components) are sufficient to capture the significance of a cleft construction.

- Hypothesis B: In addition to the Halvorsen components, clefts signal a non-doxastic type

of contrast, of the type characterized by É. Kiss (1998) or Rooth (1992).

- Hypothesis C: In addition to the Halvorsen components, clefts signal a doxastic type of contrast, i.e. contrariness.

Hypothesis B is appealing, at least at first sight, because it accounts for some important judgments such as the observation that, while it-clefts often sound odd as direct answers to overt questions, as in (4) (see also results from Destruel and Velleman 2014 who find this context to lead to the lowest naturalness ratings for clefts), they often sound much better as corrections, as in (3).[2] In this case, the previous utterance being corrected provides exactly the kind of antecedent that Rooth mentions for a contrastive focus.

(3)   A: I wonder why Alex cooked so much beans.
       B: Actually, it was John who cooked the beans.

(4)   A: Who cooked the beans?
       B: #It was John who cooked the beans.[3]

However, Hypothesis B is not without limitations. There are certain observations that it cannot explain. For instance, in contexts in which an antecedent *is* available, speakers may nevertheless choose not to use a cleft. Indeed, in some such contexts, clefts seem actively dispreferred, and their use sounds stilted and odd. For instance, (5b) does not strike us as good idiomatic English. This is confirmed in the rating experiment conducted by Destruel and Velleman (2014) where this particular sentence was actually given a lower naturalness rating than (6b), despite the fact that (5b) has an antecedent available (viz. Canada) and (6b) does not.

(5)   A: Darren sounded really excited about his vacation. I think he might be going to Canada.
       a.   B: Actually, he's going to Mexico.
       b.   B: ? Actually, it's Mexico that he's going to.

(6)   A: We were planning Amy's surprise party for weeks. I can't believe she found out about it. Who told her about it?
       a.   B: Ken told her about it.
       b.   B: It was Ken who told her about it.

So, we are still left with the question: If the mere presence of an antecedent is not "enough" to drive the naturalness ratings of a cleft up, what else is needed to make it-clefts good? In this paper, we will follow Zimmerman's (2008) notion of contrast and set out to test Hypothesis C. We will give experimental evidence showing that *contrariness* has a positive and gradient

---

[2]Indeed, our invocation of *contrariness* could be seen as an implementation of the notion of *corrective focus*: see e.g. Gussenhoven 2008. However, there are some cases where contrariness could be argued to be at play that do not involve what one would be inclined to call corrections, including "Either Mary ate the beans, or it was John who ate them." For this reason, we take it that correction, although it is a possible use of clefts, is not what clefts mark.

[3]Throughout the paper, we will indicate ungrammaticality with an asterisk (*) and infelicity with a hash (#).

effect on the felicity of clefts: The more there is a contrast in expectation between the speaker and the hearer, the better clefts are.

2. Experiments

The core idea behind the set of experiments presented hereafter (two pre-tests and one main study) is to test Hypothesis C described in the introduction: the more strongly an interlocutor appears committed to a (false) proposition, the better it is to repudiate them with a cleft. This means that the presence of a focal antecedent in the discourse, although maybe necessary, is not a sufficient use-condition for it-clefts. Rather, it is when they are used as a response to an (explicit) contrary claim that clefts are most felicitous.

2.1. Design and Material

In all experiments below, the same source sentences were used to generate the stimuli that were provided to subjects, and the stimuli were always presented in written form. In the main study, the stimuli consisted of a short dialogue between Speaker A who provided the context, and Speaker B who provided the contrary comment. A's part, as illustrated in (7), always contained three sentences, the first two establishing the context and the last one containing the information on which B's comment was based. Experimental items varied depending on the form of the last sentence in A's discourse across six possible contexts. The six different contexts were designed to vary along three dimensions: (i) CONTRADICTION, i.e. whether or not the information in B's sentence contradicted the information stated in the last sentence uttered by A, (ii) COMMITMENT, i.e. the strength with which A was committed to his statement (as measured in a pre-test), and (iii) AT-ISSUENESS, i.e. whether or not the relevant proposition in A's speech commented on by B was at-issue. B's part was always either in a canonical form or a cleft form. When A's context was non-contradictory (context 1), B's sentence was always introduced by "Yeah,...", while in the other contexts (contexts 2 through 6), B's sentence was introduced by "Actually,...". The different conditions are summarized in Table 1, and an illustrative sample is given in (7)-(8).

	Contradiction	Strength of Commitment	At-issueness
1- Non-contradictory	no	+	no
2- Weak at-issue	yes	++	yes
3- Weak non-at-issue	yes	+++	no
4- Strong at-issue	yes	++++	yes
5- Strong non-at-issue	yes	+++++	no
6- Presuppositional	yes	++++++	no

Table 1: Conditions for A's last sentence.

(7)   **Contexts (sample lexicalization)**
        Speaker A: We were planning Amy's surprise party for weeks. I can't believe she found out about it. [...]
        a.   Context 1: ... I guess someone from the staff told her.
        b.   Context 2: ... I guess Alice must have told her.

c.   Context 3: ... And Alice—who I think, probably went and told her about it—just laughed and said it was no big deal!

d.   Context 4: ... Alice told her about it, you know.

e.   Context 5: ... And Alice—who went and told her about it—just laughed and said it was no big deal!

f.   Context 6: ... I'm annoyed that Alice told her about it!

(8)   **Sentences to rate (sample lexicalization)**
Speaker B: (Yeah/ Actually,) [...]
a.   Ken told her about it.
b.   it's Ken who told her about it.

Finally, we also controlled for the GRAMMATICAL FUNCTION of the element that B commented on, i.e. a grammatical subject or an object. Example (7) above illustrates the subject condition. An example of the object condition for context 1, i.e. the non-contradictory context, is given below in (9):

(9)   a.   Speaker A: Look at John this evening! He's all dressed up. [...] I guess he's going out with someone from the marketing team.

        b.   Speaker B: Yeah, he's going out with Karen/ Yeah, it's Karen he's going out with.

We created a total of 12 lexicalizations for each contexts, thus 72 experimental dialogues per grammatical function (or 144 total). Three groups of participants were recruited. Participants in the main study were asked to judge the naturalness of B's part based on A's. In pre-test 1 and pre-test 2, the two different groups of participants only saw and rated A's part. The specifics of each task are discussed in more details hereafter in subsections 2.2-2.4.

2.2. Pre-test 1: Strength of existential inference

Motivation: It is important for our argument that any effect we find of doxastic contrast is not an artifact of variation among items with respect to the strength of the existential inference that they give rise to. We therefore carried out a pre-test in order to measure the strength of the existential inference in A's part, in other words, how strongly A believes that someone V-ed.

Procedure: In this task, participants only saw and judged A's discourse. A total of 65 participants, all undergraduates at the University of Iowa, were recruited from a first-year language class and given extra-credit for their participation. The test was delivered via the web-based survey site Qualtrics. Participants sat in front of a computer screen and read a total of 24 contexts (A's part) pseudo-randomized among 24 fillers. On each trial, they saw Speaker A's sentences and were asked to judge, on a scale from 1-7, how likely it is that the speaker thinks that somebody V-ed. So for instance, given context 1 in (7a) above, participants would be asked how likely is it that someone told Amy about her surprise party (1 corresponding to extremely unlikely, and 7 to extremely likely).

Results: Mean naturalness ratings for the strength of the existential inference in A's sentence are presented in Table 2. Overall, we observe that participants deem the likelihood of speaker thinking that someone V-ed lower for the context that lacks a contrast between A's sentence and B's response (i.e. context 1), versus other contexts. The data were analyzed using a mixed effect linear regression model to predict ratings with by-participant and by-item random intercept, and contrast as a factor (sum-coded as -1/1 for context 1 vs. others, respectively). Results reveal a significant effect of CONTRAST on existential ratings ($\beta = 2.043$, SE = 0.091, t = 22.24, p < .001), suggesting that, indeed, there was a significant difference in ratings between context 1 and the others where a conjecture was present.

Context	Mean ratings (Subject)	Mean ratings (Object)	Overall ratings
1- Non-contradictory	4.6	4.4	4.5
2- Weak at-issue	6.5	6.3	6.4
3- Weak non-at-issue	6.5	6.5	6.5
4- Strong at-issue	6.6	6.7	6.7
5- Strong non-at-issue	6.4	6.4	6.4
6- Presuppositional	6.7	6.7	6.7

Table 2: Mean naturalness ratings for Pre-test 1.

Crucially though, focusing on the contradictory data set, we see that contexts 2-6 do not significantly differ from each other with respect to A's commitment to existence. This is good news: If we further find that these contexts differ in the strength of A's commitment to a statement that B will contradict (as they were designed to do and tested in pre-test 2), then we will be able to test our prediction as stated in Hypothesis C.

2.3. Pre-test 2: Strength of commitment

Motivation: Recall that we designed for four levels of commitment strength, namely *non-contradictory*, *weak*, *strong* and *presuppositional*, with the underlying assumption that commitment would get increasingly stronger in these contexts. In pre-test 2 we measured commitment strength (how strongly committed A is to 'X V-ed') directly. This gave us a more accurate measure of this factor to use, and allowed us to confirm that the contexts we created were indeed, as they were designed to be, different from each other with respect to the strength of commitment of Speaker A to the prejacent proposition in his last utterance (the target proposition).

Procedure: A total of 65 participants were recruited, different from those who took part in pre-test 1. They were all undergraduates at the University of Iowa. They were enrolled in a first-year language class and were given extra credit for their participation. The test was delivered via Qualtrics. Participants sat in front of a computer screen and read a total of 24 contexts (A's part) pseudo-randomized among 24 fillers. On each trial, they saw Speaker A's sentences and were asked to judge, on a scale from 1-7, how strongly Speaker A is committed to the fact that X V-ed. So for instance, given context 1 in (7a) above, participants would be asked how strongly is Speaker A committed to the proposition that someone from the staff told Amy about her surprise party (with 1 corresponding to extremely uncommitted and 7 to extremely committed).

Results: Mean naturalness ratings are reported in Table 3. Overall, we observe that the context with the lowest rating, as predicted, is the one where there is no contradiction (context 1). We then observe a strengthening trend, with contexts 4-6—which we designed as containing a stronger commitment of A to the prejacent proposition—being rated higher than contexts 2-3, which were meant to weakly commit A to the prejacent. This result is welcome and suggests that there is indeed a difference between contexts in A's degree of commitment to the prejacent.

Context	Mean ratings (Subject)	Mean ratings (Object)	Overall ratings
1- Non-contradictory	2.2	2	2.1
2- Weak at-issue	3.6	3.9	3.8
3- Weak non-at-issue	2.7	2.6	2.7
4- Strong at-issue	6.1	6.1	6.1
5- Strong non-at-issue	5.5	5.3	5.4
6- Presuppositional	5.3	5.6	5.5

Table 3: Mean naturalness ratings for Pre-test 2.

The results from the two pre-tests are illustrated in relation to each other in Figure 1. Recall that contradictory contexts (2-6) all provide an antecedent and commit Speaker A to existence (illustrated by the fact that ratings on the x-axis are homogeneously high). But, importantly, we observe that they differ in the strength of A's commitment to a statement that B will contradict, which allows us to test Hypothesis C.
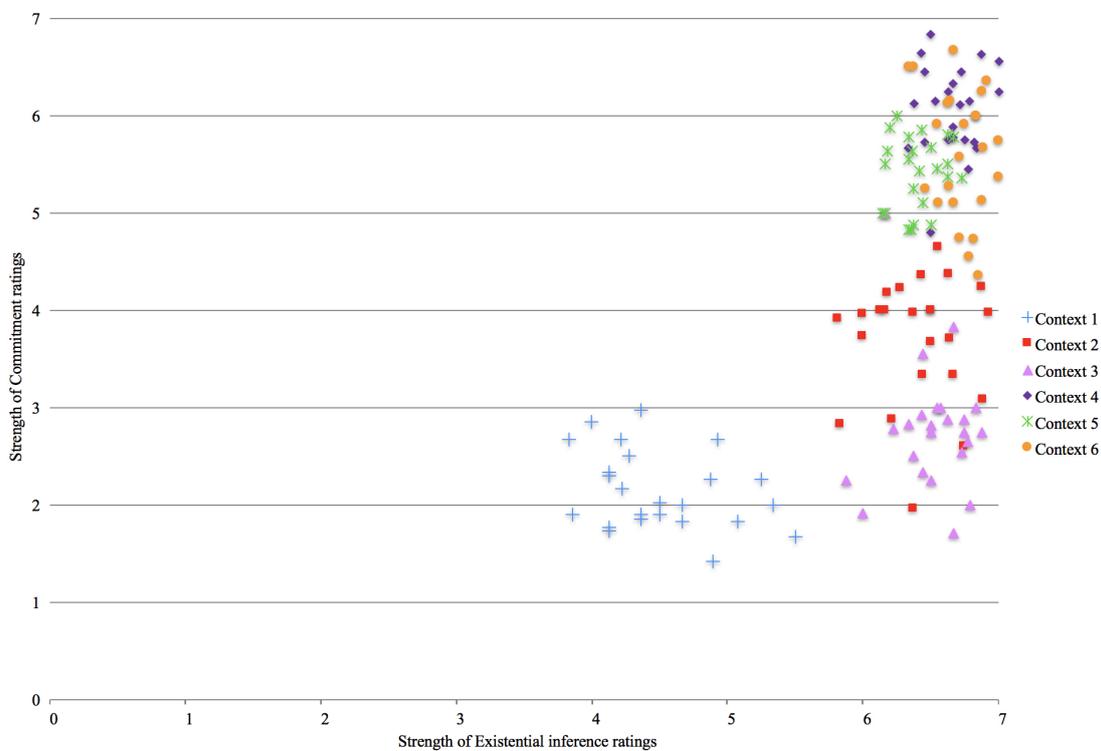

Figure 1: Existential * Strength of commitment.

2.4. Main study

Goal: The overarching goal of the main study is to test Hypothesis C. We investigated the effect of four factors on participants' naturalness ratings of clefts and canonicals: (i) EXISTENCE (results from strength of existence as reported in pre-test 1), (ii) GRAMMATICAL FUNCTION, i.e. whether the focus was a subject or an object, (iii) AT-ISSUENESS, i.e. whether or not the element in A's speech commented on by B was at-issue and (iv) CONTRARINESS.

The motivation behind including AT-ISSUENESS as a factor comes from Destruel and Velleman (2014), who also argue for the relevance of *contrast in expectation* in the interpretation of clefts, and argue that two types of expectations may be at play; not just expectations about the state of the world but also expectations about the shape and direction of discourse. The latter type is directly relevant here since it may involve beliefs about the direction in which the discourse is going, expressed, among other ways, by marking content as at-issue or not-at-issue. We assume that interlocutors taking part in a discourse will generally address the propositions that are currently at-issue. Thus, a move which addresses a previously not-at-issue proposition is an *unexpected* discourse move. Consequently, if it-clefts are more natural when there is a conflict in expectations, we expect clefts to be judged more acceptable if Speaker B is commenting on content which had previously been marked as not-at-issue (in A's speech), thereby violating the expectation that such content will not need to be discussed further.

The factor CONTRARINESS was measured as follows: In non-contradictory contexts, items were attributed a contrariness value of 0, because Speaker B does not say anything that conflicts with what Speaker A says. In contradictory contexts, the contrariness value for an item is the strength of Speaker A's commitment to the conflicting proposition (as measured in pre-test 2). Thus, contrariness was operationalized as the product of commitment and contradiction, i.e. Contrariness = Commitment $*$ Contradiction. If Hypothesis C turns out to be borne out, we expect that clefts will be judged as more natural in contexts where contrariness is higher.

Procedure: For this study, we counterbalanced the experimental dialogues across 12 lists so that each participant saw 24 items (12 subjects and 12 objects). The order of the items was pseudo-randomized among 24 fillers. A total of 64 participants recruited on Amazon's Mechanical Turk and paid for their participation. On each trial, participants saw a written context (Speaker A's part) followed Speaker B's sentence in either a cleft or a canonical form. Participants were asked to rate "How natural is Speaker B's sentence given A's" on a seven point Likert scale, with endpoints labeled as "extremely natural" and "extremely unnatural".

Results: We present results by sentence form, for clefts first, then for canonicals. Visual inspection of Figure 2 suggests that clefts were overall rated as more natural when the context contains a stronger degree of contrariness (as illustrated by the upward trend in the position of the red dots) than when the context does not include a contrast at all (blue dots). We analyzed the cleft data by fitting a series of mixed effect models predicting naturalness ratings from the fixed effects of interest and random effect structures that included random by-participant and by-item intercepts. Results were obtained using the *lme4* package (Bates et al., 2015) in R (R Core team 2016). We found no main effect of GRAMMATICAL FUNCTION ($\beta = 0.376$, SE =

0.114, t = 1.64), suggesting that whether the focus is a subject or an object, the naturalness ratings for the cleft are not influenced. Surprisingly, we also found no effect of AT-ISSUENESS (β = -0.518, SE = 0.113, t = -1.55); when clefts were used to signal an unexpected discourse move, i.e. to contrast on an element that was part of the non-at-issue content of A's speech, they were not drastically better than when commenting on an at-issue part of discourse.

There was, however, a main effect of EXISTENCE (β = 0.91, SE = 0.061, t = 14.8), suggesting that clefts are rated significantly better in contexts where the existence of the element to be contrasted is assumed, and an effect of CONTRARINESS (β = 0.383, SE = 0.022, t = 17.36), which supports Hypothesis C. Among models that contain subsets of these factors, the model that gave the best fit to the data was one that included both factors (i.e. Judgment $\sim$ Existence + Contrariness, χ^2 = 69.5, p < .001)

Figure 3 combines the results for clefts and canonicals, with the lighter-colored dots representing the naturalness ratings of clefts (light red) and of canonicals (light blue) in the one experimental context where there is no contradiction present. Darker-colored dots represent the naturalness ratings for both sentence forms in other contexts, plotted by the strength of contrariness attributed to these contexts (i.e. commitment results from pre-test 1 * contradiction).
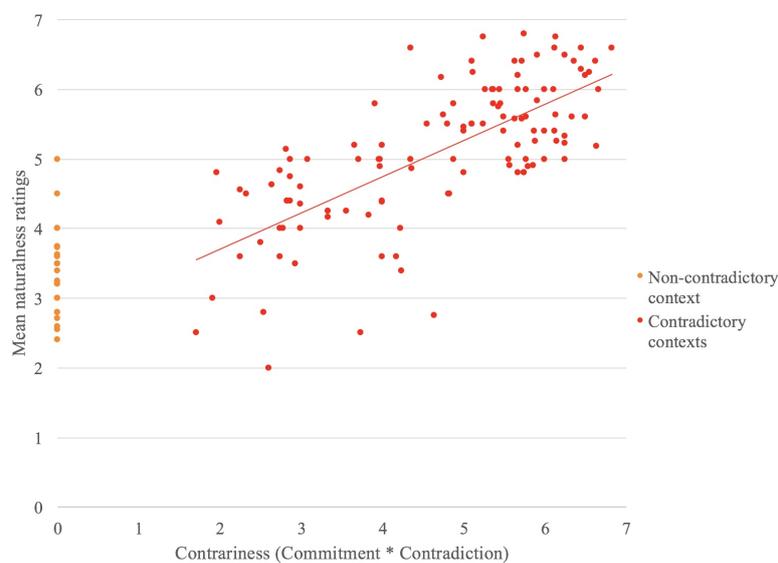

Figure 2: Mean naturalness ratings for clefts by ratings for contrariness.

Visual inspection of Figure 3 suggests that, for canonical sentences, the trend is quite different. As opposed to clefts, when the context does not include a contradiction, canonical sentences are rated as very natural. This should come to no surprise since, in English, canonical sentences constitute an unmarked sentence form, and are commonly used to answer an explicit wh-question. The trend for canonicals is also different from clefts when looking at contexts that *do* include a contradiction: the felicity of canonicals does not significantly improve as the level of contrariness increases, but in fact decreases. These observations are reflected in the results of our statistical analysis: Fitting a series of mixed-effect linear regression models to the
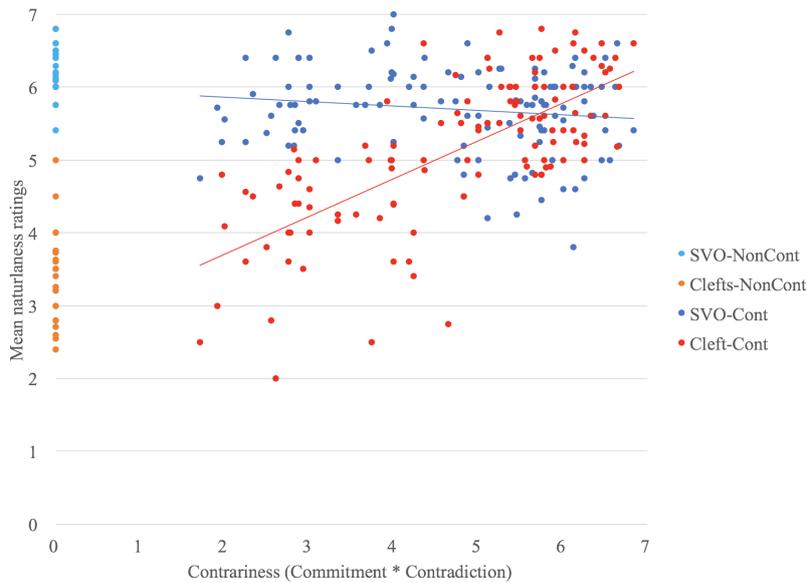
Figure 3: Mean naturalness ratings for canonicals vs. clefts by ratings for contrariness.

subset of data for canonicals only reveals a main effect of CONTRARINESS ($\beta = -0.092$, SE = 0.017, t = -5.24), but no effect of the other predictors (GRAMMATICAL FUNCTION, t= 1.43; AT-ISSUENESS, t= -1.28 and EXISTENCE, t= 1.19). Here, a model that includes both Existence and Contrariness does not give a better fit to the data than the two models with each single predictors (χ^2 = 1.39, p = 0.23; χ^2 = 2.75, p = 0.19, respectively).

One thing to note is that, in our experiment, sentences were delivered in written form, therefore without prosodic marking. It is possible that naturalness ratings could have been higher for contexts with a high level of contrariness if the stimuli had been heard with (the appropriate) pitch accent. Indeed, English commonly resorts to prosody to signal information structure, and contrastive focus is known to have a particular prosodic contour (Selkirk, 2002; Katz and Selkirk, 2011).

3. Closing Discussion

Our experimental results provide clear evidence in favor of the hypothesis that the felicity of clefts is related to the presence of *doxastic contrast* (Hypothesis C).

The goal of the present paper was to test prior hypotheses concerning cleft's standard components of meaning. We hypothesized that the mere presence of an antecedent in discourse which the clefted element would pick up and comment on (i.e. simple contrast) would not suffice to fully explain the felicity pattern of English it-clefts. Instead, we set out to test the hypothesis that something more refined is needed, namely a notion of contrast that includes a conflict between interlocutors' expectations. We followed Zimmermann's notion of constrast, which relates to how strongly the addressee believes the contrary, and experimentally operationalized it. So what have we learned?

We have shown that the presence of an explicit alternative—or in other words of a contrast, as defined in semantic terms by the previous literature (Rooth, 1992)—does increase the naturalness of clefts. This suggests that the presence of an antecedent is a necessary condition for clefts to be felicitous. But our study shows that it is not sufficient. Instead, we have shown that the factor which leads clefts to be significantly preferred (in contrast to canonicals and controlling for other factors known to influence the acceptability of clefts such as existence) is that of contrariness as defined along the lines of Zimmermann: Clefts are more natural when there exist a metalinguistic contrast. Additionally, we have seen that one type of expectation is most relevant for this metalinguistic contrast—expectations involving interlocutors' beliefs about the world (i.e. expectations about what content is likely to be added in the common-ground). On the other hand, our study showed that a conflict with respect to the direction in which the discourse is heading, operationalized as the conflicting element being (non)-at-issue, was not relevant as this factor did not influence naturalness ratings. In sum, our main finding is that clefts are better not only when there is an antecedent to contradict in the preceding discourse context, but crucially when this antecedent is not the one expected by the listener. This result is not captured by any existing model of clefts.

Another interesting point concerns the felicity of canonical sentences, and its relation to clefts. Indeed, in many languages, clefts and canonicals are considered to be in competition in focus-related contexts. This means that, in theory, when canonicals are "bad", clefts take over as the preferred strategy and are more felicitous. Put slightly differently, clefts' emergence in discourse can depend on canonicals' availability and naturalness. But this is not the case In English. Indeed, our results do not show a complete reversal in trend, whereby canonicals become drastically unnatural in contexts where clefts increase in felicity. This is not surprising given that in English, focus (including contrastive focus) is typically marked via prosodic means. Thus, canonicals are never truly bad. Clefts simply represent an additional option the language has to signal a (even more) marked interpretation, e.g. doxastic contrast, unambiguously. On the contrary, in languages where canonicals are less (or not) available, like in French, we expect clefts to be judged more natural in non-contradictory contexts, but still expect an effect of contrariness on their felicity. We leave this as an issue to be investigated in future work.

Finally, the results of the present study have implications for current theories of focus. Much prior work on focus has emphasized properties that relate to the presence of some prior structure in discourse, for example the presence of a question, of an element of the same type as the target, or of a clause which exhibits structural parallelism. A quite different line of work was initiated by Pierrehumbert and Hirschberg 1990, who analyze various types of intonational contour in terms of speaker and hearer expectations. Our experiments and analysis imply that clefts have an intrinsically doxastic function. At the very least, this suggests that something like the Pierrehumbert and Hirschberg approach is the right one for analyzing the marking of information structure more generally. Our conclusion is that approaches which limit themselves to the occurrence or non-occurence of particular words or structures in a text are inherently insufficient to explain the distribution and interpretation of information-structural devices in English, and that a full theory of information structural marking must refer to doxastic notions such as the speaker's expectation as to what the hearer believes.

References

Atlas, J. and S. Levinson (1981). It-clefts, informativeness, and logical form: radical pragmatics (revised standard version). In P. Cole (Ed.), *Radical Pragmatics*, pp. 1–61.

Büring, D. and M. Kriz (2013). It's that, and that's it! exhaustivity and homogeneity presupposition in clefts (and definites). *Semantics & Pragmatics*.

Destruel, E. and L. Velleman (2014). Refining contrast: Empirical evidence from the English *it*-cleft. In C. Piñón (Ed.), *Empirical Issues in Syntax and Semantics 10*, pp. 197–214.

Destruel, E., L. Velleman, E. Onea, D. Bumford, J. Xue, and D. Beaver (2015). A cross-linguistic study of the non-at-issueness of exhaustive inferences. In F. Schwarz (Ed.), *Experimental Perspectives on Presuppositions*, pp. 135–156. Springer.

É. Kiss, K. (1998). Identificational focus versus information focus. *Language*, 245–273.

Gussenhoven, C. (2008). Types of focus in english. In *Topic and focus*, pp. 83–100. Springer.

Halvorsen, P. (1978). *The Syntax and Semantics of Cleft Constructions*. Ph. D. thesis, University of Texas at Austin.

Horn, L. R. (1981). Exhaustiveness and the semantics of clefts. In *Proceedings of NELS 11*, pp. 125–142.

Jespersen, O. (1927). *A Modern English grammar on historical principles: Part VII: Syntax. (Completed and edited by Niels Haislund)*. Heidelberg: Carl Winters. Reprinted 1961 Allen & Unwin, London and Ejnar Munksgaard, Copenhagen.

Katz, J. and E. Selkirk (2011). Contrastive focus vs. discourse-new: evidence from prosodic prominence in english. *Language 4*(87), 771–816.

Krifka, M. (2007). Basic notions of information structure. In C. Féry and M. Krifka (Eds.), *Interdisciplinary Studies of Information Structure 6*. Postdam.

Patten, A. (2012). *The English It-cleft: A Constructional Account and a Diachronic Investigation*. Amsterdam: De Gruyter.

Pierrehumbert, J. and J. Hirschberg (1990). The meaning of intonational contours in the interpretation of discourse. *Intentions in communication*.

Rooth, M. (1985). *Association with Focus*. UMass. Amherst: Graduate Linguistics Student Association.

Rooth, M. (1992). A theory of focus interpretation. *Natural Language Semantics 1*, 75–116.

Selkirk, E. (2002). Contrastive focus vs. presentational focus: Prosodic evidence from the right node raising in english. In B. Bel and I. Marlien (Eds.), *Speech Prosody 2002: Proceedings of the First International Speech Prosody Conference*, pp. 643–646.

Velleman, D., D. Beaver, E. Onea, D. Bumford, E. Destruel, and E. Coppock (2012). It-clefts are IT (Inquiry Terminating) constructions. In *Proceedings of Semantics and Linguistic Theory (SALT) 22*, pp. 441–460. eLanguage.

Wedgewood, D. (2007). Identifying inferences in focus. In K. Schwabe and S. Winkler (Eds.), *On Information Structure, Meaning and Form*, Amsterdam. John Benjamins.

Zimmerman, M. (2008). Contrastive focus and emphasis. In *Acta Linguistica Hungarica*, pp. 347–360.