Modeling the exhaustivity inference of clefts: evidence from Ga (Kwa)[1]

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Abstract. Cross-linguistically, cleft structures are observed to give rise to an exhaustivity inference modeled in various ways. This paper argues based on the new data from Ga (Kwa) collected in Ghana that a distinction into collective and distributive predicates is an important factor interacting with the exhaustive interpretation of clefts.

Keywords: clefts, exhaustivity inference, collective and distributive predicates, Ga (Kwa)

1. Introduction

Cross-linguistically, clefts induce a structural bi-partition into the focused constituent and the back-grounded material. It is exemplified in (1), in which the focused constituent ('Klaus'), a so-called 'pivot,' is clearly separated from the backgrounded material.

(1)   Q: Wer hat   gestern   'Schuld und Sühne'   gelesen?
            who have yesterday 'Crime and Punishment' read
            'Who read 'Crime and Punishment' yesterday?'
       A: **Es war** Klaus, **der** gestern   'Schuld und Sühne'   gelesen hat.
            it   was Klaus that yesterday 'Crime and Punishment' read   have
            'It was Klaus who read 'Crime and Punishment' yesterday.'

Cleft structures trigger an exhaustive interpretation (e.g., Percus 1997, Büring 2011, Velleman et al. 2012, Büring and Križ 2013), i.e., an inference that the pivot is interpreted as the only element satisfying the backgrounded description. Consider (1). It obtains the interpretation that Klaus read 'Crime and Punishment' yesterday and that nobody but Klaus read 'Crime and Punishment' yesterday. The latter is the exhaustive meaning.

There is an ongoing discussion on the nature of the exhaustive meaning triggered by clefts and on how to best model this inference.[2] Based on the novel data from Ga, I argue that a distinction into distributive-collective predicates is an additional compound that should be taken into consideration while accounting for the exhaustivity of clefts in a cross-linguistic perspective. Consider (2). Whereas (2-a) is judged to be acceptable by Ga native speakers, (2-b) is judged to be unacceptable:[3]

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[1] This paper is based on chapter 4 of my dissertation 'Exhaustivity. On exclusive particles, clefts, and progressive aspect in Ga (Kwa).'

[2] For the opposite view, i.e., that clefts do not trigger an exhaustive inference, see for example Pollard and Yasavul (2014).

[3] The glosses used in this paper are as follows: DET = determiner; SG = singular; 1 = First person; 2 = Second person; 3 = Third person; PRT = particle; NOM = nominalizer; NEG = negation; COMPL = complementizer; REL =

(2) a. Jeee Fred **ni** e-fɔ   nine e-tsɛ   lɛ. E-tsɛ   Fred kɛ Gord.
         NEG Fred PRT 3SG-throw hand 3SG-call PRT 3SG-call Fred and Gord
         'It wasn't Fred she invited. She invited Fred and Gord.'
     b. #Jeee Kofi ni   Maria fɔ.   E-fɔ   Kofi kɛ Emmanuel.
         NEG Kofi PRT Maria give.birth 3SG-give.birth Kofi and Emmanuel
         'It's not Kofi to whom Maria gave birth. She gave birth to Kofi and Emmanuel.'

This paper aims at accounting for the contrast in (2). The outline of the paper is as follows. Section 2 gives an overview of the information structural properties of the Ga *ni*-structure (cleft).[4] Section 3 discusses its semantic properties. Subsequently, section 4 provides a syntactic and a semantic analysis of the Ga clefts and section 5 summarizes.

2. Information structural properties of the *ni*-structure

Ga (Kwa) is an under-researched Ghanaian language spoken in the Greater Accra Region by about 600.000 speakers. It has two tones: High and Low. All the data stem from the author's original fieldwork with four Ga native speakers in Accra and one Ga native speaker in Berlin. All of the language consultants grew up in a Ga speaking communities. The fieldwork methodology is based on Matthewson (2004).

The particle *ni* induces a structural bi-partition into the focused constituent to its left (a so-called 'pivot') and the backgrounded material to its right.[5] This view is based on the observation that the pivot is acceptable as an answer to wh-questions, as presented in (3). However, an element out of the pivot is not, as demonstrated in (4) and (5):

(3) Q: Who ate banku yesterday?
     A: Kofi **ni**   ye banku nyɛ.
         Kofi PRT eat banku yesterday
         'It is Kofi who ate banku yesterday.'

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relativizer; COP = copula; IMPF = imperfective; PFV = perfective; PROSP = prospective; QPRT = question particle. An example marked with '*' means that the example was judged to be unacceptable in the given context and I hypothesize that it is for grammatical reasons, '#'/'??' also means that the example was judged as unacceptable in the given context but for semantic or pragmatic reasons; in the case of ?? the judgments were not so clear as in the case of '#'. Finally, examples without any diacritics were judged as acceptable in the given context.

[4]For arguments that the *ni*-structure should be analyzed as a cleft, see Renans (2016).

[5]The particle *ni* in Ga comes in two guises, i.e., namely as high tone *ní* and low tone *nì* (Dakubu 2005). The high-tone *ní* functions as a complementizer. On the other hand, there are two low tone *nì*s, where one functions as a conjunction and one introduces a cleft structure. In this paper, I analyze only the low tone *nì* introducing cleft structures. Therefore, the tone marking is omitted.

(4) Q: Namɔ (ni) kane wolo?
          who PRT read book
          'Who read a book?'
      A: #Wolo **ni**   Kofi kane.
          book PRT Kofi read
          'It is a book that Kofi read.'

(5) Q: Mɛni (ni) Kofi ye nyɛ?
          what PRT Kofi eat yesterday
          'What did Kofi eat yesterday?'
      A: #Kofi **ni**   ye abele.
          Kofi PRT eat corn
          'It is Kofi who ate corn.'

Another piece of data suggesting that pivots are restricted to be in focus is an observation that they cannot express aboutness topics, as presented in (6):[6]

(6)   Tell me something about John.
      A1:#John **ni**   kane wolo nyɛ.
          John PRT read book yesterday
      A2: John lɛ, e-kane   wolo nyɛ.
          John DET 3SG-read book yesterday
          'As for John, he read a book yesterday.'

Moreover, the particle *ni* has a rigid syntactic position, i.e., it can only occur just after the ex-situ focused constituent. Therefore, it cannot associate with focus from a distance, as demonstrated in (7), and it cannot attach to in-situ focused constituents, as shown in (8):

(7) Q: Who read a book yesterday?
      A: Kofi **ni**   kane (***ni**) wolo (***ni**).
          Kofi PRT read PRT book PRT
          'It is Kofi who read a book.'

(8) Q: What did Kofi read yesterday?
      A1:*Kofi kane adesawolo **ni**   nyɛ.
          Kofi read newspaper PRT yesterday
      A2: Adesawolo **ni**   Kofi kane nyɛ.
          newspaper PRT Kofi read yesterday
          'It was a newspaper that Kofi read yesterday.'

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[6]Note that the particle *lɛ* has many functions, e.g., it functions as a topic/background marker and as a definite determiner (Dakubu 1992, Renans 2016). I gloss it DET.

3. Semantic properties of the *ni*-structure

3.1. The exhaustivity inference

That Ga *ni*-structures give rise to an exhaustivity effect which is suggested by the results of the tests discussed below.

3.1.1. Test #1: Conjunction of two clauses containing *ni*

The diagnostics demonstrated in (9) is based on the observation that one cannot conjoin two exhaustively interpreted clauses that differ only in the exhaustified constituent. If the particle *ni* does not give rise to the exhaustive interpretation, it should be possible to conjoin two sentences with the particle *ni* and the same VP-descriptions but with different elements in pivots, contrary to fact. Consider (9-a):

(9)   a. #Felix **ni** kane-ɔ   wolo ni Kofi **ni** kane-ɔ   wolo.
          Felix PRT read-IMPF book and Kofi PRT read-IMPF book
          'It is Felix who reads a book and it is Kofi who reads a book.'
      b. Felix kane-ɔ   wolo ni Kofi kane-ɔ   wolo.
          Felix read-IMPF book and Kofi read-IMPF book
          'Felix reads a book and Kofi reads a book.'

The unacceptability of (9-a) shows that a sentence with the particle *ni* is interpreted exhaustively. The acceptability of (9-b), on the other hand, suggests that sentences without *ni* are not exhaustive.

3.1.2. Test #2: É. Kiss's (1998) test for exhaustivity

This tests consists of a conversation between three people (A, B, and C). A asks a wh-question and B answers the question either with the use of the particle *ni* or an unmarked SVO word order. Finally, C negates B's answer using the additive particle *hu*.[7] The task of the language consultants was to judge whether C's statement is an acceptable reaction for the B's answer. Negation together with an additive particle in a sentence negates an exhaustive meaning. For example, (10-C) does not negate the meaning that Lisa bought a dress but that Lisa was the only person who bought

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[7]Note, however, that whereas the original target sentences were presented in the context which states that the described situation took place, e.g, the context for (10) would be that Lisa bought a dress yesterday, the contexts for the target sentences in this paragraph constitute wh-questions.

a dress, i.e., Maria bought a dress as well. Therefore, if B's answer is exhaustive, C's response to B should be judged as acceptable. Otherwise, C's response should be judged as unacceptable. Consider (10)–(11):

(10)   A: Namɔ he   ataade nyɛ?
            who   buy dress   yesterday
            'Who bought a dress yesterday?'
       B: Lisa **ni**   he   ataade nyɛ.
            Lisa PRT buy dress   yesterday
            'It was Lisa who bought a dress yesterday.'
       C: Daabi, Maria hu   he   ataade nyɛ.
            No   Maria also buy dress   yesterday
            'No, Maria also bought a dress yesterday.'

(11)   A: Mɛni Kofi ye nyɛ?
            what Kofi eat yesterday
            'What did Kofi eat yesterday?'
       B: Banku **ni**   Kofi ye nyɛ.
            Banku PRT Kofi eat yesterday
            'It was banku that Kofi ate yesterday.'
       C: Daabi, Kofi ye amadãa hu   nyɛ.
            No   Kofi eat plantain also yesterday
            'No, Kofi ate also plantain yesterday.'

In both cases, the language consultants judged C's response to B's statement as acceptable. On the other hand, in cases when B replies with the use of an unmarked SVO order, C's response with the additive particle *hu* was judged as unacceptable, as presented in (12):[8]

(12)   A: Namɔ tee   jara   lɛ   nɔ nyɛ?
            who   go.PAST market DET on yesterday
            'Who went to the market yesterday?'
       B: Mark tee   jara   lɛ   nɔ nyɛ.
            Mark go.PAST market DET on yesterday
            'Mark went to the market yesterday.'
       C: #Daabi, Emmanuel hu   tee   jara   lɛ   nɔ nyɛ.
            no   Emmanuel also go.PAST market DET on yesterday
            'No, Emmanuel also went to the market yesterday.'

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[8]The language consultants commented that in that case C's answer does not make sense in the context of A and B's conversation.

Again, the contrast between (10)–(11) and (12) suggests that the *ni*-structure gives rise to an exhaustivity effect.

3.1.3. Test #3: Szabolcsi's (1981) test for exhaustivity

In this test the language consultants were presented with pairs of sentences. The 'a' sentence (context) in each pair contains a plural entity as the pivot and the 'b' sentence contains a singular entity as the pivot, i.e., a member of the plural entity from the 'a' sentence. The VP description in both sentences is the same. The task of the language consultants was to decide whether sentence 'b' is acceptable in the context of sentence 'a.' If the particle *ni* triggers an exhaustive interpretation, then 'b' sentence should not be acceptable in the context of sentence 'a.' Examples of the target pairs are presented in (13) and (14).

(13)   a.   context:
               Dora kɛ Lisa **ni**   he   ataade nyɛ.
               Dora and Lisa PRT buy dress   yesterday
               'It was Dora and Lisa who bought a dress yesterday.'
        b. $^?$Lisa **ni**   he   ataade nyɛ.
               Lisa PRT buy dress   yesterday
               'It was Lisa who bought a dress yesterday.'

(14)   a.   context:
               Banku kɛ   amadãa **ni**   Kofi ye nyɛ.
               banku and plantain PRT Kofi eat yesterday
               'It was banku and plantain that Kofi ate yesterday.'
        b. #Banku **ni**   Kofi ye nyɛ.
               banku PRT Kofi eat yesterday
               'It was banku that Kofi ate yesterday.'

(15)   a.   context:
               Dora kɛ Lisa **ni**   he   ataade nyɛ.
               Dora and Lisa PRT buy dress   yesterday
               'It was Dora and Lisa who bought a dress yesterday.'
        b.   Lisa he   ataade nyɛ.
               Lisa buy dress   yesterday
               'Lisa bought a dress yesterday.'

Note the contrast between (13) and (15). (15-b) is acceptable in the context of (15-a), because

'Lisa' in (15-b) — due to the lack of the particle *ni* — is not interpreted exhaustively and therefore (15-b) is compatible with the scenario in which it was Dora and Lisa who bought a dress. By contrast, 'Lisa' in (13-b) is interpreted exhaustively and thus (13-b) is not compatible with the context in which it was Dora and Lisa who bought a dress. Therefore, (13-b) is unacceptable in the context of (13-a).

Even though the judgments regarding pairs of sentences with subjects as the pivot were not as clear as in the case of sentences with DOs as the pivot, the results still show that the *ni*-structure triggers an exhaustive interpretation.

3.1.4. Test #4: Hartmann and Zimmermann's (2007) test for exhaustivity

This test consisted of a context and a short dialogue between Kofi and his teacher. The language consultants were supposed to judge whether Kofi could deduce from the teacher's statement, and the accompanying context, whether he had passed the exam or not. Consider (16), taken from Hartmann and Zimmermann (2007):

(16)   context: A student (Kofi) who is anxious that he might have failed a test approaches a teacher and asks: 'Can you tell me whether I have passed or not?' Unfortunately, teachers are by law forbidden to tell a student directly about his or her result. However, there is no law forbidding them to talk about other students' performances.

K: Ani   mi-paasi yɛ kaa   lɛ   mli?
    QPRT 1SG-pass at exam DET in
    'Have I passed the exam'

T: Mi kɛɛ-ŋ   bo shi Felix **ni** paasi-ko   yɛ kaa   lɛ   mli.
    1SG tell-PROSP.NEG 2SG but Felix PRT pass-PFV.NEG at exam DET in
    'I cannot tell you but it is Felix who did not pass the exam.'

The language consultants decided that Kofi could deduce on the basis of the teacher's utterance (and the accompanying context) that he had passed the exam. Note that when the teacher uttered the same sentence without the particle *ni*, i.e., in canonical SVO word-order, Kofi could not deduce anymore whether he had passed the exam or not. It suggests that the exhaustivity inference, which enables the deduction whether Kofi passed the exam or not, is induced by the *ni*-structure.

3.1.5. Test #5: The *ni*-structure in mention-some contexts (Hartmann and Zimmermann 2012)

The particle *ni* cannot occur in mention-some contexts, as demonstrated in (17):

(17)   Mi-le   mɛi pii   ní   hɔ̃ɔ akwadu yɛ jaanɔ.
         1SG-know people many REL sell banana at market.on
         'I know many people that sell banana at the market.'

    a. #Kofi **ni**   hɔ̃ɔ akwadu.
        Kofi PRT sell banana
        'It is Kofi who sells banana.'

    b. Kofi hu   hɔ̃ɔ akwadu.
        Kofi also sell banana
        'Kofi also sells banana.'

A sentence in (17-a), unlike (17-b), is not an acceptable continuation of (17) suggesting that the *ni*-structure gives rise to an exhaustivity effect. If the speaker knows a lot of people who sell banana, then Kofi cannot be the only person who sells banana. One of the language consultants gave a comment that (17-a) would be good as a corrective statement, meaning that not many people sell banana but Kofi.

3.2. The exhaustivity effect is not-at-issue

The previous subsection has shown that the *ni*-structure triggers an exhaustive interpretation. This in turn strongly suggests that its meaning can be characterized by the two meaning components, i.e., the prejacent and the exhaustivity inference:

(18)   Fred **ni**   e-kpee.
         Fred PRT 3SG-invite
         'It was Fred she invited.'

    a. *prejacent:* She invited Fred.
    b. *exhaustivity:* She invited nobody other than Fred.

The question is which of the meaning components listed in (18) is at-issue and which is not-at-issue.[9] A hypothesis, which comes from the behavior of *it*-clefts and exclusive particles in English (Büring 2011, Büring and Križ 2013, Horn 1981, Velleman et al. 2012, among others), is that the exhaustivity effect triggered by the particle *ni* is not-at-issue, in contrast to the exhaustivity effect triggered by the exclusive particle *pɛ* ('only'):

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[9]I follow Roberts et al. (2009), Simons et al. (2011), among others, in the assumption that whereas at-issue content addresses the main point of the utterance, not-at-issue does not. In more formal terms, while at-issue content addresses the Question Under Discussion (QUD) or raises a new QUD, not-at-issue content neither address QUD nor raises a new QUD.

(19) PARTICLE *ni*   (20) PARTICLE *pɛ* ('ONLY')
    a. *at-issue:* prejacent   a. *at-issue:* exhaustivity
    b. *not-at-issue:* exhaustivity   b. *not-at-issue:* prejacent

The hypothesis is tested against the results of several tests aimed at identifying at-issue and not-at-issue meaning components. First, consider examples (21)– (23), taken from Büring and Križ (2013):[10],[11]

(21)   a. #Bob le   akɛ e-kpee   Fred shi e-le-ee   akɛ Fred **ni** e-kpee.
            Bob know that 3SG-invite Fred but 3SG-know-IMPF.NEG that Fred PRT 3SG-invite
            'Bob knew she invited Fred, but he didn't know it was Fred she invited.'
    b. Bob le   akɛ e-kpee   Fred shi e-le-ee   akɛ Fred **pɛ** e-kpee.
            Bob know that 3SG-invite Fred but 3SG-know-IMPF.NEG that Fred only 3SG-invite
            'Bob knew she invited Fred, but he didn't know she invited only Fred.'

The fact that (21-a) is unacceptable suggests that the prejacent ('Fred was invited') rather than the exhaustive meaning component ('Nobody other than Fred was invited') is the at-issue content of a sentence with the *ni*-structure. If the prejacent is at-issue, then (21-a) says that Bob knew she invited Fred but he didn't know she invited Fred. This leads to a contradiction, which explains its unacceptability. If the exhaustivity was at-issue, then the contradiction would not occur, which is the case in (21-b), a version of (21-a) with the particle *pɛ*. (21-b) states that Bob knew she invited Fred but he did not know that she invited Fred and nobody else and therefore it is acceptable. Consider now (22), which is modeled after an example in Szabolcsi (1994):

(22)   a. Jeee Fred **ni** e-fɔ   nine e-tsɛ lɛ. E-tsɛ   Gord (#hu).
            NEG Fred PRT 3SG-throw hand she-call PRT 3SG-call Gord ALSO
            'It wasn't Fred she invited. She invited Gord.'
    b. Jeee Fred **pɛ** e-fɔ   nine e-tsɛ. E-tsɛ   Gord #(hu).
            NEG Fred ONLY 3SG-throw hand 3SG-call 3SG-call Gord ALSO
            'She didn't only invite Fred. She also invite Gord.'

If the hypotheses in (19-b) and (20-b) are true, then in the case of (22-a) the prejacent is at-issue, and in the case of (22-b) the exhaustivity is at-issue. Since negation targets the at-issue meaning component, in (22-a) it is negated that Fred was invited. Thereby the additive particle *hu* in the second clause of (22-a) lacks the anaphoric antecedent which is required for its felicitous use and

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[10]Büring and Križ's (2013) examples, in turn, are modeled after similar sentence pairs in Horn (1981).

[11]The ambiguity of the third person singular pronoun (he vs. she) in Ga examples was clarified during elicitation sessions.

by that (22-a) is unacceptable. By contrast, in (22-b) the exhaustivity is negated; that is, (22-b) states that it is not the case that she invited Fred and nobody else and in that case the additive particle in the second clause is required.

The following examples provide further evidence that the exhaustivity inference triggered by the particle *ni* is not-at-issue and the exhaustivity effect triggered by the particle *pɛ* is at-issue:

(23)   a. #E-kpee   Fred, shi jeee Fred **ni**   e-kpee.
              3SG-invite Fred but neg Fred PRT 3SG-invite
              'She invited Fred but it was not Fred she invited.'

        b. E-kpee   Fred, shi jeee Fred **pɛ**   e-kpee.
              3SG-invite Fred but NEG Fred ONLY 3SG-invite
              'She invited Fred, but she didn't only invite Fred.'

Negation in the second clause of (23-a) and (23-b) targets the at-issue meaning component, i.e., the prejacent and the exhaustive inference, respectively. Therefore (23-a) can be paraphrased as 'She invited Fred but she didn't invite Fred' which leads to a contradiction and thereby it is unacceptable. (23-b), on the other hand, states that she invited Fred but Fred was not the only person she invited which does not yield the contradiction and therefore (23-b) is acceptable.

The observation that the exhaustivity triggered by the particle *ni* is not-at-issue and the one triggered by the particle *pɛ* is at-issue is confirmed by the results of the test presented below. Its design is based on the methodology presented in Onea and Beaver (2009).[12] The test consists of pictures and their descriptions. The descriptions included either the *ni*-structure or the exclusive particle *pɛ*. The pictures, on the other hand, were designed to violate a potential exhaustive interpretation of the pictures descriptions. The language consultants were asked to correct the description if it does not correspond to what they can see in the picture. They could choose one out of three possible answers: 'Yes, ...,' 'Yes, but...,' or 'No, also x... .' Consider (24) and (25).[13,14]

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[12]Note, however, that originally Onea and Beaver (2009) did not use this methodology to discuss the (not)-at-issueness of the exhaustivity effect generated by clefts and 'only' but to show that the exhaustivity effect generated by exclusive particles is stronger than one generated by clefts (semantic vs. pragmatic effect). The results of this experiment are reinterpreted in Destruel et al. (2015) who claim that 'yes, but' answer does not check the source of the inference (pragmatics vs. semantics) but the status of the inference (at-issue vs. not-at-issue).

[13]Caption 'preferred answer' indicates answers chosen by the language consultants.

[14]Note that in the test presented in examples (10) and (11) the language consultants accepted 'No, also x' answer as the dissent of sentences with the *ni*-structure. I argue that it is due to the fact that while examples (10) and (11) constitute a categorial acceptability judgment test, example (24) is a multiple-choice task. In the first case, the language consultants accepted sentences with *ni*, because the *ni*-structure triggers an exhaustive interpretation. In the case of (24), on the other hand, they prefer 'yes, but' answer, because this effect is not-at-issue. Thank you to Malte Zimmerman (p.c.) for pointing this out to me.

(24) picture: A girl (Dora) is holding an orange and a tomato.

    A: Akwadu **ni** Dora he.
        orange   PRT Dora buy
        'It was an orange that Dora bought.'

    (i) Hɛɛ ni Dora he amoo hu.
        yes and Dora buy tomato also
        'Yes and Dora also bought a tomato.'

    (ii) Hɛɛ shi Dora he amoo hu.   ⇒ preferred answer
        yes but Dora buy tomato also
        'Yes, but Dora also bought a tomato.'

    (iii) Daabi, Dora he amoo hu.
        no   Dora buy tomato also
        'No, Dora bought also a tomato.'

(25) picture: Two girls (Lisa and Eva) are eating oranges.

    A: Lisa **pɛ** ye-ɔ   akwadu bianɛ.
        Lisa only eat-IMPF orange   now
        'Only Lisa is eating an orange now.'

    (i) Hɛɛ ni Eva hu ye-ɔ   akwadu bianɛ.
        yes and Eva also eat-IMPF orange   now
        'Yes and also Eva is eating an orange now.'

    (ii) Hɛɛ shi Eva hu akwadu ye-ɔ   bianɛ.
        yes but Eva also orange eat-IMPF now
        'Yes, but also Eva is eating an orange now.'

    (iii) Daabi, Eva hu ye-ɔ   akwadu bianɛ.   ⇒ preferred answer
        no   Eva also eat-IMPF orange   now
        'No, Eva is also eating an orange now.'

While in the case of the description with the *ni*-structure, example (24), the preferred answer is 'Yes, but,' in the case of the description containing the exclusive particle *pɛ*, example (25), the preferred answer is 'No, ...' The answers are in line with Tonhauser's (2012) claim that 'yes' and 'no' trigger an at-issue content. Moreover, Tonhauser (2012) uses assents/dissents with adversative continuation, such as example (25-ii), as one of the diagnostics for the at-issue content. 'The assumption is that utterances where adversative continuations convey the hypothesized at-issue content are contradictory, and hence unacceptable, while utterances where assent/dissent is followed by an adversative utterance that conveys hypothesized not-at-issue content are acceptable.' (Tonhauser 2012, p.245).[15] In (24-ii), 'yes' confirms the at-issue content, i.e., the fact that Dora bought an orange and 'but' triggers a comment on the not-at-issue content, i.e., the exhaustivity

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[15]The results are also in line with Destruel et al. (2015), who claim that 'yes, but' answer diagnoses a (not)-at-issueness of the inference.

inference. In sum, (24) can be paraphrased as 'Yes, Dora bought an orange but it was not the only thing she bought.' In (25), on the other hand, 'no' negates the at-issue content, i.e., the fact that nobody but Lisa is eating an orange. Hence, (25-iii) can be paraphrased as 'It's not the case that nobody but Lisa is eating an orange, Eva is also eating an orange.'

3.2.1. Exhaustivity is not cancellable

Ga data suggest that the exhaustivity effect triggered by *ni*-structures is not cancellable:

(26) ?Felix **ni**   kane wolo nyɛ.   Ní Kofi hu   kane wolo nyɛ.
      Felix PRT read book yesterday and Kofi also read book yesterday
      'It was Felix who read a book yesterday. And Kofi also read a book yesterday.'

(27) #Banku **ni**   Kofi ye nyɛ.   Ni amadãa hu   Kofi ye nyɛ.
      Banku PRT Kofi eat yesterday and amadaa ALSO Kofi eat yesterday
      'It was banku that Kofi ate yesterday. And he also ate plantain yesterday.'

While the language consultants gave mixed acceptability judgments regarding cancellation of the exhaustivity effect with the subject as the pivot, they gave clear judgments when the DO was the pivot. All in all the data suggest that the exhaustivity generated by the particle *ni* is rather not cancellable.

3.2.2. Problematic data

The data presented so far show that whereas the exhaustivity inference triggered by the *ni*-structure is not-at-issue, the exhaustivity triggered by the exclusive particle *pɛ* is at-issue. However, the picture is not quite so simple. Consider (28) in which the exhaustivity effect triggered by the *ni*-structure and *pɛ* seems to be of the same nature, which is problematic for the above generalization:

(28) Jeee Fred **ni**   e-fɔ   nine e-tsɛ   lɛ. E-tsɛ   Fred kɛ Gord.
      NEG Fred PRT 3SG-throw hand 3SG-call PRT 3SG-call Fred and Gord
      'It wasn't Fred she invited. She invited Fred and Gord.'

To sum up, any analysis of clefts in Ga, the *ni*-structure, will have to account on the one hand for the not-at-issue non-cancellable exhaustivity inference triggered by clefts and, on the other, for the acceptability of (28).

4. Analysis

I propose modeling the semantics of the particle *ni* in line with the conditional exhaustivity proposed by Büring (2011):

(29) It was Kofi who swam.

    a. *assertion:* Kofi swam.

    b. *presupposition:* If Kofi swam, then nobody else swam.
       if $P \in Q, \text{then} \{P\} = max(Q)$

Büring and Križ (2013) argue that Büring's (2011) theory makes the wrong predictions about the truth-value of sentences with collective predicates. Consider (30), taken from Büring and Križ (2013):

(30) context: Bill and Fred carried the piano together, and neither of them did alone, nor did anyone else.

    T. #It was Bill who carried the piano.

    a. *assertion:* Bill carried the piano.

    b. *presupposition:* If Bill carried the piano, then nobody else carried the piano.

Their argumentation against the conditional exhaustivity is as follows: Since Bill is not in the extension of the collective predicate 'carry the piano' (its extension includes only the plural individual Bill $\oplus$ Fred), the antecedent of the conditional in (30-b) is false. Therefore, the presupposition (the whole conditional) should be true irrespective of the truth value of the consequent. However, if Bill $\notin$ [[carry the piano]], then the assertion is false. Büring and Križ (2013) claim that this outcome is wrong because (30) is not false but neither true nor false, i.e., it suffers from the presupposition failure. In my opinion, however, given that it is very difficult to tear apart experimentally the presupposition failure from the falsity of the sentence (Abrusán and Szendrői 2013) — naive native speakers seem to have no intuitions to distinguish one from the other — Büring and Križ's (2013) analysis predicting the presupposition failure in the case of (30) is not superior over the theory predicting the falsity of (30).

Looking at Ga, I propose that the *ni*-structure has the following meaning components:

(31) *ni*-STRUCTURE:

    a. *assertion*: $P(x)$

    b. *not-at-issue*: $P(x) \rightarrow x = max(P)$
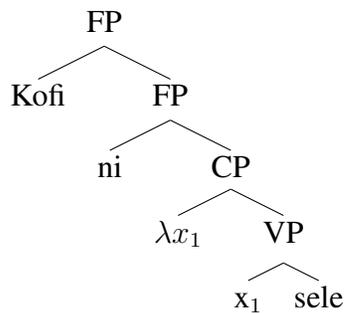
Therefore, the lexical entry of *ni* is presented in (32):

(32) $[\![ni]\!] = \lambda P.\lambda x : P(x) \rightarrow x = max(P).P(x)$

For illustration, the assertion and the not-at-issue meaning component of (33) in informal terms are given in (34). Its syntactic structure is presented in (35) and its truth conditions in (36).[16]

(33)   Kofi ni sele.

(34)   a.   *assertion:* Kofi swim.
        b.   *presupposition:* If Kofi swim, then Kofi is a maximal swimmer.

(35)

```
                              FP
                         ┌────┴────┐
                       Kofi        FP
                                ┌───┴───┐
                               ni       CP
                                     ┌───┴───┐
                                   λx₁       VP
                                          ┌───┴───┐
                                         x₁      sele
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(36) $[\![FP]\!]$ is defined only if $swim(Kofi) \rightarrow Kofi = max(\lambda x.swim(x))$, if defined then 1
        iff Kofi swam

The conditional analysis of the exhaustivity triggered by clefts properly accounts for the data presented in section 3.1. First, it explains the exhaustivity effect triggered by the *ni*-structure, which in turn accounts for the unacceptability of (9-a) repeated below as (37). Namely, if Felix reads, then he is a maximal reader. Therefore, Kofi cannot be a maximal reader as well:

(37)   #Felix ni   kane-ɔ   wolo ni   Kofi ni   kane-ɔ   wolo.
        Felix PRT read-IMPF book and Kofi PRT read-IMPF book
        'It is John who reads a book and it is Kofi who reads a book.'

It also explains why Kofi could deduce whether he had passed the exam or not. If Felix did not pass the exam, then Felix is the maximal student who did not pass the exam. Thus Kofi can deduce

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[16]I argue that the *ni*-structure is a monoclausal structure in which the pivot is base-generated in its left peripheral position, see Renans (2016).

that he himself had passed the exam.

(38)   *Context*: A student (Kofi) who is anxious that he might have failed a test approaches
teacher and asks: 'Can you tell me whether I have passed or not?' Unfortunately, teachers
are by law forbidden to tell a student directly about his or her result. However, there is no
law forbidding them to talk about other students performances.

    K: Ani   mi-paasi yɛ kaa   lɛ   mli?
        QPRT I-pass   at exam DET in
        'Have I passed the exam?'

    T: Mi kɛɛ-ŋ   bo shi Felix ni paasi-ko   yɛ kaa   lɛ   mli.
        I   tell-cannot you but Felix PRT pass-PFV.NEG at exam PRT in
        'I cannot tell you but it is Felix who did not pass the exam.'

Second, since the exhaustivity inference is modeled as being not-at-issue, it accounts for the unacceptability of (23), repeated below as (39), and other data presented in subsection 3.

(39)   #E-kpee   Fred, shi jeee Fred **ni**   e-kpee.
      3SG-invite Fred but neg Fred PRT 3SG-invite
      'She invited Fred but it was not Fred she invited.'

Even though the analysis can account for a wide range of data, it needs to be ameliorated in order to account for the problematic data discussed throughout the chapter.

4.1. Problematic data

The conditional analysis of the clefts' semantics (Büring 2011) cannot explain the acceptability of the data in (40):

(40)   Jeee Fred ni e-fɔ   nine e-tsɛ   lɛ. E-tsɛ   Fred kɛ Gord.
      neg Fred PRT 3SG-throw hand 3SG-call PRT 3SG-call Fred and Gord
      'It wasn't Fred she invited. She invited Fred and Gord.'

The problem arises already at the assertion level. The cleft sentence in (40) asserts that Fred was not invited ($P(x)$, i.e., Fred $\notin$ [[invite]]). Conversely, the second sentence in (40) asserts that Fred was invited (Fred $\in$ [[invite]]) leading to the contradiction.

I postulate a rescue strategy that allows to solve these problems. I argue that cleft structures in general and the *ni*-structure in particular require re-interpreting distributive predicates in a collective manner. Distributive predicates predicate of the singular individuals that make up the plural individual (e.g., Landman 1989). Therefore the following holds:

(41)   John and Bill shaved.

(42)   shave(John $\oplus$ Bill) $\rightarrow$ shave(Bill)

It follows that distributive predicates have singular entities in their denotation. By contrast, collective predicates predicate of plural individuals (e.g., Landman 1989), i..e, they have only plural individuals in their denotation. Thus the following is valid:

(43)   John and Bill met.

(44)   meet(John $\oplus$ Bill) $\nrightarrow$ meet(Bill)

Now, if 'invite' is interpreted distributively, then in example (40) the contradiction arises. It is caused by the fact that the assertion of the cleft is Fred $\notin$ [[invite]] and the second sentence asserts that Fred $\in$ [[invite]].

The situation is dramatically different, if 'invite' is re-interpreted in a collective manner. An informal paraphrase of (40) with the collective interpretation of 'invite' is given (45).

(45)   She did not invite a singular entity called Fred. She has invited a plural entity called Fred and Gord.

If 'invite' is interpreted collectively, then 'Fred' is not in the extension of 'invite.' However, a plural entity Fred $\oplus$ Gord is, i.e., Fred $\oplus$ Gord $\in$ [[invite]]. Therefore the rescue strategy can account for the contradiction which arises at the assertion level.

Consider now the presupposition triggered by the cleft structure in (40). It says that 'If Fred was invited, then he is a maximal invitee.' Since Fred is not invited, the antecedent of the conditional is false and thus the whole conditional presupposition is true, irrespective of the truth value of the consequent. This is a desired result, because it ensures that the presupposition can project out of the scope of negation without incurring a contradiction with information in the global context.

The postulated rescue strategy gives rise to clear, testable, empirical predictions. Namely, it predicts unacceptability of parallel examples with unambiguously distributive predicates which reinterpretation in the collective manner is impossible, as *to give birth*.[17] The prediction is borne out, as illustrated in (46):

(46) #Jeee Kofi ni Maria fɔ.   E-fɔ   Kofi kɛ Emmanuel.
       NEG Kofi PRT Maria give.birth she-give.birth Kofi and Emmanuel
       'It's not Kofi to whom Maria gave birth. She gave birth to Kofi and Emmanuel.'

Importantly, the fact that example (40) with the re-interpretable predicate is acceptable and a parallel example (46) with the unambiguously distributive predicate is unacceptable suggests that the data cannot be accounted for with a sole reference to metalinguistic negation. If the acceptability of (40) was due to metalinguistic negation then also the negation in (46) should be interpreted metalinguistically leading to the acceptability of (46), contrary to fact.

The main point of this paper was to show that by modeling the exhaustivity effect of clefts, the distinction into collective vs. distributive predicate should be taken into consideration, at least in Ga. Note that the contrast in (2) can also be explained by other approaches to the exhaustivity effect triggered by clefts, e.g., Velleman et al. (2012), if they are ameliorated with the proposed pragmatic rescue strategy.[18]

5. Summary

This paper presented a series of empirical evidence showing that the cleft structure in Ga gives rise to the non-cancellable exhaustive interpretation. Importantly, the exhaustivity effect interacts with the collective vs. distributive interpretation of the predicate. This in turn poses challenges for many existing accounts for the exhaustivity of clefts. The pragmatic rescue strategy, which postulates the reinterpretation of the distributive predicates in clefts in a collective manner, can account for the problematic data, potentially in a cross-linguistic perspective.

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[17]In fact, the prediction is that either (i) is unacceptable or Kofi and Emmanuel are twins.
[18]See Renans (2016) for the arguments in favor of Büring's (2011) account.

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