

PARTITIONING DISCOURSE INFORMATION: A CASE OF CHICHEŴA SPLIT CONSTITUENTS

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Abstract

Chicheŵa is said to display mixed properties of configurability such as the existence of VP on the one hand and discontinuous constituents (DCs) on the other. In the present work we examine the discourse and syntactic properties of DCs, and show that DCs in Chicheŵa arise naturally from the discourse configurational nature of the language. We argue that the fronted DCs in Chicheŵa are contrastive topics that appear in a left-dislocated external topic position, and the remaining part of the split NP in the right-dislocated topic position. We develop an analysis that integrates the discourse information of split constituents into the parallel architecture of LFG by assuming a direct mapping between c-structure and i(nformation) structure.

1 Introduction

LFG traditionally encodes discourse information such as topic and focus in f-structure via annotations on c-structure, recognizing them as grammaticized discourse functions (e.g. Bresnan and Mchombo 1987, Alsagoff 1992, King 1995).¹ In the last decade, with increasing interest in the role of discourse information in core syntactic phenomena like word order, proposals have been made to posit an independent projection i(nformation)-structure in addition to the traditional parallel LFG architecture (e.g. Choi 1997, 1999, 2001, King 1997, Cook 2001, King and Zaenen 2004).

King (1997), for example, examines Russian predicate focus, and points out that the traditional treatment of focus as part of the f-structure information has worked adequately for arguments and adjuncts, but it fails to capture the correct scoping of predicate focus: the standard annotations on the focused predicate would include more materials (e.g. selected arguments) in focus than intended. One solution to this problem is to posit an independent i-structure, which is projected off the c-structure, and to separate the i-structure information from the argument structure information.

One of the questions King leaves open for future research, which we wish to take up in this paper, is whether the f-structure should encode any discourse information at all. As King points out, topic and (perhaps to a lesser extent) focus are more syntacticized in some languages (cf. Bresnan and Mchombo 1987 for Bantu; Alsagoff 1992 for Malay) than others. These languages therefore suggest that some i-structure roles are represented in f-structure.

In this paper, we examine split constituents in Chicheŵa, in which parts of an argument (the head, its modifying adjective and demonstrative) have different discourse (topical) roles (= i-structure property), yet the head-marking morphology (= f-structure property) cross-references the argument as a whole as a topic. That is, on the one hand, the morphology indicates that there is one (f-structure) topic, but on the other hand, the c-structure positions these split parts of an argument occupy encode different i-structure roles associated with them. This aspect of the Chicheŵa split construction therefore makes it a curious empirical domain in which to further explore the question raised above—more precisely the question of how much and what type of discourse information should be represented in f-structure. The present work should also serve to illustrate once again the significant role of discourse information in syntactic phenomena that are as fundamental as constituency, and how the LFG parallel architecture is well suited to capture the partitioning of discourse information across multiple levels of representation.

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The discussion in the rest of the paper proceeds as follows. In section 2 we present data on split constituents in Chicheŵa, focusing on four observations about the construction pertinent to our discussion, and establish the discourse basis of our analysis. Section 3 provides phonological evidence for the discourse properties of split constituents and our syntactic analysis to follow. The analysis is presented in section 4, which highlights the c- to f-structure mapping for the functional identification of split constituents with the f-structure TOPIC on the one hand, and c- to i-structure mapping for the configurational identification of i-structure topics. Our analysis follows earlier proposals by King (1997), Choi (1999, 2001), and Cook (2001), who also assume that the i-structure projects off the c-structure. The final section summarizes the results.

2 Chicheŵa Split Constituents

In this section we present the following four properties of Chicheŵa split constituents: (i) a left-edge constraint, (ii) obligatoriness of a topic anaphoric pronoun on the verb corresponding to the split argument, (iii) fixed ordering of two (or more) contiguous elements, and (iv) splitting of complex possessive NPs. The first two properties are particularly relevant in our analysis. The properties noted in (iii) and (iv) should also fall out of the proposed syntactic analysis.²

To begin with, we show in (1) an example of a complex NP with rich noun class concord. In (1a), the complex NP *these foolish hunters* all agree in the noun class of the head (class 2). In (1b) the head noun *mikango* ‘lion’ is class 4, and the modifiers also must agree.

- (1) a. Njúchí izi zi-ná-lúm-á álenje awa ópúsa.
 10.bees 10.these 10-PST-bite-fv 2.hunter 2.these 2.foolish
 ‘These bees bit these foolish hunters.’
- b. Mikángó i-tátu i-ná-gúmúl-á makóla ónse a-náyi.
 4lions 4three 4PST-pull.down-fv 6corrals all 6four
 ‘Three lions pulled down all the four corrals.’

Although parts of these complex NPs typically occur together with the head noun,³ it is possible, though restricted, to split these nominal constituents. Example (2a) shows the canonical NP structure in Chicheŵa. As shown, it exhibits a strict head-initial structure with the Head-Demonstrative-Adjective order. The examples in (2b-f) show various patterns of discontinuity of that NP (boldfaced).

²Throughout the paper, we will be focusing on split object NPs, even though subjects can also be discontinuous. Because of the unambiguous status of the object marker (OM) as an anaphoric pronoun rather than agreement in Chicheŵa (Bresnan and Mchombo 1987), we can restrict the range of possible alternative analyses. Also, as opposed to the subject, the canonical position of the object (SVO) makes it easier to see when part of it is fronted.

³The integrity of the complex NPs in (1) can be shown by their occurrence in displaced positions such as passive, topicalization, and cleft (see Kathol and Rhodes 2000 for relevant observations).

- (i) a. Álenje awa ópúsa a-ná-lúm-ídw-á ndí njúchí izi.
 2.hunter 2.these 2.foolish 2-PST-bite-PASS-fv by 10.bees 10.these
 ‘These foolish hunters were bitten by these bees.’
- b. Ndi makóla ónse anáyi améné mikángó itátu íná-gúmúl-á.
 COP 6.corrals all 6.four 6.repl 4.lion 4.three 4-PST-pull.down-fv
 ‘It was all the four corrals that the three lions pulled down.’

- (4) a. Mikángó yókálamba i-ná-zí-gúmúl-a **ndí makású awa óbúntha** nkhókwe.
 4.lion 4.aged 4SM-PST-10OM-demolish-fv with 6.hoe 6.these 6.blunt 10.granary
 ‘The aged lions pulled down the granaries with these blunt hoes.’
- b. ***Awa óbúntha** mikángó yókálamba i-na-zí-gúmúl-a
 6.these 6.blunt 4.lion 4.aged 4-PST-10OM-demolish-fv
ndí mákasu nkhókwe.
 with 6.hoe 10.granary

Chicheŵa exhibits object asymmetry (cf. Bresnan and Moshi 1990, Alsina and Mchombo 1993, Ngonyani 1998). In an applicative construction, only the applied object has the properties associated with the primary object. For example in (5), only the beneficiary object *mikángó yókálamba* ‘aged lions’, introduced by the applicative and not the theme object *makású awa óbúntha* ‘these blunt hoes’, can be in anaphoric relation with the incorporated pronominal object.

- (5) a. Anyání a-na-í-gúl-íl-á makású awa óbúntha mikángó yókálamba.
 2.baboon 2-PST-4OM-buy-APPL-fv 6.hoe 6.these 6.blunt 4.lion 4.aged
 ‘The baboons bought (for) them these blunt hoes, (for) the aged lions.’
- b. *Anyání a-na-wa-gúl-íl-á mikángó yókálamba makású awa óbúntha.
 2.baboon 2-PST-6OM-buy-APPL-fv 4.lion 4.aged 6.hoe 6.these 6.blunt
 [Intended as:] ‘The baboons bought them for the aged lions, these blunt hoes.’

The examples in (6) show that only the applied beneficiary, and not the theme object, can be discontinuous.

- (6) a. **Yókálamba** anyání a-na-í-gúl-íl-á makású awa óbúntha **mikángó**.
 4.aged 2.baboon 2-PST-4OM-buy-APPL-fv 6.hoe 6.these 6.blunt 4.lion
 ‘The baboons bought the aged lions these blunt hoes.’
- b. ***Awa óbúntha** anyání a-na-wa-gúl-íl-á **makású**
 6.these 6.blunt baboon 2-PST-6OM-buy-APPL-fv 6.hoe
 mikángó yókálamba.
 4.lion 4.aged

Similarly, the oblique agent in a passive sentence cannot be cross-referenced by an OM and hence resists discontinuity, as shown in (7).

- (7) a. Mikángó i-na-ph-édw-á ndí **alenje awa ó-dzí-kónd-a**.
 4.lion 4-PST-kill-PASS-fv by 2.hunter 2.these 2-REFL-love-fv
 ‘The lions were killed by these selfish (self-loving) hunters.’
- b. ***Ó-dzí-kónd-a** mikángó i-na-ph-édw-á ndí **alenje awa**
- c. ***Awa** mikángó i-na-ph-édw-á ndí **alenje ó-dzí-kónd-a**

As expected by the obligatory presence of the topic-anaphoric OM with a discontinuous object NP, the DCs receive topic interpretation. More precisely, our preliminary inquiry into discourse contexts of various instances of DCs suggests that the fronted element is often a contrastive topic equivalent to a left-dislocated topic, rather than simply given information, or a continuing topic. Given the analysis of the Chicheŵa OM as a topic-anaphoric pronoun, the fact that the OM is required when part of the object NP is discontinuous shows that at least the fronted discontinuous part of the NP must be outside the minimal clausal domain.

The first observation that DCs appear in the clause-peripheral position seems to be true for a majority of languages that allow such split NP construction (cf. Baker (1996) for polysynthetic languages; Dahlstrom (1987) for Algonquian languages in particular). Given that in many languages, clause-initial position is reserved for discourse-related elements such as topic and focus, the observation in (i) lends itself well to another aspect noted in (ii) that fronted DCs receive topic interpretation. In fact, we will show that “topicalizability” is a precondition for any constituent to be discontinuous (at least in Bantu). As argued by Bresnan and Mchombo (1987), the Chicheŵa object marker is employed only as a pronominal argument anaphoric to a floating topic outside the minimal clause nucleus (S/IP), never as grammatical agreement to a non-topical (clause-internal) NP. The observation in (ii) is therefore confirmed by the morphosyntax as well. In previous generative studies of DCs (e.g. Jelinek 1984, Speas 1990, Baker 1996), however, relatively little attention is given to the discourse function of DCs.

There is nonetheless some important work that recognizes the role of information structure in split constituents in general: Reinholtz (1999), for example, argues that clause-initial DCs in Swampy Cree has the discourse function of Focus, and that more generally, the Swampy Cree split NP construction has “all of the hallmarks of *wh*-movement in so-called configurational languages” (p.202) in that “. . . both movement types show the ability to span several clauses, a limited application in relative clauses or embedded questions, and an inability to move any material out of adverbial constituents” (p.218). Reinholtz therefore argues that DCs arise as a result of *wh*-movement.

Fanselow (2001) examines split XP constructions in general, such as a split VP as in (8) and a split DP as in (9) in German.

(8) **Keine Bücher** hat er [___ gelesen].
 no books has he read

(9) **Schrecklicher Morde an Studenten** ist er **vieler** beschuldigt worden.
 horrible murders at students is he many accused been
 ‘He has been accused of many horrible murders of students.’

Fanselow argues that such split XP constructions are generally associated with a particular pragmatic structure: “in a split construction, the right part of XP must be focal, while the lefthand part may be a (link-)topic or a second focus” (p.85). Although the precise pragmatic nature of the fronted elements still deserves further discussion, these studies nonetheless suggest that discourse-pragmatic functions of split constructions must be part of any analysis.

(iii) Fixed ordering of contiguous elements: Two other observations are relevant for our analysis of the syntax of Chicheŵa DCs. First, regardless of the position, the ordering of *contiguous* elements is fixed—H(ead) > D(emonstrative) > A(djective)—as shown by the contrast between (2) and (10).

- (10) a. *Njúchíí izi zi-ná-lúm-á **awa álenje ópúsa.** *... [D H A]
 b. ***awa** njúchíí izi zi-ná-wá-lúm-a **ópúsa álenje.** *D ... [A H]
 c. ***álenje** njúchíí izi zi-ná-wá-lúm-a **ópúsa awa.** *H ... [A D]
 d. ***awa álenje** njúchíí izi zi-ná-wá-lúm-a **ópúsa.** *[D H] ... A
 e. ***ópúsa awa** njúchíí izi zi-ná-wá-lúm-a **álenje.** *[A D] ... H
 f. ***ópúsa álenje** njúchíí izi zi-ná-wá-lúm-a **awa.** *[A H] ... D

The ordering restriction on the fronted elements suggests that they form a single constituent. This need not always be the case, however. For example when the subject NP is left-dislocated, it can come between the two parts of the object DCs, as in (11). In such cases, these discontinuous parts of the object NPs may come in any order, each forming a separate constituent: as shown in (11), the canonical head-modifier ordering *mikángo (lion) ó-kálamb-a (aged)* is not maintained.

- (11) **Yó-kálamb-a** anyaní **mikángo** a-na-í-gúl-íl-á makású awa ó-búnth-a.
 4.aged 2.baboons 4.lion 2-PST-4-buy-APPL-fv 6.hoes 6.these 6-blunt-fv
 ‘The aged lions_j, the baboons_i, they_i bought them_j these blunt hoes.’

(iv) **Splitting of complex possessive NPs:** The second additional observation concerns DCs involving complex possessive NPs. As shown by example (12), a possessive NP can be split in Chicheŵa.

- (12) a. Anyaní á mísala a-ku-pwány-a **chipanda chá kazitápé.**
 2.baboon 2ASSOC 4.madness 2-PRES-smash-fv 7.calabash 7ASSOC 1.spy
 ‘The mad baboons are smashing the calabash of the spy.’
 b. **Chipanda** anyaní á mísala a-ku-chí-pwány-a **chá kazitápé.**
 ‘The calabash, the mad baboons are smashing (it) of the spy’
 c. **Chá kazitápé** anyaní á mísala a-ku-chí-pwány-a **chipanda.**
 ‘Of the spy, the mad baboons are smashing (it) the calabash’

However, as soon as we add another layer of possessive NP, splitting becomes more constrained. Consider the examples in (13). Example (13a) is a non-discontinuous example. The element in question, the object possessive NP, is in boldface. In (13b) we front the head noun of the possessive NP, and the result is ungrammatical.⁴ In (13c) we front a possessor *a mfumu* ‘of the chief’. Again the example is rendered ungrammatical. Example (13d), on the other hand, shows that it is possible to front the entire possessor and leave the head noun postverbally.

⁴Note that the example (13b) would be good if there is no OM. In this case, however, we only get the appositive interpretation of the fronted element. The absence of the corresponding OM thus suggests that nothing is out of the basic clause, and that the sentence-initial element is added on to the sentence as an appositive. We return to this contrast between (13b) and the appositive reading without an OM when we discuss the information structure of the non-fronted elements.

- (13) a. Anyaní a-na-mphwanya **chipanda chá alenje a mfumu.**
 2.baboons 2-PAST-smash 7.calabash 7ASSOC 2.hunter 2.ASSOC 1.chief
 ‘The baboons smashed the calabash of the hunters of the chief.’
- b. ***Chipanda_i** anyaní a-na-chi-mphwanya ____i **chá alenje a mfumu.**
 7.calabash 2.baboons 2-PAST-7-smash 7.ASSOC 2.hunter 2.ASSOC 1.chief
 ‘The calabash, the baboons smashed of the hunters of the chief.’
- c. ***A mfumu_i** anyaní a-na-chi-mphwanya **chipanda chá alenje** ____i.
 2.ASSOC 1.chief 2.baboons 2-PAST-7-smash 7.calabash 7.ASSOC 2.hunter
 ‘Of the chief, the baboons smashed the calabash of the hunters.’
- d. **Chá alenje a mfumu_i** anyaní a-na-chi-mphwanya **chipanda** ____i.
 7.ASSOC 2.hunter 2.ASSOC 1.chief 2.baboons 2-PAST-7-smash 7.calabash
 ‘Of the hunters of the chief, the baboons smashed the calabash.’

At this point, we leave these facts simply as an additional observation about complex possessive NPs. In the analysis to follow, we suggest that the constraint that bans the examples in (13b,c) must be formulated in terms of the information structure and heaviness of the parts of the NP that remain postverbally rather than the syntax of complex possessive NPs.

3 Discourse Functions and Syntactic Position of DCs

Based on the basic properties observed earlier that (i) DCs in Chicheŵa must occur clause-initially; and (ii) clause-initial DCs receive topic interpretation and require an anaphoric pronoun on the verb corresponding to the whole NP, we analyze the split constituents as instances of left-dislocation, in which the dislocated element is outside the minimal clause nucleus and receives contrastive topic interpretation. The analysis is consistent with the fact that every instance of DCs requires the OM on the verb and the analysis given by Bresnan and Mchombo (1987) that the OM in Chicheŵa is reserved only for topic-anaphoricity.

Furthermore, the fact that every instance of a discontinuous object NP requires the corresponding OM suggests that no part of the object NP remains inside the VP, given the topic-anaphoric analysis of the OM proposed by Bresnan and Mchombo (1987). This means that the remaining postverbal part of the object NP must be right-dislocated. This assumption is in line with the presumed discourse function of this part of the DC: it is old, non-prominent information. The discourse functions and their structural correlates we wish to explore are supported by cross-linguistic studies of left- and right-dislocated elements and by phonological evidence.

3.1 Cross-Linguistic Functional Evidence

According to C. Lee (1999a,b) while TOPIC is prototypically given, presupposed, and anchored in speech situation, CONTRASTIVE TOPIC has a focal part in contrast with the rest of the parts, and the speaker has the alternatives in contrast or contrast set in mind. While topic can be unaccented, contrastive topic shows a prominent intonation pattern cross-linguistically.

In Chicheŵa, the contrastive part of a topic constituent appears in the left-dislocated position, resulting in a split construction. For example for the split example in (2d), repeated here in (14), the most

likely context is where there are two sets of foolish people in prior discourse—these foolish hunters and those foolish fishermen. *álenje awa* ‘these hunters’ is then contrasted with ‘those fishermen’ in the example. The ‘foolish’ part of the NP is old, non-contrastive information, and remains postverbal. We return to this point shortly.

- (14) **álenje awa** njúchíí izi zi-ná-wá-lúm-a **ópúsa**.
 2.hunter 2.these 10 bees 10.these 10-PST-2-bite-fv 2.foolish
 ‘These bees bit these foolish hunters.’

Additional data show that “topic-hood” is in fact a pre-condition for a constituent to be discontinuous. For example, Chicheŵa has a number of verb-object idioms, in which the object is formally non-referential, as in example (15a). Non-referential NPs can never be topics, and, as such, they cannot be discontinuous, as demonstrated in (15b,c).

- (15) a. Nd-a-gwil-a mwendo wáko.
 1SG-PREF-grab-fv 3.leg 3.your
 (lit.) ‘I have grabbed (your) leg.’ = ‘I apologize.’
 b. *Wáko nd-a-gwil-a mwendo.
 c. *Mwendo nd-a-gwil-a mwendo

Similarly *wh*-phrases, which are inherent focused, cannot be fronted:

- (16) a. Mikango u-na-gumula **nyumba ya yani?**
 lion sm-past-destroy house of who
 ‘Whose house did the lions destroy?’
 b. ***ya yani** mikango u-na-gumula **nyumba?**

Crosslinguistically, these types of discourse topic seem to be associated with the syntactic positions just noted.⁵ For example, regarding the left-peripheral topic, in verb-initial languages, D. Payne (1990, 1992) identifies the preverbal position to be what she refers to as the “pragmatically marked” (PM) position. The PM information is non-presupposed asserted new information, contrastive information (i.e. focus) as we as given, discourse-prominent information (topic). Payne shows that in strongly verb-initial languages, these pragmatically marked constituents, either focus or topic, appear sentence-initially. Cooreman (1992:244) essentially makes the same observation: the non-verb initial order in the canonically verb-initial language Chamorro is commonly found when “the thematic unity of the [narrative] is disrupted”, such as change of events, or when the paragraph theme is temporarily suspended. Cooreman’s description of these sentence-initial elements in Chamorro is comparable to Aissen’s (1992) description of the external topic—the new or contrastive topic. Subsequent work on verb-initial languages makes similar observations about the discourse function of the sentence-initial position (e.g. Harold (1995:50) for Biblical Hebrew).

In SVO languages, new or contrastive topic also appears at the left-periphery in a dislocated position. Birner and Ward (1998:256–257) show that among the various syntactic constructions that encode

⁵The discussion the following cross-linguistic studies is based on the fuller review of the cited literature in Morimoto (2000, chapter 2).

different types of discourse referents in English (e.g. inversion, *by*-phrase passive, topicalization, existential, left-dislocation, right-dislocation), new or contrastive topic (hearer-new or discourse-new in Birner and Ward's taxonomy) is expressed in the left-dislocated position. In another SVO language Tok Pisin, a creole language in Papua New Guinea, Sankoff (1993) provides an example showing that (what we would call) a new/contrastive topic appears in a left-dislocated position followed by an anaphoric pronoun.⁶

In SOV languages, where scrambling and case marking are common typological features, contrastive topics may not always appear in a left-dislocated position. They are nonetheless morphologically and prosodically clearly marked, according to C. Lee (1999a,b). In Korean, for example, even though topics with the topic marker *-(n)un* can scramble, the canonical position of these topics seems to be clause-initial (Choi 1999). In German, contrastive elements (topic or focus) appear in the left-peripheral position (e.g. SpecCP for Choi 1999, Berman 2000).

As for the right-dislocated topic, it is observed for a number of languages that the right-dislocated position is reserved for afterthought or discourse-old information—e.g. Takami (1995) for Japanese and English, Birner and Ward (1998) for English, Sells (1998) for Japanese, Kimenyi (1980) for Kinyarwanda; see also Morimoto (2000, chapters 4–5), who discusses the afterthought function of right-dislocated elements in Bantu languages.

These crosslinguistic studies on left- and right-topics collectively tell us that there is a robust tendency that these types of topics are structurally defined. As shown below, our preliminary findings on phonological phrasing of these left- and right-topics indicate that they each form their own phonological phrase (also shown by Downing, et al. 2005, as cited below). These observations about the structural correlates at the syntactic and phonological level together suggest a grammatical architecture in which there is a flow of information, or mapping, (at least) between discourse or information structure ('i-structure') and c-structure on the one hand, and i-structure and prosodic structure on the other.

3.2 Phonological Evidence

Our preliminary investigation of the prosodic structure of split constructions in Chichewa also corroborates the preceding observations regarding the discourse status and the proposed syntactic positions. In order to test the prosodic phrasing, we elicited spoken utterances from the second author, Sam Mchombo (native speaker of Chichewa). The results of our experiment are also supplemented by those of Downing, Mtenje, and Pompino-Marschall (2005), who investigated phonological phrasing with respect to focus.⁷

Kanerva's (1990) study of focus and phrasing in Nkhotakota Chichewa showed that in a canonical, discourse neutral SVO sentence, the subject forms its own phonological phrase (henceforth p-phrase) separate from the VP, and the verb and object form one p-phrase together (see also Bresnan and Kanerva

⁶An example of a new/contrastive topic from Sankoff (1993:121) is given below. The dislocated topic is in small caps, and the anaphoric pronoun is underlined.

- (i) kakaruk na pik wonem samting i-stap. Na OLGETA MAN IA ol i-poret long guria na ol i-go
 chicken and pig what something stay and all people DET 3pl afraid of earthquake and 3pl go
 pinis.
 complete
 '(Only) chickens and pigs and whatever were there. But ALL THE PEOPLE, they were afraid of the earthquake and they had all left.'

⁷The investigation of phonological phrasing of relevant utterances is only preliminary, and we have not yet tested all the relevant utterances with split constituents. Nonetheless, the sampling we obtained so far conforms to results reported by Kanerva (1990) and Downing et al. (2005) on phonological phrasing of discourse-prominent elements in Chichewa, and we therefore take our sampling to represent reliable evidence.

(1989), Downing et al. (2005:15, ex.(19a))). Kanerva (1989, 1990) discusses several phonological rules, summarized in (17), that are sensitive for phrasing at the level of the p-phrase which he calls ‘focal phrases’. Since these phrases are not exclusively triggered by focus, but can also arise through syntactic movement and topicalization, we prefer to use a more neutral term ‘p-phrase’. This level of prosodic phrasing is indicated by round brackets in the following examples.

(17) Phonological rules applying at the level of the phrasing in p-phrases

- a. Penultimate Lengthening: The vowel in the penultimate syllable of a p-phrase is lengthened.
- b. Retraction: A H-tone is retracted from the final mora of a p-phrase to the penultimate syllable.
- c. Nonfinal Doubling: A H-tone is doubled (a mora is spreaded to the right), except if it is in the phrase final foot.

The word *ⁿjiⁿgá* ‘bicycle’ is realized unchanged in *ⁿjiⁿgá yábwiino* ‘good bicycle’ because there, it is not final. But it is pronounced as [*ⁿjiⁿga*] (with lengthening and retraction), when it is p-phrase final. Consider next the word *kugúlò* ‘buy.’ H-tone doubling applies in *kugúlá nyaama* ‘to buy meat’. When this word is p-phrase final it is realized as *kuguula*, with penultimate lengthening.

As far as prosodic phrasing is concerned, Kanerva claims that, in an all-new expression, a head is phrased together with a following complement, as well as with any other element within the same projection, as shown in (18) and (19).

(18) [V NP]
 (tinaba kaluulu)_p
 we-stole hare

(19) [X1 XP2 XP3]_{XP1}
 ()_p
 [V NP [P NP]_{PP}]_{VP}
 (anamenya nyumba ndi mwaala)_p
 he-hit house with rock

‘He hit the house with the rock.’

This means that, in a sentence without narrowly focused constituent, all constituents are pronounced in a single P-phrase. But focus restructures the phrasing of utterances. For instance, if the verb is focused, it forms its own phrase, and the subsequent phrases are phrased individually, as illustrated schematically in (20).

(20) [V_{FOC} NP PP]_{VP}
 ()_p ()_p ()_p

As one can see from (21), illustrated in Figure 1 (in the appendix),⁸ the same prosodic pattern as the one shown in (19) was reproduced in our recordings. As can be extracted from Figure 1, *njuchi izi* ‘these bees’ is separated from the rest of the sentence by a clear break. The first [i] of *izi* is lengthened, as predicted by rule (17a). Furthermore, the first p-phrase of a sentence is regularly terminated by a high tone, regardless of the underlying tone of the final syllable of this p-phrase. The second p-phrase in Figure 1 is uttered at a register which is altogether downstepped relatively to the first one. There is no break between the verb and the following direct object. On the contrary, the final *a* of the verb and the first *a* of *alenja* are fused together. The high tone of *opusa* is downstepped relatively to the high tone of the verb. The last characteristic of this phrase is the final low tone typical for declarative phrases.

- (21) (Njuchi izi) (zi-na-luma alenje awa opusa) Canonical SVO sentence
 10.bee 10.these 10-past-bite 2.hunter 2.these 2.foolish
 ‘These bees bit these foolish hunters.’

A right-dislocated object forms its own p-phrase separated from the verb, as illustrated in (22) and Figure 2. Once again, the same result is reported by Downing, et al (p.15, ex.(19b)). The difference between Figure 1 and Figure 2 is in the phrasing, which induces deaccenting of *awa opusa* (and of course in the presence of the OM *-wa-* on the verb).

- (22) (Njuchi izi) (zi-na-wa-luma) (alenje awa opusa) Object right dislocation
 10.bee 10.these 10-past-2-bite 2.hunter 2.these 2.foolish
 ‘These bees bit them, these foolish hunters.’

Similarly, a left-dislocated object forms its own p-phrase. Figure 3 is taken from Downing et al (p.15, ex.(19c)). In (23), the left-dislocated object *mbuzi izi* ‘these goats’ is a contrastive topic. The postverbal subject *mikango* ‘lion’, non-prominent information, is right-dislocated and forms a separate p-phrase from the verb.

- (23) (Mbúzí izi) (inázísaaka) (mikáango) Object left dislocation
 10.goat 10.these 4.past.10.hunt 4.lion
 ‘These goats, they (lions) hunted them (goats), the lions.’

Turning now to split constituents, example (24) in Figure 4, shows that the fronted part *alenje* ‘hunters’ forms its own p-phrase, like the left-dislocated whole object in (23). The postverbal remaining part of the split object NP is extraposed and appears in the right periphery.

- (24) (**Alenje**) (zinawaluma njuchi izi) (**awa opusa**) Splitting the head of the obj NP
 Hunters bite bees these these foolish
 ‘These bees bit these foolish hunters.’

Figure 5 shows a pitch track of example (14), reproduced in (25) with its phonological phrasing. In this example, the object is split and the subject is topicalized. Both fronted parts are phrased in separated p-phrases, and are not downstepped relatively to each other. In other words, *njuchi izi* ‘these bees’ is at the same pitch height as *alenje* ‘hunters,’ but the p-phrase containing the verb is again downstepped.

- (25) (**Alenje**) (njuchi izi) (zinawaluma) (**awa opusa**) =(4c)
 2.hunter 10.bee 10.these 10.past.2.bite 2.these 2foolish
 ‘These bees bit these foolish hunters’

⁸All the figures are attached in the appendix.

Finally, example (26) and Figure 6 illustrate that both the subject and the object may be split in a single sentence. The extraposed elements are phrased together pointing to the fact that there may be a restriction on the number of deaccented p-phrases.

(26) (Izi) (awa opusa) (zinawaluma) (alenje njuchi)
 These these foolish bite hunters bees

The phonological phrasing of the split constructions in (23) to (26) clearly shows that, prosodically, no part of the split NP is inside the minimal clause nucleus VP.

Summary

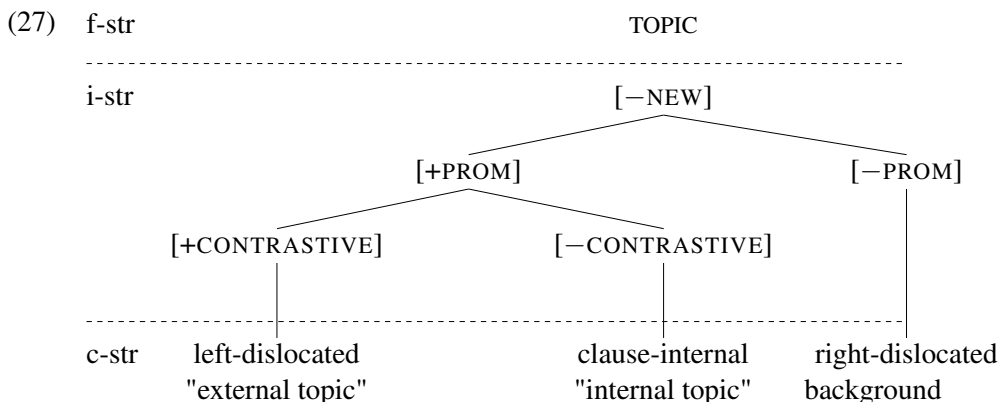
The available data suggest that DCs in Chicheŵa are best analyzed as involving both left-dislocation of the fronted element(s) and right-dislocation of the remaining element(s). Pragmatically the fronted part serves as a contrastive topic, as characteristic of external, left-dislocated topics in other languages. The external topic analysis of DCs in Chicheŵa is not in line with Reinholtz' (1996) analysis that DCs have focus and arise by way of *wh*-movement. We suggest here that languages that permit split NP constructions make use of them for discourse purposes, but exactly which function DCs have may depend on the information structuring of an individual language (see also Féry and Paslawska 2005 for a similar observation). While focus (or discourse-prominent elements in general) may be expressed clause-initially in Algonquian languages (cf. Aissen 1992), in Bantu languages clause-initial position is strictly reserved for topic, and focus is expressed postverbally (cf. Morimoto 2000). Thus, given the patterns of information structuring in Bantu, clause-initial DCs would naturally receive a topic interpretation.

4 Discourse Configurational Analysis

Taking the discourse functions and phonological phrasing as our basis, we now consider the syntactic structure of split NPs. The key analytical problems we wish to solve are the following: (i) functional identification of the DCs with the associated argument function, and (ii) configurational identification of the types of topic involved the split construction—namely the external, contrastive topic in the left-periphery, and the non-prominent, old topic in the right-periphery.

4.1 I-Structure

The parallel structures and their relations we assume in the present work are shown (27).

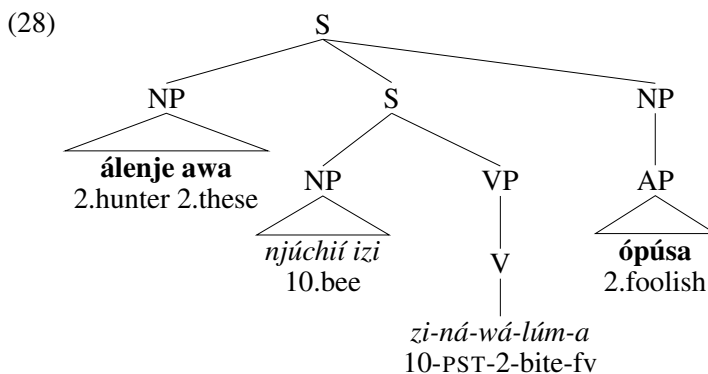


As shown, the f-structure TOPIC interfaces with i-structure [–NEW], and subsumes the distinct i-structural topics: contrastive and non-contrastive, and among the latter, prominent and non-prominent. Following Choi (1999, 2001), we use binary features to represent these types of i-structure topics. The c-structure positions of these nodes then determine the different types of i-structural topics: the (f-structural) TOPIC in the left-periphery is associated with the (i-structural) contrastive topic, and the one in the right-periphery with old non-prominent topic. In other words, it is the mapping between i-structure and c-structure that gives the f-structure notion of TOPIC particular discourse interpretations.

The idea that there is a grammaticized notion of TOPIC at the level of f-structure which subsumes different i-structure topics is supported by the fact that different i-structure topics are not distinctly marked by morphology (which is represented at the level of f-structure). For example, the Japanese and Korean topic markers *wa* and *nun* mark all types of i-structural topic: contrastive, continuing, and non-prominent old topic. These different i-structural topics are usually distinguished by structural position or prosody. We therefore assume a direct mapping between i-structure and c-structure to account for the discourse configurational nature of DCs.

4.2 Mapping between the Parallel Structures

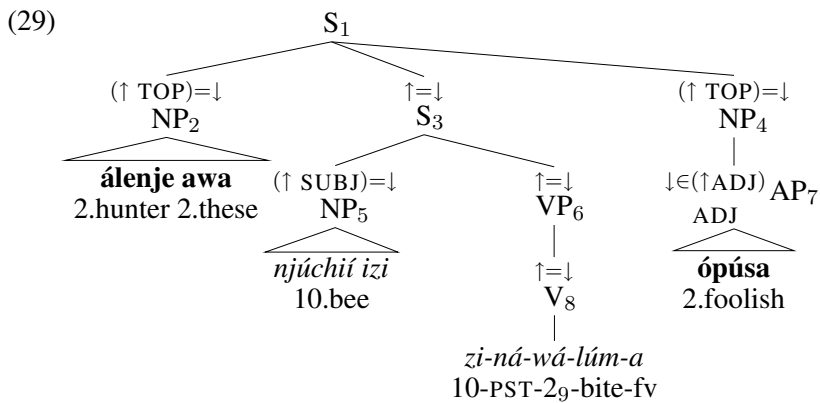
The proposed c-structure of the split construction is shown in (28). For the illustration, we use the example in (14) above.



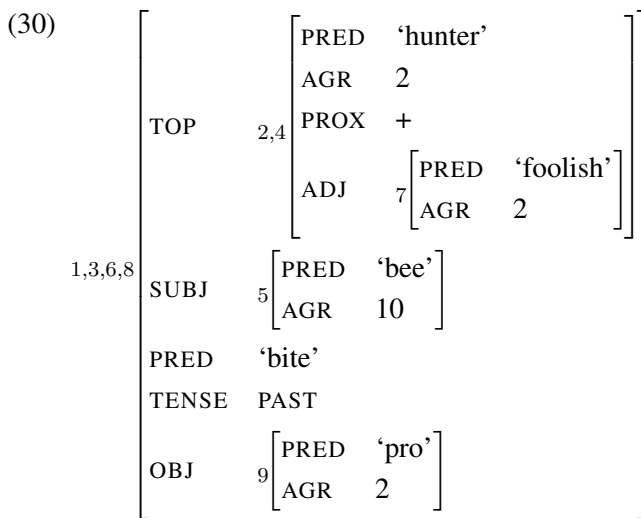
LFG posits two types of clausal organization in natural languages: the endocentric clausal organization with headed XPs, and the exocentric one with S. As in the structure in (28), we make use of the exocentric category S for languages that lack independent evidence for I. In Bantu languages, all verbs inflect uniformly like main verbs, and there is no particular class of inflectional verbs that behave otherwise. For this reason, it has been proposed that Bantu clauses consist of the exocentric category S rather than IP (e.g. Bresnan and Mchombo 1987, Morimoto 2000, 2001).

C- to f-structure mapping: The functional annotations on (28) are shown (29). The corresponding f-structure is shown in (30).⁹

⁹As the internal structure of the fronted NP in (29) is abbreviated, the corresponding f-structure in (30) is also simplified: the lexical information of *awa* has been reduced to a single feature PROX(IMATE).



The annotation on the fronted DC (NP₂) and the remnant part of the DC (NP₄) ‘(↑ TOP) = ↓’ states that the f-structure of the mother node (S₁) contains TOP, whose value is identified with the f-structure of the respective NP. The annotation on the AP builds an inner f-structure of the ADJ(unct) function inside the f-structure of TOPIC.



The functional identification of TOPIC with the argument function OBJ is ensured by the principles of COMPLETENESS and COHERENCE, or more precisely, EXTENDED COHERENCE. Completeness requires that every function designated by a predicate be present in the f-structure of that predicate (Bresnan 2001:63). Thus, completeness rules out examples like that in (31), where all the arguments selected by the predicate *give* are not present.

(31) *John gave a book.

Note that completeness is a requirement that applies at the level of f-structure, and does not require that all the arguments be present on c-structure. Null argument languages like Japanese and Korean, for examples, allow an utterance like that in (31), but at the level of f-structure, all the arguments selected by the predicate are represented and provide their morphosyntactic information and semantic content.

Now in examples like that in (29), part of the DC is the ADJUNCT function (AP) inside the object NP. Completeness is not sufficient to license such elements because it only requires that the selected arguments be properly represented in the f-structure. These adjuncts, not properly selected by the predicate, nonetheless must be properly integrated into the semantics of the predicate and its arguments.

COHERENCE, or the EXTENDED COHERENCE CONDITION, on the other hand, ensures just this type of well-formedness. Coherence requires that every argument function in an f-structure be designated by a PRED. The principle rules out ill-formed examples like that in (32) (Bresnan 2001:63).

(32) *We talked *the man* about that problem for days.

PRED	‘talk <SUBJ, OBL>’]
SUBJ	[“we”]]
*OBJ	[“the man”]	
OBL	[“about that problem”]	
ADJ	[“for days”]	
TENSE	PAST	

The intransitive verb *talk* takes an optional oblique argument, and PRED has the OBL designator in (32). It has no OBJ designator, however; having the extra argument violates the coherence condition and results in an ill-formed f-structure.

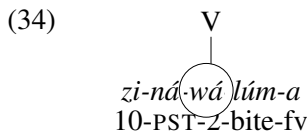
While the coherence condition applies only to argument functions (SUBJ, OBJ, OBJ_θ, OBL), the extended coherence condition applies to all syntactic functions, requiring them to be appropriately integrated into an f-structure (Fassi Fehri 1984, Zaenen 1985, Bresnan and Mchombo 1987). As stated above, argument functions are integrated when they are designated by the PRED. Adjuncts are integrated if their immediate f-structure contains a PRED. The grammaticized discourse functions TOP and FOC are integrated if they are functionally identified, or anaphorically linked to, an integrated function.

Semantic Coreference: Returning to our example in (29), the TOPIC function in the left- and right-periphery is properly integrated into the f-structure in (30) by the extended coherence condition, but completeness and extended coherence must be satisfied by one of the arguments identifying TOPIC as being associated with it. As we have seen, in a sentence with an object DC, the DC is cross-referenced by the obligatory presence of the object marker on the verb.

A standard way of identifying TOPIC with one of the arguments in LFG is the equation in (33), which simply states that the f-structure of the mother node contains the OBJ attribute, whose value is identified with the f-structure of TOP.

(33) (↑ OBJ) = (↑ TOP)

This equation would be a problem, however, for the present case of OM-TOPIC identification: the OM and the TOPIC NP have different PRED values, and PRED values cannot unify. What we want is to anaphorically link the TOP to an integrated function that shares the same agreement features with those of the TOP. To obtain this coreference, we assume that the OM carries the following information given in (34). For the illustration, we use the verb form in (29), repeated below as (34).

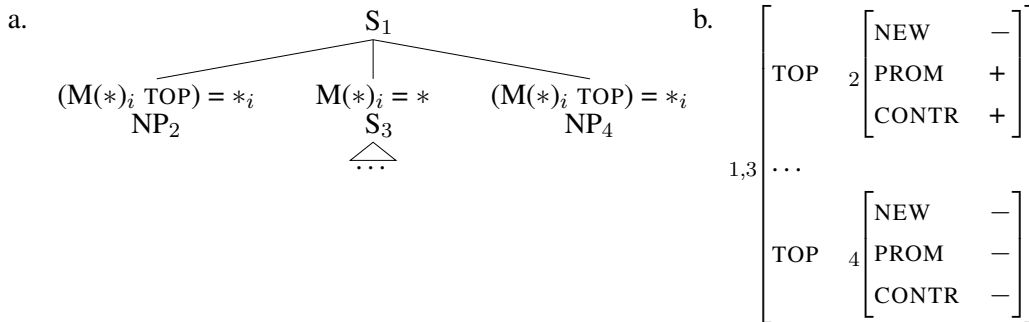


- (↑ OBJ)
 (↓ PRED) = 'pro'
 (↓ INDEX AGR) = 2
 (↓ INDEX) = (↑ TOP INDEX)

The functional annotations on the OM in (34) instantiates the f-structures within the f-structure of OBJ, contained in the f-structure of the mother node (V). The down arrow points to the f-structure of OBJ. The annotation '(↓ INDEX AGR) = 2' states that the f-structure of OBJ contains another f-structure whose attribute is INDEX. The value of INDEX is another f-structure, whose attribute is AGR and its value 2.

C- to i-structure mapping: To model the direct mapping between c- and i-structure, we simply replace the functional annotations ↓ and ↑ with the notations used in (35), which represent an abbreviated c-structure for the split NP construction.

(35) c- to i-structure mapping



The * refers to the current c-structure node, and the M(*) to the mother node (cf. Kaplan 1987). The subscripted *i* refers to the i-structure of that node. The annotation on NP₂, for example, states that the i-structure of the mother node contains a topic, whose value is identified with [−NEW, +PROMINENT, +CONTRASTIVE], due to the c-structure position of the annotated node (left-adjoined). The annotation on the right-peripheral NP, on the other hand, associates the node with the i-structure topic [−NEW, −PROMINENT, −CONTRASTIVE].

Of course, a further analytical problem we must consider for a more complete analysis is how to ensure that left-peripheral topic will be associated with the contrastive, prominent one and the right-peripheral topic with the non-contrastive, non-prominent one. An obvious solution might be to assume a set of mapping constraints like those in (36), which are to be interpreted as universal and violable as in OT. We then let these constraints interact with c-structure constraints to give us language particular c-structure realization of i-structure topics.

- (36) a. Realize –NEW at the left edge. (“old before new”)
 b. Realize +CONTRASTIVE at the left edge. (“iconicity”: prominent information = prominent position)
 c. Realize +PROMINENT at the left edge. (“iconicity”)
 d. Do not realize –PROMINENT at the left edge.

We will leave for future research the precise implementation of such a constraint system into our analysis of split constituents. Such an approach is already explored by Choi (1999, 2001) for various word order phenomena such as scrambling, detachment, topicalization, and focus preposing.

4.3 Further Consequences of the Right-Dislocation Analysis of the “Remnant”

We now return to the last restriction noted earlier in section 2 on the splitting of complex possessive NPs. The relevant examples from (13) are repeated here in (37). The observation was that of the various splitting possibilities of a complex possessive NP, the only grammatical instance is where the head noun remains and the rest is fronted, as in (37d).

- (37) a. Anyaní a-na-chi-mphwanya **chipanda chá alenje a mfumu.**
 2.baboons 2-PAST-7-smash 7.calabash 7.ASSOC 2.hunter 2.ASSOC 1.chief
 ‘The baboons smashed the calabash of the hunters of the chief.’
- b. ***Chipanda_i** anyaní a-na-chi-mphwanya ____i **chá alenje a mfumu.**
 7.calabash 2.baboons 2-PAST-7-smash 7.ASSOC 2.hunter 2.ASSOC 1.chief
 ‘The calabash, the baboons smashed of the hunters of the chief.’
- c. ***A mfumu_i** anyaní a-na-chi-mphwanya **chipanda chá alenje ____i.**
 2.ASSOC 1.chief 2baboons 2-PAST-7-smash 7.calabash 7.ASSOC 2.hunter
 ‘Of the chief, the baboons smashed the calabash of the hunters.’
- d. **Chá alenje a mfumu_i** anyaní a-na-chi-mphwanya **chipanda ____i.**
 7.ASSOC 2.hunter 2.ASSOC 1.chief 2.baboons 2-PAST-7-smash 7.calabash
 ‘Of the hunters of the chief, the baboons smashed the calabash.’

Our speculation on these data is that this is not due to some syntactic constraint, but it is constrained (at least partly) by phonological weight—namely that only one prosodic word is allowed in the right-dislocated position, where the constituent forms its own phonological phrase. A similar observation is made for non-discontinuous right-dislocation in other Bantu languages. For example in Kinyarwanda, Kimenyi (1980:203) observes that whereas multiple left-dislocated topics are possible, right-dislocated topics are restricted to only one constituent. The latter restriction is exemplified in (38).

- (38) *Umgabo y-a-ya-mu-haa-ye, **amafaraanga, umugóre.**
 man 1SM-PAST-it-give-PERF money woman
 ‘The man gave it to her, the money (to) the woman.’

Furthermore, we noted earlier in footnote 3 that (37b) would be grammatical if the fronted head noun *Chipanda* ‘calabash’ had an appositive interpretation. Crucially, in that case the verb cannot have

the OM. This suggests that the instance of what appears to be fronting with the appositive interpretation in fact involves neither fronting of any element nor right-dislocation of the “remnant” element(s), and that the clause-initial appositive element is simply added on to a canonical SVO sentence. Therefore, assuming that our right-dislocation analysis of the remnant is correct, we conjecture that this right-dislocated position imposes the constraint on phonological weight, and DCs involving ‘heavy’ remnants are dispreferred.¹⁰

5 Conclusion

In this paper, we have offered a discourse-configurational analysis of Chicheŵa split constituents, where the fronted element, the contrastive topic, occupies a left-dislocated topic position, and the remnant part of the split NP, the old, non-prominent topic, appears in a right-dislocated position. The analysis is consistent with the fact that every instance of object DCs requires the corresponding object marker on the verb, whose function is topic-anaphoric (Bresnan and Mchombo 1987). The structural analysis is also supported by the preliminary findings on phonological phrasing of DCs. Given the right-dislocated analysis of the remnant part of a split NP, we speculated that the constraint on splitting of complex possessive NPs has to do with phonological weight—that heavy elements are dispreferred in right-dislocated position.

Examining DCs beyond the Bantu family would naturally require looking at the various discourse functions that DCs serve in the languages in question and determining the structural correlates of such discourse elements. Nonetheless we hope that, in future research, our analysis of Chicheŵa split NPs will be a step in the right direction towards taking into account multiple levels of representations (discourse, syntax, phonology) in order to provide a comprehensive analysis of split constructions.

¹⁰We realize that this cannot be the whole story, as the right-dislocation of the entire complex possessive NPs in (37a), for example, would be possible. So there is something peculiar about the syntax of splitting complex possessive NP.

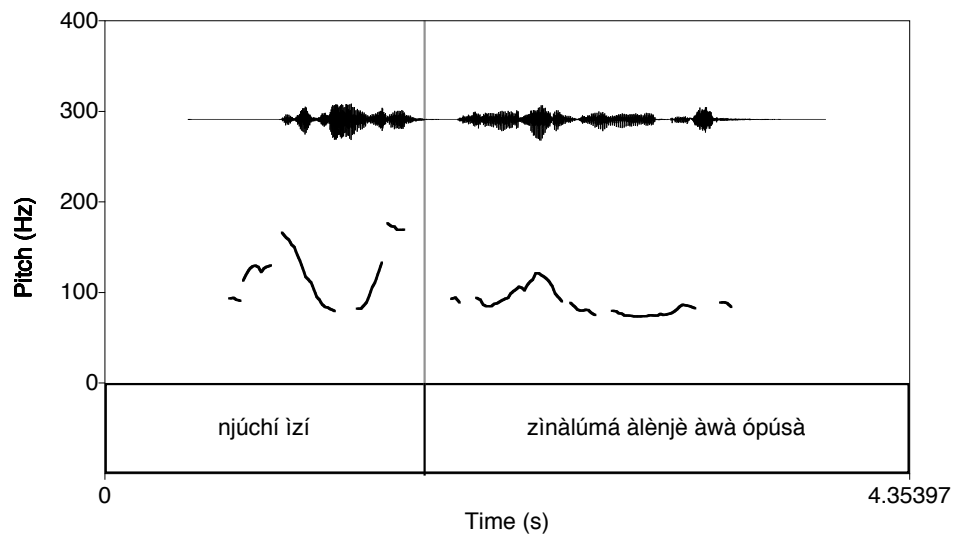


Fig 1

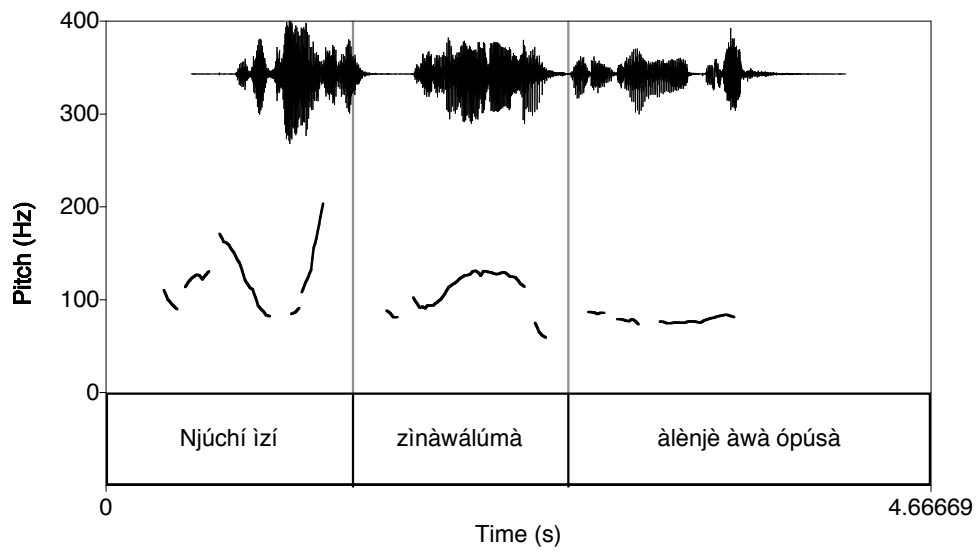


Fig.2

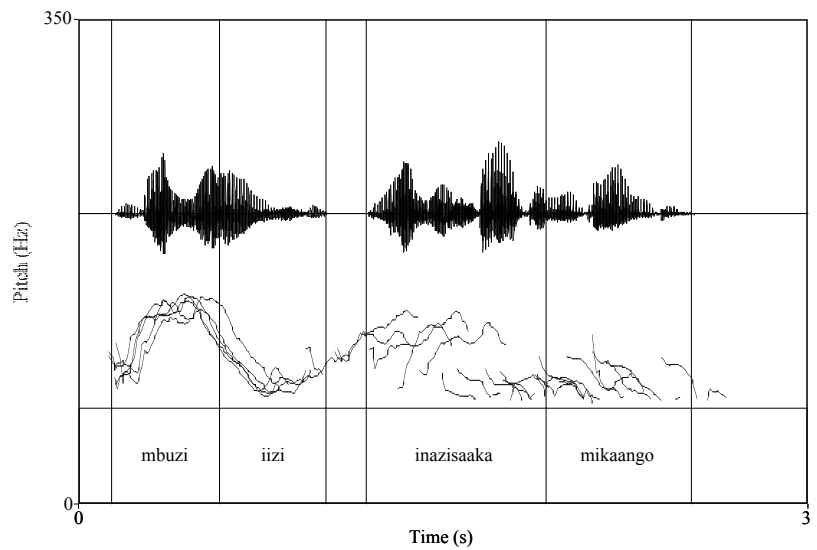


Fig.3

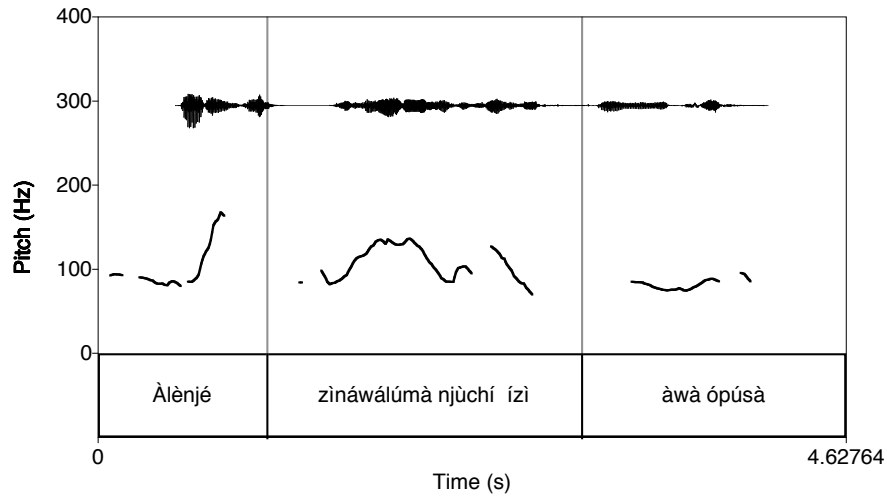


Fig 4

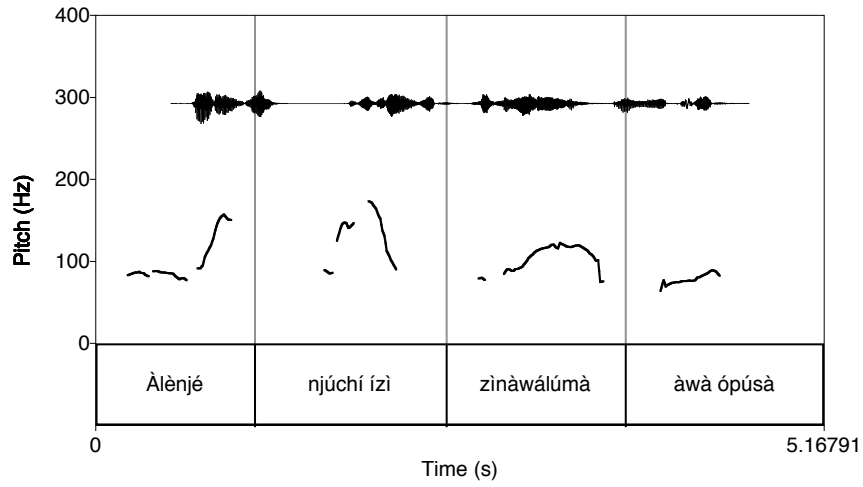


Fig. 5

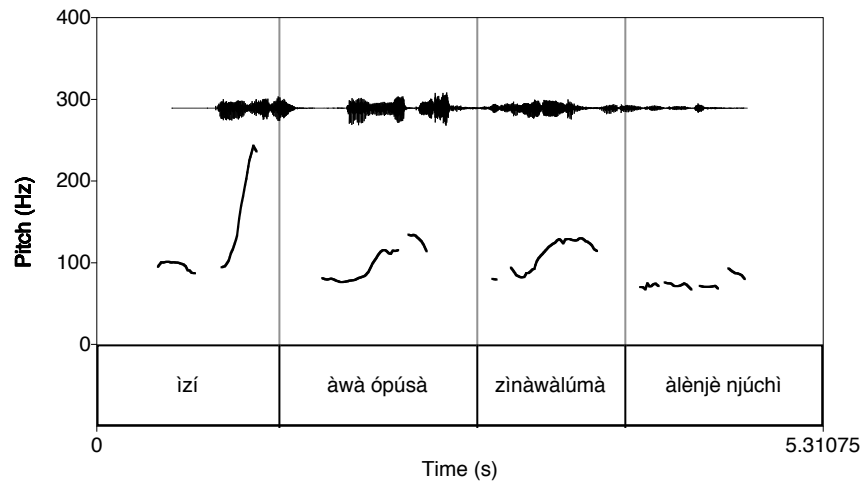


Fig. 6

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