Syntactic and prosodic aspects of left and right dislocation in Embɔsi (Bantu C25)*

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This paper deals with left and right dislocation in Embɔsi, a Bantu language (C25) spoken in Congo-Brazzaville. The prosody of dislocation has gathered considerable attention, as it is particularly informative for the theories of the syntax-prosody mapping of Intonation Phrases (a.o. Selkirk, 2009, 2011; Downing, 2011). Concentrating on selected Bantu languages, Downing (2011) identifies two main phrasing patterns. She primarily distinguishes languages in which only right dislocated phrases display a lack of prosodic integration ("asymmetric" languages), from languages in which both left and right dislocations phrase separately ("symmetric" languages). Hiatus avoidance processes, boundary tones and register expansion/reduction indicate that Embɔsi displays a somewhat more intricate phrasing pattern. In this language, both left and right dislocated items sit outside of the Intonation Phrase formed by the core-clause, but only the latter form their own Intonation Phrase. We also discuss the prosody of multiple dislocations (i.e. with two dislocated arguments), which have not so far received all the attention they deserve. What we observe in Embɔsi is that either the two dislocated items phrase together and are not integrated to the core Intonation Phrase, or only the outermost dislocated element phrases separately.

1 Introduction

This paper deals with Embɔsi, a Bantu language (C25 in Guthrie's classification) spoken in Congo-Brazzaville, and more particularly in the Cuvette region by 150.000 speakers (estimation based on 2009 data of the Congo National Institute of Statistics). It is also spoken in Brazzaville as well as in the diaspora.

* Many thanks go to the participants of the BantuSynPhonIS Workshop on Preverbal domains for stimulating discussion and in particular to Laura Downing for her helpful feedback on a previous version of this paper. The usual disclaimers apply.

In the present paper, we concentrate on the variety spoken in Boundji.

Many aspects of Embɔsi (and its many dialects) were previously the object of studies, either in synchronic or diachronic perspectives. The main works are by Amboulou (1998), Embanga Aborobongui (2013), Fontaney (1988, 1989), Kouarata (2014) and Ndongo Ibara (2009). There are also articles focusing on specific questions such as relative clauses (Beltzung et al., 2010) or *wh*-questions (Embanga Aborobongui et al., 2011). However, the topic of dislocation has not yet been addressed in this language.

In the present paper, we concentrate on the syntax and prosody of dislocation in Embɔsi, more precisely in Embɔsi as it is spoken in Boundji. Dislocation is a cross-linguistically common syntactic process by which a (nominal) phrase is located outside of its canonical position, at a clausal edge, and is resumed by a pronoun within the core-clause it originates from. Dislocation serves different purposes depending on languages. Whereas in languages such as Zulu or Northern Sotho, it is used for discourse contrasting/foregrounding/backgrounding purposes (Cheng and Downing, 2009; Zerbian, 2006), in languages like Mbuun and Bàsàá, left-dislocation is functionally equivalent to passive voice (Bostoen and Mundeke, 2011; Hamlaoui and Makasso, 2013). The appropriateness conditions of dislocation in the present language are not fully understood yet, but it seems that dislocation pertains to the domain of information packaging rather than to expressing changes in diathesis. From a syntactic perspective, we show that dislocation does not apply freely, and that a number of nominal categories simply cannot be left/right-dislocated. We also show that the two types of dislocation do not syntactically mirror each-other. This asymmetry is also observable on the prosodic level. Whereas both types of dislocated phrases tend to sit outside of the Intonation Phrase formed by the core-clause, only the right dislocated ones form their own Intonation Phrase.

The paper is structured as follows. After laying out a few basic syntactic properties of Embɔsi in Section 2, we turn to the well-formedness conditions of right and left dislocation in Section 3. Section 4 introduces the phonological processes that help us diagnose left and right Intonation Phrase boundaries in the present language, that is vowel reduction/coalescence, boundary tones and register expansion/compression. In Section 5, we discuss the realization and prosodic phrasing of 77 sentences that were repeated by one of the co-authors between two and four times across four recording sessions. Section 6 concludes the paper.

2 Basic Syntax

In this section, we introduce some basic features of Embɔsi syntax. We concentrate on those features that are relevant for the investigation of the syntax and

phonology of left and right dislocation. We first discuss affirmative and negative simple sentences and we briefly introduce restrictive relative clauses.

2.1 Simple assertive sentences

From a syntactic perspective, Embɔsi simple assertive sentences display the word order that is widely attested among Bantu languages, that is Subject-Verb-Object. Adverbials normally follow objects. This is illustrated respectively in (1) and (2).

(1) ngóo á-bom-i ngwɛ.
1a.mother 1a.AGR-kill-PST 9.leopard
'The mother cut the leopard.'

(2) ngóo á-bom-i ngwɛ la o-kóró la apóa sa kɔ́.
1a.mother 1a.PST-kill-fv 9.leopard with 3-speed at 6.yesterday LOC 9.bush
'The mother quickly killed the leopard yesterday in the bush.'

As can be seen in (1) and (2) the verb agrees in noun class features with its subject. Whenever the subject referent is discourse-given, it can be left unexpressed, as illustrated in (3).

(3) á-bom-i ngwɛ.
1a.AGR-kill-PST 9.leopard
'She killed the leopard.'

Subject pronouns, as in (4), are optional. They are normally used for disambiguation or emphasis purposes.

(4) wa á-bom-i ngwɛ.
1a.PRO 1a.AGR-kill-PST 9.leopard
'SHE killed the leopard.'

Note that the fact that the subject marker ({á-} in (4)) can co-occur with subject *wh*-pronouns in (5) as well as with non-specific indefinite subjects, in (6), suggests that it is an agreement marker (in Generative syntax, sitting in T) rather than a subject pronoun (sitting in Spec,TP).

(5) nda á-tɛ́ɛ Jumá?
who 1-see.PST Juma
'Who saw Juma?' (Embanga Aborobongui et al., 2011)

(6) moro á-tɛ́-i Juma.
1.person 1.AGR-PST-see-REC Juma
'Someone saw Juma.'

When it comes to ditransitive verbs like 'give', ɛmbɔsi is comparable to English, in that it displays both double object constructions, in which recipient

precedes patient (see (7)), and "dative" constructions in which the patient comes first and the recipient is expressed as an indirect object (see (8)) (i.e. with the obligatory presence of a preposition for all ditransitive verbs).

(7) o-júlu láa-βel-á ɔ-pɛ́ táá ɔ-kwáí.
1-woman 1.AGR.IMPERF-can-PRES 15-give 1a.father 3-machete
'The woman can give the father the machete.'

(8) o-júlu láa-βel-á ɔ-pɛ́ ɔ-kwáí la táá.
1-woman 1.AGR.IMPERF-can-PRES 15-give 3-machete to 1a.father
'The woman can give the machete to the father.'

2.2 Simple negative sentences

Embɔsi negative sentences (which will subsequently allow us to test whether a verb and its subject phrase together) display a clause final negation marker *kaá* or *ɛ*, in what seems to be free variation. Interestingly, a copula carries subject and TAM markers, while the lexical verb appears in its non-finite form (class 15). Contrary to what is seen in many Bantu languages, the Embɔsi verb cannot carry the negative particle, and a periphrastic verbal form is thus required in negative clauses. This is illustrated with the negative counterpart of (1), (7) and (8), given respectively in (9), (10) and (11).

(9) ngóo a-dí o-bom-á ngwɛ kaá/ɛ.
1a.mother 1a.AGR-cop.PRES 15-kill-fv 9.leopard NEG
'The mother doesn't kill the leopard.'

(10) o-júlu a-dí o-βel-á ɔ-pɛ́ táá ɔ-kwáí kaá/ɛ.
1-woman 1.AGR-cop.PRES 15-can-fv 15-give 1a.father 3-machete NEG
'The woman cannot give the father the machete.'

(11) o-júlu a-dí o-βel-á ɔ-pɛ́ ɔ-kwáí la táá kaá/ɛ.
1-woman 1.AGR-cop.PRES 15-can-fv 15-give 3-machete to 1a.father NEG
'The woman cannot give the machete to the father.'

Note in passing that in this type of sentences, objects can either follow the entire verbal complex, or follow the copula. The latter case is exemplified below, in (12) for a transitive verb, and in (13) and (14) for the double object construction and the dative construction of a ditransitive verb, respectively.

(12) ngóo a-dí ngwɛ o-bom-a kaá/ɛ.
1a.mother 1a.AGR-cop.PRES 9.leopard 15-kill-fv NEG
'The mother doesn't kill the leopard.'

(13) o-júlu a-dí táá ɔ-kwáí o-βel-á ɔ-pɛ́ kaá/ɛ.
1-woman 1.AGR-cop.PRES 1a.father 3-machete 15-can-fv 15-give NEG
'The woman cannot give the father the machete.'

(14) o-júlu a-dí ɔ-kwáí la táá o-βel-á ɔ-pɛ́ kaá/ɛ.
1-woman 1.AGR-cop.PRES 3-machete to 1a.father 15-can-fv 15-give NEG
'The woman can't give the machete to the father.'

It is not however possible to locate only one of the two objects before the lexical verb and leave the other after it. More work will be needed to establish the underlying syntactic structure of these various linear orders.

2.3 Restrictive relative clauses

Before closing this section on the basic syntax of Embɔsi, let us have a look at restrictive relative clauses. We have seen above that simple sentences display a constituent order in which the subject precedes the verb and controls subject-agreement in noun-class features. Interestingly, in relative clauses, the periphrastic form of the verb observed previously in negative sentences emerges again. In relative clauses, the copula agrees with the head of the relative, be it a logical subject or the object of the embedded verb. This is illustrated in (15) and (16). Again, whenever the verb is in its periphrastic form, its object can either precede or follow the lexical verb, making the sentence in (15) ambiguous between the two indicated readings, as the phrase following the copula can either be the subject of the verb or a fronted, pre-lexical-verb object.

(15) ngwɛ jeé-dz-e ngóo la o-kjén-a
9.leopard 9.REL-cop-PST 1a.mother to 15-cut-fv
'the leopard that the mother killed/the leopard that killed the mother'

(16) ngwɛ jeé-dz-e lá o-kjén-a ngóo
9.leopard 9.REL-cop-PST to 15-cut-fv 1a.mother
'the leopard that killed the mother'

Although it is attested in a number of Bantu languages (a.o. Kimenyi, 1988; Morimoto, 2000), OVS is not an acceptable constituent order in Embɔsi matrix clauses.[1]

3 Syntactic aspects of dislocation

Let us now turn to the main topic of this study, that is, the process of right and left dislocation of nominal categories. The two types of dislocation do not mirror each-other in the present Bantu language. We start with right dislocation, as it is more restricted than its leftward counterpart.

[1] Note in passing, that what is observed in relative clauses, that is, that the verb subject-agrees with the phrase that precedes it rather than with its post-verbal subject, is consistent with Baker's (2008) observation that asymmetric c-command is a pre-requisite in Bantu languages subject-verb agreement.

3.1 Right dislocation

Whereas in a number of languages (Bantu and beyond), subjects can be right-dislocated, this is not the case in Embɔsi. Even if a subject pronoun appears in the preverbal subject position, subjects cannot be post verbal in simple declarative matrix clauses. In this respect, Embɔsi is similar to Bàsàá (Hamlaoui and Makasso, To appear).

(17) *(wa) á-bom-i ngwɛ ngóo.
1a.PRO 1a.AGR-kill-PST 9.leopard 1a.mother
'She killed the leopard, the mother.'

(18) *(wa) á-bom-i já-a ngóo ngwɛ.
1a.PRO 1a.AGR-kill-PST 9.PRO 1a.mother 9.leopard
'She killed it, the mother, the leopard.'

(19) *(wa) á-bom-i já-a ngwɛ ngóo.
1a.PRO 1a.AGR-kill-PST 9.PRO 9.leopard 1a.mother
'She killed it, the leopard, the mother.'

Right-dislocation is however acceptable with object arguments. This is exemplified with a simple transitive sentence in (20).

(20) ngóo á-bom-i wa ngwɛ.
1a.mother 1a.AGR-kill-PST 9.PRO 9.leopard
'The mother killed it, the leopard.'

With the ditransitive verb 'give', only the patient can be right-dislocated in the double object construction, as shown in (21) and (22). Note that in (21), the pronouns order cannot be changed.

(21) o-júlu láa-βel-á ɔ-pɛ́ wa mú-a ɔ-kwáí.
1-woman 1.AGR.IMPERF-can-PRES 15-give 1a.PRO 3.PRO 3-machete
'The woman can give him it, the machete.'

(22) *o-júlu láa-βel-á ɔ-pɛ́ wa mú-a i-baa.
1-woman 1.AGR.IMPERF-can-PRES 15-give 1a.PRO 3.PRO 5-man
'The woman can give him it, the man.'

In contrast, in the "dative" structures in (23) and (24), either of the two objects can be right-dislocated.

(23) o-júlu láa-βel-á ɔ-pɛ́ múa la wa ɔ-kwáí.
1-woman 1.AGR.IMPERF-can-PRES 15-give 3.PRO to 1a.PRO 3-machete
'The woman can give it to him, the machete.'

(24) o-júlu láa-βel-á ɔ-pɛ́ múa la wa la i-baa.
1-woman 1.AGR.IMPERF-can-PRES 15-give 3.PRO to 1a.PRO to 5-man
'The woman can give it to him, to the man.'

As illustrated in (25) and (26), a dislocated object can only follow an adjunct, and not precede it.

(25) o-júlu láa-βelá ɔ-pɛ́ mú-a la wa ó poo / sá
1-woman 1.AGR.IMPERF-can-PRES 15-give 3.PRO to 1a.PRO LOC village / LOC
kɔ / ó póró ɔ-kwáí.
9.bush / LOC Europe 3-machete
'The woman can give it to him in the village/ in the bush/ in Europe, the machete.'

(26) *o-júlu láa-βelá ɔ-pɛ́ mú-a la wa ɔ-kwáí ó
1-woman 1.AGR.IMPERF-can-PRES 15-give 3.PRO to 1a.PRO 3-machete LOC
poo / sá kɔ / ó póró.
village / LOC 9.bush / LOC Europe
'The woman can give it to him, the machete, in the village/ in the bush/ in Europe.'

A similar pattern is found in double object constructions. Only (27) is grammatical (and a break, on the form of a pause or the simple absence of hiatus reduction, is required between the adverbial and the dislocated object). The reverse order, in (28) is unacceptable.

(27) o-júlu láa-βel-á ɔ-pɛ́ wa mú-a sá kɔ ɔ-kwáí.
1-woman 1.AGR.IMPERF-can-PRES 15-give 1a.PRO 3.PRO LOC 9.bush 3-machete
'The woman can give him it in the bush, the machete.'

(28) *o-júlu láa-βel-á ɔ-pɛ́ wa mú-a ɔ-kwáí sá kɔ.
1-woman 1.AGR.IMPERF-can-PRES 15-give 1a.PRO 3.PRO 3-machete LOC 9.bush
'The woman can give him it, the machete, in the bush.'

Let us now turn to left-dislocation.

3.2 Left dislocation

The process of left dislocation seems to be more permissive than right-dislocation. First, it is acceptable to left-dislocate subjects. A subject pronoun will usually then occupy the canonical subject position, as in (29).

(29) o-júlu wa láa-βel-á ɔ-taβ-á o-kwáí.
1-woman 1.PRO 1.AGR.IMPERF-can-PRES 15-forget 3-machete
'The woman, she can forget the machete.'

Note that there is a preference for left-dislocated phrases to be definite, which is the case when they are modified by a demonstrative determiner, as in (30) and (31).

(30) o-júlu wó wa láa-βel-á ɔ-taβ-á ɔ-kwáí.
1-woman 1.DEM 1.PRO 1.AGR.IMPERF-can-PRES 15-forget-fv 3-machete
'This woman, she can forget the machete.'

(31) ɔ-kwáí mú o-júlu láa-βel-á ɔ-taβ-á mú-a.
3-machete 3.DEM 1-woman 1.AGR.IMPERF-can-PRES 15-forget-fv 3.PRO
'This machete, the woman can forget it.'

Adverbials, which normally occur (core-)clause-finally, can also separate the dislocated subject phrase from the verb. In that case, the subject pronoun is optional. This is shown in (32).

(32) i-baa sá kɔ́ (di-a) í-d-í o-βel-á ɔ-taβ-á o-kwáí kaá.
5-man LOC 9.bush 5-PRO 5-cop-PST 15-can-fv 15-forget-fv 3-machete NEG
'The man, in the bush, he cannot forget the machete.'

Objects can also be left-dislocated, as illustrated first in (33), with a transitive verb.

(33) ɔ-kwáí a-ána báa-βel-á o-taβ-á mú-a sá kɔ́.
3-machete 2-children 2.AGR.IMPERF-can-PRES 15-forget-fv 3.PRO LOC 9.bush
'The machete, the children can forget it in the bush.'

If both subject and object are dislocated, the subject must come first, as in (34). The subject pronoun but not the object pronoun can be omitted.

(34) a-ána ɔ-kwáí (bá-a) báa-βel-á o-taβ-á mú-a sá
2-children 3-machete 2.PRO 2.AGR.IMPERF-can-PRES 15-forget-fv 3.PRO LOC
kɔ́.
9.bush
'The children, the machete, they can forget it in the bush.'

Either of the two objects of a ditransitive verb can be left-dislocated in the dative structure but only the patient can be left-dislocated in the double object construction. The dative structures are given in (35) and (36). In (35), the presence of a resumptive pronoun is optional. If the resumptive is left out, the preposition *la* can be left out as well (but does not have to be).

(35) ɔ-kwáí o-júlu láa-βel-á ɔ-pɛ́ (mú-a) (la) i-baa.
3-machete 1-woman 1.AGR.IMPERF-can-PRES 15-give 3.PRO to 5-man
'The machete, the woman can give it to the man.'

(36) la i-baa o-júlu láa-βel-á ɔ-pɛ́ ɔ-kwáí.
to 5-man 1-woman 1.AGR.IMPERF-can-PRES 15-give 3-machete
'To the man, the woman can give the machete.' .

In (36), note that the indirect object is not resumed by a pronoun. The alternative sentence in (37) is grammatical as well, showing that resumption is here optional as well.

(37) la i-baa o-júlu láa-βel-á ɔ-pɛ́ mú-a ɔ-kwáí.
to 5-man 1-woman 1.AGR.IMPERF-can-PRES 15-give 5-PRO 3-machete
'To the man, the woman can give him, the machete.' .

Left-dislocation of the recipient is not possible in the double object construction, as shown in (38) (with or without resumption of the dislocated recipient).

(38) *i-baa o-júlu láa-βel-á ɔ-pɛ́ ɔ-kwáí
5-man 1-woman 1.AGR.IMPERF-can-PRES 15-give 3-machete
'The man, the woman can give (him) the machete'

Finally, note that the two objects of a ditransitive verb cannot be simultaneously left-dislocated (no matter the order). Multiple dislocations thus here only involve a dislocated subject and a dislocated object.

(39) *la i-baa ɔ-kwáí o-júlu láa-βel-á ɔ-pɛ́ wa mú-a.

(40) *ɔ-kwáí la i-baa o-júlu láa-βel-á ɔ-pɛ́ wa mú-a.

In this section, we have presented a few syntactic aspects of dislocation in Embɔsi. More work is needed to develop a syntactic analysis that captures the asymmetry between right and left dislocation as well the various restrictions we have laid out. Before turning to the phonological realization of dislocation in this language, let us introduce the phonological processes that will allow us to diagnose the prosodic phrasing of dislocation.

4 Basic phonology

In this section, we introduce some basic features of Embɔsi segmental and suprasegmental phonology. Main features of the tonal and intonational system will be sketched, as well as main segmental processes involved in signalling prosodic constituents, and the organization of the Embosi prosodic hierarchy will be discussed. We concentrate on features that are relevant for the phonology/syntax interface of right and left dislocation.

4.1 Tones and intonation

4.1.1 A two-tone language without downdrift

As many Bantu languages, Embɔsi is a two tone language. The tone bearing unit is the mora, or the syllable if long vowels are analyzed as sequences of two identical short vowels. The latter approach could be argued for, as long vowels result from various processes, such as the loss of an intervocalic consonant (Embanga Aborobongui, 2013; Kouarata, 2014).

In Embɔsi, the L tone does not behave as a default tone, as shown by rules associated with the loss of a vowel: after a vowel loss, a L left behind does not

simply disappear, leaving no trace as a default L tone would do, but it can be shown that it is active in contour reduction rules (see Embanga Aborobongui et al., 2012; Embanga Aborobongui, 2013).

One of the striking characteristics of Embɔsi is the fact that it does not have downstep or downdrift. Downdrift is a register-based phenomenon, triggering a progressive lowering of tonal realizations and register compression. Mathematical models of downdrift have been computed for various languages, showing that the downdrift decay is exponential, tending towards an asymptote (Liberman and Pierrehumbert, 1984; Myers, 1996; Prieto et al., 1996; Laniran and Clements, 2003).

In Embɔsi, an assertive sentence can be uttered on two tone levels (one for the H tone and the second one for the L tone) until it reaches the ending part, which is lowered due to the final assertive intonation.

An important consequence of this lack of downdrift is that speakers can modulate registers for discourse-purpose with great freedom. Thus, a word, for instance a conjunction, occurring at the beginning of a sentence can be realized on a reduced or expanded pitch compared to what follows. An example with register expansion is given in Figure 3. This variation is related to the backgrounding or foregrounding of the conjunction. Register variations are also involved in the expression of contrast and focus and their span can be just a word or a whole sentence at the discourse level.

4.1.2 Superimposed boundary tones

Besides lexical tones, the Embɔsi prosodic system includes boundary tones. These boundary tones are found on the right edges of Intonational Phrases. As in many languages, a L% boundary tone is a marker of assertion and a H% tone, a marker of yes-no questions. In Embɔsi, these boundary tones are not realized after the lexical tones at the end of Intonational Phrases. They are "superimposed" to the realizations of lexical tones, triggering lowering or raising of their realization (Beltzung et al., 2010; Downing and Rialland, 2012; Embanga Aborobongui et al., 2012). Let us consider three examples to illustrate this point. In the interrogative utterance in Figure 1, we can observe an extra-high realization of the last H lexical tone. We analyze this raising as the result of the superimposition of the H% boundary, which is attracted by the last H tone. The realisation of a H% following the realisation of lexical tones would have resulted in a final rise, which is not what is observed in Embɔsi.

Figure 1 : F0 curve of the utterance [swénge á-mi-sía] “Is the month finished?”

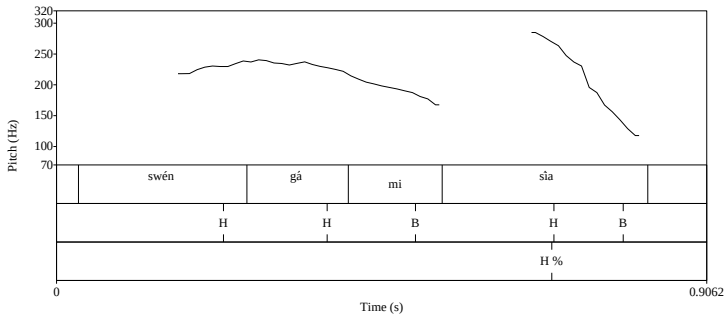
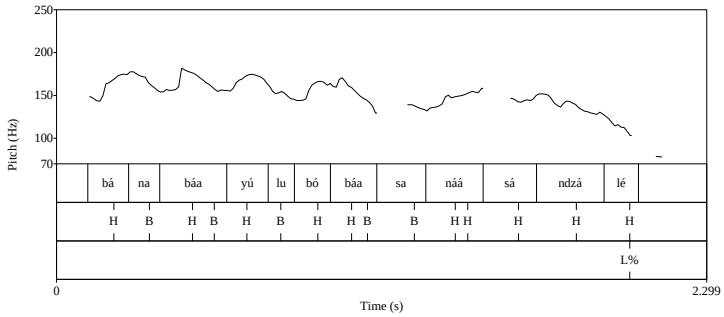


Figure 2 : F0 curve of the utterance [bána báa júlu bó báa náá sá ndzále]
“The girls are playing near the river”



On the F0 curve of an assertive sentence in Figure 2, we can notice that the L and H tones are realized on two levels, until *náá sá ndzálé*. Then, the H tones of *náá sá ndzálé* are realized lower and the very last H tone is realized very low, ending in breathiness. This lowering, which is very strong on the last high tone and less important on the preceding one, can be analysed as resulting from the influence of L%, which spreads over the last stretch of H tones.

Figure 3 : F0 curve of the utterance [o-júlu láa-βel-á ɔ-taβ-á ɔ-kwái sá kɔ́]
“The woman can forget the machete but the man cannot forget the machete in the bush”

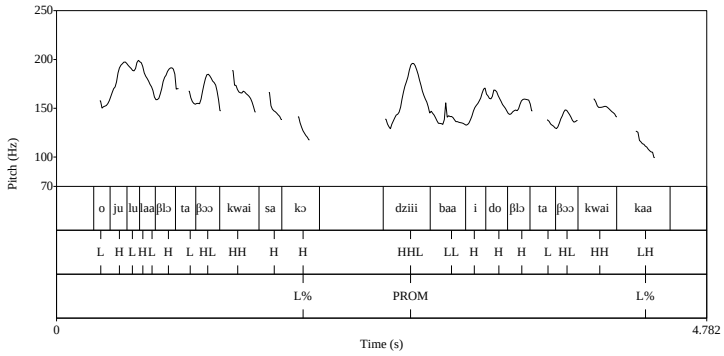


Figure 3 illustrates the realisation of a complex sentence. Each part of this

complex sentence ends with a L% boundary tone, which is superimposed on the realization of the lexical tones and strongly lowers the last H tones – the final H being particularly pushed down very low.[2] This example also illustrates how register can be expanded in order to underline a contrast, such as the one which can be observed on the first word of the second clause: *ndzáá* "but" (whose vowels *aa* are elided due to a hiatus reduction process). Other renditions of the same sentence show a second expansion of register on the word *yúlu* "woman", then contrasting with the word *ibaa* "man".

4.2 Segmental phonology

Various segmental processes occur at two levels of the prosodic hierarchy: the Phonological Word and the Intonational Phrase (Embanga Aborobongui, 2013; Beltzung et al., 2010). Processes occurring within the Phonological Word are vowel harmony, glide formation, consonant dissimilation, among others. We concentrate on segmental phonology of the Intonational Phrase. With an Intonational Phrase in Embɔsi, at any word junction, hiatus is avoided: the final vowel of the first word in contact is elided when the following word begins with the a vowel. Vowel elision can be accompanied by vowel coalescence when the vowels in contact are a + i. Compensatory lengthening occurs when vowel elision is combined with a loss of a prefix consonant (Beltzung et al., 2010; Embanga Aborobongui, 2013). We noticed few cases of monosyllabic roots resisting vowel elision. Hiatus avoidance is frequent, as all the Embɔsi words end with a vowel and 40% begin with a vowel. Thus, it occurs three times in the second part of the sentence whose F0 curve is given in Figure 3. In (41), the first line corresponds to the phonetic notation. The vowel or vocalic sequences resulting from vowel elision are underlined. The second line corresponds to the notation with words as they would be produced in isolation. The third line notation indicates the prefix initial consonants in parenthesis. These consonants are deleted due to a dissimilation rule, but leave a trace which triggers compensatory lengthening (Beltzung et al., 2010; Rialland et al., To appear).

(41) ndzíiibaaídóβlɔ́ɔkwáí kaá
ndzáá i-baa í-dí o-βel-á ɔ-taβ-á ɔ-kwáí kaá
ndzáá (d)i-baa (l)í-dí o-βel-á o-taβ-á (m)ɔ-kwáí kaá
but 5-man 5-cop.PST 15-can-fv 15-forget-fv 3-machete NEG
'but the man cannot forget the machete'

[2] In the present example, the second part begins roughly at the same pitch level as the first one. Thus, we consider that the second IP is treated as being independent from the first IP (i.e. there is no IP recursion, see (42)). Additional research would be necessary to better understand the relationships between registers within complex sentences.

This example shows that hiatus reduction processes occur between a complementizer ("but") and a subject ("man"), between lexical verbs in the verbal complex, and finally, between verb and object. In two other renditions of the same sentence, the monosyllabic stem *baa* of *ibaa* "man" undergoes also vowel elision in front of ídí, *ibaa+ídí* being realized *ibiídí*. Thus, in these renditions, the hiatus is also reduced between the subject and the verb, which is the usual case.

4.3 Prosodic hierarchy

As was already mentioned in Section 4.1 and 4.2, at the highest level of the hierarchy, Embɔsi has Intonational Phrases, which are characterized (i) by boundary tones on their right, (ii) hiatus avoidance processes occurring between any words in contact, and (iii) a pause at their left edge. Boundary tones mark the right edge of clauses, in both simple and complex sentences, as was shown in Figures 1, 2 and 3. The two boundary tones and the pause observed in Figure 3 are indicative of the intonational phrasing given in (42).

(42) [ojúluláaβlɔ́taβɔ́ɔkwáísá kɔ́ $_{IP}$] [ndzííibaaídɔ́βlɔ́taβɔ́ɔkwáíkaá $_{IP}$]
'The woman can forget the machete in the bush but the man cannot forget the machete.'

At the lowest level of the prosodic hierarchy, there are clearly defined phonological words, with prefixes and suffixes undergoing various segmental processes, particularly vowel harmony.

At the intermediate level, between the Phonological Word and the Intonational Phrase, we could have expected the Phonological Phrase. However, we found no regular marker, that is, no segmental marker or any cue such as resetting or some form of register modification for a constituent of this size (Downing and Rialland, 2012). There might be a candidate which is the grouping marked by "metatony", that is, an alternation between a L and a H tone at the end of some verb categories and in pronouns. "Metatony" involving verbs is a relatively common process in Bantu languages and it is known as varying depending upon syntactic factors and verb tenses and categories involved (Schadeberg, 1995; Hyman and Lionnet, 2011). In Embɔsi, metatony in verbs depends basically upon tenses. In present and future imperfective, verbs exhibit a final H tone when followed by a complement and a L tone if they are not followed by a complement. Metatony occurs also in some other tenses but varies depending upon the fact that a stem is monosyllabic or not (Embanga Aborobongui, 2013). When it occurs in other Bantu languages, "metatony" is usually limited to verbs but Embɔsi has a second type of metatony which involves the two pronouns with L tones (3rdPersSg *wa* and 2ndPersSg *nɔ*). This second type of metatony has not been fully investigated and we do not have yet a full picture of the phe-

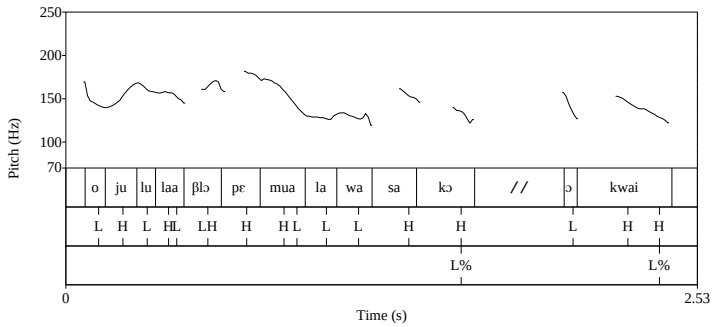
nomenon. Further investigation is needed to better understand the relationship of these various metatonies with syntax and consequently, potential phonological phrases. Currently, we have no evidence in favor of a Phonological Phrase as a prosodic constituent in Embɔsi.

5 Dislocation and phonological phrasing

Our study is based on a corpus including 77 examples recorded by one of the co-authors (Martial Embanga Aborobongui) and repeated between two and four times (over four recording sessions). The corpus was written and then read.[3] The sentences recorded mainly consist in simple transitive or ditransitive sentences (both in the positive and in the negative form, so as to have instances of verbal complexes starting with a vowel (i.e. with the copula)). We also recorder a few instances of relative clauses and coordinated clauses, so as to establish comparisions.

5.1 Right dislocation

Figure 4 : F0 curve of the sentence [ojúluláaβelɔ́pɛ́múalawasákɔ́ / ɔkwáí]
"The woman can give it to him in the bush, the machete"



In right-dislocations, the core-clause regularly ends with a L% boundary tone, as does the dislocated element. This indicates that both are aligned with the right edge of an Intonation Phrase. Additionally, a pause separates the core-clause from the dislocated phrase, which we interpret as indicating the beginning of an Intonation Phrase. Figure 4 shows the F0 curve of the realisation of a

[3] Reading styles differ from spontaneous styles, and there are various spontaneous styles. Moreover, reading is not a usual task in Embɔsi, as there are very few written texts, and no official spelling. The main difference that we noticed between the corpora is related to the H% boundary tone. H% is an interrogative marker in all styles, but its distribution varies within the sentence (when it would play the role of a continuation rise). In the read corpus which provides the basis for this article, there is no H% within a sentence, even in complex ones.

sentence with a right dislocation.[4] The L% boundary tones, indicated on a separate tier, lower the realizations of the last high tone(s) of the core-clause and of the dislocated part. We can also notice that the register of the dislocated phrase is reduced. This reduction, which is regularly observed in right dislocation, can be related to two factors: the backgrounding that seems to be generally associated with right dislocation in this language (but more investigations are needed) and the recursivity of the intonational structure (Ladd, 1996). Both hypotheses are compatible with our data and could even converge to explain the reduction of register.[5] The backgrounding hypothesis is in tune with many observations in Embɔsi corpora with register which can be related to foregrounding and backgrounding. The second hypothesis implies that the register reduction indicates that the dislocated element and the core clause belong to a common larger intonational unit. This hypothesis is compatible with the observation that dislocated elements are realized on a reduced register, lower than the core-clause. The register of the dislocated element is never reset up to the level of the core-clause, which suggests a dependence between both registers. In the context of these recording sessions, dislocated elements are clearly reduced, not only in terms of pitch, but also in terms of loudness. For these reasons, we assume that dislocated elements are not realized as independent IPs, but as dependent IPs, being part of a larger IP in a recursive structure as the one shown in (43).

(43) [[core clause$_{IP}$] [dislocated phrase $_{IP}$] $_{IP}$]

On the segmental level, vowel reduction never happens between a right dislocated phrase and the item that immediately precedes it, confirming the phrasing given in (43), in which the right dislocated phrase forms an IP of its own. In our view, the left edge of IP is responsible for blocking hiatus reduction from taking place. Take example (21), repeated below for convenience and enriched with a phonetic notation. In this phonetic notation, vowels resulting from hiatus reduction are underlined and a slash indicates a pause.

(21) [ojúluláaβelo̲pɛ́wamúa/ɔkwáí]

(m)o-júlu láa-βel-á ɔ-pɛ́ wa mú-a ɔ-kwáí.
1-woman 1.AGR.IMPERF-can-PRES 15-give 1a.PRO 3.PRO 3-machete
'The woman can give him it, the machete.'

This sentence cannot be realized as in (44), where a hiatus is avoided between *mú-a* and ɔ-kwáí.

[4] In order to get a clear picture and big enough symbols, the pause (indicated by //) was shortened.

[5] All our dislocated elements are short. We have not yet investigated the effect of the length on the register reduction. It would be interesting to know whether the same type of reduction is observed with longer items.

(44) *[... múɔkwáí]

Right-dislocated phrases in this respect contrast with clause final adverbials (i.e. adverbials in their canonical position) (or, to the best of our knowledge, with any core-clause internal phrase), for which the process of hiatus avoidance normally takes place, as in (25) (Figure 4), repeated below, with a phonetic notation added.

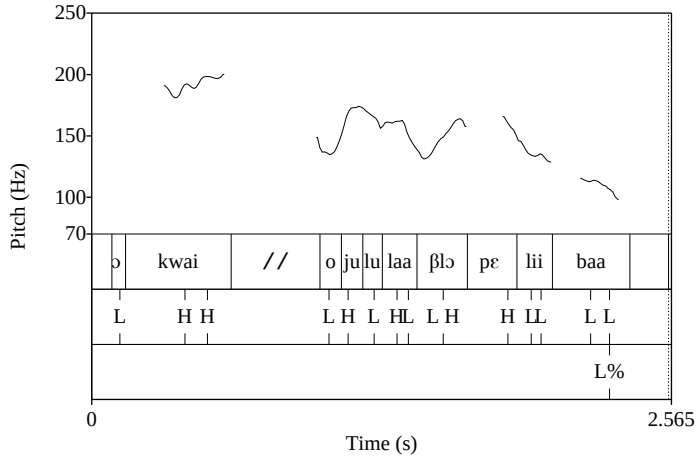
(25) [ojúluláaβelɔ́pɛ́múalawópoo/ɔkwáí]
(m)o-júlu láa-βelá ɔ-pɛ́ mú-a la wa ó poo / sá
1-woman 1.AGR.IMPERF-can-PRES 15-give 3.PRO to 1a.PRO LOC village / LOC
kɔ / ó póró (m)ɔ-kwáí.
9.bush / LOC Europe 3-machete
'The woman can give it to him in the village/ in the bush/ in Europe, the machete.'

The sequence *la wa ó poo* ("to him in the village) given in (25) reduces into [lawópoo]. Let us now turn to left dislocation.

5.2 Left dislocation

As for left dislocated phrases, they never end with a boundary tone, which we take it as an indicator of the fact that, unlike right dislocated phrases, they do not align with the right edge of an Intonation Phrase. See Figure 5 for an illustration of a sentence with a left-dislocated object (corresponding to example (35)).

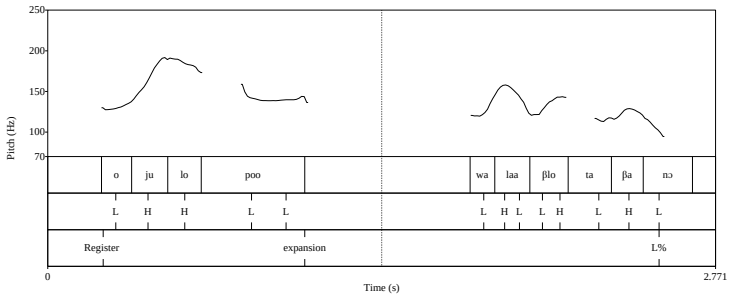
Figure 5 : F0 curve of the sentence [ɔkwáí / ojúluláaβeláɔpɛ́liibaa]
"The machete, the woman can give to the man."



A pause or perceived break however regularly prevents hiatus avoidance processes from occurring between a dislocated phrase and the remainder of the clause, indicating the presence of an Intonation Phrase left edge.

Various phrasing patterns can be observed when two phrases are left-peripheral (i.e. two arguments are dislocated or a dislocated argument is followed by an adverbial). When two arguments are dislocated, breaks occur either between them or between the clause-initial one and the remainder of the sentence. See Figure 6 for an illustration of the former case. In a few cases, that we will discuss in more detail subsequently, no pause or perceived break is found and the application of hiatus avoidance processes suggest that a dislocated object is integrated to the Intonational Phrase formed by the matrix clause. Multiple breaks are only observed when an adverbial is left-peripheral. We will consider various configurations of phrasing that were found in our corpus, in sentences with simple and multiple dislocations. As there are no boundary tones involved in these phrasings, we will refer mainly to the presence or not of a pause, to the hiatus reduction processes and register manipulations.

Figure 6 : F0 curve of the sentence [ojúlópoo / waláaβelɔ́taβánɔ]
"The woman, at the village, she can refuse you."



5.2.1 Pauses and hiatus reduction processes in simple dislocation

Between (canonical) subject and verb, hiatus avoidance (by means of vowel reduction/coalescence) occurs in all the examples we have considered (n= 42) (no matter whether the subject was clause-initial or preceded by another phrase). Note also that none of the 127 utterances considered here that display a subject-verb sequence show a pause between these two words.

In contrast, hiatus avoidance is infrequently observed at the juncture between a canonical subject and a left-dislocated phrase or an adverbial that immediately precedes it. In the data we examined, it only happens 2 out of 28 times. The sentence in which reduction was observed are given in (45). Note that (45) was recorded four times (over two different recording sessions) and that only the first two realizations displayed hiatus avoidance.

(45) [sákóojúluláaβelólémba]

sá kɔ́ (m)o-júlu láa-βel-á o-lémba.
LOC 9.bush 1-woman 1.AGR.IMPERF-can-PRES 15-get.lost
'In the bush, the woman can get lost'

What we observe is thus that canonical subjects systematically phrase together with the material that follows. This pattern contrasts with left-peripheral adverbials or single dislocated phrases, which are separated from the material that follows by the left edge of an Intonation phrase. This phrasing is given in (46)

(46) [Dislocated element [core clause]]

5.2.2 Pauses and hiatus reduction processes in multiple dislocation

Whenever the subject is dislocated, we have also observed that hiatus avoidance does not systematically occur between it and a nominal category following it. Reduction/coalescence happens 9 out of 32 times. The presence of a hiatus is correlated with that of an audible/visible pause (21/23). If no pause is observable, a break is perceived in the signal (2/23). The sentences in which reduction took place are give in (47) and (48), for illustration purposes.

(47) [básópoo/báabáaβelótonánɔ]

(b)a-ásí ó poo bá-a báa-βel-á o-toná nɔ.
2-women LOC village 2.PRO 2.AGR-can-fv 15-refuse-fv 2sg.PRO
'The women, at the village, they can refuse you.'

(48) [ojúlopóró/waláaβelɔ́taβánɔ]

(m)o-júlu ó póró wa láa-βel-á o-tón-á nɔ.
1-woman LOC 9.Europe 1.PRO 1.AGR.IMPERF 15-refuse 2sg.PRO
'The woman, in Europe, she can refuse you.'

In some of our examples, we also have Subject-Averbial-SubjPro-V or Subject-Adverbial-Copula sequences. These examples, illustrated by (49), allow us to examine the behaviour of non-subjects immediately preceding the verbal complex. Out of 26 sequences of Adverbial-SubjectPro-V, 12 displayed a pause following the adverbial.

(49) [ojúlu/ópóró/wadóβelótónánɔkaá]

(m)o-júlu ó póró wa ad-í o-βel-á o-tón-á nɔ kaá.
1-woman LOC 9.Europe 1.PRO 1.AGR-cop 15-can-fv 15-refuse-fv 1sg.PRO NEG
'The woman, in Europe, she cannot refuse you.'

The sentence in (49) can thus display either of the phrasings in (50) and (51).

(50) [$_{IP}$ dislocated subject [$_{IP}$ adverbial [$_{IP}$ core-clause]]]

(51) [$_{IP}$ dislocated subject [$_{IP}$ adverbial + core-clause]]]

Subject pronouns do not allow to investigate hiatus avoidance as they are obligatorily of the form CV. This is where sentences with a negation come in handy, as negation forces the presence of a (vowel-initial) copula at the beginning of the verbal complex. However, in all the cases in which hiatus avoidance could occur between an adverbial and a copula, a pause was observed (12/12), preventing coalescence/reduction. This is illustrated in (52).

(52) [bána sá kɔ́ / ádóβelɔ́taβɔ́ɔkwáí kaá]
b-ána sá kɔ́ á-dí o-βel-á o-taβ-á (m)ɔ-kwáí kaá.
2-chidren LOC 9.bush 2.AGR-cop 15-can-fv 15-forget-fv 3.machete NEG
'The children, in the bush, they cannot forget the machete.'

The sentences displaying the structure illustrated by (52) thus display the phrasing in (53), where the dislocated subject and the adverbial are grouped together and sit outside of the Intonation phrase formed by the core-clause.

(53) [$_{IP}$ dislocated subject adverbial [$_{IP}$ core-clause]]]

One rather surprising case of absence of pause and hiatus reduction, is between a preverbal object and the verb, as shown in (54).

(54) [ngóo/ajaalɛɛ́kɔ́ ápɛ́ɛ lamwána]
ngóo a-jaa laá ɛkɔ́ɔ́ á-pɛ́ɛ la mwána.
1a.mother 6-saka.saka and 7.manioc 1a.AGR-give.PST to 1.child
'The mother, the saka-saka and the manioc, gives to the child.'

Note that in this example, there is systematically a break (pause/hiatus) between the dislocated subject and the object, suggesting a phrasing of the type in (55).

(55) [$_{IP}$ Subject [$_{IP}$ Object S-Verb IO]]

This pattern might suggest that whenever there is no noun-class ambiguity in terms of subject-agreement, the left-dislocated phrase can phrase together with the verb and the remainder of the clause. Note though that the integration of a dislocated object is not found in single dislocations, indicating that a prosodic constraint might be at play in (54) and override syntax-prosody mapping constraints. More investigations are needed to determine the constraints involved here.

5.2.3 Register expansion

The exact function of register expansion is not fully clear to us yet. In multiple dislocations, three patterns emerge from our data. Register expansion can target two left peripheral elements which phrase together, it can target the second item only, or each of the two left peripheral phrases that phrase separately.

Out of 46 dislocated subjects, 10 showed register expansion. Register expansion can happen with or without a pause/hiatus reduction with the following phrase. The register expansion extends to the whole dislocated part when there is hiatus reduction and tends to extend to the second dislocated term when there is a pause. This is illustrated with two sentences in (56) and (57). Register expansion is signalled by small capitals in the phonetic notation.

(56) [OJÚLÓPOO / waláaβelɔ́taβánɔ]
o-júlu ó poo wa láa-βel-á ɔ-taβ-á nɔ.
1-woman LOC village 1.PRO 1.AGR.IMPERF-can-PRES 15-refuse-fv 2sg.PRO
'The woman, at the village, she can refuse you.'

(57) [B-ÁSÍ / ÓPOO / báabáaβelótonánɔ]
b-ásí ó poo báa báa-βel-á o-ton-á nɔ.
2-women LOC village 2.PRO 2.AGR-can-fv 15-refuse-fv 2sg.PRO
'The women, at the village, they can refuse you.'

Register expansion was also observed on adverbials following a dislocated subject. Out of 38 utterances, 11 displayed an expanded register. None of these examples had a hiatus reduction within the dislocated part. An illustrative sentence is given in (58). The dislocated subject did not necessarily show a register expansion as well.

(58) [ojúluSÁ K´ɔ/ádóβelɔ́taβɔ́ɔkwáí kaá]
(m)o-júlu sá kɔ́ á-di o-βelá o-taβ-á (m)ɔ-kwáí kaá.
1-woman LOC 9.bush 1.AGR-cop 15-can-fv 15-forget-fv 3.machete NEG
'The woman, in the bush, she cannot forget the machete.'

Clause-initial dislocated objects as in (59) tend to be expanded more often: 20 out of 24 were found to be so. Just like clause-initial adverbials (8/12).

(59) [ɔKWÁÍ / ojúluláaβeláɔpɛ́múaliibaa]
(m)ɔ-kwáí o-júlu láa-βel-á ɔ-pɛ́ múa la (d)i-baa.
3-machete 1-woman 1.AGR.IMPERF-can-PRES 15-give 3.PRO PREP 5-man
'The machete, the woman can give it to the man.'

(60) [SÁ Kɔ́ / bánabáaβelólémba]
sá kɔ́ b-ána báa-βel-á ó-lémb-a.
LOC 9.bush 2-children 2.AGR-can-fv 15-get.lost-fv
'In the bush, the children can get lost.'

6 Discussion and Conclusion

In this paper, we have discussed syntactic and phonological aspects of right and left dislocation in Embɔsi. We have observed that both types of dislocations display a number of restrictions (i.e. dislocation does not happen as freely and

productively as for instance in French) and that they do not mirror each-other as, for instance, subjects can only be left-dislocated. More investigations are needed to provide a full syntactic account.

From a prosodic perspective, a considerable amount of variation was found concerning the phrasing of dislocated phrases. In single dislocations, the dominant pattern is that both left and right dislocated phrases sit outside of the core Intonation Phrase. The phrasing pattern observed in Embɔsi is however different from the "symmetric" languages discussed by Downing (2011) in that only right dislocated arguments form their own Intonation Phrase. From the syntax-phonology interface perspective, it is not clear yet why right dislocated phrases exhibit this behaviour. Further work is needed to determine whether they are syntactically more independent from the clause than their left-peripheral counterpart (e.g. by corresponding to "afterthoughts"). Assuming that both types of dislocations show the same type of syntactic dependence to the core-clause, it is not clear yet how to account for the observed phrasing asymmetry. The high ranking of a prosodic constraint such as STRONGSTART (Selkirk, 2011) would be consistent with the reverse pattern, in which only left-dislocated phrases constitute Intonation Phrases. Also, if a constraint like EQUALSISTERS (Myrberg, 2010) is at play, it is unclear why it applies only to one of the peripheries.

In multiple left-dislocations, we have observed a certain amount of grouping: either between dislocated arguments, or between the innermost dislocated phrase and the core-clause. From a theoretical perspective, not much has been said on the phrasing of multiple dislocations. The grouping of dislocated phrases however tends to go against the idea that each left-peripheral constituent would introduce its own Intonation Phrase boundaries (Selkirk, 2009; Downing, 2011). The latter phrasing, in which a dislocated object phrases with the core clause, is unexpected under several theories of the syntax-phonology mapping of Intonation Phrases (a.o. Selkirk, 2011; Hamlaoui and Szendrői, To appear). The fact that this type of integration to the core Intonation Phrase is not found in single dislocations however suggests that it is not the result of syntax-phonology mapping constraints, and that prosodic constraints might be responsible for these groupings. We leave these issues open for future research.

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