

On the phonological conditioning of clitic placement in Zapotec

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Clitic placement in San Dionicio Ocotepc Zapotec is determined by a combination of syntactic and phonological factors. The most important of these is alignment with the edge of a phonological phrase. In an optimality-theoretic account, it is possible to rank some phonological alignment constraints above syntactic alignment constraints in a way that correctly accounts for the data. Alternatives which seek to derive clitic placement through syntactic movement operations face insuperable problems with the range of positions in which these clitics appear.

1 Introduction

San Dionicio Ocotepc Zapotec (hereafter SDZ) has a number of clitics whose placement can be roughly described as “second-position”. These clitics include the following:

- 1) =cà affirmative, ‘yes’
=chà doubt, ‘maybe’
=pàc certainly, ‘surely’

Some examples of the clitics follow. =cà, =pàc, and =chà’ can be used after the first element of the sentence¹

- 2) Éè, Chéhh=**cà** cá-yà’à.
yes José=aff con-dance

‘Yes, José is dancing.’ 5:225
- 3) Û-dáù=**pàc** Juáàny réé=gèhht.
com-eat=cer Juan plur=tortilla

‘Juan certainly ate tortillas.’ 5:148
- 4) Bèh’cw=**chà**’ cá-dùùxh.
dog=maybe con-bark

‘Maybe the dog is barking.’ 5:136

As (2) shows, it will be necessary to exclude some elements (like vocatives, interjections, and adverbials) when defining the first element of the sentence. This is a point we will return to later in the paper.

The basic word order of this language is VSO, with head initial NPs and PPs:

¹ I thank Lee Bickmore, Christina Esposito, Pamela Munro, and Taylor Roberts for helpful comments and discussion. Special thanks to Luisa Martínez, who provided all the SDZ data discussed here.

The orthography for SDZ is adapted from the practical orthographies for other Zapotec languages spoken in the Valley of Oaxaca. In the SDZ orthography symbols have their usual phonetic values, with the following exceptions. <x> = / / before a vowel and / / before a consonant, <xh> = / /, <dx> = / /, <ch> = / /, <c> = /k/ before back vowels, <qu> = /k/ before front vowels, <eh> = / /, and <ehh> = / / . Doubled vowels are long. SDZ is a language with four contrastive phonation types: breathy <Vj>, creaky <V’V>, checked <V’>, and plain <V>.

Glosses use the following abbreviations: 3p = 3rd person plural, aff = affirmative, cer = certainty, com = completive aspect, con = continuative aspect, neg = negative, p = possessed, plur = plural.

- 5) Ù-díiny Juààny bèh'cw re' cùn yàg.
com-hit John dog that with stick

'John hit that dog with a stick'.

There are two preverbal positions for elements with special discourse functions. Topics and foci (contrastive or interrogative) appear in one position, negative foci occur in a second position. Both subjects and objects may appear in [Spec, CP] when they bear a special discourse function (focus or topic):

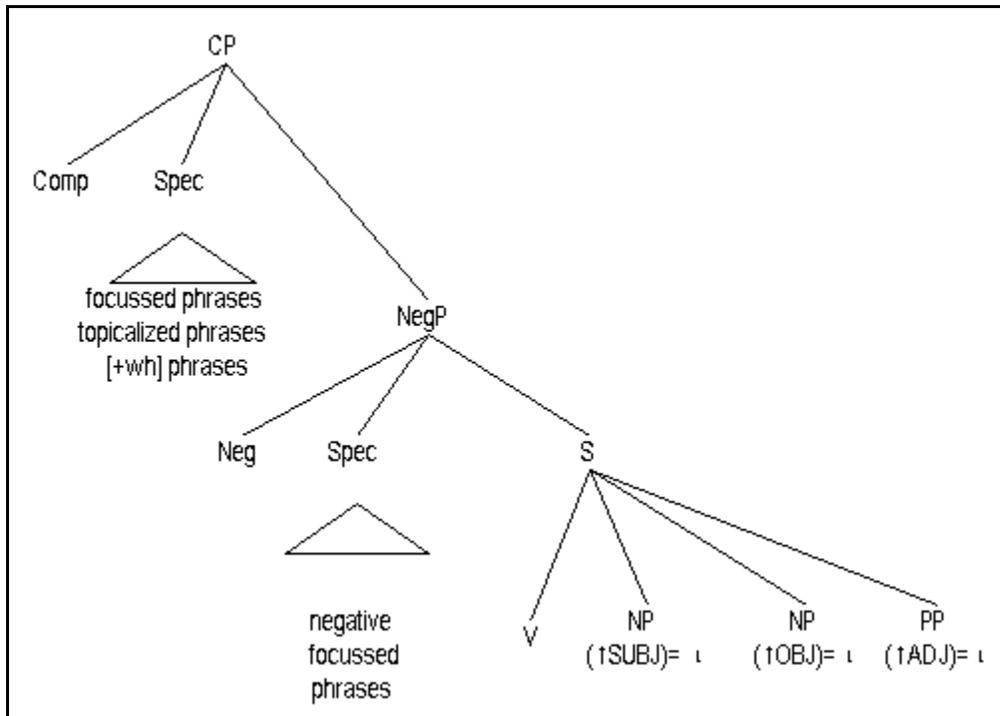


Figure 1 Proposed clause structure for SDZ

- 6) Juààny ù-díiny bèh'cw cùn yàg.
John com-hit dog with stick

'John (TOPIC/FOCUS) hit the dog with a stick.'

- 7) Bèh'cw ù-díiny Juààny cùn yàg.
dog com-hit John with stick

'John hit the dog (TOPIC/FOCUS) with a stick.'

The overall phrase structure of SDZ is shown in figure 1. My phrase-structure trees reflect the assumptions of Lexical-Functional Grammar (Bresnan 1982), but I believe nearly all the arguments made here should transfer to other generative approaches.

The meaning of the clitics interacts with the ordinary discourse functions of preverbal phrases in a straightforward way, as shown in the following:

- 8) Û-dííny=**chà**' Juààny bèh'cw cùn yàg.
com-hit=maybe Juan dog with stick

'Maybe Juan hit the dog with a stick'. (no special focus)
- 9) Juààny=**chà**' ù-dííny bèh'cw cùn yàg.
Juan=maybe com-hit dog with stick

'Maybe Juan (TOPIC/FOCUS) hit the dog with a stick.'
'Maybe it was Juan who hit the dog.'
- 10) Bèh'cw=**chà**' ù-dííny Juààny cùn yàg.
dog=maybe com-hit Juan with stick

'Maybe Juan hit the dog (TOPIC/FOCUS) with a stick.'
'Maybe it was the dog that Juan hit with a stick.'

2 The placement of the clitic

When the first daughter of the clause is a single word, the clitic placement is simple. The clitic goes after the first word, and cannot go anywhere else:

- 11) Û-dáù=**cà** Juáàny bziáá.
com-eat=aff Juan beans

'Yes, Juan ate beans.'

*Û-dáù Juáàny=**cà** bziáá.
*Û-dáù Juáàny bziáá=**cà**
- 12) Juáàny=**cà** ù-dáù bziáá.
Juan=aff com-eat beans

*Juáàny ù-dáù=**cà** bziáá.
*Juáàny ù-dáù bziáá=**cà**.

'Yes, Juan (TOPIC/FOCUS) ate beans.'

When the first element is phrasal, however, the placement is considerably more variable. As in Serbo-Croatian (Browne 1974, Halpern 1995), Luiseño (Steele 1976), and some other languages, both a position after the first word and a position after the first constituent are available for some phrases:

- 13) Xhùpáà=**cà** Cristiáán cá-yà'á. [N NP]_{NP}
 father:of=aff Christina con-dance
- Xhùpáà Cristiáán=**cà** cá-yà'á.²
 father:ofChristina=aff con-dance
- 'Yes, Christina's father (TOPIC/FOCUS) is dancing.' 5:225
- 14) Dèhjts=**chà'** yù'ù zùù bèh'cw. [P NP]_{PP}
 under=maybe house sit dog
- Dèhjts yù'ù=**chà'** zùù bèh'cw.
 under house=maybe sit dog
- 'Maybe the dog is under the house (TOPIC/FOCUS).' 5:192
- 15) Chónn=**dxà'** pàstèhhl ù-dáù Juàány.³ [Q N]_{QP/NP}
 three=maybe cake com-eat Juan
- Chónn pàstèhhl=**chà'** ù-dáù Juàány.
 three cake=maybe com-eat Juan
- 'Maybe Juan ate three cakes (TOPIC/FOCUS).' 5:185

I should note here that my consultant consistently reports no difference in meaning or presupposition between these variants. In particular, the clitics do not appear to have different scopes that correlate with their position.⁴

While many phrases allow both alternatives, some other types of phrases allow only one or the other position:

- 16) Bèh'cw ngáás=**chà'** cá-dùùxh. [N Adj]_{NP}
 dog black=maybe con-bark
- *Bèh'cw=**chà'** ngáás cá-dùùxh.
 dog=maybe black con-bark
- 'Maybe the black dog (TOPIC/FOCUS) is barking.' 5:137

² The possessed N in SDZ is generally prefixed by /x-/. Pàà 'father' has the irregular possessed form *xhùpáà*. A few inalienable nouns appear without the /x-/ prefix.

³ The initial consonant of =chà' becomes voiced after a preceding vowel or nasal, yielding =dxà'.

⁴ As a larger point, it does not appear to be possible to focus elements smaller than a phrase in SDZ. So there is no SDZ distinction like that found in English *Christina's father* vs. *Christina's father*.

17) Lò gyéh'=chà' gwii=réhb.
to market=maybe com:go=3p

*Lò =chà' gyéh' gwii=réhb.
to=maybe market com:go=3p

'Maybe they went to the market (TOPIC/FOCUS).' 5:136

3 Against a syntactic account

Lee (1999) has proposed a syntactic account of some very similar facts in San Lucas Quiavini Zapotec (hereafter SLQZ). Lee adopts the antisymmetry approach of Kayne (1994) and suggests that the clitics are generated as the heads of adverbial phrases (AdvP). The material preceding the clitic is said to have moved to [Spec, AdvP] position. Since the [Spec, AdvP] is a landing site for the movement of phrases, Lee argues that anything that precedes the clitic must be a phrase. Lee (1999:56) gives the following example:

18) Lohs Aa'nngl=**zhya'** n-u'-rëng
Los Angeles=might neut-exist-3p

'They might be in Los Angeles (foc.)'

This corresponds to a tree structure like that shown in figure 2. Several other authors have advocated similar movement-based accounts of second-position clitics (Rivero 1994, Halpern 1995)

Several of the examples already cited raise severe problems for the extension of a similar account to SDZ. Consider again the following example, repeated from above:

19) Xhùpáa=**cà** Cristiáán cá-yà'à. [N NP]_{NP}
father:of=aff Christina con-dance

Xhùpáa Cristiáán=**cà** cá-yà'à.
father:of Christina=aff con-dance

'Yes, Christina's father (TOPIC/FOCUS) is dancing.' 5:225

To account for the order in (19a), we must move the head of the subject phrase into [Spec, AdvP]. However, such a movement ought to violate generally accepted constraints on movement, and it ought to be as bad as the following English sentence:

20) *Who is John's ___ dancing?

How we account for this depends on the sort of structure we assume for possessives. Suppose *xhùpáa Cristiáán* has a structure like the following:

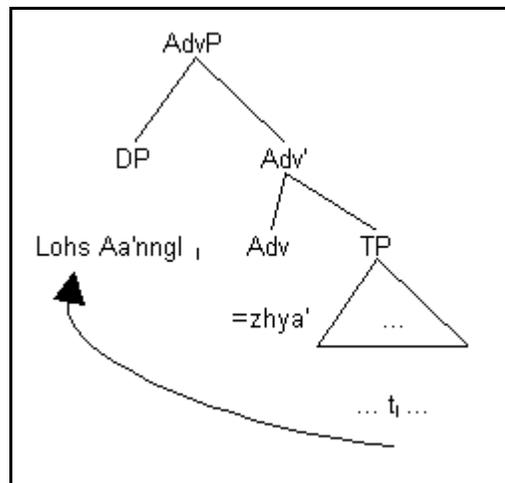


Figure 2 A movement derivation of Zapotec clitics

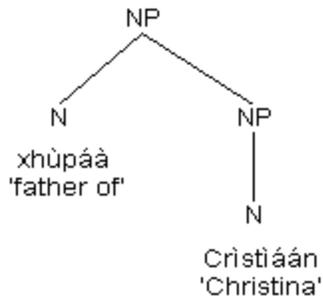


Figure 3

Then movement of the head noun is forbidden because it involves movement of a non-phrasal element to a phrasal position.

A similar conclusion obtains if the phrase has the following structure (cf. Ritter 1996):

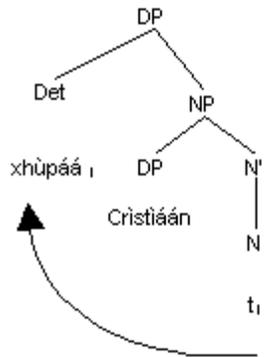


Figure 4

It doesn't matter how many other functional elements are present in the sentence—if the possessed N is in some head position, it should not be able to move from there into the [Spec, AdvP] position.

And in fact, it is ungrammatical in Zapotec to extract the possessed N via wh-movement:

- 21) *¿Túú ù-náá Juáàny Cristiáán? 5:258
 who com-see Juan Christina

(Who did John see Christina's?)

The fact that a movement of this type is ungrammatical in the case of wh-movement ought to cause us to question an analysis of the clitic that involves moving an item to this position.

Even more severe problems arise when we consider coordinate phrases in focus position:

- 22) a. Juáàny=**chà'** gù Màríí ù-dáù còmííàd.
 Juan=maybe or Maria com-eat food
 b. Juáàny gù=**chà'** Màríí ù-dáù còmííàd.
 c. Juáàny gù Màríí=**chà'** ù-dáù còmííàd.

'Maybe either Juan or Maria (TOPIC/FOCUS) ate the food.'

As this example shows, a clitic may show up on any of the conjuncts or on the coordination itself. To derive an example like (22a) through movement, we would have to move the first NP out of a coordinate structure, violating the Coordinate Structure Constraint. (22b) shows the same problem, but in addition, it would seem necessary to move a non-constituent *Juàány gù* 'John and'.

The following example shows three coordinated noun phrases:

- 23) a. Juàány=**chà'**, Màrii, cùn Chéhh ù-zii=réhb sàpàjt.
 Juan=maybe Maria and José com-buy=3p shoe
- b. Juàány, Màrii=**chà'**, cùn Chéhh ù-zii=réhb sàpàjt.
 Juan Maria=maybe and José com-buy=3p shoe
- c. Juàány, Màrii, cùn=**chà'** Chéhh ù-zii=réhb sàpàjt.
 Juan Maria and=maybe José com-buy=3p shoe
- d. Juàány, Màrii, cùn Chéhh=**chà'** ù-zii=réhb sàpàjt.
 Juan Maria and José=maybe com-buy=3p shoe

'Maybe Juan, Maria, and José (TOPIC/FOCUS) bought shoes.' 5:144

We know that SDZ does not have to obey the Coordinate Structure Constraint, due to examples like the following:

- 24) *¿Xhíí ù-dáù Juàány bzyàá cùn ____?
 what com-eat Juan beans and

(What did Juan eat beans and?)

Several other types of sentences also raise problems for the movement account, but I will not discuss them here for reasons of space.

4 Phonological Phrases

I will take the previous section to show that a syntactic solution to the distribution of these clitics is hopeless. Instead, I will pursue a solution proposed for Hausa by Inkelas (1988) for Pashto by Roberts (1997), namely that of aligning the clitics with phonological phrases, rather than syntactic categories. I will suggest that the clitic in SDZ appears after the first phonological phrase within the relevant syntactic domain.

The rule for the construction of phonological phrases in SDZ is as follows (cf. Nespor and Vogel (1986):

- 25) Phonological phrase formation
- a. Each head X which is stressed forms a p-phrase, along with any adjuncts to the head.
 b. For any Y or YP contained in XP, optionally incorporate YP into the same p-phrase

We can illustrate this rule with the following examples.

If the initial phrase is [N Adj]_{NP}, then the clitic must go after the adjective, and cannot go after the noun:

26) Bèh'cw ngáás=**chà'** cá-dùùxh. [N Adj]_{NP}
 dog black=maybe con-bark

*Bèh'cw=**chà'** ngáás cá-dùùxh.
 dog=maybe black con-bark

'Maybe the black dog (TOPIC/FOCUS) is barking.' 5:137

This follows from the part of the definition that obligatorily includes adjuncts in the same p-phrase as the head. So for the following tree, there is only one possible phrasing:

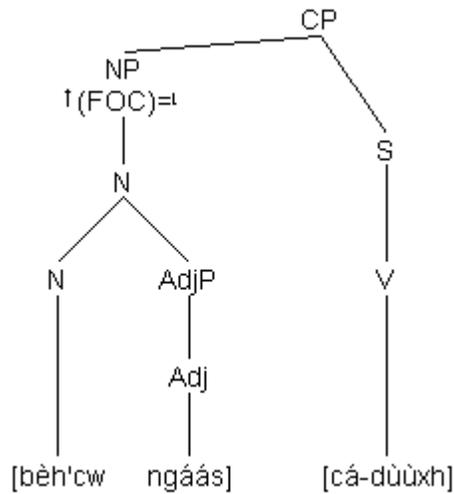


Figure 5

If there is more than one adjective present, they must all form part of the same p-phrase as the head, as we can see from examples like the following:

27) Bèh'cw ngáás ró'=**chà'** ù-dáùyà' Màríí.
 dog black big=maybe com-bite Maria

*Bèh'cw=**chà'** ngáás ró' ù-dáùyà' Màríí.
 dog=maybe black big com-bite Maria

*Bèh'cw ngáás=**chà'** ró' ù-dáùyà' Màríí.
 dog black=maybe big com-bite Maria

'Maybe the big black dog (TOPIC/FOCUS) bit Maria.' 5:170

Some items that constitute more than a single word phonologically nevertheless appear to be a single X⁰ in the syntax and may not be separately phrased:

- 28) Juàány Mòráály=**cà** ù-dáù bzyáá.
 Juan Morales=aff com-eat bean
- *Juàány=**cà** Mòráály ù-dáù bzyáá.
 Juan=aff Morales com-eat bean
- ‘Yes, Juan Morales (TOPIC/FOCUS) ate beans.’
- 29) Gááld-bì tyóp=**cà** bìin-ngiù cá-yàù bzyáá.
 twenty-& two=aff person-male con-eat bean
- *Gááld-bì=**cà** tyóp bìin-ngiù cá-yàù bzyáá.
 twenty-&=aff two person-male con-eat bean
- ‘Yes, twenty-two men (TOPIC/FOCUS) are eating beans.’ 5:272

From these data, I conclude that a multiword proper name or complex quantifier is only a N or Q in the syntax.

The restriction “each head X which is stressed” is motivated by the behavior of a small number of prepositions which are unstressed and are themselves enclitic on the following word. Consider the following example, repeated from above:

- 30) Lò gyéh’=**chà**’ gwii=réhb.
 to market=maybe com:go=3p
- *Lò =**chà**’ gyéh’ gwii=réhb.
 to=maybe market com:go=3p
- ‘Maybe they went to the market (TOPIC/FOCUS).’ 5:136

In this example, *lo* is unstressed and so cannot form a p-phrase on its own.

The optionality of including other phrases in the p-phrase, as allowed by section (b) of the definition, can be illustrated in several syntactic contexts.

- 31) Dèhjs=**chà**’ yù’ù zùù bèh’cw. [P NP]_{pp}
 under=maybe house sit dog
- Dèhjs yù’ù=**chà**’ zùù bèh’cw.
 under house=maybe sit dog
- ‘Maybe the dog is under the house (TOPIC/FOCUS).’ 5:192
- 32) Chónn=**dxà**’ pàstèhhl ù-dáù Juàány. [Q NP]_{NP}
 three=maybe cake com-eat Juan
- Chónn pàstèhhl=**chà**’ ù-dáù Juàány.
 three cake=maybe com-eat Juan
- ‘Maybe Juan ate three cakes (TOPIC/FOCUS).’ 5:185

(30) vs. (31) is a minimal contrast that is easy to describe phonologically, but is difficult to capture syntactically.

I will assume that these phrases have structures like the following:

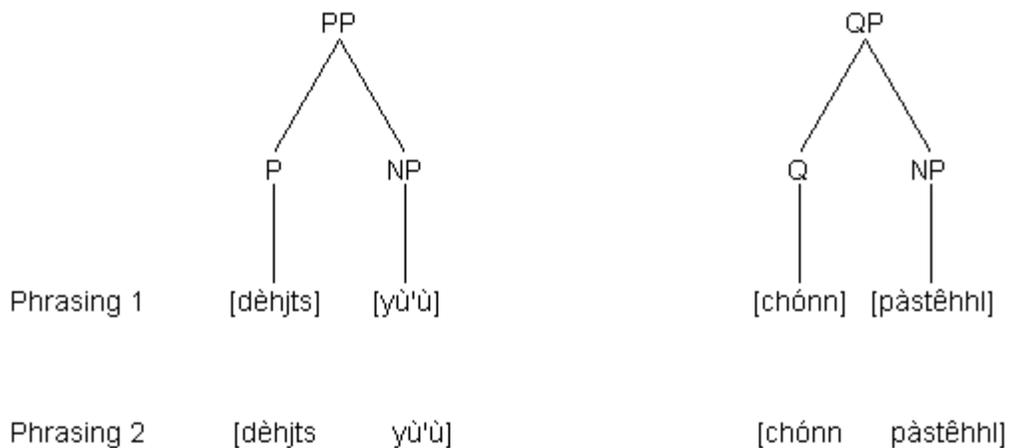


Figure 6

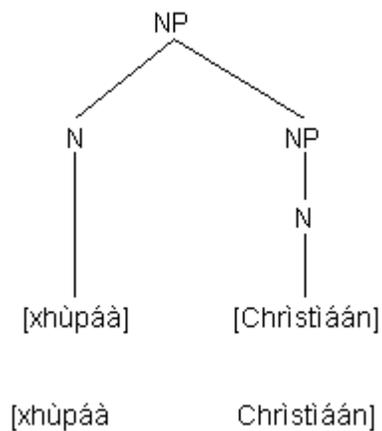
Noun phrases with possessives also show two options for phrasing:

33) Xhùpáà=**cà** Cristiáán cá-yà'á. [N NP]_{NP}
 father:of=aff Christina con-dance

Xhùpáà Cristiáán=**cà** cá-yà'á.
 father:of Christina=aff con-dance

'Yes, Christina's father (TOPIC/FOCUS) is dancing.' 5:225

As discussed above, there are a few possibilities for the phrase structure representation of the initial phrase. For the sake of completeness, I'll assume the following:



The phonological phrase formation algorithm as stated will work to correctly predict the facts of clitic placement in coordinate phrases. Consider again the following example, repeated from above:

- 34) a. Juáàny=**chà'**, Màrîi, cùn Ché ù-zii=réhb sàpàjt.
 Juan=maybe María and José com-buy=3p shoe
- b. Juáàny, Màrîi=**chà'**, cùn Ché ù-zii=réhb sàpàjt.
 Juan María=maybe and José com-buy=3p shoe
- c. Juáàny, Màrîi, cùn=**chà'** Ché ù-zii=réhb sàpàjt.
 Juan María and=maybe José com-buy=3p shoe
- d. Juáàny, Màrîi, cùn Ché=**chà'** ù-zii=réhb sàpàjt.
 Juan María and José=maybe com-buy=3p shoe

'Maybe Juan, Maria, and José (TOPIC/FOCUS) bought shoes.' 5:144

I will assume that this sentence has a structure like the following, where I have indicated the possible phrasings of the initial constituent:

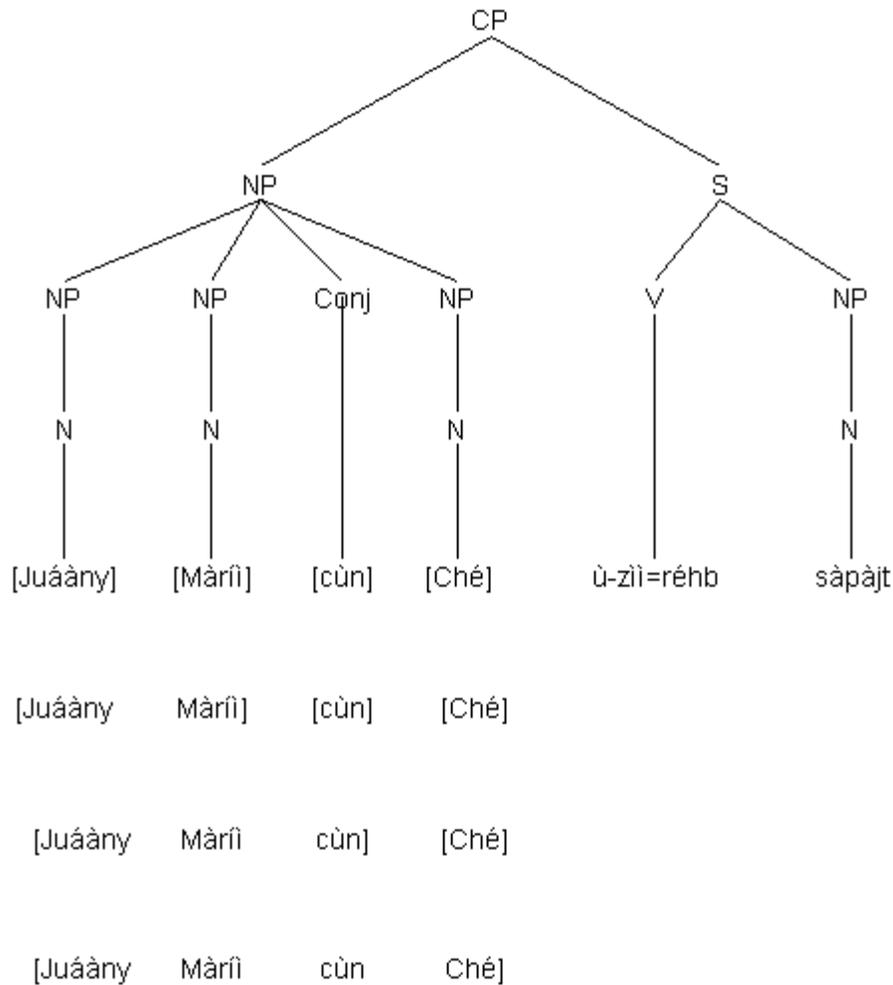


Figure 8 Possible p-phrases with coordination

The rule for phonological phrase formation will correctly predict these phrasings, with one stipulation. I'll assume that the upper NP in this coordinate structure is judged to be categorially non-distinct from the NPs below it. So when the phonological phrase algorithm looks at a structure like that in figure 8, it optionally includes any of the daughters of the upper NP.

6 Complex complements

What happens when the complement to the head is itself complex? In such cases, the possibilities for phrasing, and consequently for placement of the clitic, multiply. Consider the following examples:

35) Lè'èn=**dxà'** x-cànáást Cristiaán nù'ú réé=gèhht. P [N NP]_{NP}
 in=maybe p-basket Christina exist plur=tortilla

Lè'èn x-cànáást=**chà'** Cristiaán nù'ú réé=gèhht.
 in p-basket=maybe Christina exist plur=tortilla

Lè'èn x-cànáást Cristiaán=**chà'** nù'ú réé=gèhht.
 in p-basket Christina=maybe exist plur=tortilla

'Maybe the tortillas are in Christina's basket (TOPIC/FOCUS).' 5:183

36) Lè'èn=**dxà'** rájtè réé=cànáást nù'ú gèhht. P [Q NP]_{QP}
 in=maybe all plur=baskets exist tortilla

Lè'èn rájtè=**dxà'** réé=cànáást nù'ú gèhht.
 in all=maybe plur=baskets exist tortilla

Lè'èn rájtè réé=cànáást=**chà'** nù'ú gèhht.
 in all plur=baskets=maybe exist tortilla

'Maybe there are tortillas in all the baskets (TOPIC/FOCUS).' 5:184

As we see in these examples, not only are the positions after the head and after the complement available, a position after the complement of the head is also possible. Examples like these suggest the following revision to the rule for phonological phrase formation:

Phonological phrase formation (version 2)

- a. Each head X which is stressed forms a p-phrase, along with any adjuncts to the head.
- b. For any YP contained in XP, optionally incorporate X and YP into the same p-phrase.
- c. If X is lexical and YP is the complement of X, optionally incorporate Y and X into the same p-phrase.

Line (c) of the rule allows a phonological phrase to be extended to the head of a complement to X, where X is lexical. The restriction of such extensions to cases where X is lexical is motivated by cases like the following:

- 37) Rájtè=**dxà'** x-pàstêhhl Màríí ù-dáù Juáàny. Q [N NP]_{NP}
 all=maybe p-cake Maria com-eat Juan
- *Rájtè x-pàstêhhl=**chà'** Màríí ù-dáù Juáàny.
 all p-cake=maybe Maria com-eat Juan
- Rájtè x-pàstêhhl Màríí=**dxà'** ù-dáù Juáàny.
 all p-cake Maria=maybe com-eat Juan
- 'Maybe Juan ate all of Maria's cakes (TOPIC/FOCUS).'
- 5:185

Since Q is not a lexical category, but a functional category, its phonological phrase may not be extended to the head of its complement.

7 Alignment with syntactic positions

I have claimed that these clitics align with a phonological phrase, but merely aligning with some phonological phrase isn't good enough. We need to be more exact about the location of this phonological phrase.. I suggested in figure 1 that the position following Comp is associated with assignment of FOCUS or TOPIC. Here I'll look at the case where it receives a TOPIC interpretation. We can formalize this by saying that a clitic like =**chà'** is subject to two alignment constraints: Align (chà', L, P-Phrase, R) and Align (chà', L, TOPIC, R).

So a sentence like the following will be selected via the following tableau:

- 38) Juáàny Mòráàly=**chà'** ù-dííny bèh'cw cùn yàg.
 Juan Morales=maybe com-hit dog with stick
- 'Maybe Juan Morales (TOPIC) hit the dog with a stick.'

	Align(chà', L, P-Phrase, R)	Align(chà', L, TOPIC, R)
[Juáàny= chà' Mòráàly] _{TOPIC} [ùdííny] [bèh'cw] [yàg]	*	
☞ [Juáàny Mòráàly] _{TOPIC} = chà' [ùdííny] [bèh'cw] [yàg]		
[Juáàny Mòráàly] _{TOPIC} [ùdííny]= chà' [bèh'cw] [yàg]		*
[Juáàny Mòráàly] _{TOPIC} [ùdííny] [bèh'cw]= chà' [yàg]		**
[Juáàny Mòráàly] _{TOPIC} [ùdííny] [bèh'cw] [yàg]= chà'		***

Figure 9 Tableau for TOPIC- aligned clitics

We can also see the necessity of aligning the clitic with the TOPIC, rather than the first p-phrase from sentences that contain initial vocatives or interjections:

- 39) Mâríí, là'â bèh'cw=**câ** cá-yàù gèhht.
 Maria, det dog=aff con-eat tortilla.
 'Yes, Maria, the dog is eating the tortillas.' 5:272
- 40) Éè, Ché=**cá** cá-yà'â.
 yes José=aff con-dance
 'Yes, José is dancing.' 5:225

In these examples, the initial p-phrase is the vocative or interjection. Nevertheless, the clitic appears on the element in the TOPIC position.

8 Clitics which align with the Neg Focus

Other clitics may align with syntactic categories other than TOPIC or FOCUS. =tì, for example, aligns with the first phonological phrase carrying negative focus. Consider the following examples:

- 41) Íity Juáány=**tì**' ù-lù'ù bzyáá lè'èn bòòls. [subject negative focus]
 neg Juan=neg com-put beans in bag
 'Juan (NEG FOCUS) didn't put the beans in the bag.'
- 42) Íity bzyáá=**tì**' ù-lù'ù Juáány lè'èn bòòls. [object negative focus]
 neg beans=neg com-put Juan in bag
 'Juan didn't put the beans (NEG FOCUS) in the bag.'
- 43) Íity lè'èn=**tì**' bòòls ù-lù'ù Juáány bzyáá. [PP negative focus]
 neg in=neg bag com-put Juan beans
 'Juan didn't put the beans in the bag (NEG FOCUS).'
- Íity lè'èn bòòls=**tì**' ù-lù'ù Juáány bzyáá.
 neg in bag=neg com-put Juan beans
 'Juan didn't put the beans in the bag (NEG FOCUS).'

It is also possible to combine these negative focussed sentences with ordinary topicalization of an item in [Spec, CP]:

- 44) Juáány íity lè'èn bòòls=**tì**' ù-lù'ù bzyáá.
 Juan neg in bag=neg com-put beans
 'Juan (top.) didn't put the beans in the bag (foc).'

I'll assume that the syntactic structures for (43, 44) are the following:

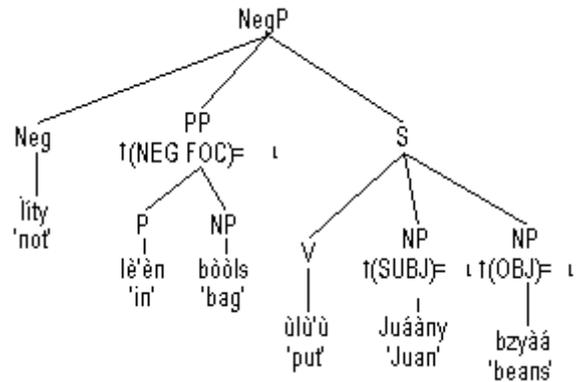


Figure 10 A Neg-focussed PP

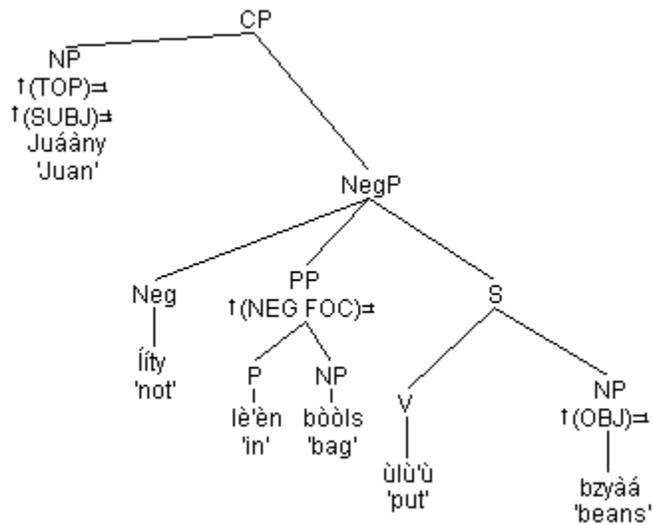


Figure 11 Topicalization and neg-focus

For the clitic =ti, we don't want alignment with the first phonological phrase of the sentence, since this would wrongly place the clitic after the topicalized subject. Instead, we want two constraints, Align (t̄, L, P-Phrase, R) and Align (t̄, L, NegFocus, R).

The following tableau will illustrate how the correct clitic alignment is obtained for a sentence like (44):

	Align(t, L, P-Phrase, R)	Align(t, L, NegFoc, R)
[Juáány]=tí [íity] [lè'èn bòòls] _{NegFoc} [ùlù'ù] [bzyáá]		*†
[Juáány] [íity]=tí [lè'èn bòòls] _{NegFoc} [ùlù'ù] [bzyáá]		*
[Juáány] [íity] [lè'èn=tí bòòls] _{NegFoc} [ùlù'ù] [bzyáá]	*	
∅ [Juáány] [íity] [lè'èn bòòls] _{NegFoc} =tí [ùlù'ù] [bzyáá]		
[Juáány] [íity] [lè'èn bòòls] _{NegFoc} [ùlù'ù]=tí [bzyáá]		*
[Juáány] [íity] [lè'èn bòòls] _{NegFoc} [ùlù'ù] [bzyáá]=tí		*†

Figure 12 Tableau for clitics sensitive to NegFoc

For this tableau, I've taken candidates where the p-phrase in the NegFoc position is [lè'èn bòòls], and I've subscripted the syntactic position that receives this function.

If there is no element in the NegFoc position, then the clitic =tí may appear on the following verb, in a case of minimal misalignment:

- 45) Íity ù-lù'ù=tí? Juáány bzyáá lè'èn bòòls.
 neg com-put=neg Juan beans in bag

'Juan didn't put the beans in the bag.'

		Align(t, L, P-Phrase, R)	Align(t, L, NegFoc, R)
a.	[íity]=tí ∅ _{NegFoc} [ùlù'ù] [Juáány] [bzyáá] [lè'èn bòòls]		*†
b.	[íity] ∅ _{NegFoc} =tí [ùlù'ù] [Juáány] [bzyáá] [lè'èn bòòls]	*	
c.	K[íity] ∅ _{NegFoc} [ùlù'ù]=tí [Juáány] [bzyáá] [lè'èn bòòls]		*
d.	[íity] ∅ _{NegFoc} [ùlù'ù] [Juáány]=tí [bzyáá] [lè'èn bòòls]		*†
e.	[íity] ∅ _{NegFoc} [ùlù'ù] [Juáány] [bzyáá]=tí [lè'èn bòòls]		***
f.	[íity] ∅ _{NegFoc} [ùlù'ù] [Juáány] [bzyáá] [lè'èn=tí bòòls]	*	****
g.	[íity] ∅ _{NegFoc} [ùlù'ù] [Juáány] [bzyáá] [lè'èn bòòls]=tí		****

Figure 13 Minimal misalignment with =tí

A few comments on assumptions in this tableau. The failure of candidate (b) shows that a phonological phrase must contain some phonetic material; it isn't possible to treat the empty NegFoc position as a p-phrase of its own. The fact that (c) is selected over (a) is due to the fact that the constraint favors candidates in which the clitic is on the *right* edge of the NegFoc. So (a) incurs two violations – one for not being in the NegFoc position, and one for being left of the position. Candidate (c), however, incurs only one violation.

9 Restrictions on the size of phonological phrases

As is the case in other languages, there are some restrictions on the maximal length of a phonological phrase. Consider the following data:

- 46) a. Éè, [xhùmbéréèjr]_p=cà xhùpáà x-míèhgw Cristíin ngààs=nì.
yes hat=aff father:of p-friend Christina black=3i

'Yes, Christina's friend's father's hat is black.'
- b. Éè, [xhùmbéréèjr xhùpáà]_p=cà x-míèhgw Cristíin ngààs=nì.
yes hat father:of=aff p-friend Christina black=3i
- c. *Éè, [xhùmbéréèjr xhùpáà x-míèhgw]_p=cà Cristíin ngààs=nì.
yes hat father:of p-friend=aff Christina black=3i
- d. *Éè, [xhùmbéréèjr xhùpáà x-míèhgw Cristíin]_p=cà ngààs=nì.
yes hat father:of p-friend Christina=aff black=3i

The phonological phrase algorithm given above allows phonological phrases to begin at the head and optionally include other phrases contained in the projection of the head. And since the head in this case is *xhùmbéréèjr* 'hat', which is lexical, we may also optionally include the head of a following phrase in the phonological phrase. Therefore all the phrasings shown in (46) ought to be available.

Consider the following examples, which are identical to (46) but include the focus determiner *là'á*.

- 47) a. Éè, [là'á]_p=cà xhùmbéréèjr xhùpáà x-míèhgw Cristíin ngààs=nì.
yes det=aff hat father:of p-friend Christina black=3i

'Yes, Christina's friend's father's hat is black.'
- b. Éè, [là'á xhùmbéréèjr]_p=cà xhùpáà x-míèhgw Cristíin ngààs=nì.
yes det hat=aff father:of p-friend Christina black=3i
- b. *Éè, [là'á xhùmbéréèjr xhùpáà]_p=cà x-míèhgw Cristíin ngààs=nì.
yes det hat father:of=aff p-friend Christina black=3i
- c. *Éè, [là'á xhùmbéréèjr xhùpáà x-míèhgw]_p=cà Cristíin ngààs=nì.
yes det hat father:of p-friend=aff Christina black=3i
- d. *Éè, [xhùmbéréèjr xhùpáà x-míèhgw Cristíin]_p=cà ngààs=nì.
yes hat father:of p-friend Christina=aff black=3i

It is not possible at this point to give a rigorous definition of the maximal length of a phonological phrase in this language. This is a subject of ongoing research. However, these facts once again favor a phonological

approach to clitic placement in SDZ, since the length effects shown here are quite resistant to syntactic explanation.

10 Conclusion

The complexity of the clitic placement facts in SDZ results from the interweaving of both syntactic and phonological constraints. The results presented here favor a model of grammar in which phonology and syntax are not strictly separated components, but may interact with each other in the constraint evaluation component.

The descriptive complexity of the facts also argues against any approach in which all word and/or morpheme ordering is derived through phrase structure rules and movement. The ordering of at least some elements, such as SDZ clitics, cannot be successfully described through these means.

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