

## 1. INTRODUCTION

Tshivenda<sup>1</sup> shares with other Southern Bantu languages a distinctive alternation in the form of the present tense morpheme, traditionally termed the conjoint / disjoint alternation:

- (1) a. ndi (a) ɭa nemeɽeme  
 IS A eat termite  
 “I eat termite.”  
 b. ndi \*(a) ɭa  
 IS A eat  
 “I eat.”

The simple present is expressed by either the prefix /a-/ (termed the disjoint) or /ø-/ (termed the conjoint).

- The availability of the prefix shows a three-way split: It’s obligatory in some contexts, impossible in others, and optional elsewhere.
- This contrasts with other Southern Bantu languages such as isiZulu (Halpert 2016), in which the conjoint and disjoint are generally in complementary distribution — no optionality is possible.

In this talk, I will present preliminary data from original fieldwork which suggests that the Tshivenda conjoint / disjoint alternation is prosodic in nature<sup>2</sup>. In particular, I will propose the following generalization:

- (2) **Conjoint / disjoint generalization (Tshivenda):**
- Disjoint (/a-):** appears when the verb is last in an tP.
  - Conjoint (/ø/):** appears elsewhere.

Evidence for this comes from a correlation between the contexts in which the disjoint is present and the contexts in which sentence-internal penultimate lengthening occurs.

<sup>1</sup>Guthrie S21; ~1.3m speakers in South Africa (Limpopo Province) & Zimbabwe.

<sup>2</sup>For a prior proposal that the conjoint / disjoint alternation is prosodic in nature, see Cheng & Downing 2009. For arguments against this analysis of isiZulu, see Halpert 2016

This talk will proceed as follows:

- **Section 2** will briefly present some background on the conjoint / disjoint alternation in Southern Bantu, including in prior descriptive work on Tshivenda.
- **Section 3** will present the results of a pilot survey which asked speakers to rate conjoint and disjoint sentences in a variety of contexts. This will confirm that there is indeed a three-way split in availability of the disjoint prefix.
- **Section 4** covers the results of a production study on Tshivenda prosody showing the same three-way split in the likelihood of penultimate lengthening on the verb, which is argued to indicate the presence of an intonational phrase boundary.
- Finally, **Sections 5 and 6** will argue that we can capture this correlation most simply by proposing that Tshivenda obeys the generalization given in (2), and will consider directions for future research.

## 2. BACKGROUND

Southern Bantu languages frequently show an alternation in the form of the verb under certain tenses. For instance, in isiZulu<sup>3</sup>, the simple present takes a prefix /ya-/ which is obligatory in some contexts and impossible in others:

- (3) a. uMlungisi u- pheka iqanda  
 M. 3s- cook egg  
 “Mlungisi is cooking an egg.”  
 b. \*uMlungisi u- ya- pheka iqanda  
 M. 3s- YA- cook egg
- (4) a. \*uMlungisi u- pheka  
 M. 3s- cook  
 b. uMlungisi u- ya- pheka  
 M. 3s- YA- cook  
 “Mlungisi is cooking.”

<sup>3</sup>Zulu examples taken from Halpert 2016.

The short form of the verb / $\emptyset$ -/ is called the ‘conjoint’; the long form /*ya*-/ is called the ‘disjoint’. Halpert 2016 gives the following generalization for the distribution of these forms:

- (5) **Conjoint-disjoint generalization (isiZulu):**
- a. **Conjoint ( $\emptyset$ ):** appears when vP contains material (after A movement)
  - b. **Disjoint (*ya*):** appears when vP does not contain material (after A movement)

Thus, there are two key properties of the isiZulu conjoint:

1. The conjoint and disjoint forms of the verb are in complementary distribution.
2. The distribution is predictable based on syntactic context.

The conjoint / disjoint in other Southern Bantu languages frequently appears in other tenses as well. In Tshivenda, I am only aware of the conjoint / disjoint alternation appearing in the simple present tense. Poulos 1990 gives the following generalization:

- (6) **Conjoint-disjoint generalization (Tshivenda, to be revised):**
- a. The disjoint is available everywhere.
  - b. The conjoint is ungrammatical when the verb is last in the sentence.

I will show in the next section that this generalization is false, but that the conjoint / disjoint alternation in Tshivenda differs from related languages in at least one respect: The forms are not in complementary distribution.

### 3. SURVEY DESIGN AND RESULTS

In the summer of 2015, I conducted a pilot study on the conjoint / disjoint alternation at the University of Venda in Thohoyandou, Limpopo Province, South Africa. The study was a short questionnaire asking for grammaticality ratings on a variety of sentences. The design was as follows:

- 8 blocks, varying what kind of material followed the verb
- Each sentence presented twice: once conjoint, once disjoint
- Total of 56 test items; plus 44 fillers / controls = 100 questions

- 12 speakers asked to rate items from 1 (‘mistaken or incomplete’) to 5 (‘natural and complete’).

Blocks varied based on what material followed the verb:

1. **final** – verb is sentence final
2. **temporal** – verb followed by temporal adverb (‘today’, ‘now’)
3. **locative** – followed by locative adverb (‘at home’, ‘in the forest’)
4. **manner** – followed by manner adverb (‘well’, ‘badly’)
5. **fhedzi** – followed by focus-sensitive operator *fhedzi* (‘only’)
6. **secondary** – followed by a secondary predicate (‘go to the tree’)
7. **object** – transitive verb + *in situ* object
8. **dislocated** – transitive verb + right-dislocated object

The **dislocated** block included sentences in which the object is coreferenced by an object marker on the verb, which are generally not in their base position inside vP (Buell 2005).

- (7) Tshinoni tshi (a) i dzhia thanga  
7.bird S.7 (A) O.9 take 9.seed  
“The bird took it, the seed.”

The **secondary** block included sentences in which the verb is followed by a clausal adjunct marked with the dependent prefix /*tshi*-/ (van Warmelo 1989):

- (8) ndou i (a) gidima i tshi ya dakani  
9.elephant S.9 (A) run S.9 DEP go forest.LOC  
“The elephant runs into the forest.”

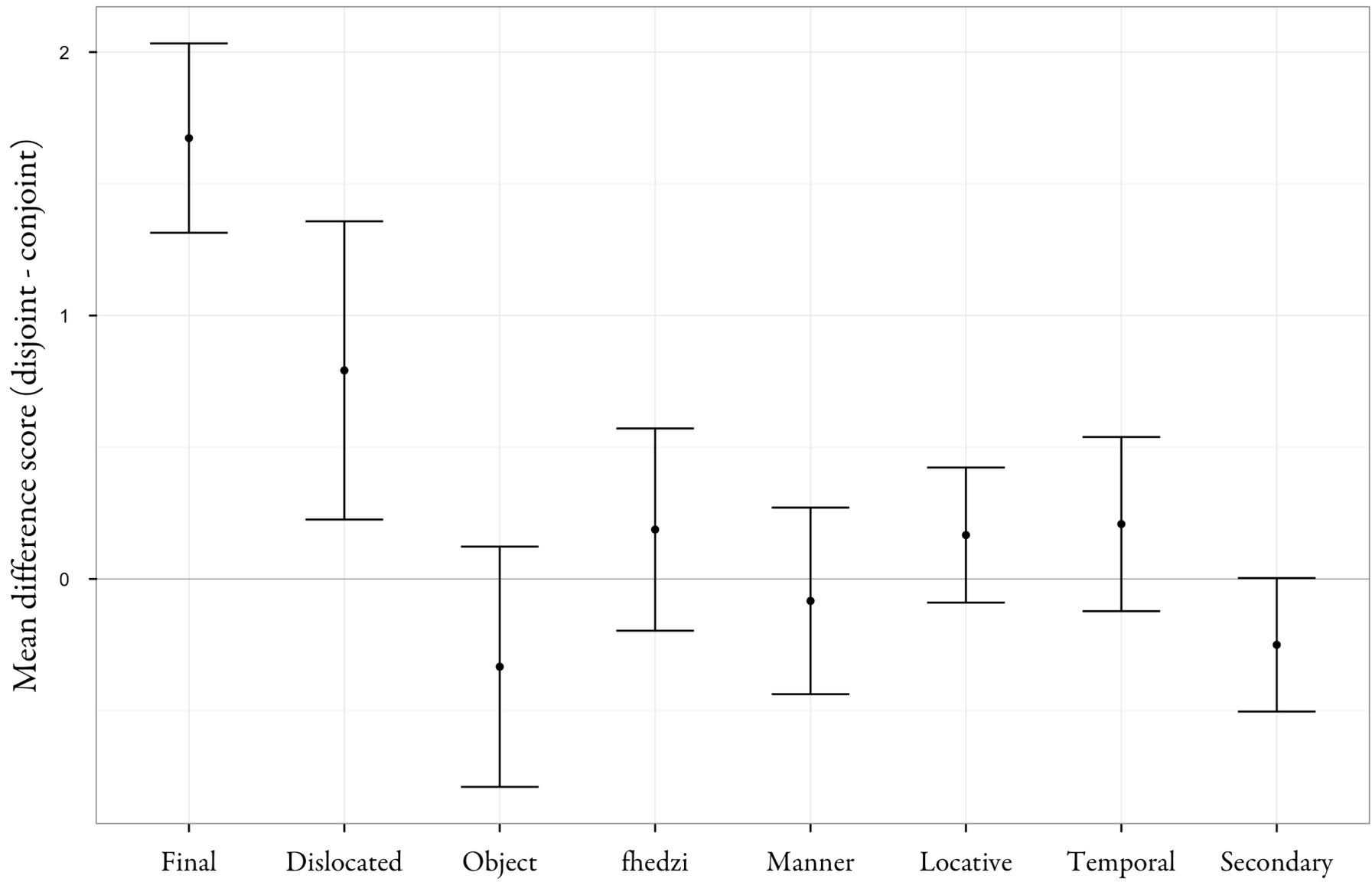
#### 3.1 Results and analysis

For each block, I calculated a by-speaker mean difference score between ratings given to disjoint and to conjoint sentences.

- One form preferred → score significantly different from 0
- Both forms available → score not different from 0

The results are presented below. Positive values indicate a preference for disjoint; negative, for conjoint. Error bars indicated 95% confidence interval.

## Conjoint / disjoint preferences by block



- The **final** condition shows a strong preference for the disjoint.
  - In addition, the **dislocated** does as well.
- Linear order is not enough to predict alternation.
- The **secondary** condition shows a preference for the conjoint ( $p = 0.052$ ).
  - In all other conditions, the mean is not significantly different from 0.
  - In fact, in all such blocks except **fhedzi**, ratings are at ceiling.
- In most contexts, conjoint & disjoint are in free variation.

Thus, we have a three-way split:

(9) **Conjoint / disjoint availability by context:**

FINAL	Disjoint
DISLOCATED OBJECT	Disjoint
IN SITU OBJECT	Either
ADVERB	Either
SECONDARY PREDICATE	Conjoint

#### 4. PENULTIMATE LENGTHENING AND THE UP

This same three-way split emerges in the distribution of penultimate lengthening. Tshivenḁa does not have lexically contrastive vowel length, but lengthens the penultimate syllable of intonational phrases:

- (10) a. ndo mbindimedza **ludambwa:na**  
 1S.PST destroy 1 I.dam  
 “I destroyed the dam.”
- b. ndo mbindimedza ludambwana **namu:si**  
 1S.PST destroy 1 I.dam today  
 “I destroyed the dam today.”

The penult of the entire (declarative) utterance is always lengthened. But there may be internal lengthening, as well. In (11), *ludambwa:na* shows penult lengthening despite not being sentence final.

- (11) ndo mbindimedza **ludambwa:na namu:si**  
 1S.PST destroy 1 I.dam today  
 “I destroyed the dam today.”

I conducted a production study to determine the distribution of sentence-internal penult lengthening.

- Four blocks: **dislocated objects**, *in situ* objects, **adverbs** (balanced across temporal, manner, and locative), and **secondary predicate**.
- This dataset was initially designed for other purposes and is not balanced for conjoint / disjoint form. As such, I’m currently reporting only the non-present tenses (which don’t show the alternation).
- 5 speakers, 1 repetition per sentence, ~40 sentences balanced within block for length of verb and tone on verb.<sup>4</sup>

I hand-coded these results and tabulated all cases of sentence-internal penult lengthening:

(12) **Percentage of tokens with internal penult lengthening:**

DISLOCATED OBJECT	60%
IN SITU OBJECT	15%
ADVERB	25%
SECONDARY PREDICATE	5%

We see the same three-way split: Dislocated objects show internal lengthening frequently; secondary predicates show it rarely<sup>5</sup>; and the others cluster somewhere in the middle.

##### 4.1 Explaining this distribution

Sentence-internal penult lengthening is a highly variable process, but the variability still shows three distinct groups. How can we explain this?

- I will assume an indirect reference theory of prosody (Selkirk 2011), in which prosody is split into two pieces: prosodic structure building and structure-sensitive phonology.

<sup>4</sup>The complete dataset includes 12 speakers, 3 repetitions, and ~200 test items

<sup>5</sup>All but one of the secondary predicate cases showing internal lengthening come from the same speaker, who shows many signs of list intonation in general.

- In particular, I will assume that each utterance has an abstract prosodic structure which may or may not be marked in the phonology by e.g. penult lengthening. That is, it is the likelihood of marking, not the presence or absence, that indicates a boundary. (Elfner 2014)
- I will further assume that recursive prosodic structures are possible and that structure-sensitive phonology can make reference to maximal and non-maximal recursive phrases (Ito & Mester 2009).

Assume that penult lengthening is controlled by two rules:

(13) **Penult lengthening rules:**

- Always lengthen the penultimate syllable of a maximal tP.
- Variably lengthen the penultimate syllable of a non-maximal tP.

Consider the dislocated object case. I propose that these sentences have a prosodic structure like the following:

- (14)  $(_{t\text{-Max}} (_{t} \text{ndo lu } \mathbf{mbindime(:)dza})_{t\text{-Max}} \text{ ludambwa:na})_{t\text{-Max}}$   
IS.PST O.II destroy I I.dam  
 “I destroyed the dam.”

- The object *ludambwana* is final in a maximal tP and so is always lengthened.
- The verb *mbindimedza* is final in a non-maximal tP and so is variably lengthened.

→ In my data: The verb is lengthened > 50% of the time.

Consider next the secondary predicate case. I propose that these sentences have a prosodic structure like the following:

- (15)  $(_{t\text{-Max}} \text{ndi gidima } (_{t} \text{ndi tshi ya haya:ni } )_{t\text{-Max}} )_{t\text{-Max}}$   
IS run IS DEP go home.LOC  
 “I run home.”

- The goal *hayani* is final in a maximal tP and so is always lengthened.
- The main verb *gidima* isn’t final in any tP, and so is never lengthened.

→ In my data: The verb is lengthened < 5% of the time.

Finally, consider the other cases – adverbs and *in situ* objects. Here, I will assume that there is also variability in the prosodic structure itself: These sentences may be assigned one of two prosodic structures.

- (16) a.  $(_{t\text{-Max}} \text{ndo namaila namu:si})_{t\text{-Max}}$   
 b.  $(_{t\text{-Max}} (_{t} \text{ndo } \mathbf{namai(:)la})_{t\text{-Max}} \text{ namu:si})_{t\text{-Max}}$   
IS.PST stagger today  
 “I staggered today.”

- Under both structures, the adverb *namusi* is final in a maximal tP and is lengthened.
  - Under (16-a), there is no non-maximal tP and so no variable lengthening.
  - Under (16-b), the verb is final in a non-maximal tP and is variably lengthened.
  - We thus expect sentence-internal lengthening to occur less frequently than with dislocated objects, but more frequently than with secondary predicates.
- In my data: The verb is lengthened ~20% of the time.

Thus, we can understand the three-way split in penultimate lengthening as arising from the combination of a variable prosodic structure building rule with a variable structure sensitive phonology rule.

## 5. PROSODY AND THE DISJOINT PREFIX

This model also gives us a way to understand the three-way split in the conjoint disjoint alternation. I propose the following generalization for the Tshivenda conjoint / disjoint alternation:

- (17) **Conjoint / disjoint generalization (Tshivenda):**
- Disjoint (/a-/):** appears when the verb is last in an tP.
  - Conjoint (/ø/):** appears elsewhere.

This generalization captures the correlation between conjoint / disjoint form and availability of sentence-internal lengthening:

CONDITION	LAST IN tP?	LENGTHENED?	FORM?
<b>Dislocated obj</b>	Always	Frequently	Disjoint
<b>Adverb, <i>in situ</i> obj</b>	Sometimes	Sometimes	Variable
<b>Secondary pred</b>	Never	Rarely	Conjoint

## 6. CONCLUSIONS

The conjoint / disjoint alternation in Tshivenda shows a three-way split in availability which mirrors a similar three-way split in the prosody. The simplest hypothesis seems to be to link these directly and to understand the conjoint / disjoint alternation as being prosodically conditioned, unlike in other Southern Bantu languages. This seems particularly tempting for Tshivenda:

- Unlike other Southern Bantu languages, the disjoint is only present in the simple present (/ habitual) tense – the alternation is far less productive.
- The alternation is between /a-/ and /ø/, and thus seems easily amenable to a deletion analysis.
- Perhaps tP-final position is ‘strong’ in some way and bleeds deletion of the present tense /a-/ prefix.

In this analysis, I haven’t specified how the prosodic structure building component arrives at these particular structures.

- This analysis relies on *in situ* objects and three types of adverbs being treated alike. It is difficult to see why such varied classes of syntactic objects should be treated alike by the prosody.
- In particular, why should *in situ* objects ever be separated from the verb?
- One possible answer: They’re not always *in situ*, but are allowed to raise without the verb taking object marking.
- Another possible answer: They’re not! In my grammaticality rating results, the *in situ* object block trends numerically towards preferring the conjoint form, consistent with the object always being ‘phrased together’ with the verb. In my production data, objects are at the low end for allowing internal lengthening.
- Perhaps a more statistically powerful study would group objects with secondary predicates.

I hope to conduct a fuller study, including direct evidence on the production of conjoint and disjoint sentences.

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