

Phonological evidence for two different kinds of syntactic movement in Guébie*

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1 Introduction

Here I describe three phenomena in Guébie (Kru) and how they interact.

1. Particle verbs
2. Verb doubling focus constructions (predicate clefting)
3. Vowel harmony

I show that the phonological behavior of particle verbs in different syntactic contexts has consequences for how we view syntactic movement and the syntax/phonology interface.

- The Guébie facts also present a number of challenges for previous analyses of predicate clefting.

Preview of puzzles:

- 1: Verbs double in predicate clefting contexts.
- 2: Particle verbs do not show doubling in predicate clefting contexts. Rather, the particle fronts.
- 3: Fronted particles show ATR harmony with the lower verb in SAuxOV but not SVO clauses.

Roadmap

- § 1 Introduction
- § 2 Guébie word order
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- § 5 Analytical challenges
- § 6 Conclusion

*Thanks to the Guébie community, and to Emily Clem, Peter Jenks, Ruth Kramer, Harold Torrence, Katherine Russell, Nico Baier, and Berkeley's SSCircle for discussion of various aspects of this work. Abbreviations: PFV=perfective; IPFV=imperfective; SG=singular, PL=plural; DEF=definite; NOM=nominative; ACC=accusative; NEG=negative; 1,2,3 = first, second, third person; PART=particle.

2 Guébie word order

- Word order in Guébie is SAuxOV (1a), unless there is no auxiliary present, in which case we see SVO order (1b).
- There are four level tone heights in Guébie, marked here with numbers 1-4.

(1) SVO/SAuxOV order

- a. $\text{jaci}^{23.1} \text{ ji}^3 \text{ su-wa}^{2.2} \text{ gbala}^{3.4}$
 Djatchi will tree-DEF climb
 ‘Djatchi will climb a tree.’
- b. $\text{jaci}^{23.1} \text{ gbala}^{3.4} \text{ su-wa}^{2.2}$
 Djatchi climb.PFV tree-DEF
 ‘Djatchi climbed the tree.’

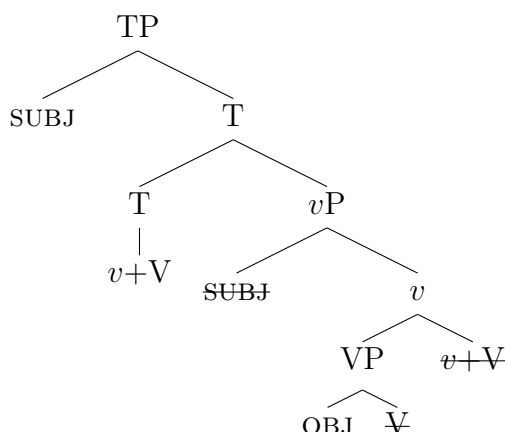
- Auxiliaries mark aspect, mood, and negation.
- In SVO sentences, the verb inflects for aspect via systematic tone changes (2).
 - The first tone of imperfective verbs surfaces one step lower on the 4-tone scale than the perfective counterpart.

(2) Verbs inflect for aspect in SVO clauses

Perfective		Imperfective	
a.	$\text{ɔ}^3 \text{ gbala}^{3.4} \text{ si}^2$ ‘He climbed trees.’	b.	$\text{ɔ}^3 \text{ gbala}^{2.4} \text{ si}^3$ ‘He climbs trees.’
c.	$\text{ɔ}^3 \text{ li}^3$ ‘He ate.’	d.	$\text{ɔ}^3 \text{ li}^2$ ‘He eats.’
e.	$\text{jaci}^{2.31} \text{ pa}^{31} \text{ ɔ}^3 \text{ ɔ}^3$ ‘Jachi flipped the boat’	f.	$\text{jaci}^{2.31} \text{ pa}^{21} \text{ ɔ}^3 \text{ ɔ}^3$ ‘Jachi flips boats.’

I assume that the verb head-moves through *v* to T when no auxiliary is present, and moves to *v* but not T when there is an auxiliary.

(3) Structure of SVO sentences in Guébie



- Evidence that the fronted verb is in T and not C comes from the fact that the verb is not always in second position (like Germanic), but can surface as the 3rd or 4th element in a clause in focus/topic constructions.
- Evidence that the fronted verb is in T and not *v*/Voice comes from the fact that adverbs cannot intervene between the subject and the verb in T (or auxiliaries).

3 Guébie particle verbs

3.1 Syntactic properties of particle verbs

- In SVO contexts we expect the verb to move to T; however, there is a class of verbs where one or two syllables of the lexical verb move to T, leaving the rest behind.

(4) Particle verbs

- a. e⁴ ji³ ʃaci^{23.1} **jokuni**^{2.3.4}
I will Djatchi visit
'I will visit Djatchi.'
- b. e⁴ ni⁴ ʃaci^{23.1} **joku**^{2.3}
I visit.PFV Djatchi PART
'I visited Djatchi.'
- c. *e⁴ **jokuni**^{2.3.4} ʃaci^{23.1}
I visit.PFV Djatchi
Intended: 'I visited Djatchi.'

- It is not the case that every polysyllabic verb undergoes this splitting process (recall /gbala/ in (1)).
- In fact, there is no phonological factor that correlates with which verbs split in Guébie.
- **Question:** How are particle verbs different from other verbs?
 - I propose that they are made up not only of a verbal root, but of a verb root plus a *particle*.
 - These particles are often homophonous with postpositions in the language (5); however, some particles are unique to a specific particle-verb lexical meaning (e.g. /ji/ in /ji-ni^{3.4}/ 'see').

(5) Postpositions homophonous to particles

- a. e⁴ me³ [dabara^{4.4.4} **ko**³]
1.SG go.PFV market to
'I went to the market.'
- b. ɔ²⁴ **ko**-wəri^{3.4.4}
3.SG.NEG PART-be.heavy
'He is not heavy.'

- Some particles can be used across many particle-verb constructions, while others are found with only one or two verbs.
- Particle + verb meanings are idiomatic and not predictable.

(6) **A sample of particle verbs**

	/me/	‘in’
a.	mɛ-bɔɛ ^{3.3.1}	‘throw away’
b.	mɛ-druliju ^{3.4.2.2}	‘push’
c.	mɛ-ŋ ^w itu ^{3.3.1}	‘pierce’
d.	mɛ-pra ^{3.2}	‘return’
	/ko/	‘on/to’
a.	ko-silije ^{3.3.3.1}	‘straighten’
b.	kɔ-trɔ ^{3.4}	‘be tall’
c.	kɔ-salɪ ^{3.3.3}	‘diminish’
d.	kɔ-gbɛa ^{3.2.2}	‘accumulate’
e.	kɔ-sɛja ^{3.3.1}	‘throw away’
f.	kɔ-ʒɛ ^{3.1}	‘take’
g.	kɔ-sa ^{3.1}	‘snatch’
h.	kɔ-pɔrɔ ^{3.4.2}	‘hurry’ (from /pɔrɔ/ ‘be fast’)
	/jɔku/	‘near’
a.	jɔkɔ-drɛ ^{2.3.3}	‘join’
b.	joku-ki ^{2.3.1}	‘turn over’
c.	jɔkɔ-ŋ ^w ɔsa ^{2.3.3.1}	‘scrape’
d.	joku-ple ^{2.3.3}	‘pass’
	/g ^w e/	??
a.	g ^w e-bijɔ ^{1.3.1}	‘hold’
b.	g ^w e-ɓiɔ ^{1.3.1}	‘finish’
	/dɔku/	‘down’
a.	dɔkɔ-gbɔ ^{2.3.2}	‘move’
b.	doku-gbe ^{2.3.3}	‘sit down’
c.	doku-ɓiri ^{2.3.3.1}	‘go down’

- Particle verbs, or splitting verbs, are not uncommon in West Africa (Koopman, 1984, 1997; Smith, 1969; Ameka, 1992; Manfredi, 1993; Aboh, 1998; Hiraiwa, 2005; Kropp Dakubu, 2005; Kandybowicz, 2007; Van Putten, 2016; Hein, 2016) (also see Brown & Torrence, this conference).
- For example, splitting verbs make up much of the verbal lexicon of Nupe (Benue-Congo, Nigeria) (Smith, 1969).
 - Nupe splitting verbs are made up of a verb root plus a nominal element or another verbal element.
 - * Verb+Noun: /gãgwa/ ‘escape’ from /gã/ ‘pass’ + /egwa/ ‘hand’
 - * Verb+Verb: /taya/ ‘to slip’ from /ta/ ‘to be on’ + /ya/ ‘to leave’
 - Like in Guébie, these Verb+X combinations act as a morphological unit when linearly adjacent, but in certain morphosyntactic contexts the primary verb root moves away from nominal or secondary verbal element.
- Unlike Nupe, splitting verbs cannot contain a nominal component, nor two verbal components. Instead, we have a verb root with a postposition-like particle.

3.2 Morphophonological properties of particle verbs

- When the verb does not undergo movement to T, that is, in the presence of an auxiliary, the particle and verb surface within the same morphophonological word.
- Evidence for this claim comes from vowel harmony, a productive word-internal process in Guébie.
 - With the exception of a few suffixes that always retain their vowel quality, all affix vowels match the ATR value of root vowels.
 - Vowels within roots agree in ATR value.

(7) **Vowel harmony in SAuxOV order**

- a. e⁴ ji³ ɟaci^{23.1} **joku-ni**^{2.3.4}
 I FUT Djatchi PART-visit
- b. ɟaci^{23.1} ji³ ɔnɛ^{3.3} gbɔgɔ^{2.2} **jɔku-ɲ^wɔsa**^{2.3.3.1}
 Djatchi FUT 3SG.POSS leg PART-scrape
 ‘Jachi will scrape his leg’

- Vowel harmony does not hold between particles and verbs when the verb has moved to T.

(8) **No harmony in SVO order**

- a. e⁴ ni⁴ ɟaci^{23.1} **jɔku**^{2.3}
 I visit.PFV Djatchi PART
 ‘I visited Djatchi.’
- b. ɟaci^{23.1} ɲ^wɔsa^{3.1} ɔnɛ^{3.3} gbɔgɔ^{2.2} **jɔku**^{2.3}
 Djatchi scrape.PFV 3SG.POSS leg PART
 ‘Jachi scraped his leg’

- Note that linear adjacency is not enough to trigger harmony, as seen with intransitive verbs in (9); there must be a structural criterion as well.

(9) **Linear adjacency is not enough to trigger harmony**

- a. ɔ³ gbe³ dɔku^{2.3}
 3.SG.NOM sit.PFV PART
 ‘He sat down.’
- b. ɔ³ ji³ doku-gbe^{2.3.3}
 3.SG.NOM will PART-sit
 ‘He will sit down.’

- The fact that the verb has moved structurally further from the particle in (9a), to T, prevents the particle from forming a single morphophonological word with the verb.

4 Focus and verb doubling

4.1 Verb doubling

- Contrastively focused elements in Guébie surface clause-initially.

(10) Focus: Clause-initial

- a. touri^{1.1.2} ɔ³ pa=ɔ^{23.2} bag^{wε}^{3.1} ko³
Tourī 3SG.NOM send.PFV=3SG.ACC book PART
'It's TOURI who sent him a book.'
- b. bag^{wε}^{3.1} ɔ³ pa=ɔ^{23.2} ko³
book 3SG.NOM_i send.PFV=3SG.ACC_j PART
'It's a BOOK he sent him.'
- c. e⁴ jisa^{2.3} gba¹ [jaci^{23.1} ɔ³ ni⁴ (εbɔ^{3.1}) k^wala^{4.2} me³
1SG.NOM know.IPFV that Djatchi 3SG see.PFV 3SG.ACC farm on
ji³]
PART
'I know that it's Djatchi he saw on the farm.'
- d. k^wala^{4.2} ko³ ɔ³ li² ja³¹
farm at 3SG.NOM eat.IPFV coconuts
'It's at the farm that he eats coconuts.'

- Verbal focus not only involves fronting the verb, but the verb surfaces twice.

(11) SVO verb focus

gbala^{3.4} ɔ³ gba^{3.4}
climb 3SG.NOM climb

'He CLIMBED.'

(12) SAuxOV verb focus

gbala^{3.4} ɔ³ ji³ su³ gba^{3.4}
climb 3SG.NOM will tree climb

'He will CLIMB the tree.'

- The verb is not head-moving to C in focus constructions, because the verb surfaces clause-initially even when there is an intervening auxiliary in T; this must be phrasal movement.
- Focus constructions must involve movement rather than base-generation because...
 - a. Focus fronting is sensitive to islands.
 - b. Verb doubling in an embedded clause blocks extraction of a Wh-word.
 - c. There is evidence of successive cyclic movement (13).
 - d. The morphology matches on the fronted and lower verb copies (14).

(13) **Evidence for successive cyclic movement**

- a. e² wa-sɛ^{2.4} gba¹ li² ɔ³ li²
2SG.NOM want.IPFV-PQ that eat.IPFV 3SG.NOM eat.IPFV
'Do you want him to EAT?'
- b. li² e² wa-sɛ^{2.4} gba¹ (li²) ɔ³ li²
eat.IPFV 2SG.NOM want.IPFV-PQ that eat.IPFV 3SG.NOM eat.IPFV
'Do you want him to EAT?'

(14) **Morphology matches on verbal copies**

- a. gbala^{3.4} ɔ³ gba^{3.4}
climb.PFV 3SG.NOM climb.PFV
'It's climbing that he did.'
- b. gbala^{2.4} ɔ³ gba^{2.4}
climb.IPFV 3SG.NOM climb.IPFV
'It's climbing that he is doing.'
- c. li(-li)^{3.(2)} ju⁴ li-li^{3.3} saka^{3.3} ko²
eat.PFV-APPL boy eat.PFV-APPL rice hand
'It's eating that the boy did with his hand.'

- This is likely phrasal movement, but objects do not front (or double) with verbs.

(15) **Objects are not fronted with verbs**

- a. *gbala^{3.4} su³ ɔ³ ji³ (su³) gba^{3.4}
climb tree 3SG.NOM will tree climb
Intended: 'It's tree climbing that he will do.'
- b. *su³ gbala^{3.4} ɔ³ ji³ (su³) gba^{3.4}
tree climb 3SG.NOM will tree climb
Intended: 'It's tree climbing that he will do.'

- There is independent evidence from object shift that objects can move out of the VP.

(16) **Object shift**

- a. jaci^{2.31} ji³ k^wala^{4.2} mɛ³ gogo^{2.3} joku-ni^{2.3.4}
Jachi will farm on Gogo PART-see
'Jachi will see Gogo on the farm.'
- b. jaci^{2.31} ji³ gogo^{2.3} k^wala^{4.2} mɛ³ joku-ni^{2.3.4}
Jachi will Gogo farm on PART-see
'Jachi will see Gogo on the farm.'

So far, the verb doubling facts closely mirror those in Vata, a related Kru language.

- Previously proposed analysis for Vata, a related Kru language (Koopman, 1984, 1997):
 - Remnant ‘small’ VP movement (of a VP containing only the verb) to spec-Foc.
 - The lower verb head-moves out of the VP (to *v* or T).
 - The heads of both movement chains are spelled out, resulting in multiple overt copies of the verb.
 - Objects must vacate the VP before it is fronted, because the verb cannot surface along with an object in focus constructions, (11b) vs. (15).

While verb doubling has been documented previously for a number of Kru languages (cf. Marchese 1979:180-182 on Bété de Guibéroua and Tépo, and Koopman 1984:48-49 on Vata),

- Predicate cleft constructions involving *particle verbs* are not previously discussed.
- Though it turns out that they pose interesting challenges for previous analyses of predicate clefting.

4.2 Particle verb focus

Particle verbs in predicate cleft constructions do not involve doubling.

(17) Particle verb focus

- a. *joku-ni^{2.3.4} ɔ³ ni-ɔ^{4.2} (jɔkɔ^{2.3})
 PART-see 3SG.NOM see-PFV-3SG.ACC (PART)

Intended: ‘It’s seeing him that he did.’

- b. jɔkɔ^{2.3} ɔ³ ni-ɔ^{4.2}
 PART 3SG.NOM see-PFV-3SG.ACC

‘It’s seeing him that he did.’

- If this verb focus construction involves VP copying, which results in verb doubling in non-particle verb constructions, we might expect particles to be fronted with verbs in particle-verb focus contexts: [Part-V S V O Part].
- Instead, only particles are fronted, the verb only surfaces downstairs, and no element–particle or verb–is doubled.

(18) No doubling in particle-verb focus

- a. *ni⁴ ɔ³ ni-ɔ^{4.2} (jɔkɔ^{2.3})
 see 3SG.NOM see-PFV-3SG.ACC (PART)

Intended: ‘It’s seeing that he did’

- b. *joku/jɔkɔ^{2.3} ɔ³ ni-ɔ^{4.2} jɔkɔ^{2.3}
 PART 3SG.NOM see-PFV-3SG.ACC PART

Intended: ‘It’s seeing that he did.’

- So far we have seen particles fronting in SVO contexts, where the verb has moved out of the VP. If the object also vacates the VP, this would leave only the particle behind.
- However, whether or not the downstairs verb has moved to T, only the particle undergoes focus fronting.

(19) **Particle verb focus with auxiliaries**

- a. joku^{2.3} ɔ³ ji³ ʃaci^{23.1} ni⁴
 PART 3SG.NOM will Jachi see
 ‘It’s seeing that he will do of Jachi.’
- b. mɛ³ ɔ³ ji=e^{3.2} sa³
 PART 3SG.NOM will=3SG.ACC remove
 ‘It’s removing that he will do to it.’

- Additionally, if the verb head-moving out of the VP were enough to prevent doubling, we would not expect doubling in non-particle verb contexts (cf. 11, 12).
- Note, too, that **particles show ATR harmony with the verb in verb focus SAuxOV constructions** (20a), but not SVO constructions (20b).

(20) **Particles harmonize with verbs in PartSAuxOV clauses**

- a. joku^{2.3} ɔ³ ji³ ʃaci^{23.1} ni⁴
 PART 3SG.NOM will Jachi see
 ‘It’s seeing that he will do of Jachi.’
- b. jɔku^{2.3} ɔ³ ni-ɔ^{4.2}
 PART 3SG.NOM see-PFV-3SG.ACC
 ‘It’s seeing him that he did.’

- This is a rare case of long-distance harmony, where the clause-final verb controls harmony on the clause-initial particle.

4.3 Interim summary

The word order and harmony patterns are summarized in (21) and (22).

(21) **Non-particle verbs**

	No verb focus	Verb focus
Auxiliary	S Aux O V	V S Aux O V
No Auxiliary	S V O	V S V O

(22) **Particle verbs**

	No verb focus	Verb focus
Auxiliary	S Aux O Part-V _{Harm}	Part _{Harm} S Aux O V
No Auxiliary	S V O Part	Part S V O

5 Analytical challenges

We know that verb movement to T must be distinct from verb movement to the Focus position:

- The particle does not move with the verb to T, but fronts in verb focus constructions.
- The verb and particle do not show harmony when the verb has moved to T, but show harmony when the verb is low and the particle surfaces in the Focus position.

This leaves three remaining questions:

1. Why are two copies of the verb spelled out in non-particle verb predicate cleft constructions?
 - As previously discussed, Koopman’s analysis of Vata verb doubling can account for this fact: Remnant VP movement plus head movement of the verb creates multiple chains, where the head of each is spelled out
2. Why does the verb not double (rather, the particle fronts) in particle verb predicate cleft constructions?
 - The remnant-VP analysis does not, on its own, explain why verb doubling is impossible in particle-verb focus constructions, but required otherwise in verb focus.
 - Perhaps focused verb must be pronounced in non-particle verb constructions for recoverability reasons (otherwise we wouldn’t know anything was focused, cf. Koopman 1997).
3. Why does the fronted particle show harmony with the verb in Part S Aux O V contexts, but not Part S V O?
 - One option: harmony between the low particle + verb takes place before the particle moves.
 - * The challenging part of this analysis would be how to get the syntax to pick out the particle separately from the verb if phonology has already applied to the particle + verb (phase impenetrability, bracket erasure)
 - A second option would be for the particle to harmonize with a silent copy of the verb in the fronted position.
 - * However, this cannot explain why we fail to see harmony in Part S V O contexts, where there is also presumably, on a Copy Theory of Movement analysis, a silent copy of the verb in the fronted position.

For now, I leave open for discussion the question of how to effectively model all aspects of the interaction of particle verbs, predicate clefting, and harmony in Guébie, and I look forward to your feedback!

6 Conclusion

I have presented data from Guébie particle verbs and verb doubling focus constructions.

- This is the first investigation of how particle verbs behave in predicate clefting contexts in Kru languages.
- Particle fronting without verb doubling in predicate cleft constructions poses a challenge for previous analyses of predicate clefting.
- An additional challenge arises in explaining the vowel harmony facts.

Future work (ongoing joint work with Emily Clem at UCSD) will attempt to explain all of these facts.

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