Avoiding syntax-prosody mismatches in Chuj and K'iche':
An alternative to Henderson 2012

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1. Introduction and puzzle

Many approaches to the syntax-prosody interface assume that prosody only *roughly* maps to surface syntax (e.g. Selkirk 1984, 1986; Nespor and Vogel 1986, i.a.).

Consequence: We can't consider prosody as a reliable tool for syntactic evidence.

<u>Goal today</u>

- Zoom in on a phenomenon in Chuj and K'iche' (Mayan),[1] which has been previously argued to involve non-isomorphisms (or mismatches) between syntax and prosody.
- I show that a syntax–prosody mapping algorithm that does away with the proposed mismatch guides us to a better understanding of the syntax.
- So the proposal aligns with accounts that take apparent mismatches as evidence that the syntactic analysis must be revisited (e.g. Steedman 1991, Wagner 2010).

Puzzle. Many Mayan languages exhibit allomorphy at the edge of certain boundaries. I call this **prosodic allomorphy** (see e.g. Aissen 1992, Henderson 2012).

[1]Chuj is a Q'anjob'alan language spoken by roughly 70,000 speakers in Huehuetenango, Guatemala and Chiapas, Mexico (Piedrasanta 2009; Buenrostro 2013). All Chuj data come from original elicitation in Guatemala, Mexico, and Canada, and from transcriptions available on the Archive of Indigenous Languages of Latin America (Mateo Pedro and Coon 2017). For detailed grammars of Chuj, see Hopkins 1967, Maxwell 1981, and García Pablo and Domingo Pascual 2007. K'iche' is a K'ich'ean language spoken in 9 departments of Guatemala by roughly 900,000 speakers (Can Pixabaj 2015). The K'iche' data come from previous work by other authors (Henderson and Can Pixabaj) and from questionnaires with two speakers.

In Chuj and K'iche', the status suffixes (SS) *-i/ik* (marks intransitives) and *-V'* (transitives) appear at the end of sentences, but not when before an adverb or subject.[2]

(1)   CHUJ

    a. Ix-in-wa'- | i / *Ø |.
        PFV-B1S-eat-SS
        'I ate.'   (sentence-finally)

    b. Ix-in-wa'- | *i / Ø | k'ojank'olal.
        PFV-B1S-eat-SS   slowly
        'I ate slowly.'   (before adverb)

    c. Ix-wa'- | *i / Ø | ix Malin.
        PFV-eat-SS   CLF Malin
        'Malin ate.'   (before overt argument)

→ -Ø = "short allomorph" (we'll see some are overt)

→ *-i* = "long allomorph"

Long allomorphs don't just appear sentence-finally:

(2)   Ix-w-il- | a' / *Ø | [to   ix-ach-xit' ek'-i   ].
        PFV-A1S-see-SS COMP PFV-B2S-go DIR.pass-SS
        'I saw that you went.'   (before complement clause)

> RESEARCH QUESTION
> What conditions the presence or absence of long allomorphs?

[2]Abbreviations: A: ergative/possessive; AF: agent focus; B: absolutive; CLF: noun classifier; COMP: complementizer; DIR: directional; INDF: indefinite; IPFV: imperfective; M: masculine; PRON: pronoun; SS: status suffix; PFV: perfective; TOP: topic.

Henderson (2012) offers an edge-based account of long allomorphs (modelled in OT):

(3) Henderson's proposal

    a. Long allomorphs appear at the end of intonational phrases (ι-phrases).

    b. ι-phrases align with the left and right edges of CPs.

• With (3) we predict the presence of a long allomorph at the end of sentences (*-ik* is the K'iche' equivalent of *-i*):

(4) K'ICHE'

    a. [$_{CP}$ Xin-kos-$\boxed{\text{ik / *Ø}}$].

        INFL-tire-SS

        'I'm tired.'   (Henderson 2012)

    b. (xin-kos-**ik**)$_{\iota\text{-phrase}}$

• The algorithm also derives long allomorphs before complement clauses, as in (5).

   → Here it's crucial to be able to refer to the left edge of the CP (assuming prosody is non-recursive, the left edge of the embedded CP will trigger an ι-phrase boundary).

(5) K'ICHE'

    a. [$_{CP}$ X-inw-il-$\boxed{\text{o / *Ø}}$ [$_{CP}$ chi   x-e'-el-$\boxed{\text{ik / *Ø}}$]].

        PFV-A1S-see-SS   COMP PFV-B3P-go-SS

        'I saw that they went.'   (Henderson 2012, (60))

    b. (X-inw-il-**o**)$_{\iota\text{-phrase}}$ ‖ (chi x-e'-el-**ik**)$_{\iota\text{-phrase}}$

Mismatch. Though the rules in (3) capture most patterns straightforwardly, Henderson argues that an imperfect correspondence is inevitable.

• He argues that there are mismatches of the type illustrated below (where "‖" indicates ι-phrase boundaries):

(6) a. [$_{CP}$ X Y [$_{CP}$ Z]]   (syntax)

    b. (X Y)$_{\iota\text{-phrase}}$ ‖ (Z)$_{\iota\text{-phrase}}$ (predicted prosody)

    c. (X)$_{\iota\text{-phrase}}$ ‖ (Y Z)$_{\iota\text{-phrase}}$ (actual prosody)

This type of mismatch is argued to arise specifically with *because-clauses*, which Henderson proposes are headed by prepositional phrases (see §3.2) and adjoin to VP:

(7) K'ICHE'

    X-in-kos-$\boxed{\text{ik / *Ø}}$ [$_{PP}$ *r-umal*   [$_{CP}$ x-in-chakun-ik   ]].

    PFV-B1S-tire-SS   A3S-because   PFV-B1S-work-SS

    'I'm tired because I worked.'   (Henderson 2012)

(8) Proposed structure for (7) in Henderson 2012
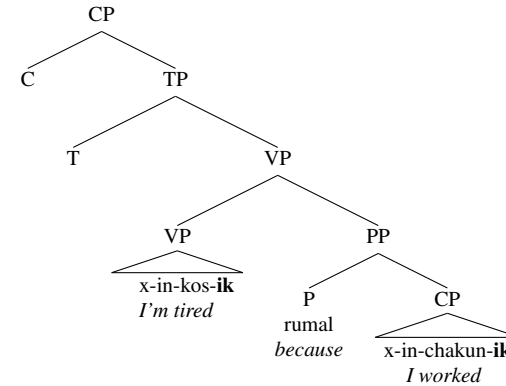
(9) a. (...-Ø *rumal*)$_{\iota\text{-phrase}}$ ‖ (...   )$_{\iota\text{-phrase}}$ (predicted prosody)

    b. (...-ik)$_{\iota\text{-phrase}}$ ‖ (*rumal* ...)$_{\iota\text{-phrase}}$ (actual prosody)

Henderson proposes to derive this mismatch via constraint ranking (see §3.2), leading to a complex relationship between ι-phrases and CP edges.

Goal. Show that the clauses that create the apparent mismatches have a different syntax than the one assumed above, allowing for an analysis without mismatches.

• I follow Henderson in proposing that long allomorphs appear at ι-phrase boundaries.

• But I propose that clausal adjuncts and CP complements are particularly high.

• And I propose a simpler mapping algorithm, which derives ι-phrase boundaries by only making reference to the right edges of CPs (and that is neutral w.r.t. recursion).

(10) *High right adjunction*
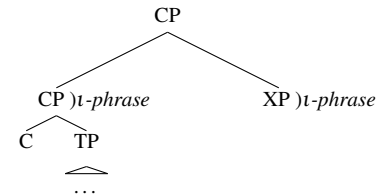
(11) a. (...-ik)$_{\iota\text{-phrase}}$ ‖ (*rumal* ...)$_{\iota\text{-phrase}}$ (predicted prosody)

    b. (...-ik)$_{\iota\text{-phrase}}$ ‖ (*rumal* ...)$_{\iota\text{-phrase}}$ (actual prosody)

• TAKE HOME MESSAGE: We can take apparent instances of mismatches as evidence that we may need to revisit our syntactic analysis (as argued in work like Steedman 1991; Wagner 2010; and Hirsch and Wagner 2015).

Rest of talk: §2 More data —§3 Analysis —§4 Additional arguments & conclusion

2. More data, topics, and prosodic correlates

- Though status suffixes alternate with a null suffix, many long allomorphs alternate with overt allomorphs (all are governed by the same factors as the status suffixes).[3]
- Long allomorphs span over several different morphemes in both Chuj (see below) and K'iche' (see Can Pixabaj 2015, Table 4.2 for full list in K'iche').

Table 1: Prosodic allomorphy in Chuj

Category	Phrase-final	Not final	Function
	Long	*Short*	
Status suffixes	-*V'*	-*Ø*	transitive SS
(SS)	-*i*	-*Ø*	intransitive SS
Relational nouns	-*et'ok*	-*et'*	'with'
	-*u'uj*	-*uj*	'for'
	-*iko*	-*ik*	'for' (reflexive)
Noun classifiers	*ni'o'*	*ni*	male individuals
(also used as	*utni*	*uch*	female individuals
pronouns)	*k'e'en*	*k'en*	stone entities
	lu'um	*lum*	land entities
	(other classifiers appear with final glottalization		
	when in phrase-final position, but not when not)		
WH-word	*tasi*	*tas*	'what'
Dubitative marker	*(h)ama*	*(h)am*	expresses doubt

(12)   a.   Ix-w-il   ⌐ni'o' / *ni¬.
          PFV-A1S-see PRON.M
          'I saw him.'   (sentence-finally)

   b.   Ix-y-al   ⌐ni'o' / *ni¬ [CP to   ix-in-b'at-i   ].
          PFV-A3-say PRON.M   COMP PFV-B1S-go-SS
          'He said that I went.'   (before CP complement)

   c.   Ix-s-chel   ⌐ni / *ni'o'¬ [DP winh winak].
          PFV-A3-hug PRON.M   CLF man
          'The man hugged him.'   (before DP complement)

Topics. Long allomorphs also arise at the end of topicalized constituents:

(13)   Ha ⌐ni'o'$_k$ / *ni¬ [CP ix-s-man   jun onh   ni$_k$ ewi   ].
          TOP PRON.M   PFV-A3-buy INDF avocado PRON.M yesterday
   'As for him, he bought an avocado yesterday.'

- This fits with Aissen's (1992) account of topics across Mayan who argues they form their own ɩ-phrase.

[3] Similar paradigms are found in other Mayan languages, like Tsotsil, Popti', and Tz'utujil (Day 1973; Craig 1977, 1986; Aissen 1992).

Prosodic correlate. Long allomorphs correlate with a general tendency toward final rising intonation in both languages (see Henderson 2012 on K'iche').

- This follows a general pattern across Mayan: high boundary tones are found at ɩ-phrase boundaries (see e.g. Berinstein 1991 and DiCanio and Bennett to appear).

Figure 1: Final rising intonation before CP complement (12b)
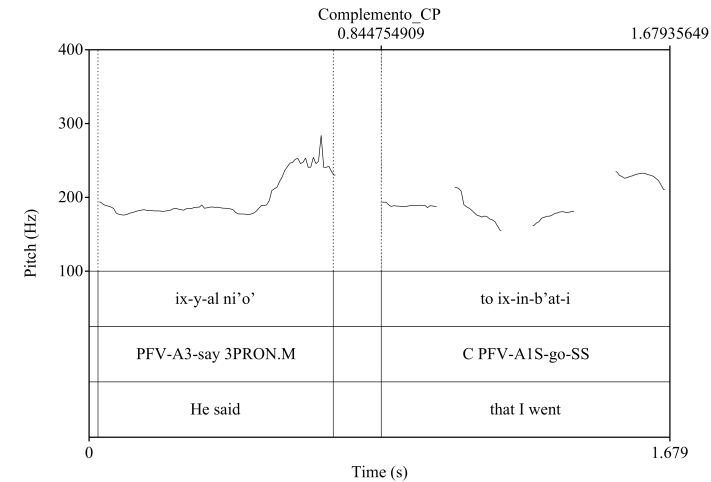
3. An alternative account without mismatches

I follow Henderson in assuming that long allomorphs are conditioned by phonology:

(14)   PROPOSAL (PART 1)   (see appendix for evidence)
          Long allomorphs arise immediately before ɩ-phrase boundaries (≈3a)

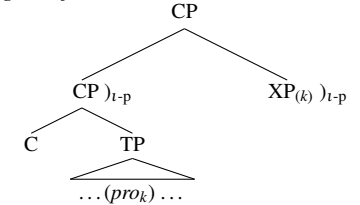However, I propose a different syntax-prosody mapping algorithm:

(15)   PROPOSAL (PART 2): MAPPING ALGORITHM

   a.   An ɩ-phrase boundary is found at the right edge of CPs.
   b.   Phrases that adjoin to a phrase ending with a prosodic boundary *x* also end with a prosodic boundary *x* (see trees).   (based on Wagner 2005)
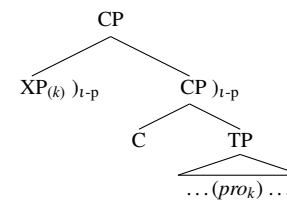
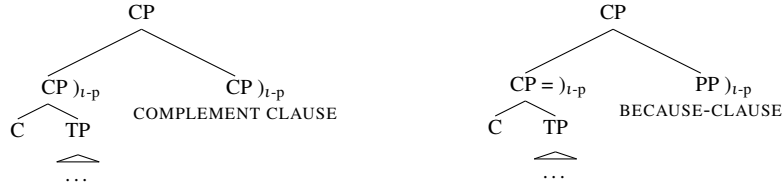- (15b) captures the fact that topics end with an ɩ-phrase boundary, as in (13).

Finally, I propose that complement clauses and clausal adjuncts (like *because-clauses*) exhibit a different syntax than the one assumed in Henderson 2012:

(16) PROPOSAL (PART 3)
      Complement clauses and clausal adjuncts must surface above the matrix CP.

CP
  CP $)_{t\text{-}p}$ CP $)_{t\text{-}p}$
    C   TP   COMPLEMENT CLAUSE
          …

CP
  CP $=)_{t\text{-}p}$ PP $)_{t\text{-}p}$
    C   TP   BECAUSE-CLAUSE
          …

Next: I show that the proposed syntax–prosody mapping algorithm (without mismatches) guides us to syntactic predictions which are borne out.

3.1 Complement clauses

We look at 4 pieces of evidence that complement clauses surface high.

Evidence 1–Word order. K'iche' and the variants of Chuj under study are VOS (Clemens and Coon 2018):

(17) VOS order with DP complement
      Ix-y-il   {*ix Malin} waj Xun {ix Malin}
      PFV-A3-see   CLF Xun CLF Malin
      'Malin saw Xun.'   (Chuj)

• But with CP complements, another order is enforced:

(18) VSO order with CP complement
      Ix-y-al   {ix Malin} [CP to   ix-ach-b'at-i   ] {*ix Malin} .
      PFV-A3-say CLF Malin   COMP PFV-B2S-go-SS
      'Malin said that you went.'   (Chuj)

• The same is found in K'iche', also VOS (Henderson 2012; Can Pixabaj 2015):[4]

(19) X-k-eta'maj   le winaq [CP chi   x-u'l   le ajtijaab'].
      PFV-A3P-know the people   COMP PFV-come the teachers
      'The people knew that the teachers arrive.'   (K'iche', Can Pixabaj 2015)

• The difference in word order between DP and CP complements is well documented across Mayan (Craig 1977; Aissen 1992, 2017 (Tsostil/Popti'); Can Pixabaj 2015 (K'iche')).

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[4]Henderson (2012) makes the same observation for complement clauses in K'iche', and discusses the possibility of resorting to a right extraposition analysis. However, he abandons this analysis, see appendix.

• Aissen (1992, 2000) proposes obligatory extraposition of CPs to the right, but to a lower position (VP) (following a restriction in GBT that extraposed material must adjoin to the specifier of the projection from which they originate (Chomsky 1986)).
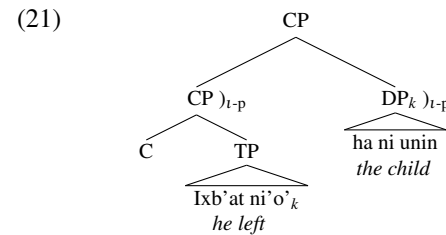
• I propose they surface higher, as in (16).

The crucial point is that obligatory VSO order with CP objects is a welcome syntactic prediction of the proposal—if complement clauses occupy a position outside the domain of the matrix CP, as per (16), then they are predicted to appear after the subject.

Evidence 2–Parallel with topics. In Chuj, DP topics are marked with the marker *ha* and a resumptive pronoun. They can arise left or right:[5]

(20) a. LEFT-SIDE TOPIC
          [TOP **Ha ni   unin**]$_k$ ix-b'at ni'o'$_k$ / *ni .
               TOP CLF child   PFV-go PRON.M

          'The child, he left.'   (Chuj)
      b. RIGHT-SIDE TOPIC
          Ix-b'at ni'o'$_k$ / *ni [TOP **ha   ni   unin**]$_k$.
          PFV-go PRON.M   TOP CLF child

          'He left, the child.'   (Chuj)

Based on Aissen 1992 and following Bielig (2015), I assume that these topics are "external"; they adjoin above the matrix CP:

(21)   CP
            CP $)_{t\text{-}p}$ DP$_k$ $)_{t\text{-}p}$
          C   TP   ha ni unin
                                    the child
              Ixb'at ni'o'$_k$
              he left

• Notice the long allomorph (*ni'o'*) immediately before the right topic. I take this as additional evidence that these topics are outside the domain of the matrix CP.

Consider now a different example, (22), where the verb appears as the last overt element immediately to the left of the DP topic (nb. some nouns are not pronominalizable (Buenrostro et al. 1989; Royer 2019), hence the null *pro*).

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[5]Right-side topics have been documented in other Mayan languages, see e.g. Can Pixabaj 2004 (K'iche'), Curiel 2007 (Tojolab'al) and Polian 2013 (Tseltal).

(22) Ix-w-il- a' / *Ø pro_k [$_{TOP}$ ha y-ib' ix]$_k$.
PFV-A1S-see-SS *pro* TOP A3-strength PRON.F
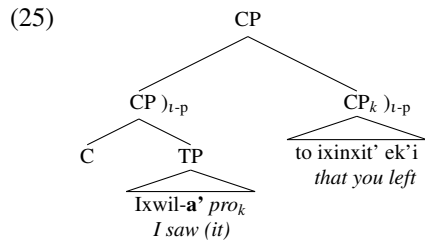'I saw it, her strength.' (Chuj)

(23)

$$CP$$

CP)$_{\iota\text{-p}}$ DP$_k$)$_{\iota\text{-p}}$

C   TP   ha yib' ix
her strength
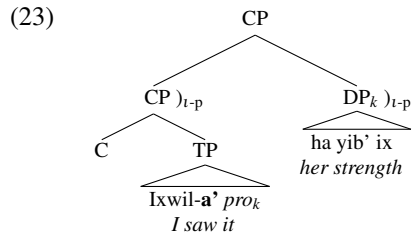
Ixwil-**a'** pro_k
I saw it

It's here that a parallel with complement clauses reveals itself (I assume that like DP topics, the CP is coindexed with a (null) resumptive pronoun):

(24) Ix-w-il- a' / *Ø pro_k [to ix-ach-xit' ek'-i]$_k$.
PFV-A1S-see-SS *pro* COMP PFV-B2S-go DIR.pass-SS
'I saw that you went.' (Chuj)

(25)

$$CP$$

CP)$_{\iota\text{-p}}$ CP$_k$)$_{\iota\text{-p}}$

C   TP   to ixinxit' ek'i
that you left

Ixwil-**a'** pro_k
I saw (it)

Evidence 3–Island effects. If complement clauses surface high (either because they move or adjoin there), they might be opaque to extraction.

- Though a more careful study of island constraints in both languages is required, speakers of both generally disallow or dislike extraction out of complement clauses (see Can Pixabaj 2015 p. 159-161 for discussion of similar K'iche' examples):

(26) *Mach$_i$ ix-y-al waj Xun [$_{CP}$ to ix-s-man jun onh t_i]?
who PFV-A3-say CLF Xun COMP PFV-A3-buy INDF avocado
Intended: 'Who did John say that bought an avocado?' (Chuj)

Evidence 4–Position of adjuncts. Adjuncts can't appear after complement clauses:

(27) W-ab' {ewi} [$_{CP}$ to tz-ex-b'at-i] {*ewi}.
A1S-hear yesterday COMP IPFV-B2P-go-SS yesterday
'I heard yesterday that y'all are going.' (Chuj)

3.2 Clausal adjuncts

Recall the central **issue**: the syntax-prosody mismatch proposed in Henderson 2012.

- In Chuj, as in K'iche', we find long allomorphs appearing before *because-clauses*:

(7) Xin-kos- ik / *Ø [$_{PP}$ r-umal [$_{CP}$ xin-chakun-ik]].
INFL-tire-SS 3SG-because INFL-work-SS
'I'm tired because I worked.' (K'iche')

(28) Ix-in-way- i / *Ø [$_{PP}$ y-oj [$_{CP}$ to tekumb'elal w-aj-i].
PFV-B1S-sleep-SS A3-for COMP tired A1S-be-SS
'I slept because I was tired.' (Chuj)

- In both languages, *because-clauses* are headed by "relational nouns", which across Mayan function like prepositions in introducing adjuncts (see e.g. Aissen et al. 2017).

- Following Henderson, I represent *because-clauses* as PPs.

Recall that Henderson assumes the syntax in (8)—the *because-clause* adjoins to VP:

(8)

$$CP$$

C   TP

T   VP

VP   PP

xinkos-**ik**
I'm tired

P   CP

rumal   xinchakun-**ik**
because   *I worked*
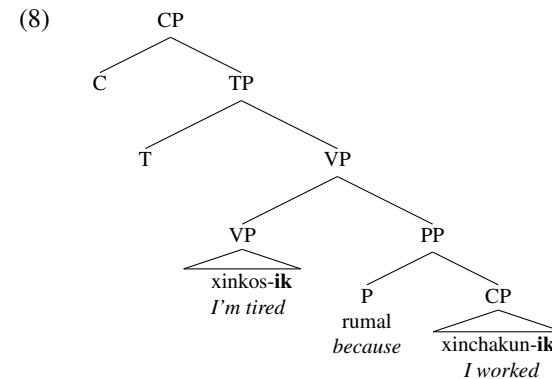
(9) a. (...-Ø *rumal*)$_{\iota\text{-phrase}}$ ‖ (...)$_{\iota\text{-phrase}}$ (predicted prosody)
b. (...-ik)$_{\iota\text{-phrase}}$ ‖ (*rumal* ...)$_{\iota\text{-phrase}}$ (actual prosody)

Overgeneration issue → an ι-phrase boundary at left edge of PP.
Undergeneration issue → no ι-phrase boundary at left edge of CP.

- Henderson proposes a constraint in OT that overrides the one-to-one correspondence between syntax and prosody:

(29) COMPLEMENT-ϕ (based on *sense unit condition*, Selkirk 1984)
A functional head is parsed into the same phonological phrase as its syntactic complement. (Henderson 2012, 68)

Alternative. In the current proposal, there's no need to posit a mismatch between syntax and prosody. The adjunct simply surfaces outside the domain of the matrix CP:

(30)

```
                    CP
             _____|_____
          CP )ₗ₋ₚ          PP )ₗ₋ₚ
        ___|___         ____|____
       C     TP        P        CP
             |       rumal      |
         Xinkos-ik   because  xinchakuk-ik
         I'm tired            I worked
```
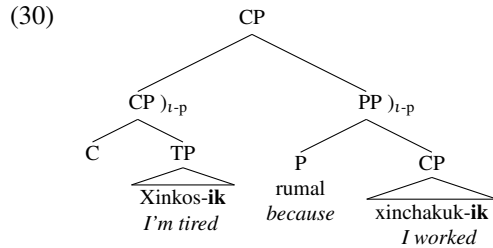
- And the mapping algorithm predicts an ι-phrase boundary only at the right edge of CPs, so no overgeneration problem is incurred.

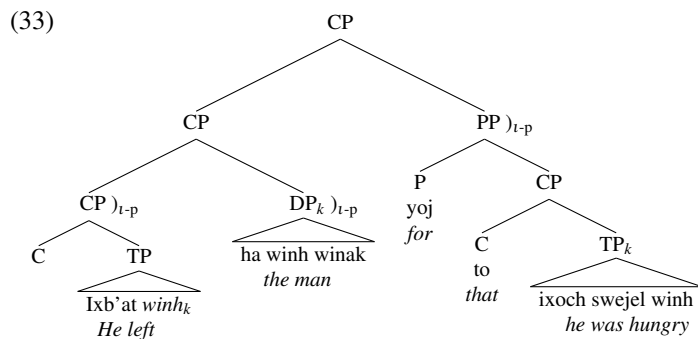Below I show three pieces of evidence that support this alternative.

Evidence 1–Position of clausal adjuncts. Clausal adjuncts are judged more natural when they appear after topics, rather than before them (data must be verified for K'iche'):

(31) Ix-b'at winh [ha winh winak] [yojto ix-och s-wejel winh].
PFV-go PRON TOP CLF man because PFV-enter A3-hunger PRON
'As for the man, he left because he was hungry.' (Chuj)

The same distribution is observed with complement clauses:

(32) a. Ix-y-al waj Xun [CP to ix-b'at ix Malin] [yojto
PFV-A3S-say CLF Xun COMP PFV-go CLF Malin because
ix-y-al waj Petul t'a winh].
PFV-A3S-say CLF Petul PREP PRON
'Xun said that Malin went because Petul told him.' (Chuj)
   b. ?Ix-y-al waj Xun [yojto ix-y-al waj Petul t'a winh] [CP to ix-b'at ix Malin].

These data suggest a high position for clausal adjuncts, above topics and CP comps:

(33)

```
                          CP
                 _____|_____
              CP )ₗ₋ₚ               PP )ₗ₋ₚ
          _____|_____          ___|___
       CP )ₗ₋ₚ      DPₖ )ₗ₋ₚ     P      CP
      ___|___         |        yoj    __|__
     C      TP   ha winh winak  for  C    TPₖ
            |      the man           to    |
       Ixb'at winhₖ               that  ixoch swejel winh
       He left                          he was hungry
```

Evidence 2–K'iche' adjunct extraction. K'iche' provides independent evidence that clausal adjuncts (including reason adjuncts) are base generated high.[6]

- The extraction of various types of adjuncts in K'iche' (and other K'ichean languages) triggers the obligatory presence of the fronting clitic -*wi* (see e.g. Velleman 2014; Can Pixabaj 2015; Mendes and Ranero 2019):

(34) Jas r-uuk' x-Ø-ki-tij **wi** le ki-rikiil?
WH A3S-SR PFV-B3S-A3P-eat WI DET A3P-food
'With what did they eat their food?' (Can Pixabaj 2015)

- But, as discussed in Mendes and Ranero 2019, -*wi* **never** occurs with clausal adjuncts, as shown below:[7]

(35) *Jacha' x-ki'-an **wi**?
why PFV-A3P-do WI
Intended 'Why did they do it?'

- This is predicted by the proposal: clausal adjuncts never trigger -*wi* because they are base-generated high, and therefore never undergo extraction.

Evidence 3–Comparison with other adjuncts. If clausal adjuncts were to attach at VP, we might expect them to appear before other VP adjuncts, contrary to fact:

(36) Context: *You live and attend school in Yuxquen where you currently need a book.*
   a. Ix-in-man jun ch'anh libro [PP t'a Nentón] [yojto
   PFV-A1S-buy INDF CLF book PREP Nentón because
   ol-a-k'an ch'anh] .
   PROSP-A2S-need PRON
   'I bought a book in Nentón because you'll need it.'
   b. #Ixinman jun ch'anh libro [yojto olak'an ch'anh] [PP t'a Nentón]

4. Additional arguments and conclusion

Optionality. Chuj long allomorphs are optional before PP adjuncts.

(37) Ix-in-xit' ek'- (i) [PP yet' waj Mekel].
PFV-B1S-go DIR.pass-SS with CLF Makel
'I went with Mekel.' (Chuj)

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[6]Without further stipulation, the structure proposed in (33) makes the prediction that negation should not be able to take scope over the *because-clause* (see e.g. Lasnik 1972; Torrego 2018). But in Chuj, negation in the matrix clause can take scope over because clauses. I leave this issue for future work, but a better understanding of negation in Mayan would be required in order to better understand these facts.
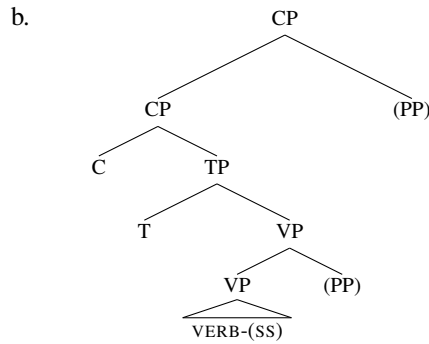
[7]I thank Rodrigo Ranero for pointing this out to me.

- The variable placement of PPs is probably related to semantic or syntactic effects, e.g. it is not observed with PPs that appear to be selected by the verb:

(38) Ak'-em-$\boxed{*i\,/\,\text{Ø}}$ [$_{PP}$ t'a   sat te'   mexa].
put-DIR.down-SS   PREP face table
'Put it on the table.' (nb. in this example, the pronoun is not overtly realized)

. . . .

- It's not clear how the proposal in Henderson 2012 would handle the optional presence of long allomorphs before PP adjuncts.

- But an analysis that resorts to different syntactic configurations as the determining factor in the realization of ι-phrase boundaries explains this optionality with ease:

(39)   a.   In Chuj, (adjunct) PPs can adjoin either to VP or above CP.
       b.

```
                    CP
                  /    \
               CP       (PP)
             /    \
            C      TP
                 /    \
                T      VP
                     /    \
                   VP      (PP)
                   |
               VERB-(SS)
```

       c.   (…-Ø   PP)$_{\iota\text{-phrase}}$ (possible prosody)
       d.   (…-SS)$_{\iota\text{-phrase}}$ ‖ (PP)$_{\iota\text{-phrase}}$ (possible prosody)

Relative clauses.   Henderson also aligns ι-phrases with the **left** edges of CPs. This predicts an ι-phrase boundary after the head of a relative clause:

(40)   a.   [… *head* [$_{CP}$ *relative clause*]]
       b.   (… *head*)$_{\iota\text{-phrase}}$ ‖ (*relative clause*)$_{\iota\text{-phrase}}$

The algorithm put forth here only predicts an ι-phrase boundary at the end of CPs:

(41)   (… *head + relative clause*)$_{\iota\text{-phrase}}$

Chuj provides evidence in favour of the algorithm proposed here—long allomorphs are not possible between a relative clause and its head:

(42)   Ix-w-il   [$_{DP}$ $\boxed{\text{ni / *ni'o'}}$ [$_{CP}$ tz'-al-an   q'anjob'al]].
       PFV-A1S-see   PRON.M   IPFV-speak-AF Q'anjob'al
       'I saw the one who speaks Q'anjob'al.' (lit: I saw he who...).

Conclusions

- I followed Henderson (2012), in positing that long allomorphs in Chuj and K'iche' are conditioned at PF.

- However, I proposed a different syntax–prosody mapping algorithm which does away with non-isomorphisms between syntax and prosody.

- The proposal led to interesting predictions about the syntax, which are borne out.

- This is expected if certain types of mismatches are in fact impossible, and apparent instances of mismatches are evidence that the syntactic analysis must be revisited (as suggested in work by Steedman 1991, Wagner 2010, and Hirsch and Wagner 2015).

- Though the goal of this study was not to show that mismatches are *never* possible, I believe that the most interesting hypothesis should be that there are none, and doing so can lead to important findings relevant to the way syntax works (as shown here) and allows us to consider prosody *as a reliable tool for syntactic evidence.*

Future.   The proposal reveals an interesting property of complement clauses and reason adjuncts in two Mayan languages (and potentially in other Mayan languages): *that they occupy a very high position in the syntax.*

- I am exploring the possibility that complement clauses must be structurally high for semantic reasons, based on work by Moulton (2009, 2015) and Coon (2019).

- Coon (2019) argues that verbal roots in Chuj must combine with an internal argument of semantic type *e*. But CPs, generally conceived as propositions or predicates, do not denote entities.

- The structure I propose offers an argument of the right type to semantically compose with the verb: a pronoun (or trace) of type *e*.

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Appendix

A. Why not a syntactic account?

Since long allomorphs generally appear at the edge of CPs (and TopPs), one might wonder if they could derive from syntactic facts alone. But there are several reasons to prefer a phonological account.

Last "pronounced" element in CP. Null morphemes sometimes follow a long allomorph in CP. Recall example (22):

(22)   Ix-w-il-⎡a' / *∅⎤ [$_{TOP}$ ha   y-ib'   ix].
        PFV-A1S-see-SS   TOP A3-strength her
        'I saw it, her strength.'

- Based on other topics in Chuj, a null *pro* arguably follows the verb:

(43)   [[$_{CP}$ Ixwil-⎡a'⎤ *pro*] [$_{TOP}$ ha yib' ix]]

- So unless a syntactic account makes reference to the last "pronounced" element in a CP, it fails to predict the presence of the status suffix in (22).

Other environments. Long allomorphs don't only arise at the ι-phrase boundaries; they can also arise if their absence would result in a consonant cluster, which are generally banned in Chuj (Coon 2019, see also Mateo Pedro 2011):

(44)   Ix-onh-xik-w-**(i)**   k'atzitz.
        PFV-B1P-chop-AP-IV wood
        'We wood-chopped.'   (Coon 2019)

- It's not clear what a syntactic account could say about cases like ((44)).

- See also Henderson 2012 for arguments that long allomorphs appear to help realize the high intonation contour associated with sentence-final prosody.

B. Free relatives in K'iche'

Based on the distribution of complement clauses in K'iche', Henderson (2012) considers the possibility that CPs always right extrapose (as proposed here). But he rejects this kind of account based on the maximal free relative data below:

(45)   a.   Xki-tij-**o**   [jas xu-loq'-**o**   ] le ixoqi'.
              INFL-eat-SS WH INFL-buy-SS   the woman
              'The woman ate what he bought.'   Henderson 2012, (63a)
        b.   *Xki-tij-∅   le ixoqi' [jas xu-loq'-**o**   ].
              INFL-eat-SS the woman WH INFL-buy-SS
              'The woman ate what he bought.'   Henderson 2012, (63b)

- Here, (45) would be problematic for my generalization, since the status suffix appears before a constituent that appears to be base generated low.

- But I haven't been able to validate the above judgments with K'iche' speakers, which jduge (45a) as ungrammatical.

- Moreover, Can Pixabaj (to appear), in a recent work on free relatives in K'iche', excludes this type of construction as a possible free relative.

- Future work should establish if the examples in (45) are truly a counter-argument for the analysis proposed here.