Tongan Relative Clauses at the Syntax-Prosody Interface*

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Overview

- Relative Clauses (RCs) in Tongan are post-nominal, and exhibit multiple word orders with regard to the Definitive Accent (DefAcc):

  (1) te u 'aka 'a e tangata na a [na'e 'uma ki a Mele 'aneafi]
  FUT 1SG kick ABS D man DEM DEFACC [PAST kiss DAT ABS Mary yesterday]

  (2) te u 'aka 'a e tangata na [na'e 'uma ki a Mele 'aneafi] i
  FUT 1SG kick ABS D man DEM [PAST kiss DAT ABS Mary yesterday] DEFACC
  'I will kick that man who kissed Mary yesterday'

  ⇒ **Where do these RCs attach in the DP structure?**

- I will argue that the DP-domain functional categories in Tongan are hierarchically rank-ordered (in the spirit of Zamparelli 1995, Leu 2008)[1]

  (3) *'e/'a* [**Case**] ≫ (*h*)*e* [**High D**] ≫ *ni/na* [**Dem**] ≫ DefAcc [**Low D**] ≫ NP[2]

- To derive RC word orders based on this hierarchy:
  - I assume relative clause promotion (Schachter 1973, Vergnaud 1974, Kayne 1994)
  - I invoke three movement operations, each independently cross-linguistically motivated
    - After understanding these motivations, each complex in their own right, the structure of Tongan RCs is entirely straight-forward

- Supporting evidence for these movements is that each of these structures feeds the prosody
  - Only three rank-ordered constraints typical of syntax-prosody interfacing (Selkirk 1996, Truckenbrodt 1995, etc.) are required for this
  - The prosodic correlates of these movements are manifested even when the movement is string-vacuous

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[1] Recognizing that there is more functional material than is laid out here

[2] Here, and throughout the talk, I use "NP" as a cover term that will envelop a range of structure that may include Adjectives, Reduced Relatives, (and more,) as well as the N's arguments and the N itself.

1 Background on the Tongan DP

1.1 Populating the Functional Structure

- Tongan is typically a head-initial language, like most Austronesian languages
  - Prepositions, D before NP, Case before DP, etc.
- But certain heads seem to follow the phrases that they head
  - Demonstrative enclitics and the Definitive Accent follow the D/NP
- The exact semantic contribution of the DefAcc is of some debate (cf. Churchward 1953, Hendrick 2005, Abner and Burnett 2010)
  - Its syntax and phonology is better understood
    - It is a determiner (Hendrick 2005, Abner and Burnett 2010)
    - It is as an phonologically underspecified mora (μ) which gets its phonological feature values from the final vowel of the word that it cliticizes to (Taumoefolau 2002, Anderson and Otsuka 2006, White 2010)
- When occurring, the Dem and DefAcc appear in a fixed order: [NP DEM DEFACC]

(4) a. ’oku ma’a ’a e [$_{NP}$ sóte]
PRES clean ABS D [$_{NP}$ shirt]

b. ’oku ma’a ’a e [$_{NP}$ soté] μ
PRES clean ABS D [$_{NP}$ shirt] DEFACC

c. ’oku ma’a ’a e [$_{NP}$ soté] ni
PRES clean ABS D [$_{NP}$ shirt] DEM

d. ’oku ma’a ’a e [$_{NP}$ sòte] ní μ
PRES clean ABS D [$_{NP}$ shirt] DEM DEFACC

e. *’oku ma’a ’a e [$_{NP}$ sòte] μ́ ni
PRES clean ABS D [$_{NP}$ shirt] DEFACC DEM
‘The/this shirt is clean.’

  - Both of these morphemes are enclitics, forming a prosodic word with their base
    - This induces “stress shift” – inasmuch as adding a mora to a prosodic word will ‘drift’ the trochees
    - I use the acute accent to mark the syllable on which the word-level stress falls[3]

Determiners, Demonstratives and a Larger DP-Structure

There is cross-linguistic support for the idea that we have multiple Ds and Dems for any given DP

- Danish High and Low D

(5) a. hus -et (Danish; Leu 2008)
house D
‘the house’

b. det høje hus
D tall house
‘the tall house’

[3]When long vowels form a trochee, the stres phonologically falls on the first vowel of the two-vowel sequence (Churchward 1953, Anderson and Otsuka 2006, White 2010, White and Garellek 2011)

- French High and Low Dem

(6) cet homme ci
Dem man Dem
'This (here) man'

- Greek Dem and D

(7) afto to vivlio (Greek; Leu 2008)
this the book
'this book'

Thus it is not surprising that we find as many functional elements as we do in a Tongan DP like (8):

(8) na'e 'áve 'e [$_{DP}$ he táki] 'a [$_{DP}$ e tóhi] ki [$_{DP}$ he tàma ná a]
PAST give ERG D leader ABS D book PATH D child DEM DEFACC
'The leader gave the book to that child.'

Most of us haven't been brought up in a syntax that predicts this

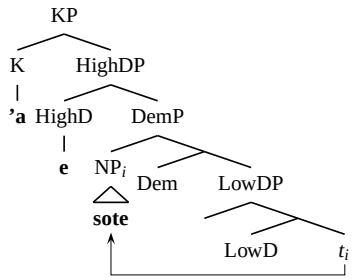
- Because often only one of these shows up at a time
- Zamparelli (1995) attempts to explain this, informally describing his formalization as being that "two determiners are possible only when each one adds something to the meaning of the other"
  - Abner and Burnett (2010) pursue such a compositional semantics for Tongan '*he*' and 'μ'
  - They argue that the DefAcc's purpose is "to anchor the interpretation of the [DP] to the context of utterance"

Deriving DP-Internal Word Order

As with the sentential domain, all word orders should derive from the same underlying constituency

- So we expect movements to derive the variable word orders, across languages
- Since Tongan is so vastly head-initial otherwise, I assume that the head-final enclitics here are derived by movement[4]

(9) a.



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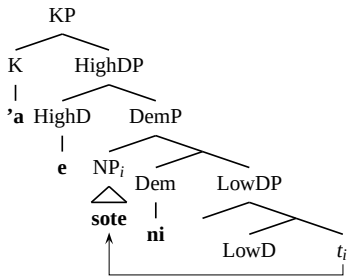

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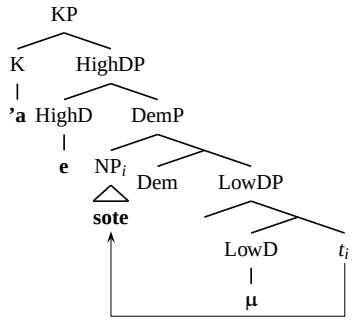

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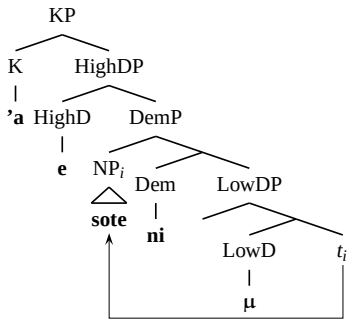


[4]For ease of exposition, I represent this NP movement as a single movement from the complement of LowD to the Specifier of DemP. It is likely theoretically desirable that such movement is impossible, and the NP must instead 'stop in' the Specifier of the LowDP 'on its way' to the DemP (Cinque 2005).

- Romanian has long been analyzed as having this kind of movement like the NP movement in the trees above (Dobrovie-Sorin 1997, Cornilescu 1992)

  (10) $[_{DP}\ [_{N}$ cer $]$ -ul albastru $t_{N}\ ]$ (Romanian; Cornilescu 1992)
  sky D blue
  'the blue sky'

- The notable difference with Tongan is that Tongan more clearly involves phrasal movement[5] since adjectives move up around with the N

  (11) $[_{HighDP}$ he $[_{LowDP}\ [_{NP}$ íka valé $]$ μ $t_{NP}\ ]]$ (Tongan)
  the fish stupid DefAcc
  'the stupid fish'

  – The position to which the Tongan NP moves is clarified by the fact that nothing seems to be able to intervene between the NP and Dem

1.2 Fitting in the Relative Clauses

Relative Clauses (RCs) in Tongan are post-nominal

- At first blush, this seems similar to adjectives in attributive position:

  (12) a. 'a e íka $[_{A}$ vále $]$
  ABS D fish $[_{A}$ stupid $]$
  'the stupid fish'

  b. 'a e íka $[_{RC}$ na'á ku fàkapáku $]$
  ABS D fish $[_{RC}$ PAST 1SG fry $]$
  'the fish that I fried'

- However, their distribution diverges when we introduce a demonstrative enclitic

  (13) a. 'a e íka $[_{A}$ valé $]$ ni
  ABS D fish $[_{A}$ stupid $]$ DEM
  'this stupid fish'

  b. 'a e iká ni $[_{RC}$ na'á ku fàkapáku $]$
  ABS D fish DEM $[_{RC}$ PAST 1SG fry $]$

  c. *'a e iká $[_{RC}$ na'á ku fàkapáku $]$ ni
  ABS D fish $[_{RC}$ PAST 1SG fry $]$ DEM
  'this fish that I fried'

  – So *ni* and the NP always end up string-adjacent[6]

At this point, it would seem that the RC is always D/NP final, but this is not so:

- As Chung (1978) points out, RCs can occur before the DefAcc, (14a)
- But, they can also appear after the DefAcc, (14b)

  (14) a. 'a e soté ni $[_{RC}$ na'á ku foó $]$ μ
  ABS D shirt DEM $[_{RC}$ PAST 1SG wash $]$ DEFACC

  b. 'a e sote ní μ $[_{RC}$ na'á ku fóo $]$
  ABS D shirt DEM DEFACC $[_{RC}$ PAST 1SG wash $]$
  'this shirt that I washed'

[5] Or, perhaps more precisely, *larger* phrasal movement

[6] Recall that NP, as I use it, includes adjectives. See fn 2.

The schematized (im)possible word orders are given below:

(15) a. ✓Case D NP (Dem) (DefAcc) RelClause
b. ✓Case D NP (Dem) RelClause (DefAcc)
c. *Case D NP RelClause Dem (DefAcc)

- Systematic investigation revealed no correlation between this syntactic variation and the interpretation of the DP or RC (e.g. restrictivity)
- Besides word order, this structure change also manifests itself in the (un)availability of certain prosodic phrasings
  - This is not surprising, assuming that syntactic *structure* has direct influence over the prosody[7]
  - We will return to this shortly

2 Deriving Relative Clause Properties

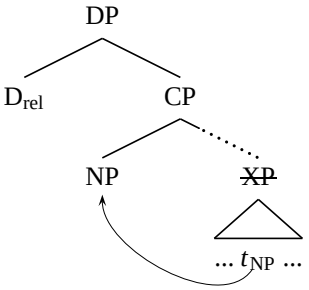
2.1 Deriving RC Word Orders

Assuming a Promotion Analysis

Under the promotion analysis of relative clauses, the relativized NP is base-generated in the RC and moves to its edge (Schachter 1973, Vergnaud 1974, Kayne 1994, among many others)

- The relative clause CP is introduced by a relativizer D
- Head-noun-initial languages (like English) look like this:

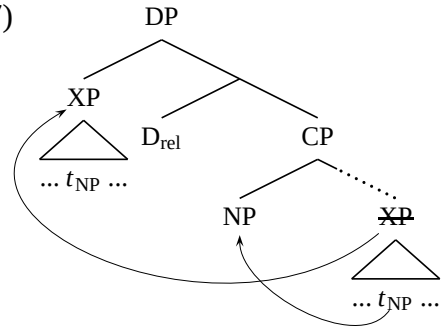
(16)



However, head-noun-final languages (like Japanese) involve a second RC fronting movement

- This movement fronts a smaller amount of structure (for arguments, see e.g. Kayne 1994, Kornfilt 2000, Kayne 2005, Ishizuka 2008)
- Head-noun-final languages (like Japanese) look like this:

(17)



  - In these previous analyses, XP is assumed to be TP/IP, though nothing seems to crucially rely on this (only that Tense/Infl is inside the pre-nominal RCs)

[7] This has *large* amounts of empirical support predicted under theories of the prosody-syntax interface, such as Selkirk (1984), Cinque (1993), Selkirk (1995), Truckenbrodt (1995), among many others

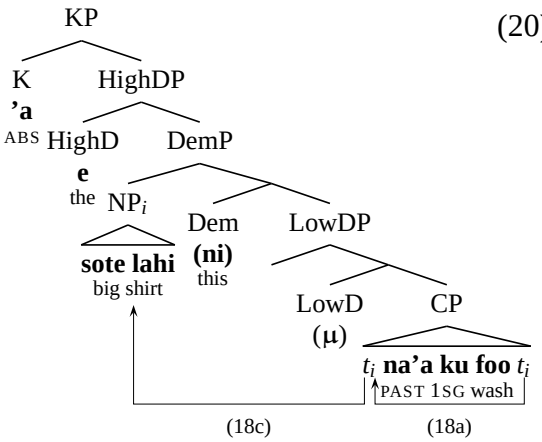
By these three movements combined...

At this point we have see three DP-internal movements:

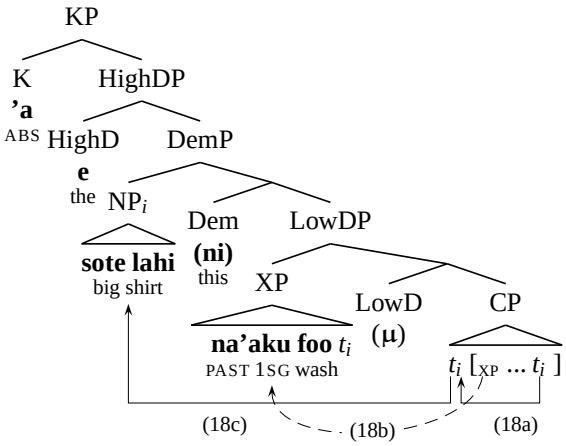
(18) a. NP Relativization (at the heart of the promotion analysis)
b. RC fronting (deriving Japanese-like relative clauses)
c. NP fronting (similar to Romanian N-to-D movement)

- Assuming that – cross-linguistically – all RCs use (18a) and that Tongan DPs always involve (18c), we predict straightforwardly the structure and word order in (19)
- Additionally, if the RC fronting that occurs in some language is optionally implementable,[8] we derive the structure in (20)

(19)



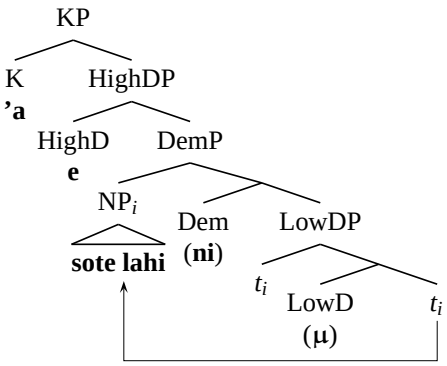
(20)



Compare these structures to (21), which lacks a RC

- Note the general lack of differences

(21)



Thus the same reason that NPs move to Spec,DemP will explain why RCs cannot intervene between NP and Dem

- There is just no space for the RC to move to: the NP is in the Spec,DemP

Based on what has been independently motivated for RCs (crosslinguistically) and DPs (in Tongan) **we derive, for free, the RC word-order schema in (15)**.

[8] I would like to argue that this movement should have some interpretational contribution in Tongan, but I have found no such contribution yet. But, as I have mentioned earlier, this will have prosodic effects, even if the movement is string vacuous (of the LowD is silent).

2.2 Deriving RC Prosodies

RCs can be derived by two structures, and our data exhibits different possible prosodic phrasings for the different word-orders

- Since the syntactic structure feeds prosody, this is entirely predicted

A Constraint-Based Mapping

I assume three independently motivatable OT-style constraints, laid out in (22)

- This rank-ordered constraint system takes each of these structures in (19) and (20) as an inputs, and will determine the appropriate candidate

(22)

a.	**AFFIXSUPPORT**	An affix must not be prosodically separated from its morpho-phonological host
b.	**ALIGN(IP,L;CP,L)**	Align the left edge of an Intonation Phrase (IP) to the left edge of a CP
c.	**ALIGN(IP,L;LowDP*,L)**	Align the left edge of an IP to the left edge of a lexically filled LowDP

- AFFIXSUPPORT (Richards 2010) crucially outranks the latter of the two ALIGN (McCarthy and Prince 1993, Prince and Smolensky 1993, Truckenbrodt 1995, Selkirk 1996, *inter alia*) constraints

(23) AFFIXSUPPORT ≫ ALIGN(IP,L;CP,L), ALIGN(IP,L;LowDP*,L)

Some Sample Derivations

Let us look at a derivation where the sentence must be in two Intonation Phrases[9] as in (24a)

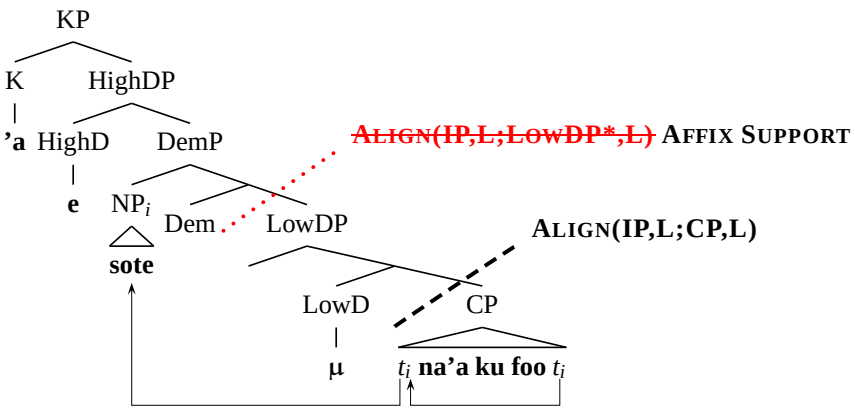
(24) a. [$_{IP}$ 'oku ma'a 'a e sote e] [$_{IP}$ na'a ku foo]
PRES clean ABS D shirt DEFACC PAST 1SG wash
'The shirt that I washed is clean.'

b. * [$_{IP}$ 'oku ma'a 'a e sote] [$_{IP}$ e na'a ku foo]

c. * [$_{IP}$ 'oku ma'a 'a e sote e na'a ku foo]

- In (25), the relative clause must stay in the CP so that the DefAcc can affix to the NP

(25)



- ALIGN(IP,L;CP,L) inserts a break, just before the RC CP
- ALIGN(IP,L;LOWDP*,L) tries to insert a break, as LowDP is lexically headed by μ
  - ...but this is blocked by (the more highly ranked) AFFIXSUPPORT, since μ would be in a different IP than its host

[9] Vicenik and Kuo (2010) only find evidence for Tongan making use of Intonation Phrases (IP) and Accentual Phrases (aP). Only IP-level breaks ('comma' breaks) seemed relevant here, and aPs were not investigated.

Let us also look at a derivation for the minimal pair in (26) and (27)

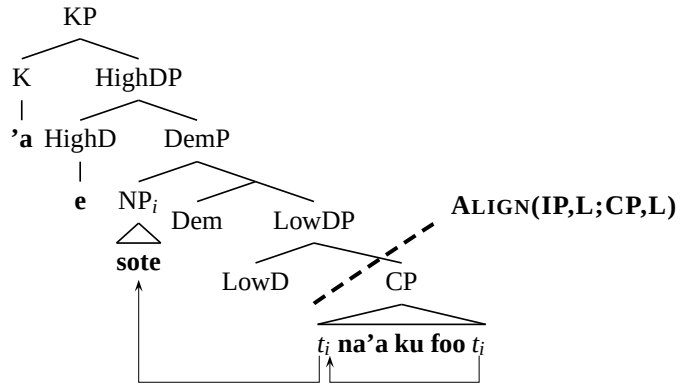
- The sentence in (26) necessarily involves two IPs, but in (27), just one:

  (26) [$_{IP}$ 'oku ma'a 'a e sote] [$_{IP}$ na'a ku foo]
  PRES clean ABS D shirt PAST 1SG wash

  (27) [$_{IP}$ 'oku ma'a 'a e sote na'a ku foo]
  PRES clean ABS D shirt PAST 1SG wash

- In (28), the IP break ('comma') is inserted straightforwardly by the ALIGN(IP,L;CP,L) constraint

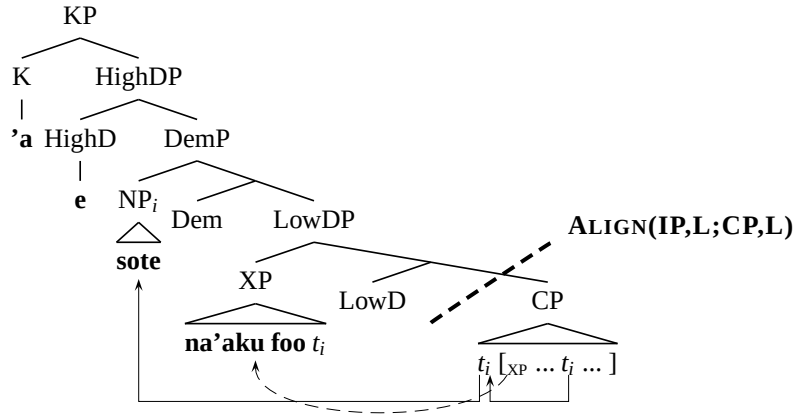
  (28) [$_{IP}$ ... 'ae sote] [$_{IP}$ na'a ku foo]
  *[$_{IP}$ ... 'ae sote na'a ku foo]



  – ALIGN(IP,L;CP,L) inserts a break, just before the RC CP
  – ALIGN(IP,L;LOWDP*,L) does not insert a break to the left of the RC because there is no lexical head for LowDP

- The reason that (29) does not involve the same IP break is that the XP relative clause has moved to Spec,LowDP

  (29) [$_{IP}$ ... 'ae sote na'a ku foo]



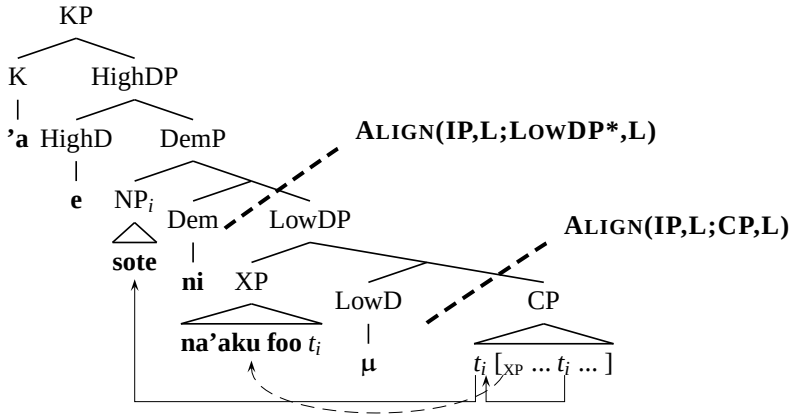
  – If ALIGN(IP,L;CP,L) inserts a break, it does not affect the phrasing as there is no phonological material to its right
  – ALIGN(IP,L;LOWDP*,L) does not insert a break to the left of the RC because there is no lexical head for LowDP

More Prosodic Derivations

Below, I go through several more prosodic derivations, which we may look at, time willing

- In (30), the relative clause XP moves to Spec,LowD causing it to precede the DefAcc and follow the demonstrative

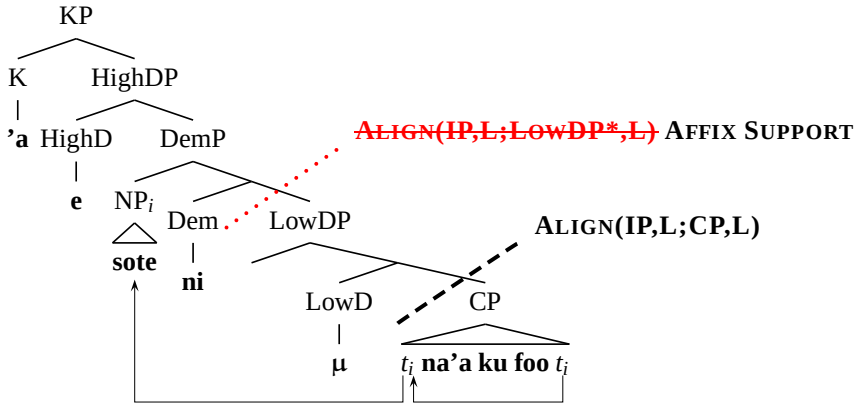
(30) [$_{IP}$ ... 'ae sote ni] [$_{IP}$ na'a ku foo o]
*[$_{IP}$ ... 'ae sote ni na'a ku foo o]



  - ALIGN(IP,L;LOWDP*,L) inserts a break at LowD's left edge, as it is lexically headed by μ
  - If ALIGN(IP,L;CP,L) applies, it applies vacuously

- The example in (31) is just like (25), with the addition of a Demonstrative

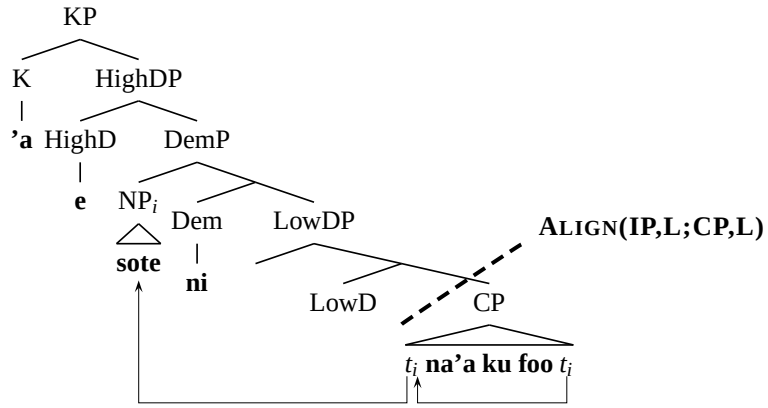
(31) [$_{IP}$ ... 'ae sote ni i] [$_{IP}$ na'a ku foo]
*[$_{IP}$ ... 'ae sote ni] [$_{IP}$ i na'a ku foo]
*[$_{IP}$ ... 'ae sote ni i na'a ku foo]



  - ALIGN(IP,L;CP,L) inserts a break, just before the RC CP
  - ALIGN(IP,L;LOWDP*,L) tries to insert a break, as LowDP is lexically headed by μ
    - ...but this is blocked by (the more highly ranked) AFFIXSUPPORT, since μ would be in a different IP than its host

- In (32), the relative clause stays in situ inside of the CP

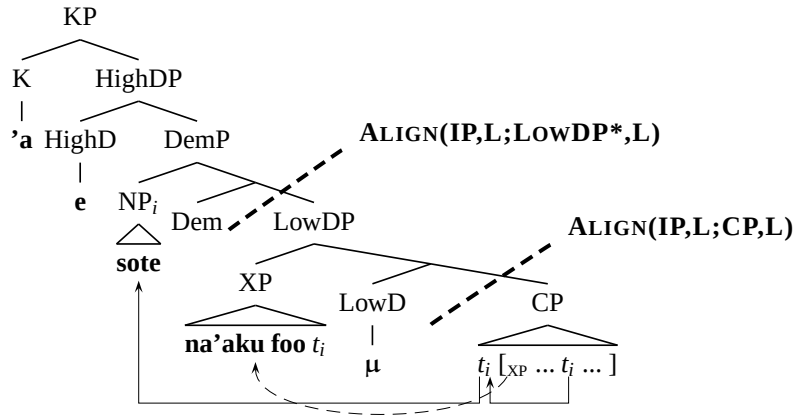
  (32) [$_{IP}$ ... ’ae sote ni] [$_{IP}$ na’a ku foo]



  – ALIGN(IP,L;LOWDP*,L) doesn’t insert a break, as LowD is not lexically headed
  – ALIGN(IP,L;CP,L) inserts a break, just before the RC CP

- In (33), the relative clause XP moves to Spec,LowD causing it to precede the DefAcc

  (33) [$_{IP}$ ... ’ae sote] [$_{IP}$ na’a ku foo o]



  – ALIGN(IP,L;LOWDP*,L) inserts a break at LowD’s left edge, as it is lexically headed by μ
  – If ALIGN(IP,L;CP,L) applies, it applies vacuously

3 Open Questions

- What happens in examples like (34), with multiple DEFACCs?

  (34) ’oku ma’a ’a e soté e [$_{RC}$ na’a ku foó] o
  PRES clean ABS D shirt DEFACC PAST 1SG wash DEFACC
  ‘The shirt that I washed is clean’

  – Where does the ‘extra’ DEFACCs come from?

- DefAcc seems to be able to manipulate the phonological form of a word:

  (35) me’a [$_{CP}$ na’e [$_{vP}$ inu ’e [$_{DP}$ Sione]]] e
  thing PAST drink ERG John DEFACC
  ‘thing that John drank’

  – This is even when that word is structurally very distant from the locus of the DefAcc in the structure

  - This is a problem for, for example, a phase-based account whereby the stress of Sione should have already been calculated (at PF), immutable by a morpheme added later in the derivation

⇒ See Appendix F for a tentative, and apparently wrong, analysis

4 Conclusion

- I have derived word-order and prosodic phrasing for Tongan RCs
  - Tongan RCs exhibit multiple word order possibilities
    - This variation is entirely predicted by independently motivated structures and movements
    - These movements correctly rule out word orders in which the NP and Dem are separated
  - Tongan RCs also exhibit multiple prosodic phrasing possibilities
    - The same structures that derive the word orders also predict this prosodic variation
    - Even in the absence of lexical material, you can see these structures in the prosody
  - This is then further evidence that syntax feeds the prosody
- These problems, which look rather complex at face value, **are actually rather straightforward and mechanical**, after we make the correct assumptions

References

Abner, Natasha, and Heather Burnett. 2010. On the so-called “determiners” of Tongan. UCLA.

Ahn, Byron. 2010. Tongan subject clitics. UCLA.

Anderson, Victoria, and Yuko Otsuka. 2006. The phonetics and phonology of "defnitive accent" in Tongan. Oceanic Linguistics 45:21–42.

Chomsky, Noam. 1977. On wh-movement. In Formal syntax, ed. Peter William Culicover, Thomas Wasow, and Adrian Akmajian, 71–132. Academic Press.

Chung, Sandra. 1978. Case marking and grammatical relations in Polynesian. University of Texas Press.

Churchward, C. Maxwell. 1953. Tongan grammar. Oxford University Press.

Cinque, Guglielmo. 1993. A null theory of phrase and compound stress. Linguistic Inquiry 24:239–297.

Cinque, Guglielmo. 2005. Deriving Greenberg’s universal 20 and its exceptions. Linguistic Inquiry 36:315–332.

Cornilescu, Alexandra. 1992. Remarks on the determiner system of Rumanian: The demonstratives *al* and *cel*. Probus 4:189–260.

Dobrovie-Sorin, Carmen. 1997. A propos de la structure du groupe nominal en roumain. Rivista di Grammatica Generativa 12:123–152.

Fox, Daniel, and David Pesetsky. 2005. Cyclic linearization of syntactic structure. Theoretical Linguistics 31.

Hendrick, Randall. 2005. Tongan determiners and semantic composition. Language 81:907–926.

Ishizuka, Tomoko. 2008. Restrictive and non-restrictive relative clauses in Japanese: Antisymmetric approach. http://ling.auf.net/lingBuzz/000808.

Kayne, Richard. 1994. The antisymmetry of syntax, volume 25 of Linguistic Inquiry Monograph. MIT Press.

Kayne, Richard. 2005. Antisymmetry and Japanese. In Movement and silence, chapter 9. Oxford University Press.

Kayne, Richard. 2010. Why are there no directionality parameters? WCCFL XXVIII.

Kornfilt, Jaklin. 2000. Locating relative agreement in Turkish and Turkic. In Studies on Turkish and Turkic languages, ed. Aslı Göksel and Celia Kerslake, 189–196. Harrassowitz.

Leu, Thomas. 2008. The internal syntax of determiners. Doctoral Dissertation, NYU.

McCarthy, John, and Alan Prince. 1993. Prosodic morphology i: constraint interaction and satisfaction. University of Massachusetts Amherst, and Rutgers University.

Prince, Alan, and Paul Smolensky. 1993. Optimality theory: Constraint interaction in generative grammar. Rutgers University and University of Colorado, Boulder.

Richards, Norvin. 2010. Prosody and syntax. Presented at Syntax Fest 2010.

Schachter, Paul. 1973. Focus and relativization. Language 49:19–46.

Selkirk, Elisabeth. 1984. Phonology and syntax: the relationship between sound and structure. MIT Press.

Selkirk, Elisabeth. 1995. Sentence prosody: Intonation, stress, and phrasing. In The handbook of phonological theory, ed. John A. Goldsmith, 550–569.

Selkirk, Elisabeth. 1996. The prosodic structure of function words. In Signal to syntax: Bootstrapping from speech to grammar in early acquisition, ed. James Morgan and Katherine Demuth, 187–213. Routledge.

Taumoefolau, Melenaite. 2002. Stress in Tongan. MIT Working Papers in Linguistics 44:341–54.

Truckenbrodt, Hubert. 1995. Phonological phrases: Their relation to syntax, focus, and prominence. Doctoral Dissertation, MIT.

Vergnaud, Jean Roger. 1974. French relative clauses. Doctoral Dissertation, MIT.

Vicenik, Chad, and Grace Kuo. 2010. The intonation of tongan. UCLA.

White, James. 2010. The duration of long and short vowels in Tongan. UCLA.

White, James, and Marc Garellek. 2011. Acoustic correlates of stress and their use in diagnosing syllable fusion in Tongan. AFLA 18.

Zamparelli, Roberto. 1995. Layers in the determiner phrase. Doctoral Dissertation, University of Rochester.

Appendices

A No 'Stress Shift' Operation for the DefAcc

Word-level primary stress is calculated based on right aligned trochees

- In other words, the primary stress falls on the penultimate vowel, as shown below where parenthesis demarcate the boundaries of a phonological foot

(36) a. (só.te)
shirt

b. (ta.ma)(sí.ʔi)
child

c. ta(ʔá.ne)
marry

d. la(ʔá.a)
sun

There has been debate as to to phonological form and phonetic realization of the DefAcc

- In his grammar of Tongan, Churchward describes the DefAcc as stress-shift
  - As it is simple stress-shift, he would predict no vowel length difference between the final vowel of a word with or without a DefAcc (other than whatever phonetic lengthening might be inherent to stressed vowels)
    - *lea* should be the same duration as *leá*
- On the other hand, Taumoefolau (2002) argues that the Definitive Accent involves stress-shift inasmuch as the final vowel is repeated
  - This then makes the original vowel the penultimate vowel
    - Thus preserving all stress generalizations
  - As such, the final vowel of a word with the DefAcc should be as long as any other long vowel
    - *lea* should be shorter than *leá*

Anderson and Otsuka (2006) and White (2010) investigate this phonetically and show that the DefAcc-marked vowels are statistically equivalent in length to long vowels

- This gives strong evidence for Taumoefolau's hypothesis, which would predict this difference
- For this reason, the Definitive Accent must be an articulatorily un-valued mora (**μ**) in the syntax which gets its phonological feature values from the final vowel of the word that it cliticizes to

B DP-Sensitive DefAcc

The Definitive Accent can be found on the right edge of a noun phrase (37) that has been marked with a definite determiner[10], (*h*)*e*

(37) a. na'e lea 'a [$_{DP}$ e tamaíki]
PAST speak ABS [D kids]
'the kids spoke'

b. na'e lea 'a [$_{DP}$ e tamaikí i]
PAST speak ABS [D kids **DEFACC**]
'the kids spoke'

(38) a. na'e lea [$_{DP}$ ha tamaíki]
PAST speak [D kids]
'some kids spoke'

b. *na'e lea [$_{DP}$ ha tamaikí i]
PAST speak [D kids **DEFACC**]
Intended: 'some kids spoke'

[10]Rather, what has been called a determiner/article, at least by Churchward (1953), Chung (1978) and Hendrick (2005). Abner and Burnett (2010) present and analysis in which (*h*)*e* is a demonstrative, which makes many correct predictions; for contiguity with past literature, it will be referred to as a determiner, though no aspect of this analysis hinges on this.

DefAcc cannot normally occur on proper names or pronouns, as in (39) and (40)

(39) a. na'e lea 'a [$_{DP}$ Sione]
PAST speak ABS [John]
'John spoke'

b. *na'e lea 'a [$_{DP}$ Sioné e]
PAST speak ABS [John **DEFACC**]
Intended: 'John spoke'

(40) a. na'e lea 'a [$_{DP}$ ki nautólu]
PAST speak ABS [KI 3PL]
'They spoke'

b. *na'e lea 'a [$_{DP}$ ki nautolú u]
PAST speak ABS [KI 3PL **DEFACC**]
Intended: 'They spoke'

A DefAcc *can* appear, on the right edge of any word (including a proper name, pronoun, or even a verb) which is at the right edge of a larger chunk of structure headed by a noun

(41) na'á ku nófo i [$_{DP}$ he fále 'o [$_{DP}$ Sialé] e]
PAST 1SG reside LOC [D house OBJ.GEN [Charlie] **DEFACC**]
'I stayed at the house of Charlie.' (Churchward 1953:92)

There are restrictions, but these can fall out if it is a LowD

- Indefinites may have semantic incompatibilities with the DefAcc, for the simple reason that DefAcc is definite
  - This seems to be related to Abner and Burnett (2010)'s claim that DefAcc-marked DPs need to exist in the context of utterance (and not just some belief world)

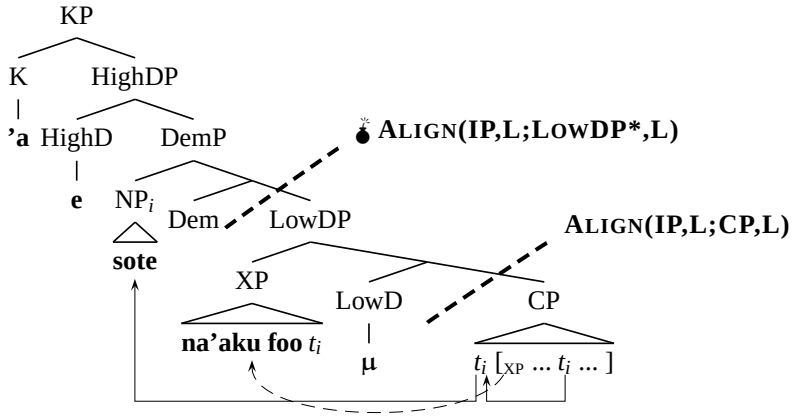
    (42) Ko Piúla, 'óku túli 'a e tèevólo 'okú ne túi 'óku 'i tu'a (*a)
    KO Piula, PRES chase ABS D devil PRES 3SG believe PRES LOC outside (*DEFACC)
    'Piula, she is chasing the devil that she believes is outside (but there is no devil).'

- Names and pronouns may be too big, require different Ds, or may disalllow any D

C Remaining Prosodic Issues

In (43), the relative clause XP moves to Spec,LowDP causing it to precede the DefAcc

(43) ☹ [$_{IP}$ ... 'ae sote na'a ku foo o][11]

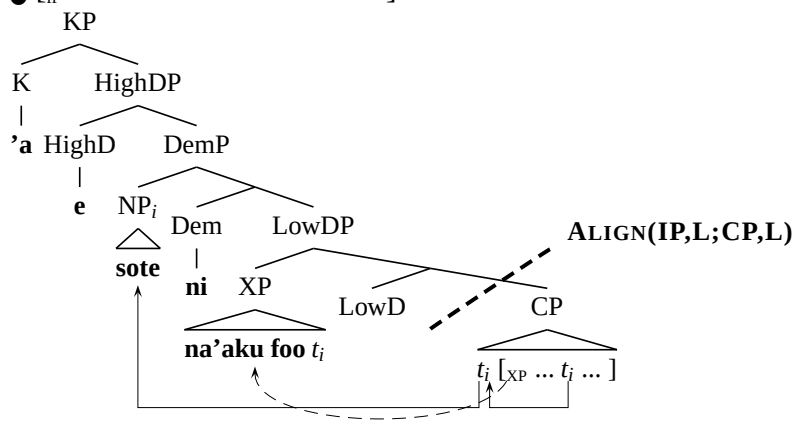


- Since LowDP is lexically headed by μ, ALIGN(IP,L;LOWDP*,L) clearly predicts that there must be an IP-boundary between the NP and the RC that is bearing a DefAcc
- However, as shown in the tree below, this boundary is unexpected; this is a problem for this analysis

A second, perhaps related issue arises in (44), wherethe relative clause stays in situ inside of the CP

[11] ☹ means this form is attested, but the system doesn't predict it.
💣 means that this is the form that the system (incorrectly) predicts

(44) [IP ... ’ae sote ni na’a ku foo]



- ALIGN(IP,L;CP,L) inserts a break, correctly outputting a break before the RC
- However, problematically, we expect that there should be a derivation in which the relative clause XP can front to Spec,LowDP with no break at the left edge of the LowDP since this LowDP is not lexically headed, just like (29)

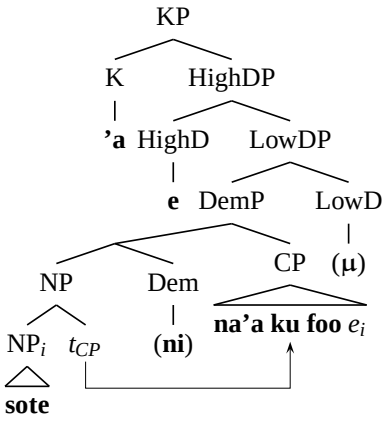
These should be investigated more closely

- Only speaker/hearer impressions were used to determine where there were breaks
- Perhaps such systematic investigations will show that these problems are symptomatic of heretofore uninvestigated factors

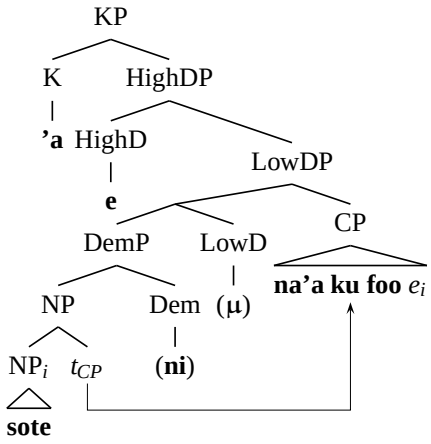
D Ruling Out a Right-Branching Structure

We might be compelled to attempt a right-branching structure for various aspects of this analysis:

(45)



(46)



Such an alternative has some rather worrisome issues:

- First and foremost, a standard analysis of RCs is that they are NP adjuncts; but for Tongan, they would seem to never be able to surface in this position, just in case there is a pronounced Demonstrative
  - Thus, relative clause movement is a necessary component of this derivation, but seems to be unmotivated and perhaps typologically unexpected (unlike the NP/XP movements in the analysis advocated in this talk)

- Second, and an issue for the adjunct analysis of RCs in general, it is much trickier to derive the relationship between the RC gap and the surface NP.[12]
- Third, and more superficially, DemP and LowDP would need to employ right-branching specifiers, which seem rather uncommon in Tongan.[13]

E Apparent Relativization out of a Relative

WH-extraction out of a relative clause is impossible

- This suggests that Tongan relative clauses are WH-islands.[14]

(48) WH-in-situ
'oku inu 'e Sione 'a e pia na'e fakatau 'e hai?
PRES drink ERG John ABS D beer PAST buy ERG who?
'Sione is drinking the beer that who bought?'

(49) WH-extraction out of a relative clause
*ko hai 'oku inu 'e Sione 'a e pia na'e fakatau?
KO who PRES drink ERG John ABS D beer PAST buy?
'Who is Sione is drinking the beer that ~~*who*~~ bought?'

At the same time, upon first glance, Tongan seems to allow relativization out of a relative, as in (51)

- This would seem to contradict the commonly accepted claim that WH-movement underpins relativization (Chomsky 1977)

(50) Simple relative clause
na'a ku sio ki he ongo tangata$_i$ 'oku (na$_i$) tui 'a e sote$_j$ 'uli t_i
PAST 1SG see DAT D two man PRES (3DU) wear ABS D shirt dirty
'I saw the two men that (they) were wearing dirty shirts'

(51) Relativizing out of a relative clause
na'a ku sio ki he ongo tangata$_i$ 'oku 'uli 'a e sote$_j$ 'oku *(na$_i$) tui t_i t_j
PAST 1SG see DAT D two man PRES dirty ABS D shirt PRES *(3DU) wear
'I saw [$_{DP}$ the two men [$_{CP}$ that the shirts [$_{CP}$ that ~~*the two men*~~ are wearing ~~*the shirts*~~] are dirty]].'

Upon further inspection, there is an obligatory resumptive pronoun in the most embedded CP out of which there seems to be relativization

- Resumptive pronouns being more or less optional[15], so this being pronoun obligatory[16] indicates that '*na*' is **not a resumptive pronoun**, but a **true argument** of the clause
  - Thus '*he ongo tangata*' has not been moved out of the most deeply embedded clause

[12] Perhaps sideways movement would possibly resolve this issue, though the theoretical availability of sidewards movement is not well understood by the author.

[13] Also see, for example, Kayne (2010) for arguments against directionality parameters. Such parameters would seem to be necessary for this alternative analysis of the Tongan DP

[14] Long-distance WH-movement out of a CP complement of verb **is** possible, as in:

(47) ko e haa 'oku ke 'ilo na'a ku fakatau?
KO D what PRES 2SG know PAST 1SG buy
'What$_i$ do you know I bought t_i?'

[15] At least for subject and object pronouns. (Chung 1978)

[16] Subject pronouns can only be dropped when they are third person singular. (Churchward 1953, Chung 1978, Ahn 2010)

– So perhaps a closer translation might be '*I saw the two men <u>such that</u> the shirts that <u>they</u> are wearing are dirty*.'

F Alternative Approach to DefAcc

Any number of DPs can be associated with their own DefAcc – this is explicitly proposed in the analysis presented here, by making the DefAcc a head on the DP projection. Churchward gives a clear example.

(52) <u>Nested DPs, Multiple Definitive Accents</u>
ko e haa [$_{DP}$ e 'uhinga na'e 'itai ai 'a [$_{DP}$ e faiako]-**<u>o</u>** kiate au]-**<u>u</u>**?
KO D what [D reason PAST angry 3.DAT ABS [D teacher]-**<u>DEFACC</u>** P 1SG]-**<u>DEFACC</u>**
'What is [the reason that [the teacher] is angry with me]?'

Perhaps there is another way of getting a DefAcc on a relative clause, while maintaining the assumption that DefAccs are on the spine of a DP. Specifically, in these cases with a DefAcc on the N and on the RC, the RC contains a DP with an unpronounced NP; and that embedded DP is the source of the second DefAcc, in the same way as (52). Thus, the post-relativization DP remnant can provide the Definitive Accent that is hosted on the RC's right edge:

(53) [$_{DemP}$ [$_{NP}$ **sote**$_i$] [$_{LowDP}$ μ [$_{CP}$ t_i **na'a ku foo** [$_{LowD}$ μ t_i]]]]

In this way, the DefAcc can appear multiple times within a single DP, even when there is no obvious source for a second DefAcc. Similarly, this analysis resolves the theoretical issue of how to attach a DefAcc to a word at the right edge of a RC – the DefAcc is actually found within the RC.

This analysis is not without problems. First and foremost, if the DP remnant is the source of the DefAcc on the RC, we have to explain why other DP functional material besides the DefAcc (Determiners, Case, Demonstrative enclitics) are obligatorily unpronounced. The lack of Demonstrative enclitics is especially problematic since, as DP functional enclitics, they seem to be most similar to DefAccs.

Furthermore, there does not seem to be any independent reason in this analysis to rule out data like (54). Recall that this is ruled out by the analysis ultimately promoted here, whereby multiple DefAccs in this configuration are simply underivable.

(54) *'oku ma'a 'a e sòte **<u>ná</u>** **<u>a</u>** [na'á ku foó] **<u>o</u>**
PRES clean ABS D shirt **<u>DEM</u>** **<u>DEFACC</u>** [PAST 1SG wash] **<u>DEFACC</u>**
'That shirt that I washed is clean'

In addition, it seems that it might be the case that we lose our ability to derive the distribution of prosodic breaks with optional movement of the RC.

As for a potential consequence of a theory like this, we might expect that the DefAcc would appear on the word immediately preceding the DP – regardless of whether or not that word is at the right edge of the CP. That is, we would expect (55) to be good with the derivation in (56).

(55) 'a e sóte$_i$ [na'á ku foó [t_i o] váve]
ABS D shirt [PAST 1SG wash DEFACC quickly]
'the shirt that I washed quickly'

(56) [$_{DemP}$ [$_{NP}$ **soté**$_i$] [$_{LowDP}$ μ [$_{CP}$ t_i **na'á ku foó** [$_{LowDP}$ μ t_i] **váve**]]]

Data like this has yet to be investigated, however it would provide a good evidence for or against this alternative theory.

In its current state, this alternative 'solution' has more issues than advantages. Thus it is taken to be inferior to the analysis argued for throughout the rest of this talk.