Floating Melody and Empty Structure in Rotuman

Summary

The Incomplete paradigm of Rotuman is characterised by complex allomorphy with metathesis, vowel deletion, resyllabification and vocalic alternations/umlaut. I will reanalyse the syllable structure aspects of the non-concatenative Complete/Incomplete morphology using only additive (item-and-arrangement) phonological mechanisms. The shape of representations is crucial. Roots almost all end in floating vowels, while suffixes (subject to a minimality condition) can begin with a wholly empty 'syllable'. The allomorphy then emerges directly from the root's underlying shape, as it interacts with the shape of affixes, according to the general phonological computation. The account automatically predicts the shape of root-compounds and that CV:# roots do not alternate. The paper concludes by explaining how the presence of an onset (C_2) in $C_1V.V\#$ and $C_1V.C_2V\#$ roots determines the application of segmental changes. The Strict CV representations allow this to emerge naturally from the shape of the roots themselves, without reference to foot structure or syllabic weight.

1   Rotuman basics and transcription choices

Rotuman is a Central Pacific Oceanic language, closely related to Fijian. Churchward's (1940) description of the Rotuman linguistic system is rightly regarded as seminal (Hale & Kissock 1998; McCarthy 2000; Hale et al. 2012). Since then, others have added to the empirical picture and especially to the interpretation of the patterns that Churchward first described. This includes den Dikken (2003), Vamarasi (2002), Besnier (1987) and Blevins (1994) all of whom worked with native speakers.

(1)   Vowel Phonemes of Rotuman (Blevins 1994)

i	u
ε	ɔ
a	

(2)   Allophonic rules (cf. Besnier 1987; Blevins 1994:492)[1]

a.   Raising

/ε/	-->	[e]	/	_ C_0 i, u
/ɔ/	-->	[o]	/	_ C_0 i, u
/a/	-->	[ɑ]	/	_ C_0 i, u

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[1] I depart from Besnier (1987) and Blevins (1994) in my transcription of raised /a/ > [ɔ] (see 3a). It has no [+round] feature. This analysis is similar to Hungarian, which has a short [ɔ] but, for various reasons, takes it to be underlyingly/phonologically [-round] (going back to Szépe (1969)). The roundness of Hungarian short [ɔ] is assumed to be a late/post-phonological adjustment rule of some kind (Siptar & Torkenczy 2000, Balogné Bérces p.c.).

b.   Fronting

/á/   -->   [ǽ]   /   _C$_0$ e

i.   p[ǽ]re   'protect'   &   f[ǽ]repóto   'ferry-port'
ii.   *p[æ]pètaíso   'baptise'   &   *sùm[æ]léi   'fish.sp'

2   The Complete and Incomplete paradigms

(3)   **Complete**   **Incomplete**   **Process**
     a.   fe.su   fes   *Deletion*   'tie'
     b.   fe.u   few   *Resyllabification*   'tail'
     c.   hɔ.sa   hwas   *Metathesis*   'flower'
     d.   hɑ.ʔi   hæʔ   *Umlaut*   'pull'
            fu.ti   fyt   'banana'
            ro.si   røs   'deceive'
     e.   si.kaː   --   *No change*   'cigar'

(4)   Complete

        a.   Definite plural
                 [vaka]   'the canoes'   (H&K)
                 [iʔa]   'fish'   (Besnier 1987:204)

        b.   Before monosyllabic suffixes
                [rofi.a]   /rofi + a/   'lose one's head'   (H&K)

(5)   Incomplete

        a.   Indefinite plural
                [vak]   'canoes'   (H&K)
                [iɑʔ]   'fish'   (Besnier 1987:204)

        b.   Before disyllabic affixes (or larger)
                [al.ti.a]   /ala + ti.a/   'to have died'

        c.   Compounds
                [aŋvao]   /aŋa + vao/   'stretch arms'   (Blevins 1994)

        d.   Phrases
                ([iɑʔ] (ne ŋou pō ʔe [**asa**]))   (Besnier 1987:204)
                  Inc.   Comp.
                'the **fish** I caught **yesterday**'

                ([iɑʔ] (ne ŋou pō ʔe [**as**]))   (Besnier 1987:204)
                  Inc.   Inc.
                'some **fish** I caught **yesterday**'

The forms of the Incomplete look highly varied in shape. For roots that end in CVCV#, the full set of alternations in shown in (6) beneath.

(6)   Vocalic Alternations between the Complete and Incomplete for CV final words

	i	ɛ	a	ɔ	u
i	riʔi > riʔ 'small'	tife > tjɑf 'pearl shell'	hiʔa > hjɑf[2] 'lie over'	rito[3] > rjot 'glitter'	tiʔu > tiʔ 'big'
ɛ	fesi > fes 'tree.sp'	hɛʔɛ > hɛʔ 'octopus'	tɛka > tjak 'take'	hɛʔɔ > hɛʔ 'hello'	fesu > fes 'tie'
a	hɑʔi > hæʔ 'pull'	vævɛ > væv 'fast'	ʔasa > ʔas 'day'	faʔɔ > faʔ 'nail'	fɑʔu > fɑʔ 'back'
ɔ	rosi > røs 'deceive'	kɔfɛ > køf 'coffee'	hɔsa > hwas 'flower'	sɔrɔ > sɔr 'grate'	loʔu > loʔ 'fold'
u	futi > fyt 'banana'	huŋɛ > hwaŋ 'breathe'	puka > pwɑk 'creeper.sp'	ulɔ > wol 'seabird.sp'	ʔulu > ʔul 'breadfruit'

(7) V_1V_2 with V_1 more sonorous than V_2 or equivalent (transcription based on Cairns 2007)

	Complete	Incomplete	
a.	[lé.o]	[le̥w]	'person'
b	[má.o]	[mḁw]	'lost'
c.	[vǽ.e]	[væ̥j]	'divide'
d.	[mó.e]	[mo̥j]	'brown'

One big achievement of McCarthy's (2000) analysis is that it neatly explains why some forms undergo coalescence and others do not. In this analysis, VCV# roots become VVC# and, as such, are limited to light diphthongs only. Fittingly, these all increase in sonority (Kaye 1983; Kaye & Lowenstamm 1984; Rosenthall 1994). VV# final roots, however, must (by hypothesis) create heavy diphthongs. As such, the umlaut triggering /i/ and /e/ do not share a mora with the potential targets of umlaut.

(8) Process-driven derivation for Incomplete /kɔfɛ/ > [køf] 'coffee' (Besnier 1987:214-215)

UR	**Truncation**	Incomplete

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[2] This form is actually given is [hiɔf] in Besnier (1987:212), however, I take it to be equivalent to be [hjɔf]. Nothing else in Besnier indicates that this form should have a different syllabification to the other forms in the paradigm.
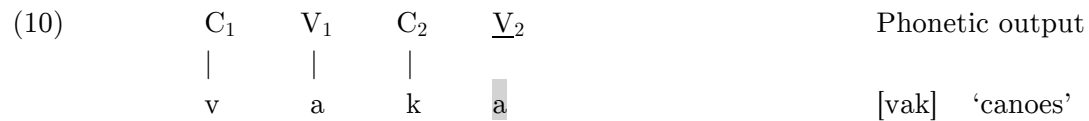
[3] The open-mid, close-mid status of the final unstressed mid-vowels is unknown to me. I mark them as Besnier has them (1987).
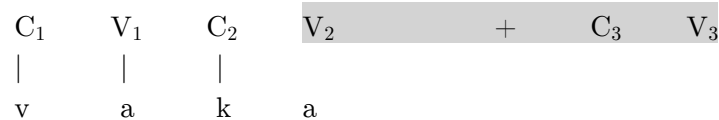
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k           f              k           f              k           f
|           |              |           |              |           |
C    V    C    V          C    V    C    V̶          C    V    C
     |         |               |          ⟍              |
     ɔ         ɛ               o ⟍           e            (o, e) = ø
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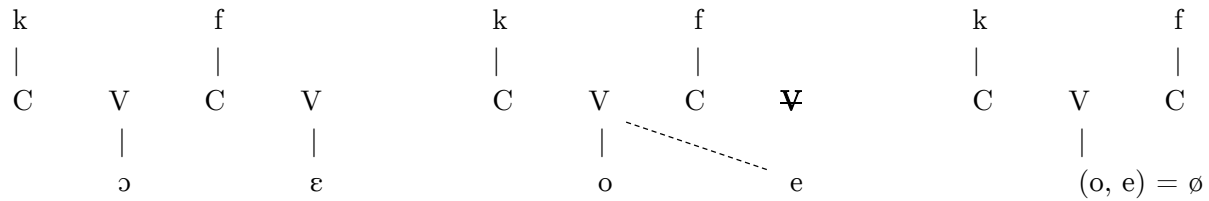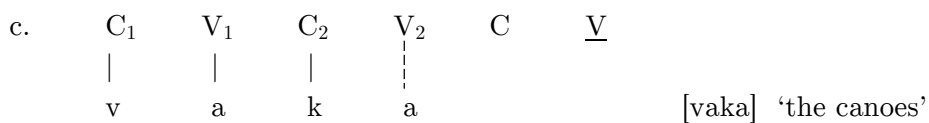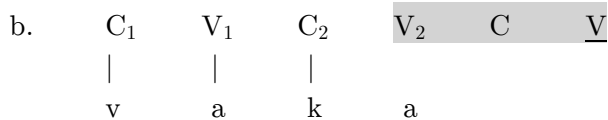
3   The shape of roots in Rotuman

(9) C_1 V_1 C_2 V_2
         | | |
         v   a   k   a

4   Derivations

(10) C_1 V_1 C_2 $\underline{V}_2$ Phonetic output
               | | |
               v   a   k   a   [vak]   'canoes'

(11)   'canoe' in the complete form 'the canoes'

             C_1 V_1 C_2 V_2 + C_3 V_3
              | | |
              v   a   k   a

(12)   Floating vowel surfacing in the complete forms

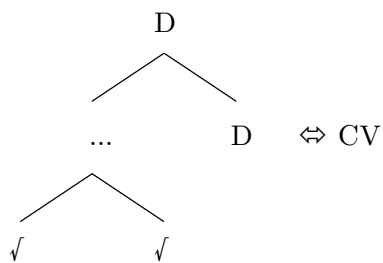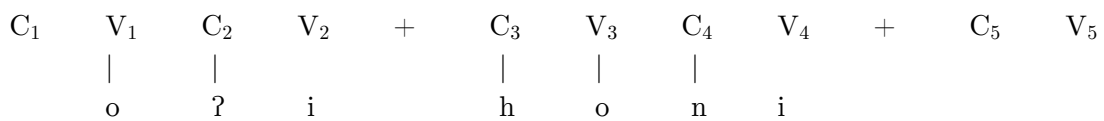   a.   Underlying forms √vaka 'canoe' + definite plural

             C_1 V_1 C_2 V_2 +   C   V
              | | |
              v   a   k   a

        b. C_1 V_1 C_2 V_2 C $\underline{V}$
               | | |
               v   a   k   a

        c. C_1 V_1 C_2 V_2 C $\underline{V}$
               | | | ⋮
               v   a   k   a   [vaka]   'the canoes'

5   Consequences for root-compounds

(13)   Compounds of Rotuman (Blevins 1994 e.g. a-b; Besnier 1987:211 e.g. c).

a.	faŋkele	'kind of creeper'	faŋa	'whicker fish trap'
			kele	'black'
b.	mafhuhu	'minutely'	mafa	'eyes'
			huhu	'take off'
c.	sægvævæni	'classificatory brother'	sagi	'no gloss'
			vavani	'no gloss'

(14) R_1 will be in the Incomplete in all root-compounds

D
...   D   ⇔   Ø
√   √

a.   /mafa/ 'eyes'   /huhu/ 'take off'

C_1	V_1	C_2	V_2	+	C_3	V_3	C_4	V_4
|	|	|			|	|	|	
m	a	f	a		h	u	h	u

b.   /mafa + huhu/ > [mafhuh] 'minutely'

Gov

C_1	V_1	C_2	$\underline{V_2}$	C_3	V_3	C_4	$\underline{V_4}$ DFP
|	|	|		|	|	|	
m	a	f	a	h	u	h	u

(15) R_1-R_2 with R_2 in the Incomplete (Besnier 1987:211)

a.   UR /oʔi/ + /honi/ > oʔhon 'classificatory mother (Incomplete)'

C_1	V_1	C_2	V_2	+	C_3	V_3	C_4	V_4
|	|	|			|	|	|	
o	ʔ	i			h	o	n	i

b. V_2 of R_1 is silenced by Gov, /i/ is stray erased

V$_4$ of R_2 is silenced by DFP, /i/ is stray erased

$$C_1 \quad V_1 \quad C_2 \quad \underline{V}_2 \quad\quad C_3 \quad V_3 \quad C_4 \quad \underline{V}_4 \text{ DFP}$$

C_1	V_1	C_2	$\underline{V}_2$		C_3	V_3	C_4	$\underline{V}_4$ DFP
o	ʔ		i		h	o	n	i
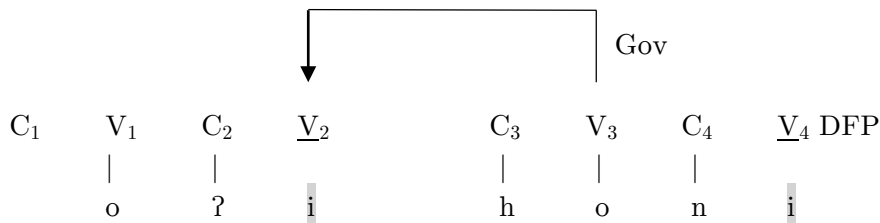
(16) R_1-R_2 with R2 in the Complete form

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             D
           /   \
        ...      D    ⇔ CV
       /   \
      √     √
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a.   UR /oʔi/ + /honi/ + /CV/ > oʔhoni 'classificatory mother (Complete)'

C_1	V_1	C_2	V_2	+	C_3	V_3	C_4	V_4	+	C_5	V_5
o	ʔ	i			h	o	n	i			

b. V_1 is silenced by Gov so /i/ is stray erased

V_4 of R_2 links to its /i/

C_1	V_1	C_2	$\underline{V}_2$		C_3	V_3	C_4	V_4	C_5	$\underline{V}_5$
o	ʔ		i		h	o	n	i		

c. V_4 is linked to /i/
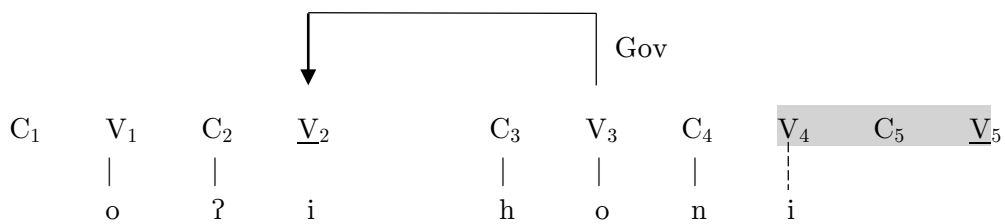
C_1	V_1	C_2	$\underline{V}_2$		C_3	V_3	C_4	V_4	C_5	$\underline{V}_5$
o	ʔ		i		h	o	n	i		
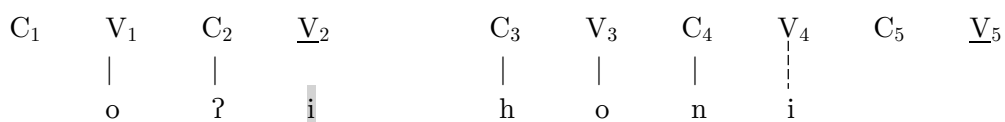
6   Shape of disyllabic affixes

(17)   Affix shape

    a.   'empty affix' (certain D heads, producing the Complete form)

        i.   vaka $-\varnothing_\mu$ va.ka   'the ships'

    b.   'monomoraic' go with the Complete root

        i.   puʔa   -ŋa   pu.ʔa.ŋa   'greed'
            be greedy   NOMINALISER

        ii.   rofi   -a   rofi.a   'lose one's head'
            lose head   COMPLETIVE

    c.   'bimoraic' go with the Incomplete root

        i.   sunu   -ʔi.a   sun.ʔi.a   'to become hot'
            to be hot   INGR(ESSIVE)

        ii.   ala   -ti.a   al.ti.a   'to have died'
            to die   COMPLETE

(18)   Disyllabic affix

    a.   UR   /sunu + ti.a/ hot + INGR[4]

C_1	V_1	C_2	V_2	+	C_3	V_3	C_4	V_4
|	|	|			|	|		|
s	u	n	u		t	i		a

    b.   [sunti.a] 'to become hot'

C_1	V_1	C_2	V_2	+	C_3	V_3	C_4	V_4
|	|	|			|	|		|
s	u	n	u		t	i		a

(19)   Monosyllabic affixes (such as the Nominaliser /-ŋa/)

    a.   C   V   C   V

C	V	C	V
		|	|
		ŋ	a

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[4] Notice, the segmental material of the affixes is lexically linked to the skeletal positions.

(20)   Derivation of root + monosyllabic affix

    a.   UR   /puʔa + ŋa/ 'greed + NOMLZ'

    C   V   C   V   +   C   V   C   V
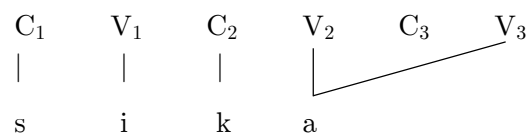 | | | | |
    p   u   ʔ   a   ŋ   a

    b.   V$_3$ is Gov by V$_4$, V$_2$ has no source of Gov so must link to the floating /a/

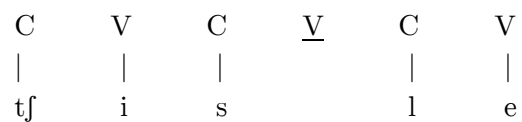   Gov

    C   V   C   V   +   C   V   C   V
    | | | | |
    p   u   ʔ   a   ŋ   a

    c.   [puʔaŋa] 'greed'

                                                                        Gov

    C   V   C   V   +   C   V   C   V
    | | | | | |
    p   u   ʔ   a   ŋ   a
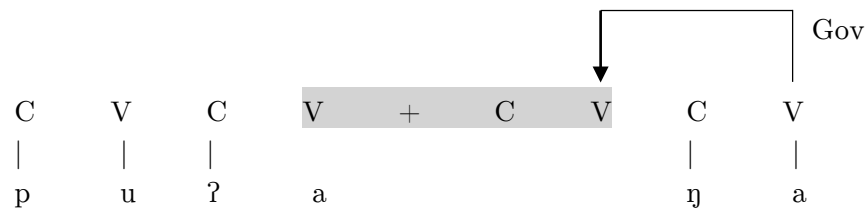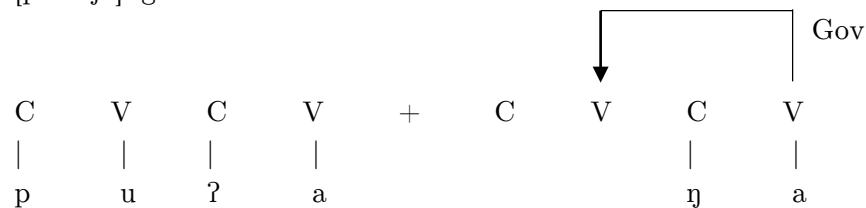
7   Shape of long vowels and non-alternating roots

(21)   Long vowel and lack of alternation

    a.   /siká/ [sikaː] 'cigar'

    C$_1$ V$_1$ C$_2$ V$_2$ C$_3$ V$_3$
    | | |
    s   i   k   a

(22)   Non-alternating forms have linked final vowels

    a.   UR of [tʃísle] 'chisle'

    C   V   C   V̲   C   V
    | | | | |
    tʃ   i   s   l   e

7   Segmental alternations

7.1 Floating vowels in CV.V-final roots

(23)   CV.V# form Incomplete derivation

    a.   UR /lelei/

C_1 V_1 C_2 V_2 C_3 V_3
| | | |
l   e   l   e   i
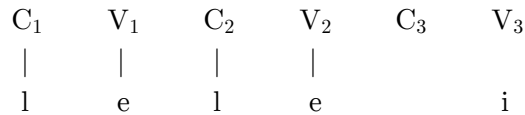
    b.   [leléj] 'good' (Incomplete) (cf. [lelé.i] 'good' (Complete))

                         *)
                         *   *
C_1 V_1 C_2 V_2 C_3 $\underline{V_3}$
| | | |
l   e   l   e   i
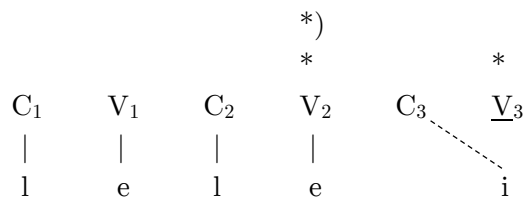
7.2 Floating vowels in CVCV# roots

In Strict CV, there is a surprisingly simple representational solution for the fact that in Rotuman metathesis only occurs if the final syllable of the word contains a filled onset. These differences follow naturally from the shapes of roots. $CV_1.V_2\#$ roots have an empty C position available for docking which does not change the relative order of surface segments: $CV_1.V_2\# \rightarrow CV_1C_2\#$ (see 30)

(24)   CV.V# root /fe.u/ > [few] 'tail'

    V_2 is silenced by DFP
    Floating vowel moves to C_2
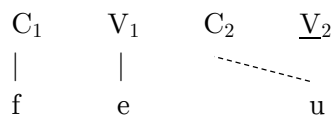
C_1 V_1 C_2 $\underline{V_2}$
| |
f   e   u

With $C_1V_1C_2V_2\#$ roots, however, C_2 is not available to be docked to by a vowel. So instead, the floating vowel merges as a segment with the next closest suitable position (V_1), eventhough this leads to coalescence (31b).[5]

(25)   Floating vowel docking in CVCV roots /futi/ [fyt] 'banana' Complete

    a.   CVCV with final silenced V

C_1 V_1 C_2 $\underline{V_2}$
| | |

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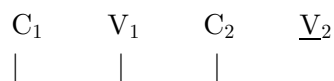
[5] Although other possibilities could have become grammaticalised.

f   u   t   i

b.   Unlike roots with an empty C, the floating vowel docks to V_1

C_1 V_1 C_2 $\underline{V_2}$

f   u   t   i
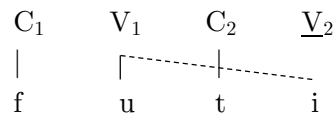
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