**Class Reanalysed as Phonological Root Shape:**
**Mid-vowels, Raddoppiamento and Stress Shift in Afar**

The variant of Afar described in Bliese (1981) reveals a language with a complex nominal inflectional system characterised by three morphological classes/genders and extensive phonologically conditioned allomorphy. In this paper, I will propose a modular, unified reanalysis of the system that generates much of Afar's nominal inflection without appealing to either class features or allomorphy. The language has a fixed right-aligned trochee (aligned to a H tone); the final CV of the root acts as the dependent. In place of class features, I will posit three basic root shapes defined by the contents (or emptiness) of the last CV of the root: (a) CV, (b) CØ, (c) ØØ. There is direct evidence for the proposed fully empty final empty CV, from vowel-length alternations elsewhere in the language, from the distribution of mid-vowels, and from the fact that these roots ending in a final empty CV slot trigger consonant gemination in the Genitive (like *Raddoppiamento* in Italian). The strict trochaic stress pattern also correctly predicts the allomorphy's unexpected stress shifts. This includes generating 'prestressing' and 'final stress' in the same affix, which is demonstrably not even an underlyingly stressed suffix.

**Keywords:** *Class features, allomorphy, raddoppiamento, stress shift.*

## 1  Introduction

In recent years a number of analyses have problematized the notion of class features, where these classes are neither syntactically relevant objects (Acquaviva 2008), nor bonafide objects of phonological representations or phonetic interpretation (such as a mora or [+high]). These class features would be nothing more than derivational diacritics used to arbitrarily ensure the 'right' elements come together in the vocabulary insertion.

Recently, there have been a number of fully phonological reanalyses of class-phenomena that replace the need for class features with autosegmental phonological representations, thereby reducing the number of case studies requiring this formal device (Barillot et al. 2018; Fortuna 2022; Lampitelli & Ulfsbjorninn accepted; Kouneli to appear).

These analyses sit within a larger recent literature that argues for full modularity in the linguistic derivation (Scheer 2011, 2012; Newell 2021); M > P (Kalin 2020; Stanton 2021; Dolatian 2022), where (even against surface appearance) 'morpho-phonological' processes are fully governed by Item-and-Arrangement processes acting on autosegmental phonological representations (Trommer 2008; Bye & Svenonious 2011; Scheer 2016; Zimmermann 2017). A recent collection of papers in this vein appeared in The Linguistic Review (Newell & Ulfsbjorninn 2021), and a great many studies have been carried out in this vein to resolve allomorphy in the model of Strict CV (more details will be provided in section (2.5)).

There is a flourishing of all these kinds of analyses currently in the literature, particularly (but certainly not limited to) the Strict CV framework. This can be seen as a new wave, a development of the fundamental characteristics of the movement called 'prosodic' morphology (McCarthy 1971, 1981, 1982; Halle & Vergnaud 1980; Marantz 1982; Yip 1988). Here the full power of Autosegmental representations (Leben 1973; Goldsmith 1976), with their association lines and simultaneous levels of representation, are invoked to better understand what might be seen as morphological phenomena.

This paper provides a compelling case study for this, as it looks at Afar's nominal system from this perspective, in the framework of Strict CV. Afar is characterised by three large inflectional classes, which are otherwise syntactically inert (except in as much as they conform to the language's two syntactically visible gender classes).

(1)     Noun classes of Afar[1]

| Class | I | | II | | III | |
|---|---|---|---|---|---|---|
| | ['bara] | 'night' | ['af] | 'mouth' | [baː'ra] | 'woman' |
| | ['gita] | 'road' | [a'gur] | 'young steer' | [ħa'do] | 'meat' |
| | ['naːfi] | 'dew' | [bu'lul] | 'flour' | [ʕat.'ri] | 'perfume' |
| Gender | M | | M | | F | |

These three classes exhibit specific allomorphy across nominal inflection. This includes, allomorphy of the Nominative with the variant [-i] appearing only in Class I (vowel-final masculine roots), and a zero manifestation [-Ø] elsewhere. There is also stress shift, again only in Class I, which can be attributed to the Nominative affix having underlying stress (a high tone).

| (2) | Class | Root | Nominative | |
|---|---|---|---|---|
| | I | ['bara] | [ba'ri] | 'night' |
| | II | [bu'lul] | -- | 'flour' |
| | III | [ħa'do] | -- | 'meat' |

Elsewhere, the Genitive has various forms apparently determined partly by Class and partly by the phonological shape of the following item. The Genitive is made up of a Nominative.Genitive (NOM.GEN)-marked possessor followed by the possessee. The genitive exhibits phonologically conditioned class sensitive allomorphy is summarized beneath. Class I roots take [-i] in the NOM.GEN. Meanwhile, Class II roots take a [-Ø] form. Class III possessor roots, which are all feminine, exhibit different Genitive forms depending on the phonological shape of the possessee. If the possessee is vowel-initial the possessor is marked by [-h], whereas if the possessee is consonant-initial there is consonant gemination across the word boundary.

---

[1] I have rendered Bliese's (1981) transcriptions into IPA and square brackets. Geminate consonants are shown doubled rather than with the length mark (ː) which aids in marking stress and syllable boundaries.

(3)     Genitive

| Class | | Root | Genitive | |
|-------|-------|-------|----------|-------|
| I | | [ˈawka] | [awˈk-i kiˈtaːba] | 'boy's book' |
| II | | [ˈnum] | [ˈnum kiˈtaːba] | 'man's book' |
| III | _+V | [saˈga] | [saˈga-h-ˈiba] | 'cow's foot' |
| | _+C | [buˈɖa] | [buˈɖa-m-ˈmara] | 'village's people' |

Lastly of note, there is considerable allomorphy in the derivation of the Particular affix. This affix produces some unexpected stress-shifts, despite it not having underlying stress (unlike the Nominative, for instance).

In Class I, the Particular suffix surfaces as [-jta], and the whole form is characterized by prestressing (stress shifts to the last vowel of the stem before the affix) (see 4a). Meanwhile, in Class II the form surfaces without its initial glide: [-ta] and without any stress shift (4b). Lastly, shown in (4c), in Class III one finds the suffix [-jta], but these forms have exceptional stress shift to the final vowel of the form.

(4)     Particular affix

a. Class I

| | | | |
|---|---|---|---|
| [ˈdummu] | [dumˈmu-jta] | 'particular tomcat' |
| [waˈkali] | [wakaˈli-jta] | 'particular companion' |

b. Class II

| | | |
|---|---|---|
| [ħuˈtuk] | [ħuˈtuk-ta] | 'particular star' |

c. Class III

| | | |
|---|---|---|
| [gaʕamˈbo] | [gaʕambo-jˈta] | 'particular bread' |
| [ʕaˈle] | [ʕale-jˈta] | 'particular mountain' |
| [dumˈmu] | [dummu-jˈta] | 'particular vixen' |

Section two will introduce the language and the framework of the analysis. It will also take care to explain how this framework specifically can be beneficial in the analysis of allomorphy. Section three will then present the main proposal: the root shapes of Afar, its stress pattern and the key shapes of the exponents of the inflectional system. Second four will then demonstrate the key derivations that generate the above pattern. Section five will conclude the paper.

## 2     Background and tools of the analysis

### 2.1     Afar

Afar is an Afro-Asiatic language from the Cushitic branch spoken by approximately 2 million people mostly residing in the Afar triangle, an enormous depression, the northernmost part of the Great Rift Valley. Within this area lies the whole of the Afar region of Ethiopia, and parts of
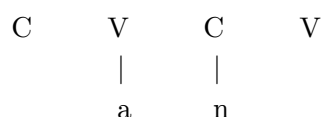
Djibouti and Eritrea. Afar is a national language of Djibouti and an official working language of Ethiopia, and a recognised language in Eritrea. There is considerable established dialect variation. In this paper, I will be referring exclusively to what is described in Bliese (1981) and the data she collected from her main informants.
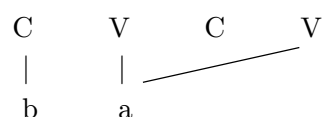
## 2.2 Strict CV

Strict CV (Lowenstamm 1996; Scheer 2004, 2011, 2012) is a framework that grew out of Government Phonology (Kaye et al. 1990; Charette 1991, henceforth GP). It is an autosegmental framework, where representations are composed of two main tiers: a melodic tier (holding features and segments), and a skeletal tier (syllable structure). The skeletal tier is universally made up of strictly alternating C and V slots. The two tiers are connected by association lines. These conditions mean that the following 'syllabic shapes' are underlain by the following structures.

(5)     Common 'syllabic shapes'
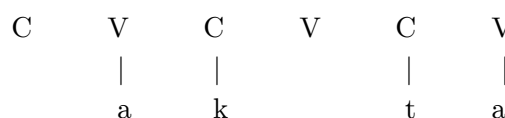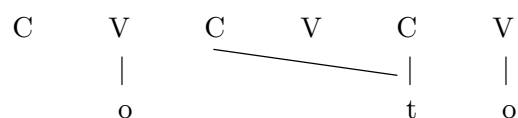
a. Initial vowel/final consonant (#V, C#)          b. Long vowel (Vː)

```
C    V    C    V                    C    V    C    V
     |    |                              |    |   /
     a    n                              b    a
```

c. Consonant cluster (CC)                          d. Geminate consonant (Cː)

```
C    V    C    V    C    V          C    V    C    V    C    V
|    |    |    |                         |    \         |    |
a    k    t    a                         o      ̅̅ ̅̅ ̅̅    t    o
```
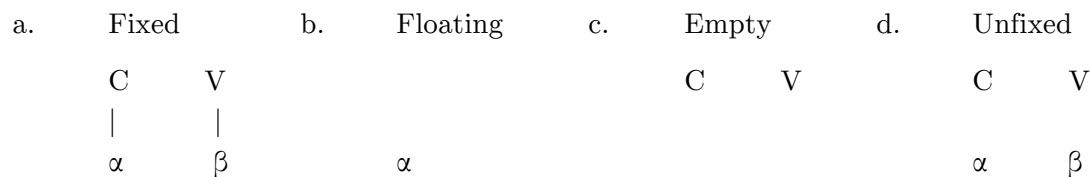
In addition, following autosegmental principles, due to the autonomy of the tiers (skeletal and melodic), exponents are not limited to these shapes (Goldsmith 1976). These shapes can be exploited to better 'morphological' analyses, and since exponents of morphemes can come in any combination of the following configurations, they can lead to surface effects and alternations that appear highly irregular and non-concatenative (Bye & Svenonious 2011).

(6)     Shapes of exponents (Bendjaballah & Haiden 2008; Faust et al. 2018)

a.     Fixed          b.     Floating     c.     Empty        d.     Unfixed

```
C    V                                    C    V              C    V
|    |
α    β                 α                                      α    β
```

As shown in (6), it is possible to have exponents which are made up entirely of skeletal structure (CV units, or 'empty mora', Hale & Kissock (1998), Trommer & Zimmermann (2014); Zimmermann (2017); Kouneli (to appear)). And there can be exponents that are made up entirely of a feature (or a segment) most famously floating tones (Welmers 1959), and floating features

4

(Lieber 1987; Zoll 1994; Wolf 2005; Hermans & van Ooostendorp 2008; Trommer 2021; Akinbo 2021 among many others). Segments whose melody cannot be predicted, and so cannot be ascribed to epenthesis, can also be analysed as floating segments (6b or 6d) (Hyman 1985; Encrevé 1988; Charette 1991; Tranel 1996). In light of this, Bendjaballah & Haiden (2008) and Faust et al. (2018), propose that Vocabulary Items can come in any of the following configurations.

The configurations in (6b-d) follow directly from the independence of tiers and the idea that association lines have become independent objects of representation (cf. van Oostendorp 2006; Zimmermann 2017). The contrastive use of association lines has been a key feature of recent morpho-phonological analyses (Ben Si Saïd 2010, 2014; Scheer 2010:155; Scheer & Ziková 2010:481-482; Ziková & Faltýnková 2021; Ulfsbjorninn 2020, 2021, to appear; Fortuna 2022).

Though the structures in (6b-d) are seen as 'abstract' by some commentators, nobody in phonology denies the existence of the three components of these representations (skeletal/syllabic positions/moras, association lines, features/segments). Free combination of these independent layers of representation directly produces the shapes in (6a-d), in order to exclude any one of these would need to be overtly stipulated in UG/GEN, and as Zimmermann (2017) points out as long as these configurations are potentially analytically useful, there is no need to exclude them.
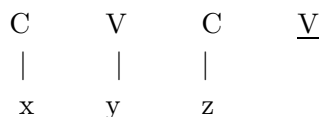
### 2.3  Silencing empty positions

In Strict CV, as in GP, it is standardly assumed that empty positions can remain phonetically uninterpreted if they are labelled as such in the course of the derivation, according to the following conditions in (7a-b). Empty positions that are not silenced must be phonetically interpreted according to the *Empty Category Principle* (*Kaye 1990*, henceforth ECP). Silenced positions are shown underlined.
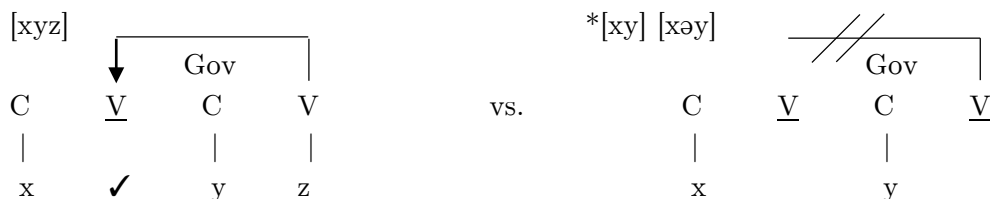
(7)     Silencing of empty positions

a. Domain-Final Parameter (DFP) (based on Kaye 1990)

Domain-final empty V slots are silenced (receive no phonetic interpretation)

```
C       V       C       V̲
|       |       |
x       y       z
```

b. Gov(ernment) (based on Charette 1991)

An empty V-slot can be silenced by Gov iff it is followed by a (non-silenced) V-slot.
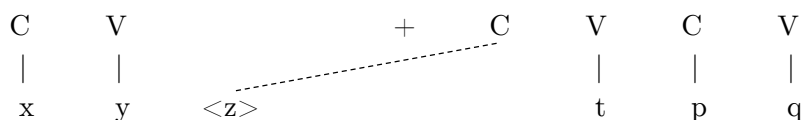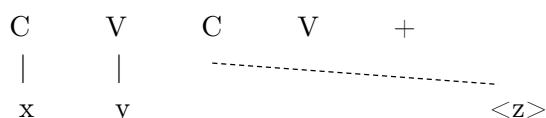
## 2.4 Linking Floating segments

Floating segments, such as those described in (6b,d) link to empty positions (Encrevé 1983, 1988; Charette 1991; Scheer 2004, 2016, 2019). Floating material is sometimes marked in angle brackets: <>. Association lines that are products of computation are shown with dashed lines.

(8)　Floating segments linking to empty structure

　　a.　Linking from left to right

```
C      V                        +      C      V      C      V
|      |        _ _ _ _ _ _ _ _ _             |      |      |
x      y      <z>                             t      p      q
```

　　b.　Linking from right to left

```
C      V      C      V      +
|      |        _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
x      y                            <z>
```

However, it is universally observed that floating segments do not link to silenced positions, those positions described above that are either silenced by the Domain Final Parameter or Governed (Scheer 1997:80; Pagliano 2003; Scheer 2004:90; Scheer 2000: 151ff). Any floating features or segments that do not link to the skeleton are ostensibly deleted by not being sent for phonetic interpretation, such deleted segments are shown greyshaded.

(9)　Floating segments linking to empty structure

　　a.　Linking from left to right (failing)

```
        //          Gov        ↓        Gov
C      V      C      V      C      V
|      ⋮      |      |      |      |
x     <y>     z     <t>     p      q
```
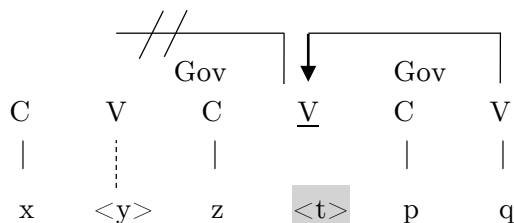
　　b.　Linking from right to left (failing)

```
C      V      C      V      +
|      |      |
x      y      z                    <t>
```
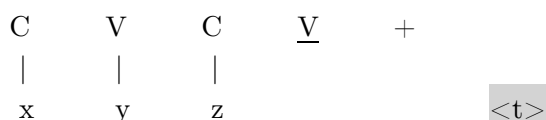
## 2.5 Connection to allomorphy

In recent years, the array of exponent shapes shown back in (6) and the behaviour of floating segments described in section (2.4) has been deployed to produce modular, item-and-arrangement

reanalyses of phonologically conditioned allomorphy where the allomorphy is removed (Scheer 2016; Faust et al. 2018; Barillot et al. 2018; Faust 2020; Ulfsbjorninn 2020, 2021, to appear; Lampitelli & Ulfsbjorninn accepted; Lahrouchi & Ulfsbjorninn 2022; Fortuna 2022; Newell to appear).

Allomorphy is commonly described as the situation where the same grammatical information is realized in more than one way (multiple realization). However, this common definition is not theoretically insightful because it obscures the distinction between two very different situations (Bonet & Harbour 2010).

The first is where multiple realization is due to a phonological process that differentiates surface forms from a single underlying form (such as suffixes affected by vowel harmony).

The second is where multiple realization is due to the contextual insertion of an underlying exponent in the place of another underlying exponent. This is deemed necessary when allomorphy cannot be derived just by the phonology. A textbook example has been the Korean Nominative suffix: -ka inserted after V-final stems, and –i inserted after C-final stems: se-ka 'bird-NOM' vs. pap-i 'rice-NOM' (Cho 2016). Since it is not clear how to possibly derive the surface forms from a common underlying there has to be competition between two different underlying forms.[2]

From a theoretical position, the former case should not be classified as allomorphy, otherwise any phonological operation or phonetic realization could be classed as allomorphy, voiding any coherence it has as a phenomenon; this should be referred to as pseudo-allomorphy. The second situation, however, does have a clear theoretical characterization and can be referred to technically as allomorphy.

(10)    Allomorphy (Paster 2014:220)

Any situation where the same set of morphosyntactic/semantic features is expressed by two or more surface forms in complementary distribution that have different underlying forms.

If the context for allomorph insertion is defined phonologically, this is called: *Phonologically-Conditioned Allomorphy* (henceforth PCA).

Though superficially similar, pseudo-allomorphy and allomorphy are radically different architecturally. If the variation is generated entirely in the phonology, its derivation is architecturally identical to the spell out of any exponent. Conversely, PCA has implications for modularity since both syntactic and phonological information need to be simultaneously visible, i.e. when the decision is made to insert one or the other lexical item (allomorph). This is a violation of strict modularity.

Modularity is a desideratum for both current leading linguistic architectures: Distributed Morphology (Halle & Marantz 1993, 1994; Harley & Noyer 1998; Embick 2010)[3] and Nanosyntax (Starke 2009; Caha 2009; Baunaz et al. 2018). However, cases of PCA have motivated the claim

---

[2] Said that, there is a recent proposal forming that does in fact derive these form the same underlying form (███).

[3] In practice, DM has not achieved Modularity since, amongst other issues, it uses many post-syntactic operations which are not proper to a Minimalist architecture (Scheer 2011, 2012; Collins & Kayne to appear; Lowenstamm 2022).

that strict modularity is suspended at precisely the moment of Vocabulary Insertion (Bonet et al. 2007; Mascaró 2007). This has been formalized into a mechanism to regulates this precise moment in the derivation where both types of information are visible, known as Priority (ibids.). However, this is a concession purely necessitated by empirical phenomena, and the empirical cases necessitating are slowly being reduced one by one (see especially Scheer (2016); and some detailed case studies: Galician, Ulfsbjorninn (2020); Haitian, Lahrouchi & Ulfsbjorninn (2022); Llanito, (Ulfsbjorninn to appear); Korean, (███)).

Another simple and compelling example comes from Moroccan Arabic (MA) discussed in Mascaró (2007), see also Nevins (2011). This will also act as a compelling case for proposing an exponent with the shape (6d). In MA there is a case of PCA with the third person object clitic. After consonant-final stems the allomorph is [u], and after vowel-final stems the allomorph is [h]

(11)  a.  ktab-u  'his book'  b.  xtˤa-h  'his error'

Ordinary PCA solutions (Embick 2010) share the limitation that they do not connect the surface form with the phonological context in which it is inserted, and just as Priority it is not modular.

(12)  3P Obj Clitic  /  C _  ⇔ u
                        V _  ⇔ h

Mascaró (2007) notes that the historical form of this object clitic was [hu], but that synchronically one cannot derive the variants from each other. Indeed, it is effectively impossible to derive a [h] from an [u] or *vice versa*, however, both forms can be derived from underlying /hu/. A child learner would, in fact, have ample opportunity to ascribe both [h] and [u] to the UR, and their surfacing actually follows transparently from Strict CV computational principles.

The only difficulty is how to obtain the correct surface form which is purely a question of how to get the correct association between the underlying representational objects.

Following Scheer (2016), I show that this is possible assuming that the UR of this clitic contains both segments and skeletal structure, but these are *unassociated* (6d). The derivation is shown beneath. The UR of the 3P object clitic is <h> and <u> floating beneath skeletal slots C4V4. The phonological context (C# Final stem) is, in this framework, characterized by the availability of an empty V-slot (V3). This can host the floating <u> but not the <h>, which cannot even link to its own C-slot due to the line crossing constraint. This leaves it uninterpreted (effectively deleted) shown greyshaded in (13c). The Final V-slot is shown underlined as it has been silenced by the Domain-Final Parameter.
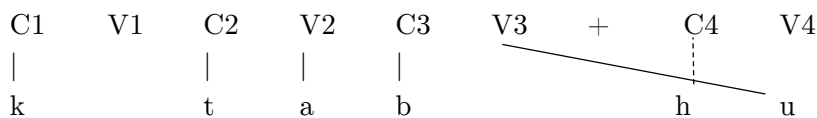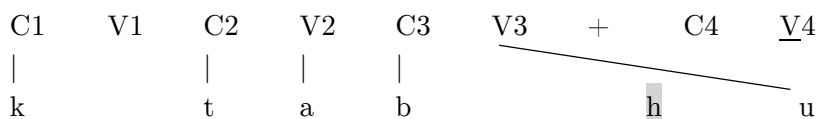
(13)  /ktab/ + <h><u> 'his book'

a. Underlying forms

| C1 | V1 | C2 | V2 | C3 | V3 | + | C4 | V4 |
|----|----|----|----|----|----|---|----|----|
| \| |    | \| | \| | \| |    |   |    |    |
| k  |    | t  | a  | b  |    |   | h  | u  |

b. &lt;u&gt; links to V3, blocks &lt;h&gt; linking to C4

```
C1      V1      C2      V2      C3      V3      +       C4      V4
|               |       |       |              ╱               ┊
k               t       a       b                      h       u
```

c. &lt;h&gt; cannot associate, deleted: [ktab-u]

```
C1      V1      C2      V2      C3      V3      +       C4      V̲4̲
|               |       |       |              ╱                  ╲
k               t       a       b                      h̲           u
```
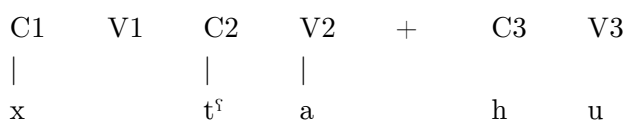
This form shows the necessity of the floating nature of the segments. Their surfacing is contingent on their phonological surroundings (unlike fixed segments). However, in the case of vowel-final stems, we see the need for the skeletal structure of the 3P object clitic UR.
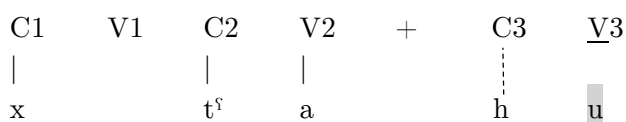
As we see in (14), V-final stems do not have space for &lt;h&gt;&lt;u&gt; to attach within the stem's skeletal structure. However, here C3V3 are available for linking. Though in Morrocan Arabic word-final empty nuclei (FEN) are permitted to be silenced by the DFP. Since (V3) is silenced, &lt;u&gt; will not be able to link to it and it will be deleted. However, &lt;h&gt; is free to link to the C position it floats beneath (C3). This leads to the surfacing of the underlying &lt;h&gt; of the UR, and its surfacing is happening within the skeletal slot provided by the affix.

(14)    /xtˤa/ + &lt;h&gt;&lt;u&gt; 'his error'

a. Underlying form

```
C1      V1      C2      V2      +       C3      V3
|               |       |               
x               tˤ      a               h       u
```

b. 'h' links to C3: [xtˤa-h]

```
C1      V1      C2      V2      +       C3      V̲3̲
|               |       |               ┊
x               tˤ      a               h       u̲
```

This analysis shows a concrete example of affixes coming with both floating structure and skeletal structure in the same exponent. It also highlights the architectural implications of considering the full power of autosegmental represenations when considering morpho-phonological analyses.

## 3       Proposal, Root shapes and Stress in Afar nouns

I propose that the main driving force of the inflectional alternations is a prosodic condition, which relates to the attested shapes of roots in the language. In Afar, there is a metrical condition in

which items must end in 'right-aligned trochee', that is to say, in all forms the FN (final nucleus) is prosodically weak, and the penultimate V-slot is always prosodically strong.

The three classes of Afar nouns are shown beneath (repeated from 1). The Masculine comes in two phonologically conditioned shapes: V-final and C-final. Whereas the feminine always ends in a form which is vowel-final and stressed. Structures for these are shown in (15) beneath.

(15)    Noun classes of Afar (repeated from 1)

| Class | I / M | | II / M | | III / F | |
|---|---|---|---|---|---|---|
| | [ˈbara] | 'night' | [ˈlak] | 'thigh' | [baːˈra] | 'woman' |
| | [ˈgita] | 'road' | [aˈgur] | 'young steer' | [ħaˈdo] | 'meat' |
| | [ˈnaːfi] | 'dew' | [buˈlul] | 'flour' | [ʕat.ˈri] | 'perfume' |

According to the prosodic condition stated above, feminine roots actually always end in an empty CV-unit. This shows that Afar roots can be principally distinguished by the content of the last CV unit of the root. Masculines can end in two ways, either both their last C-slot and their last V-slot is filled (Class I and II), these will be from now referred to as V-Masc and C-Masc roots. Or the last CV slot is completely empty (Class III) (F-roots).

High tone |H| is the primary phonetic correlate of stress in Afar (Bliese 1981:209). This morpheme-structure condition means that Noun roots come in the following shapes (16). I assume that all things being equal, H links to the stressed V-slot.[4]

(16)    V-Masc and C-Masc root shape

a. [ˈbara] 'night'

```
      H
      |
      *
     (*           *
 C    V    C    V
 |    |    |    |
 b    a    r    a
```

b. [buˈlul] 'flour'[5]

```
                          H
                          |
                          *
           *             (*           *
 C    V    C    V    C    V
 |    |    |    |    |
 b    u    l    u    l
```

---

[4] It should be noted that H tone is not derived from a trochaic structure, there are non-trochaic affixes that introduce a floating |H| tone. Incidentally, it could be that |H| is not underlying present on roots, but that all things being equal, |H| becomes associated to the stressed V-slot, unless |H| has already been introduced by an affix. Alternatively, one could suppose that there is a condition with maximum one |H| per domain and only the rightmost survives. I am unaware of arguments either way, and it does not affect the outcome of the forms. I will represent things assuming the former for the sake of economy.

[5] There are in fact also roots of this shape but with underlying long vowels: /(CV)CVVC/, however, these are always shortened in isolation and before all of the affixation in this paper. They only surface before many plurals. Bliese (1981:178) provides a list of these. Vowel lengthening before affixes demonstrates a lexical character which is perhaps unsurprising since many plurals look entirely lexicalised: [ˈawka] 'child.F.SG', [awˈka] 'child.M.SG', [ˈurru] 'child.PL' (Bliese 1981:176).

Oddly perhaps, and very interestingly, the second vowel of a V-Masc root shape undergoes syncope in the NOM.GEN (when there is stress shift). This suggests that perhaps these Vs are not underlyingly linked to their V-slot: /xam<i>la/ [xamˈla] 'swamp grass', /kax<a>nu/ [kaxˈnu] 'love' (Bliese 1981:213). These (perhaps floating) vowels perhaps link in order to bear stress. This does not occur, however, if the two flaking consonants are identical: /miˈɖaɖu/ [miɖaˈɖi] 'fruit' (Bliese 1981:214). This last condition again suggests a lexical marking of the deleting vowels, rather than a surface based constraint, because Afar has plenty of geminate consonants). Having raised this possibility, I will leave the vowel linked in the root-shape above for a simpler exposition.

(17)    F root shape[6],[7]

[ʕaˈle] 'mountain'

```
                              H
                              |
                              *
             *               (*              *
        C    V    C    V    C    V
        |    |    |    |
        ʕ    a    l    e
```
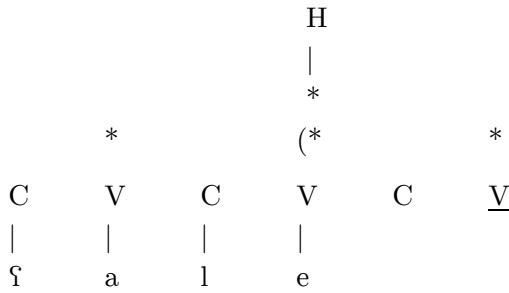
There is more good evidence to suppose that these F roots end in a wholly empty CV unit. These final stressed F roots alternate with long vowels in derived forms, such as the plural: [ʕaˈle] 'mountain' vs. [ʕaleːˈla] 'mountains'. Long vowels are allowed in final position, the only exceptions are some monosyllabic items where the long vowel is presumably maintained for reasons of minimality: [leː] 'water' (Bliese 1981:227). In all other cases, the Final V-slots (Final Nuclei) (FN) of Afar cannot host long vowels (Bliese 1981:225) and these are subject to being shortened into the trochaic structure with a final empty CV as shown for the F roots.[8]

There is yet more compelling evidence to assume the metrical equivalence of the penultimate V-slot of V-Masc roots and the final V-slot of F-roots. This comes from the distribution of mid-vowels in Afar. Mid-vowels are banned in the final position of V-Masc roots:

---

[6] The final CV slot, is metrically significant. Faust & Ulfsbjorninn (2018) would handle this by projecting Final Empty V-slots (FEN) but not Medial Empty V-slots (MEN). This effectively creates Catalexys (cf. Kiparsky 1991; Burzio 1994).

[7] There is also the possibility that F is marked by a final CV. This would make all feminine roots V-final (equivalent to V-final masculines). This would actually make two classes of roots: V-final and C-final, with either M or F V-final roots. This would not affect the derivations in this analysis (and it would fit the spirit of the general analysis); however, it might not be as attractive a proposal as it initially seems because it has implications for the underlying distribution of mid vowels discussed shortly in (18). There are lexical exceptions in proper names, and other forms where the feminine and masculine have the opposite phonological shape from what is expected. This is consistent with the fact that there are three root shapes, but not really with the notion that F is phonologically marked in a certain way: [ˈawka] 'child.F' [awka] 'child.M', [aˈmoli] 'clever person.F' [amoˈli] 'clever person.M'. Ultimately the gender of a root is usually a product of a historical fact. I leave this open as a further decompositional possibility.

[8] Long vowels in Afar need to be Licensed by a filled V-slot to their right (Yoshida 1993; Kaye 1995). See Scheer (2004:220) for a summary and Balogné Berces & Ulfsbjorninn (to appear) for development of the idea.

*['bare] *['mato]. Crucially, this cannot be reduced to a condition against mid-vowels in unstressed positions. Since in fact, mid-vowels are found in non-final unstressed positions: [maʕoˈlim] 'teacher', [kabelˈla] 'shoe'. The most compelling analysis therefore is that mid-vowels are specifically banned in the last V-slot of the word, the final nucleus (FN), the dependent position of the foot. The FN in Afar can only contain simplex corner vowels: /a, i, u/ or zero /Ø/.

(18) Final 'vowel' of V-Masc root is a dependent, but it is the head of F root



a. ['koːri] 'saddle'    b. [ħaˈdo] 'meat'

This mid-vowel constraint leads to the pairing of some roots which exist both in the feminine and masculine. The V-Masc variants have high vowels in the place of the F roots' mid-vowels: [abaːroˈle] 'evil woman' vs. [abaːˈroli] 'evil man' & [ʕajɖiɖˈɖo] 'poor woman'vs. [ʕajˈɖiɖɖu] 'poor man'. Note again that this rule does not merely target unstressed mid-vowels, only final mid-vowels (prosodically weak/dependent mid vowels): [gersitˈto] 'another.F' vs. [gerˈsittu] 'another.M' (Bliese 1981:231).

## 4    Derivations

The root shapes given and the prosodic conditions explained in section 3 are now paired with the proposed URs of the Afar affixes to generate a unified analysis of pseudo-allomorphy in Afar.

### 4.1    Nominative

The exponent for the Nominative is given in (19) below. The Nominative overwrites vowel final roots of the masculine (V-Masc or Class I) and there is an unpredictable stress shift. However, Nom receives no interpretation with other root shapes.

(19) Nominative by root shape (repeated from (2))

| Class | Root | Nominative | |
|---|---|---|---|
| I | ['bara] | [baˈri] | 'night' |
| II | [buˈlul] | -- | 'flour' |
| III | [ħaˈdo] | -- | 'meat' |

The different behaviour of C-Masc and F roots is explained by the fact that they form a natural class: they both end in an empty V-slot. Therefore, it is the V-final status of the root of V-Masc that leads to its special behaviour under affixation of the Nominative.

I propose therefore that the Nominative is characterized by a floating <i> and a floating H tone.

When the floating segment is concatenated with a vowel-final root, this creates two adjacent vowel segments: a V1V2 hiatus. Afar, as is most typical cross-linguistically, deletes V1 in V1V2 vowel hiatus (Casali 2003). This is the cause of the overwriting of the V-Masc root's final vowel, it occurs via a delinking of the vowel in its last V-slot (V2). In (20) the vowel hiatus is shown greyshaded and a (!) marking its hiatus violation.

The floating |H| links to the closest filled V-slot, which causes a stress shift, since, as a product of the shape of the URs, there is a high tone located on V2.

(20)    V-Masc in the Nominative

    a. URs 'bara + <i> <H> 'night'

```
          *                        H
         (*            *
C1      V1      C2     V2     +
|       |       |      |
b       a       r      a            i
```
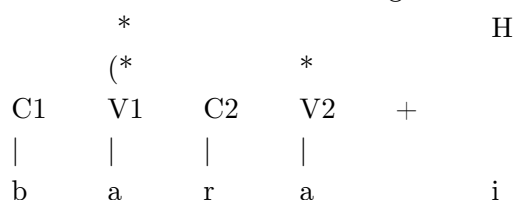
    b. Hiatus violation and /a/ delinking, <i> and <H> both linking

```
          *
         (*            * ---------------- H
C1      V1      C2     V2     +
|       |       |      |
b       a       r      a            i!
```
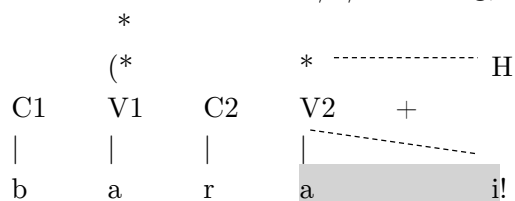
    c. Computed form [ba'ri]

```
                         H
          *              |
         (*              *
C       V       C        V     +
|       |       |
b       a       r        a            i
```
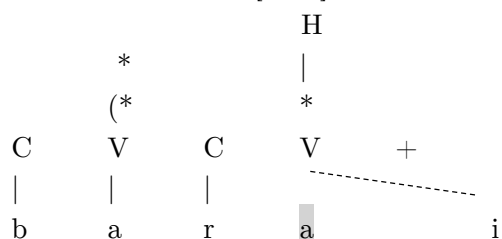
Meanwhile, the final V-slot of C-Masc and F roots shapes end in a final empty nucleus (FEN) which is silenced by the DFP. The reader will recall that, as explained in section (2.4), floating segments do not link to silenced positions, consequently, the floating <i> of the Nominative will never be able to link to C-Masc and F roots.

13

The forms in (21b and 21b) shows that once the string is phonologically computed, the FEN (V3) is silenced. This bleeds the chance of the floating <i> to link to V3 and be interpreted. I will not indicate the full derivation of H tone here, for visual reasons, I include in the final form linked to its position. Suffice it to say that in this case the floating |H| of the Nominative also links to the first filled V-slot (V2) (which is identical to the default location of high tone/stress).

(21)  C-Masc and F roots in the Nominative

a. URs /miˈsil + <i>/ 'chief'

```
                         *
        *              (*          *
C1    V1    C2    V2    C3    V3    +
|     |     |     |     |
m     i     s     i     l                i
```
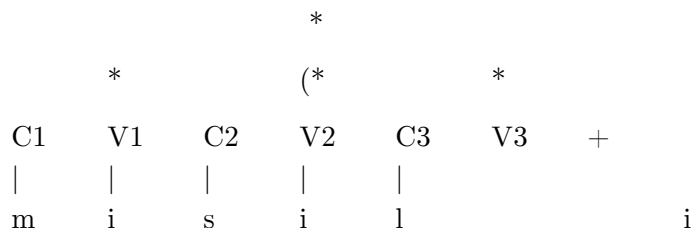
b. V3 silenced by DFP, no linking of <i>

```
                         *
        *              (*          *
C1    V1    C2    V2    C3    V3    +
|     |     |     |     |         ---/-/-----
m     i     s     i     l                i
```

c. Computed form [miˈsil]

```
                         H
                         |
                         *
        *              (*          *
C1    V1    C2    V2    C3    V3    +
|     |     |     |     |
m     i     s     i     l                i
```
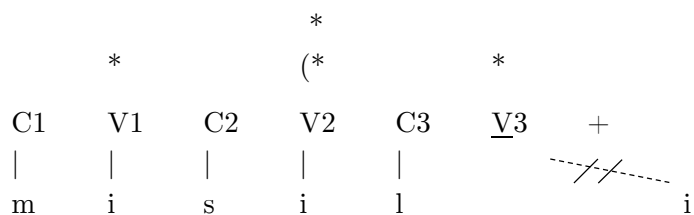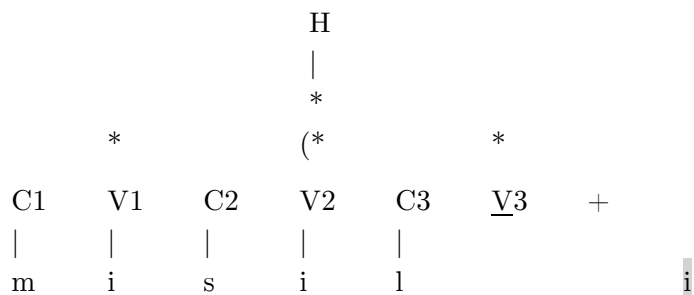
The same exact derivation occurs with F roots which end in a fully empty final CV. Again I have not shown floating H tone, which in this case also links to the closest filled V-slot (V2), the default location of high tone/stress.

(22)　F roots in the Nominative

a. UR /ħaˈdo/ + <i> 'meat'

```
                          *
            *          (*            *
C1    V1    C2    V2    C3    V3    +
|     |     |     |
ħ     a     d     o                  i
```
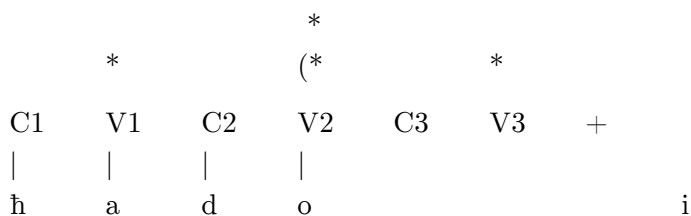
b. V3 silenced by DFP, <i> cannot link

```
                          *
            *          (*            *
C1    V1    C2    V2    C3    V3    +
|     |     |     |              ----/-/-----
ħ     a     d     o                  i
```

c. Computed form: [ħaˈdo]

```
                          H
                          |
                          *
            *          (*            *
C1    V1    C2    V2    C3    V3    +
|     |     |     |
ħ     a     d     o                  i
```
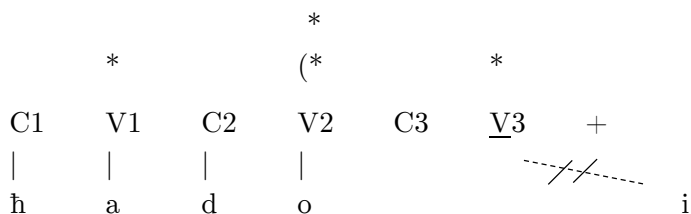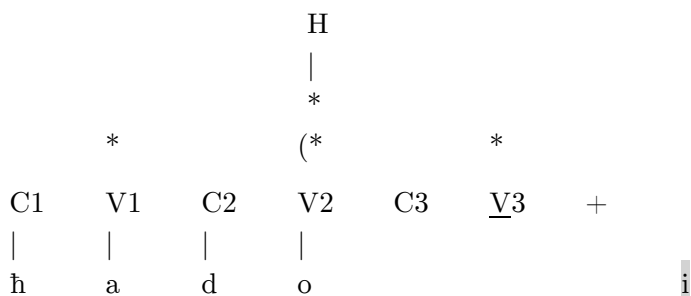
## 4.2　Genitive and Consonant doubling

Bliese (1981:165) suggests that the Genitive in Afar has the following structure: Possessor-NOM.GEN + Possessee + has + Possessee.

(23)　　　ħutukˈt-i　　　　ˈifu　ˈle　　ˈifu　　　　　>　　　[ħutukˈti ˈifu]

　　　　　star-NOM.GEN light　has　　light　　　　　　　　　'star's light'

This seems to be interpreted in the phonology as two cycles/phases: Possessor + GEN & Possessee, [[AB]C] (see Newell 2008; Samuels 2010; and Scheer 2011, 2012 for a history of the concept and for how this works in Strict CV). AB and C have their own stress: [[ˈAB] ˈC]. The first cycle, [AB] generates a form that is entirely syncretic with the Nominative, the second cycle produces external sandhi depending on the phonological shape of the items at the juncture of [[AB] and C].

(24)    Genitive (repeated from 3)

| Class | | Root | Genitive | |
|---|---|---|---|---|
| I | | ['awka] | [aw'k-i ki'taːba] | 'boy's book' |
| II | | ['num] | ['num ki'taːba] | 'man's book' |
| III | _+V | [sa'ga] | [sa'ga-h-'iba] | 'cow's foot' |
| | _+C | [bu'ɖa] | [bu'ɖa-m-'mara] | 'village's people' |

The situation is simplest of all with C-Masc Class II possessors. This is because they end in a Final Empty Nucleus, which resists the attachment of the floating segment /i/ which expones the NOM.GEN. The computation of the first cycle is identical with the nominative so I will pass directly to its computed form in (25b). Then we see in (25c), cycle 2. Non-attached items in Cycle 1 are not sent to the second cycle. No phonological adjustment is required, and the genitive surfaces as ['num ki'taːba] 'man's book'.

(25)    Genitive of a C-Masc ['num ki'taːba] 'man's book'

   a.    Cycle 1 - UR /num/ + <i>

```
                              H
  *
  (*            *
C1    V1    C2    V2    +
|     |     |
n     u     m                 i
```

   b.    Computed form

```
   H
   |
   *
   (*            *
C1    V1    C2    V2    +
|     |     |
n     u     m                 i
```

   c.    Cycle 2 – No processes. Computed form: ['num ki'taːba]

```
   H                           H
   |                           |
   *                           *
   (*            *        *    (*                        *
C1    V1    C2    V2   +  C  V    C    V    C   V    C    V
|     |     |            |  |    |    |          /    |    |
n     u     m            k  i    t    a         /     b    a
```

16

Passing now to the discussion of the Genitive of V-Masc nouns. We see again the same derivation as in the Nominative in the first cycle, followed by no processes in the second cycle. I will therefore show only the URs and the computed forms for reasons of space.

(26)    Genitive of V-Masc [ˈibi saˈro] 'sock (lit. foot's cloth)

    a. Cycle 1 completed /iba + <i><H>/

```
                                        H
        *
        (*              *
C1      V1      C2      V2      +
        |       |       |
        i       b       a               i
```

    b. Computed form [iˈbi]

```
                        H
        *               |
        (*              *
C       V       C       V       +
        |       |       ⟍
        i       b       a̲             i
```

    c.      Cycle 2

```
                        H                               *
        *               |                               (*              *
        (*              *               *               (*              *
C       V       C       V       +       C       V       C       V       C       V
        |       |       ⋮               |       |       |       |
        i       b       i               s       a       r       o
```

    d.      Computed form

```
                        H                               H
        *               |                               *
        (*              *               *               (*              *
C       V       C       V       +       C       V       C       V       C       V
        |       |       ⋮               |       |       |       |
        i       b       i               s       a       r       o
```
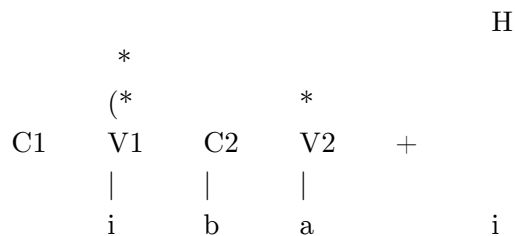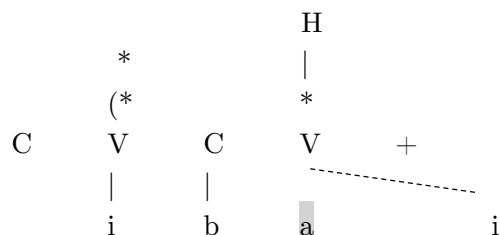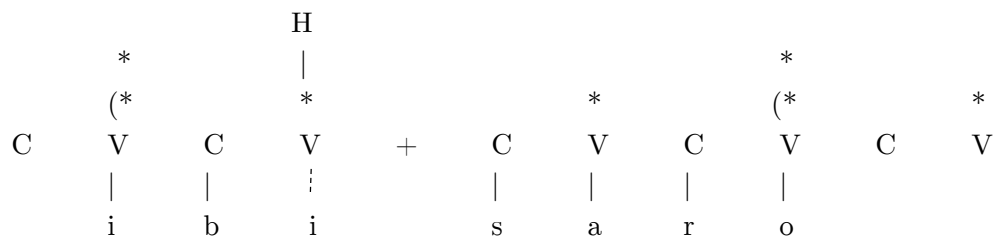
One of the most interesting effects is what happens with F roots. These end in a fully empty CV underlyingly, which in the first cycle explains their non-linking to the NOM.GEN floating affix <i>. We will not repeat this here, rather pass directly to the second cycle where the fully empty

17

CV of F roots does require adjustment. This is because in the second cycle it ceases to remain Domain-Final. This leads to external sandhi in two interesting ways depending on the phonological status of the first CV of the second item, the possesseee.

If the possessee begins with a vowel, the following structure will be fed into the second cycle. We see in (27a) that there is a vowel hiatus interrupted by a wholly empty CV unit. Note that this VV adjacency is not the same as two V-segments being adjacent, there is an empty CV between the two filled V-slots. As shown in (27b), the first V-slot of the Possessee (V4) can silence the final V-slot of the F root (V3). The hiatus is then solved by epenthesis of /h/ into C3.

(27)    Genitive with F root and V-initial Possessee [saˈga-h-ˈiba] 'cow's foot'

a. Cycle 2

```
                 H                         H
                 |                         |
                 *                         *
        *       (*           *           (*           *
C1      V1      C2      V2      C3      V3  +  C4      V4      C5      V5
|       |       |       |                             |       |       |
s       a       g       a                             i       b       a
```

b. V4 silences V3. [h] epenthesis blocking hiatus between V2 and V4

```
                 H                                 H
                 |                                 |
                 *                                 *
        *       (*                   *            (*           *

                             ↓     Gov      |
C1      V1      C2      V2      C3      V̲3̲  +  C4      V4      C5      V5
|       |       |       |       ⋮                    |       |       |
s       a       g       a       h                    i       b       a
```
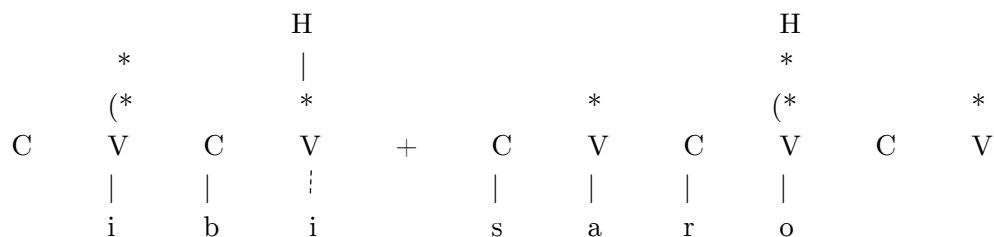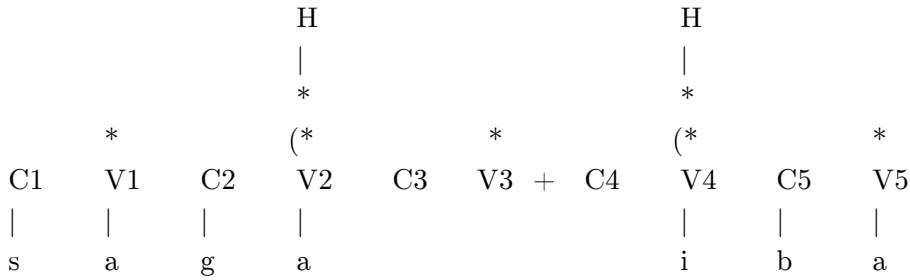
c. Computed form

```
                 H                         H
                 |                         |
                 *                         *
        *       (*           *           (*           *
C1      V1      C2      V2      C3      V̲3̲  +  C4      V4      C5      V5
|       |       |       |       ⋮                    |       |       |
s       a       g       a       h                    i       b       a
```
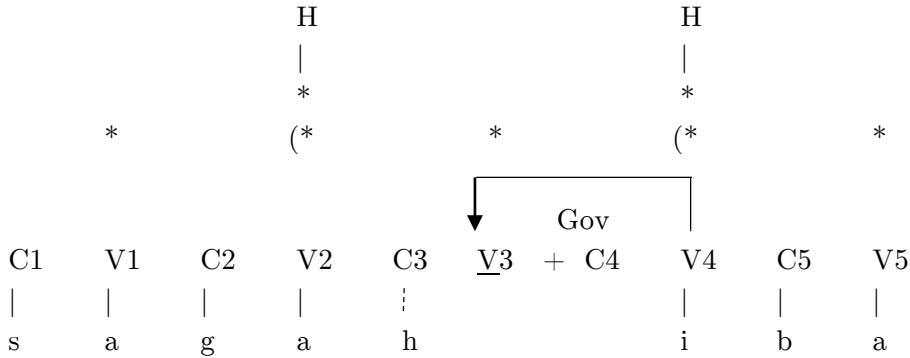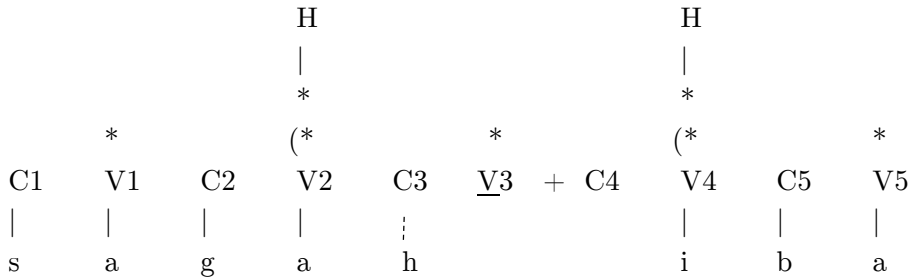
Meanwhile, if the Possessee starts with a consonant. The same V to V silencing occurs, however, the first consonant of the Possessee spreads forming a geminate with the final C-slot of the

Possessor. This is precisely the same phonological context of doubling as in *Raddoppiamento Sintattico* in Italian (Passino 2013). The whole derivation, beginning with the second cycle, is shown in (28) beneath.
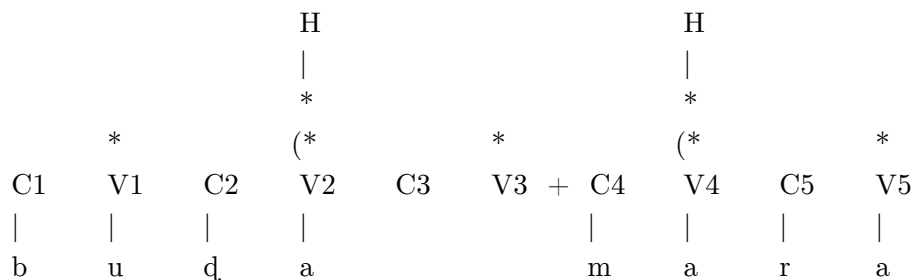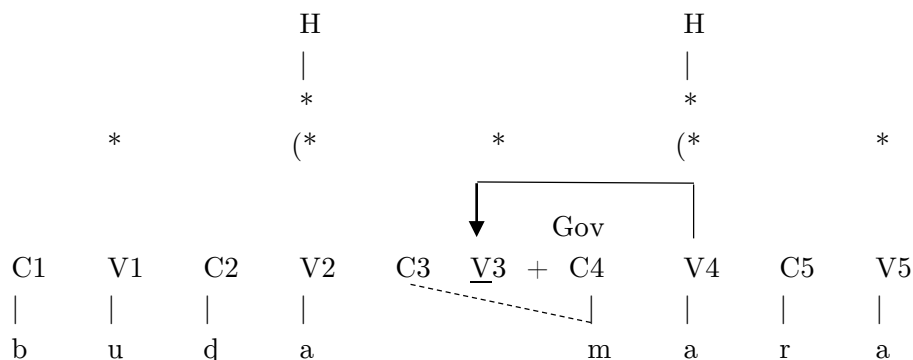
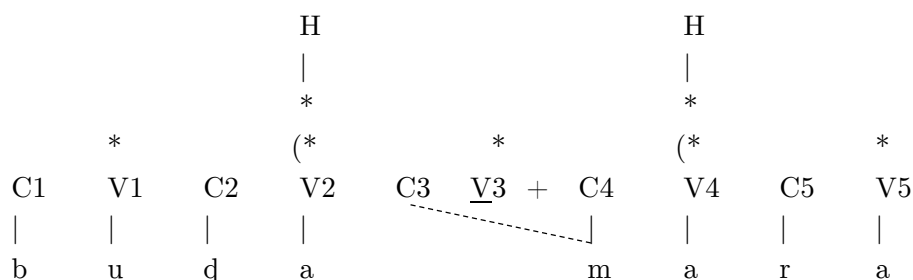(28)   Genitive with F root and C-initial Possessee [buˈɖam-ˈmara] 'village's people'

a. Cycle 2

```
                        H                           H
                        |                           |
                        *                           *
          *            (*            *            (*            *
   C1     V1     C2     V2     C3     V3  +  C4     V4     C5     V5
   |      |      |      |                    |      |      |      |
   b      u      ɖ      a                    m      a      r      a
```

b. V4 Silences V3. C4 spreads into C3

```
                        H                           H
                        |                           |
                        *                           *
          *            (*            *            (*            *

                              ↓          Gov    ⌐
   C1     V1     C2     V2     C3    V3  +  C4     V4     C5     V5
   |      |      |      |            ⸍‒‒‒‒‒‒‒‒‒⌋     |      |      |
   b      u      ɖ      a                    m      a      r      a
```

c. Computed form

```
                        H                           H
                        |                           |
                        *                           *
          *            (*            *            (*            *
   C1     V1     C2     V2     C3    V3  +  C4     V4     C5     V5
   |      |      |      |           ‒‒‒‒‒‒‒‒‒⌋     |      |      |
   b      u      ɖ      a                    m      a      r      a
```

## 4.3   Stress shift and segment deletion in the Particular

The stress shift in the particular affix is interesting because the Particular does not have an underlying high tone. It is not an affix that has an irregular stress shift. However, it does produce an unexpected stress shift in both V-Masc roots (Class I) and F roots (Class III). This cannot be understood as being produced from a surface effect creating penultimate stress, because Class III in the Particular has final stress.

Instead, we will see that it follows from the root shapes interacting with the affix's structure, and all the forms can be analysed without any allomorphy.

(29)    Particular affix repeated from (4)[9]

    a. Class I

        ['dummu]               [dum'mu-jta]           'particular tomcat'
        [wa'kali]              [waka'li-jta]         'particular companion'

    b. Class II

        [ħu'tuk]                [ħu'tuk-ta]            'particular star'

    c. Class III

        [gaʕam'bo]           [gaʕambo-j'ta]       'particular bread'
        [ʕa'le]               [ʕale-j'ta]            'particular mountain'
        [dum'mu]              [dummu-j'ta]         'particular vixen'

I propose that the underlying form of the Particular is composed of two floating consonant segments and a fixed vowel segment: /<jt>a/. These all sit beneath two CV units of skeletal structure.

(30)    Particular UR

    C     V     C     V

                            |

    j             t     a

Since the segments and the skeleton are not associated to each other they have independent fates when they are concatenated with roots of different shapes.

      If there is a free consonantal position in a root, the floating <j> is entitled to link to it. If there is a second available C slot the floating <t> can sit in that position. The order of the segments must be preserved, which is something we see in general with consonantal roots associating to templates (Arabic (McCarthy 1979, 1981), for Tashlhiyt Berber (Lahrouchi 2010), for Tigre (Faust 2020), among many others).

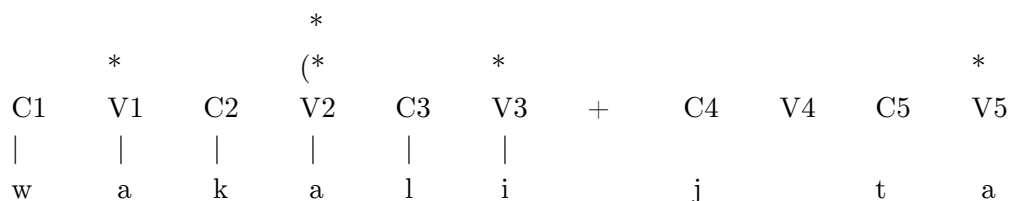### 4.3.1   The appearance of prestressing deriving Particular V-Masc forms

As shown beneath in (31), in the case of the V-Masc there is no root-internal C-slot that <j> can link to. Consequently, the first available position is the first C-slot of the affix (C4), and the <t>

---

[9] When the particular suffix is preceded by an /a/ in the stem, its vowel dissimilates and surfaces as [o]: [saʕ'la] 'older sister', [saʕla-j'to] 'particular older sister' (Bliese 1981:175). If, additionally, (as happens with Particular C-Masc and V-Masc forms) the vowel of the particular is final in the foot (as explained in (18)) it cannot be mid and it reduces to [u]: ['bara] 'evening', [ba'ra-jtu] 'particular evening' and [ʕas'kar] 'servant', [ʕas'kar-tu] 'particular servant' (Bliese 1981:175).
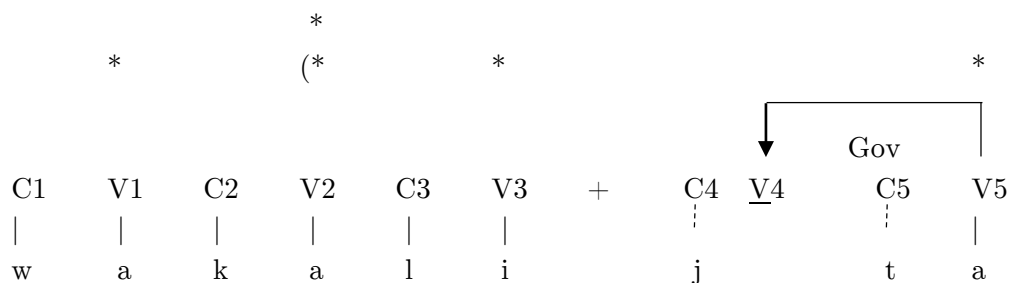
links to the next available C-slot (C5). The form as it stands violates the trochaic condition stated back in Section (3). This leads to stress shift. Since the Particular affix does not introduce its own |H| tone, we can assume it is inserted by default. Due to the number of skeletal units in the Particular suffix, a V-Masc root will always end up with stress shifting to the root-final vowel (exactly as is observed). On the surface this looks like prestressing, but the effect is entirely derived.

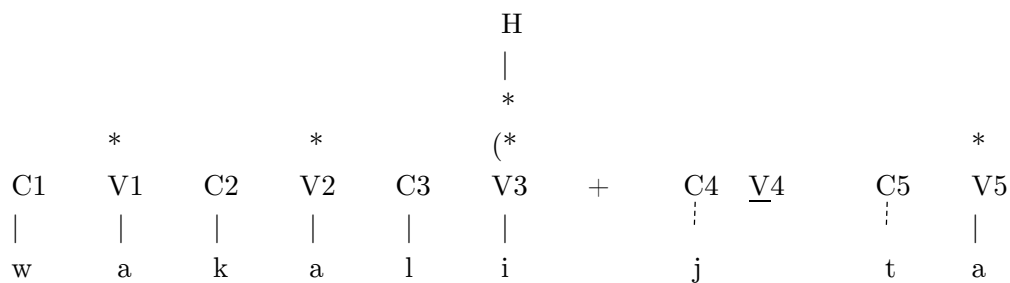(31)　V-Masc roots in the Particular [wakaˈli-jta] 'particular companion'

a. UR /waˈkali + <jt>a/

```
                            *
        *                  (*              *                                      *
   C1   V1   C2   V2   C3   V3    +    C4   V4   C5   V5
   |    |    |    |    |    |
   w    a    k    a    l    i          j         t    a
```

b. V5 silences V4. <j> links to C4, <t> to C5

```
                            *
        *                  (*              *                                      *
                                                        Gov
   C1   V1   C2   V2   C3   V3    +    C4   V̲4        C5   V5
   |    |    |    |    |    |         ⋮              ⋮    |
   w    a    k    a    l    i          j              t    a
```

c. Stress shift to the penultimate position, computed form: [wakaˈli-jta]

```
                                      H
                                      |
                                      *
        *              *             (*                                           *
   C1   V1   C2   V2   C3   V3    +    C4   V̲4        C5   V5
   |    |    |    |    |    |         ⋮              ⋮    |
   w    a    k    a    l    i          j              t    a
```

As mentioned in footnote (6), should the vowel of the particular dissimilate to 'o', caused by a stem-final /a/. In these masculine forms the 'o' would be in a prosodically weak position where mid-vowels are not permitted. This leads to vowel reduction: [ˈbara] 'evening', [baˈra-jtu] 'particular evening'.

21

### 4.3.2 Deriving Particular F forms

Using the same principles, we now show that the F roots lead to stress appearing to fall on the particular affix. However, again this is illusory. The Particular affix does not have its own stress and stress shift occurs in the same way as it does in the V-Masc forms. The only difference is that F roots end in a wholly empty CV and this allows the floating segments of the particular affix to enter deep into the root.

As shown in (32), the <j> of the Particular links to the first available empty C-slot. C3. The <t> then takes the next available C-slot (C4). This, however, as shown in (32c) causes an ECP violation, since V4 being empty and silenced cannot silence V3. Because there is no consonant in C5, the <a> can spread into V4, filling the position which in turn allows it to silence V3 (this is shown in 32d). This, however, creates a long vowel in final position, which is shortened in Afar (unless this violates minimality). This was seen earlier with F roots, whose final stressed vowel alternates with long vowels in the plural. In Afar, long vowels are shortened in final position even if these are actually created by the morphology: aˈbeː > [aˈbe] 'he did' and all perfect aspect, raˈdaː > [raˈd-a] 'I fall' all imperfects, and ʕaˈdoː > [ʕaˈdo] 'it is white' and all present aspects (Bliese 1981:225-226).

As with all these forms, I propose that the final long vowel shown in (32d) loses its underlying link to the FN. The resulting structure leaves a wholly empty CV word-finally (shown in (32e). Penultimate stress shift then forces stress to fall on V4, the V-slot that also holds the /a/ of the Particular, this gives the appearance of final stress.

(32)    F roots in the particular [ʕale-jˈta] 'particular mountain'

a. UR /ʕaˈle + <yta>

```
                              *
        *                 (*                                      *
C1    V1    C2    V2    C3    V3    +     C4    V4    C5    V5
|     |     |     |                                          |
ʕ     a     l     e                       j           t     a
```

b. <j> and <t> spread to C3 and C4

```
C1    V1    C2    V2    C3    V3    +     C4    V4    C5    V5
|     |     |     |       ⟍                ⟍                 |
ʕ     a     l     e            j                  t     a
```

c. ECP violation (shown greyshaded with !)

```
C1    V1    C2    V2    C3    V3    +     C4    V4!   C5    V5
|     |     |     |     ⋮                 ⋮                  |
ʕ     a     l     e     j                 t                 a
```

d. Long vowel formation and silencing of V3

```
                                    ┌─────────── Gov ───────────┐
                                    ↓                           │
C1      V1      C2      V2      C3      V̲3      +      C4      V4      C5      V5
|       |       |       |       ⋮                      ⋮              ╲
ʕ       a       l       e       j                      t               ╲      a
```
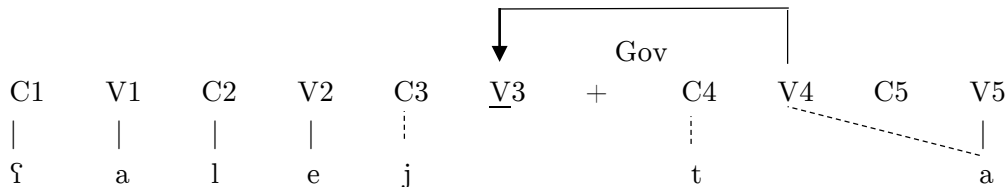
e. /a/ delinks from V5 and stress shifts to the penultimate V-slot (V4)

```
                                                              H
                                                              |
                                                              *

        *               *                              (*              *
C1      V1      C2      V2      C3      V̲3      +      C4      V4      C5      V̲5
|       |       |       |       ⋮                      ⋮       ⋮
ʕ       a       l       e       j                      t       a
```
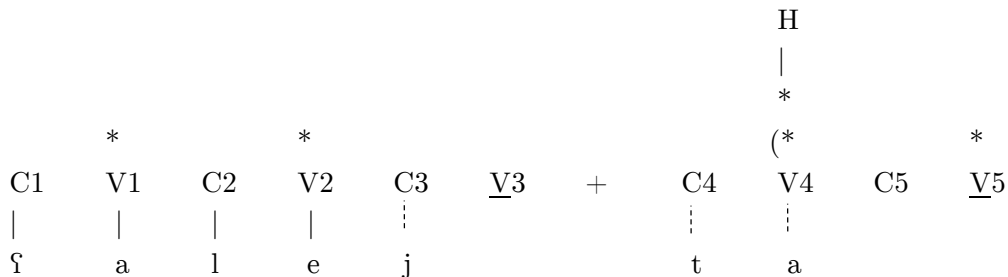
This appearance of final stress actually conceals the fact that the Particular suffix's melody has snuck further into the stem's skeletal structure, and the Particular's final stressed vowel is actually in a penultimate position from which it can bear stress (like all Afar nominal forms).

### 4.3.3 Deriving Particular C-Masc forms

The C-Masc root shape, leads to a similar problem as the F root, but the solution used in the F forms cannot be applied here.

As shown in (33a), we see that because the Particular is consonant-initial and C-Masc roots end in a filled C and empty V, the whole of the Particular's floating segments have to link to the skeletal structure of the Particular.

As we see in (33b), <j> links to C4 and <t> links to C5. However, because the C-Masc root ends in an empty V-slot (V3), this creates an ECP violation, again shown greyshaded. This was the same issue as with F-roots, however, there the /a/ of the Particular was free to spread leftward and solve the ECP violation. However, here, /a/ cannot spread into V4 to fix the problem because <t> is linked to C5. V3 cannot be silenced so it is deleted by, it seems along with C4 (perhaps echoing a skeleton deletion process that affects VC: Reduction Gussmann & Kaye (1993)). Removing V3 and C4, as shown in (33c) does lead to maintaining the CV skeleton: C3V̶3̶C̶4̶V4 > C3V4. This accounts for the special loss of /j/ only in the Particular form of C-Masc roots. The output is shown in (33d).

This final diagram shows stress and it confirms that C-Masc Particular forms will always retain stress on their root's penultimate V-slot, so no stress shift will be observed with these forms.

(33)   C-Masc roots in the Particular [ħaˈtuk-ta] 'particular star'

a. URs /ħaˈtuk + <jt>a/

```
                        *
        *              (*          *                              *
C1      V1    C2    V2    C3    V3    +    C4    V4    C5    V5
|       |     |     |     |                j           t     |
ħ       a     t     u     k                            t     a
```

b. ECP violation

```
                                    ┌──╫──────┐  ┌──────────┐
                                    │         ▼  │   Gov
C1      V1    C2    V2    C3    V3   +    C4   V4!   C5    V5
|       |     |     |     |                    ⋮    ⋮     |
ħ       a     t     u     k                j         t     a
```

c. Skeleton deletion

```
                                         ┌──────┐  ┌──────┐
                                         ▼         │  Gov
C1      V1    C2    V2    C3    V̶3̶   +̶    C̶4̶   V4    C5    V5
|       |     |     |     |                    ⋮    ⋮     |
ħ       a     t     u     k                j         t     a
```

d. Computed form: [ħaˈtuk-ta]

```
                        *
        *              (*                        *
C1      V1    C2    V2    C3    V4    C5    V5
|       |     |     |     |     |     ⋮     |
ħ       a     t     u     k           t     a
```

# 6    Conclusion

I discussed the language Afar and demonstrated that what might be seen as morphologically conditioned allomorphy (responding to three noun classes) could be largely reanalyzed without allomorphy and without class features. I showed that the variation in forms can be derived entirely phonologically. The analysis is possible due to the three basic root shapes in Afar, all of them characterized by a right-aligned trochee that holds in all forms, all nouns end in a prosodically weak CV unit. The three shapes are defined by what parts of this final CV unit is filled (or empty). These root shapes interact with the underlying shape of affixes, which in Afar can be shown to introduce both floating melody (segments and tone) and skeletal material at the same

time. The interaction of these shapes correctly generates some considerable variety of outputs, including correctly modeling both prestressing and affix-stress from the same affix, one which is demonstrably not underlyingly stressed.

## Bibliography

Acquaviva, P. 2008. Lexical Plurals. Oxford: Oxford University Press.

Akinbo, S. 2021. Featural affixation and sound symbolism in Fungwa. *Phonology*, 38(4):537-569.

Bliese, L. F. 1981. *A Generative Grammar of Afar.* SIL Publications in Linguistics. 65. SIL and University of Texas, Arlington.

Balogné Bérces, K. & S. Ulfsbjorninn. to appear. Prevocalic Tenseness in English, Binarity and the Typology of Long Vowel Distributions. UCL Press.

Barillot, X., S. Bendjaballah & N. Lampitelli. 2017. Verbal classes in Somali: Allomorphy has no classificatory function. *Journal of Linguistics*, 54(1). 3–43.

Ben Si Saïd, S. 2011. Association sous Contrôle grammatical: Le cas du a du pluriel externe en Kabyle. *Acta Linguistica Hungarica*, 57(4): 432–443.

Ben Si Saïd, S. 2014. De la nature de la variation diatopique en kabyle : étude de la formation des singulier et pluriel nominaux. Ph.D dissertation, University Nice Sophia Antipolis.

Bendjaballah, S. & M. Haiden. 2008. A typology of emptiness in templates. In J. M. Hartmann, V. Hegedüs & H. van Riemsdijk (eds.), *Sounds of silence: Empty elements in syntax and phonology*, 2–59. Oxford & Amsterdam: Elsevier.

Bonet, E. & D. Harbour. 2010. Contextual Allomorphy. In: Trommer, Jochen (ed.), *The Morphology and Phonology of Exponence*, pp. 195-235. Oxford: Oxford University Press.

Bonet, E., M-R. Lloret & J. Mascaró. 2007. Allomorph selection and lexical preference: Two case studies. *Lingua*, 117(9):903–927.

Burzio, L. 1994. *Principles of English Stress.* New York: Cambridge University Press.

Bye, P. & P. Svenonious. 2011. Non-concatenative morphology as epiphenomenon. In: Trommer, Jochen (ed.), *The Morphology and Phonology of Exponence*, pp. 427-495. Oxford: Oxford University Press.

Caha, P. 2009. *The nano-syntax of case.* Tromsø: University of Tromsø PhD Dissertation.

Casali, R. F. 2011. Hiatus Resolution. In: van Oostendorp, M., C. J. Ewen, E. Hume and K. Rice (eds.), Blackwell Companion to Phonology. Oxford: Blackwell.

Charette, M. 1991. *Conditions on Phonological Government*. Cambridge: Cambridge University Press.

Cho, S. 2016. The ɨ Deletion Rule and Phonologically Conditioned Allomorphy in Korean Case Markers. *University of Pennsylvania Working Papers in Linguistics*, 22(1):10.

Collins, C. & R. Kayne. to appear. Towards a Theory of Morphology as Syntax. (ms.), NYU.

Dolatian, H. 2022. An apparent case of outwardly-sensitive allomorphy in the Armenian definite. *Glossa: a journal of general linguistics*, 7(1).

Embick, D. 2010. *Localism versus Globalism in Morphology and Phonology*. Cambridge: Cambridge University Press.

Encrevé, P. 1983. La liaison sans enchaînement. *Actes de la Recherche en Sciences Sociales*, 46:39-66.

Encrevé, P. 1988. *La liaison avec et sans enchaînement: Phonologie tridimentionnelle et usages du Français*. Paris: Seuil.

Faust, Noam. 2020. The inflection of Tigre weak-final and strong verbs. *Acta Linguistica Academica*, 67(1):135-154

Faust, N., N. Lampitelli, & S. Ulfsbjorninn. 2018. Articles of Italian Unite: Italian definite articles without allomorphy. *Canadian Journal of Linguistics*, 63(3): 1–27.

Fortuna, M. 2022. A phonological solution to allomorphy in Georgian nominal inflection, *Glossa: a journal of general linguistics*, 7(1).

Goldsmith, J. 1976. *Autosegmental Phonology*. Ph.D. Dissertation. MIT.

Gussmann, E. & J. Kaye. 1993. Polish notes from a Dubrovnik Café I: The Yers. *SOAS Working Papers in Linguistics and Phonetics*, 3:427–462.

Hale, M. and M. Kissock. 1998. The Phonology-Syntax Interface in Rotuman. In Pearson, M. (ed.), *Recent Papers in Austronesian Linguistics: Proceedings of the Third and Fourth Meetings of the Austronesian Formal Linguistics Society, UCLA Occasional Papers in Linguistics*, 21:115-128. UCLA Department of Linguistics.

Halle, M. & A. Marantz. 1993. Distributed morphology and the pieces of inflection. In: Hale, K. & S-J Keyser (eds.), *The view from building 20*. Cambridge: MIT Press. Pp. 111–176.

Halle, M. & A. Marantz. 1994. Some key features of Distributed Morphology. In: Carnie, A. & H. Harley (eds.), *Papers on phonology and morphology. MIT Working Papers in Linguistics 21*. Cambridge, MA: MIT Press. pp. 275–288.

Halle, M. & J-R. Vergnaud. 1980. Three Dimensional Phonology. *Journal of Linguistic Research*, 1(1):83-105.

Harley, H. & R. Noyer. 1998. Licensing in the non-lexicalist lexicon: nominalizations, vocabulary items and the Encyclopaedia. In: Harley, H. (ed.) *MITWP 32: Papers from the UPenn/MIT Roundtable on Argument Structure and Aspect*, Cambridge: MIT Press. Pp. 119-137.

Hermans, B. & M. van Oostendorp. 2008. Umlaut is phonological: Evidence from ineffability. Talk presented at: *MFM 16*, University of Manchester.

Hyman, Larry M. 1985. A Theory of Phonological Weight. Dordrecht: Foris.

Kalin, L. 2020. Morphology before phonology: A case study of Turoyo (Neo-Aramaic). *Morphology*, 30:135-184.

Kaye, J. D. 1990. 'Coda'-licensing. *Phonology*, 7(2):301-330.

Kaye, J. D. 1995. Derivations and Interfaces. In: Durand, J. and F. Katamba (eds.), *Frontiers of Phonology: Atoms, structures, derivations*. pp. 289-332. London and New York: Longman.

Kaye, J., Lowenstamm, J. & J-R. Vergnaud. 1990. Constituent Structure and Government in Phonology. *Phonology*, 7:193-231.

Kiparsky, P. 1991. Catalexis. Ms. Stanford University and Wissenschaftskolleg zu Berlin.

Korean (XXX)

Kouneli, M. to appear. Inflectional classes in Kipsigis. *Glossa: a journal of general linguistics*.

Lahrouchi, M. 2010. On the Internal Structure of Tashlhiyt Berber Triconsonantal Roots. Linguistic Inquiry, 41(2):255-285.

Lampitelli, N. & S. Ulfsbjorninn. Accepted. A Classless Analysis of Italian Nouns and their Theme-Vowel Alternations. Isogloss.

Leben, W. 1973. 1973. *Suprasegmental phonology.* Ph.D. dissertation, MIT. Published 1980, New York: Garland.

Lieber, R. 1987. *An Integrated Theory of Autosegmental Processes.* Albany: SUNY Press.
Lahrouchi, M. & S. Ulfsbjorninn. 2022. Nasal Assimilation Counterfeeding and Allomorphy in Haitian: Nothing is still something. *Linguistic Inquiry.* aop.

Lowenstamm, J. 1996. CV as the only syllable type. In: Durand, J. & B. Laks (eds.), *Current Trends in Phonology: Models and Methods*, pp. 419-441. Salford, Manchester:ESRI.

Lowenstamm, J. 2022. Subject Agreement Inflection in the Semitic Verb. Don't Try Competition Outside the Privacy of your Allomorphic Set. (ms.). Université Paris Cité.

Marantz, A. 1982. Re-Reduplication. *Linguistic Inquiry*, 13(3):435-482.

Mascaró, Joan. 2007. External allomorphy and lexical representation. *Linguistic Inquiry*, 38(4): 715-735.

McCarthy, J. J. 1979. *Formal problems in Semitic phonology and morphology.* Cambridge, MA: MIT dissertation.

McCarthy, J. J. 1981. A prosodic theory of nonconcatenative morphology. *Linguistic Inquiry*, 12(3):373–418.

McCarthy, J. J. 1982. Prosodic templates, morphemic templates, and morphemic tiers. In: *The Structure of Phonological Representations.* 65.

Nevins, Andrew. 2011. Phonologically conditioned allomorph selection. In: M. van Oostendorp, C. Ewen, E. Hume & K. Rice (eds.), *The Blackwell Companion to Phonology*, pp. 2357-2382. Oxford, UK: Blackwell Publishing Ltd.

Newell, H. & S. Ulfsbjorninn. 2021. (eds.), Phonological Solutions to Morphological Problems. *The Linguistic Review*, 38(3).

Newell, H. 2008. *Aspects of the morphology and phonology of phases.* PhD Thesis. McGill University.

Newell, H. 2021. Deriving Level 1 / Level 2 Affix Classes in English: Floating Phonology, Cyclic Syntax. *Acta Linguistica Academica*, 68(1-2): 31-76.

Newell, H. to appear. Tamil pronominal alternations are phonology not allomorphy. In: Laszakovits, S. & Z. Shen (eds.), *The size of things*. Volume II. Berlin: Language Sciences Press.

Pagliano, C. 2003. L'épenthèse consonantique en français. Ce que la syntaxe, la sémantique et la morphologie peuvent faire à la phonologie. Ph.D dissertation, Université de Nice.

Passino, D. 2013. A Unified account of consonant gemination in external sandhi in Italian: Raddoppiamento Sintattico and related phenomena. *The Linguistic Review*, 30(2):313-346.

Paster, M. 2014. Allomorphy. In: Lieber, R. and P. Štekauer (eds.), *The Oxford handbook of derivational morphology*, pp. 219–234. Oxford: Oxford University Press.

Samuels, B. D. 2010. Phonological derivation by phase: evidence from Basque. *Penn Working Papers in Linguistics*, 16(1):166-175.

Scheer, T. 2004. A lateral theory of phonology. Vol. 1: What is CVCV, and why should it be? Berlin: Mouton de Gruyter.

Scheer, T. 2016. Melody-free syntax and phonologically conditioned allomorphy. *Morphology*, 26: 341-378.

Scheer, T. & M. Ziková. 2010. The Havlík Pattern and Directional Lower. In: D. Zec & W. Browne (eds.), *Formal Approaches to Slavic Linguistics. The Second Cornell Meeting 2009*, pp. 471-486. Ann Arbor: Michigan Slavic Publications.

Scheer, T. 1997. Vowel-zero alternations and their support for a theory of consonantal interaction. In: P-M. Bertinetto, L. Gaeta, G. Jetchev & D. Michaels (eds.), *Certamen Phonologicum III*, pp. 67-88. Torino: Rosenberg & Sellier.

Scheer, T. 2000. De la Localité, de la Morphologie et de la Phonologie en Phonologie. Habilitation thesis, Université de Nice.

Scheer, T. 2004. *A lateral theory of phonology. Vol. 1: What is CVCV, and why should it be?* Berlin: Mouton de Gruyter.

Scheer, T. 2010. Review of Gussmann (2007) The Phonology of Polish. *Studies in Polish Linguistics*, 5:111-160.

Scheer, T. 2011. *A guide to morphosyntax-phonology interface theories: how extra-phonological information is treated in phonology since Trubetzkoy's Grenzsignale*. Berlin: Mouton de Gruyter.

Scheer, T. 2012. *Direct interface and one-channel translation. Vol. 2 of a lateral theory of phonology.* Berlin: Mouton de Gruyter.

Scheer, T. 2016. Melody-free syntax and phonologically conditioned allomorphy. *Morphology*, 26: 341-378.

Scheer, T. 2019. On the difference between the lexicon and computation (regarding Slavic yers). *Linguistic Inquiry*, 50:197-218.

Starke, S. 2009. Nanosyntax: A short primer to a new approach to language. *Nordlyd*, 36(1):1-6.

Stanton, J. 2021. Allomorph selection precedes phonology: Evidence from Yindjibarndi. Natural Language and Linguistic Theory. 1-36.

Tranel, B. 1996. French Liaison and Elision Revisited: A Unified Account within Optimality Theory. In: T. Parodi, C. Quicoli, M. Saltarelli & M.L. Zubizarreta (eds.), *Aspects of Romance Linguistics*, pp. 433-455: Georgetown University Press.

Trommer, J. 2008. Voicing and Polarity in Luo. (ms.) Leipzig University. https://home.uni-leipzig.de/jtrommer/papers/antiauto3.pdf

Trommer, J. 2021. The subsegmental structure of German plural allomorphy. *Natural Language and Linguistic Theory.* 39:601–656.

Trommer, J. & E. Zimmermann. 2014. Generalised mora affixation and quantity-manipulating morphology. *Phonology*, 31(3):463-510.

Ulfsbjorninn, S. 2020. Segment–zero alternations in Galician definite article allomorphy floating consonants at the left-edge of morphemes. *Acta Linguistica Academica*, 67(1):1–16.

Ulfsbjorninn, S. 2021. A Phonological Reanalysis of Morphological Segment Deletion and De-affrication in Ik. *The Linguistic Review*, 38(3):483-516.

Ulfsbjorninn, S. to appear. Pseudo-Allomorphy of Articles and Articulated Prepositions in Llanito. *LINX*.

van Oostendorp, M. 2006. *A theory of morphosyntactic colours.* Available at: http://egg.auf.net/06/docs/Hdt%20Oostendorp%20coulours.pdf.

Welmers, Wm. E. 1959. Tonemics, morphotonemics, and tonal morphemes. *General Linguistics*, 4:1-9.

Wolf, M. 2005. An Autosegmental Theory of Quirky Mutations. In: *Proceedings of the 24th West Coast Conference on Formal Linguistics*, pp. 370-378. Somerville, MA: Cascadilla Proceedings Project.

Yip, M. 1988. Template morphology and the direction of association. *Natural Language & Linguistic Theory*, 6(4):551–577.

Yoshida, Shohei. 1993. Licensing of empty nuclei: The case of Palestinian vowel harmony. *The Linguistic Review*, 10:127-159.

Ziková, M. & M. Faltýnková. 2021. How to derive allomorphy: A case study from Czech. *The Linguistic Review*, 38(3):517–536.

Zimmermann, E. 2017. *Morphological length and prosodically defective morphemes*. Oxford: Oxford University Press.

Zoll, C. 1994. Anchors away: A unified treatment of latent segments and floating features. (ms.), Berkeley.