“Bipartite morphemes, grammatical tone, and restrictions on exponent shape”

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(1) FEED-FORWARD MODULAR ARCHITECTURE: Requires translation between *syntactic module* and *phonological module* (they speak different ‘languages’)[1]

(2) EXPONENCE: Pairing syntactic-semantic features with phonological exponents[2]

- [S-features] ↔ [Exponent]
- [+PL] ↔ /**-z**/

(3) EXPONENT (≈ ‘recurrent partial’, ‘morph’): Non-decomposable morphological primitive, made of phonological vocabulary (e.g. segments, tones, signs, etc.)[3]

(4) BIPARTITE MORPHEMES[4]

- *Discontinuity*: Single linguistic category expressed discontinuously, /**æ…β**/
- *Non-compositionality*: Meaning not composed of that meaning corresponding to /**æ**/ plus that meaning corresponding to /**β**/

(5) CIRCUMFIXES[5]: E.g. German [**deu**] participle ***ge-googel-t*** ‘(have/be) googled’

- “A circumfix is a good example of a bipartite morpheme, a single realization of a feature or bundle of features or of a derivational category”[6]
- Are circumfixes a *single* exponence rule[7] or *two separate* exponence rules[8]?

(6) *Discontinuous morphemes* (in Athabaskan[9]), *Splitting verbs* (in West Africa[10]), *Infix-inducing verbs* (in Lakhota[11]), “*Synaffixes*” (combinations of morphs[12])

(7) GRAMMATICAL TONE (GT)[13]: Kisi [**kss**] sentential negation

- **à** **dàtấ** **yá** **lé**
  you condemn\NEG me NEG ‘you didn’t condemn me’

(8) A RESTRICTION ON EXPONENT SHAPE: Our central theoretical pursuit today

- All phonological material of an exponent must be strictly local, i.e. there is a single association/precedence path without any ‘gapped’ structure
- Entails bipartite morphemes (e.g. circumfixes, or GT) consist either of (i) multiple morphologically separate exponents, or (ii) covert local structure

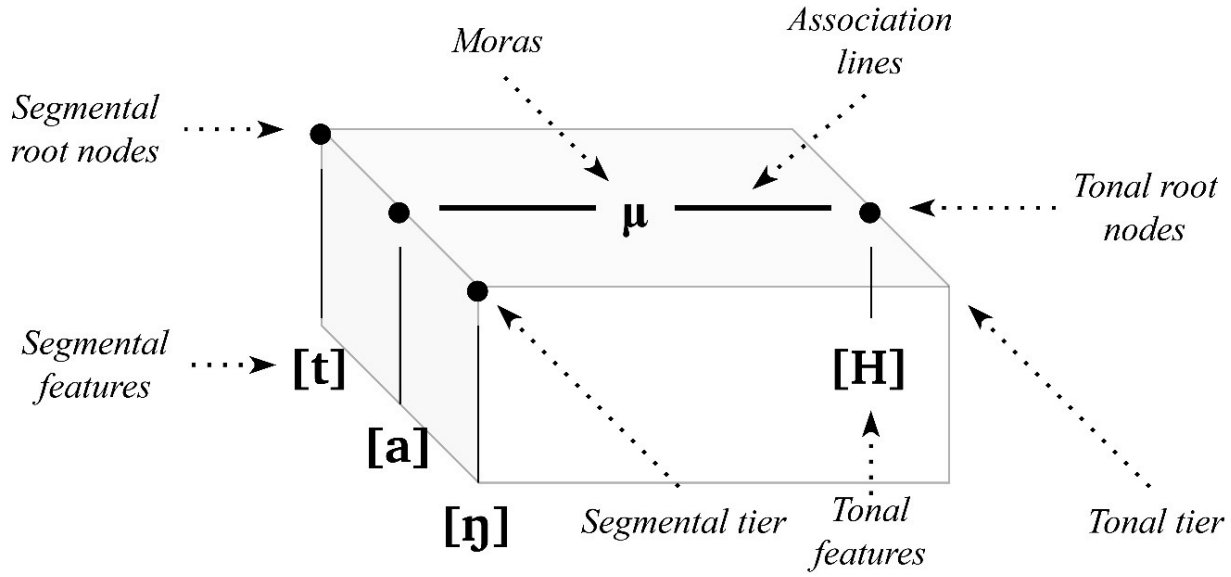
(9) Roadmap

- §1 A restrictive theory of exponent shape
- §2 Assessing grammatical tone
- §3 Repercussions of the proposal
- §4 Summary

1 A RESTRICTIVE THEORY OF EXPONENT SHAPE

1.1 *Tonal exponents*

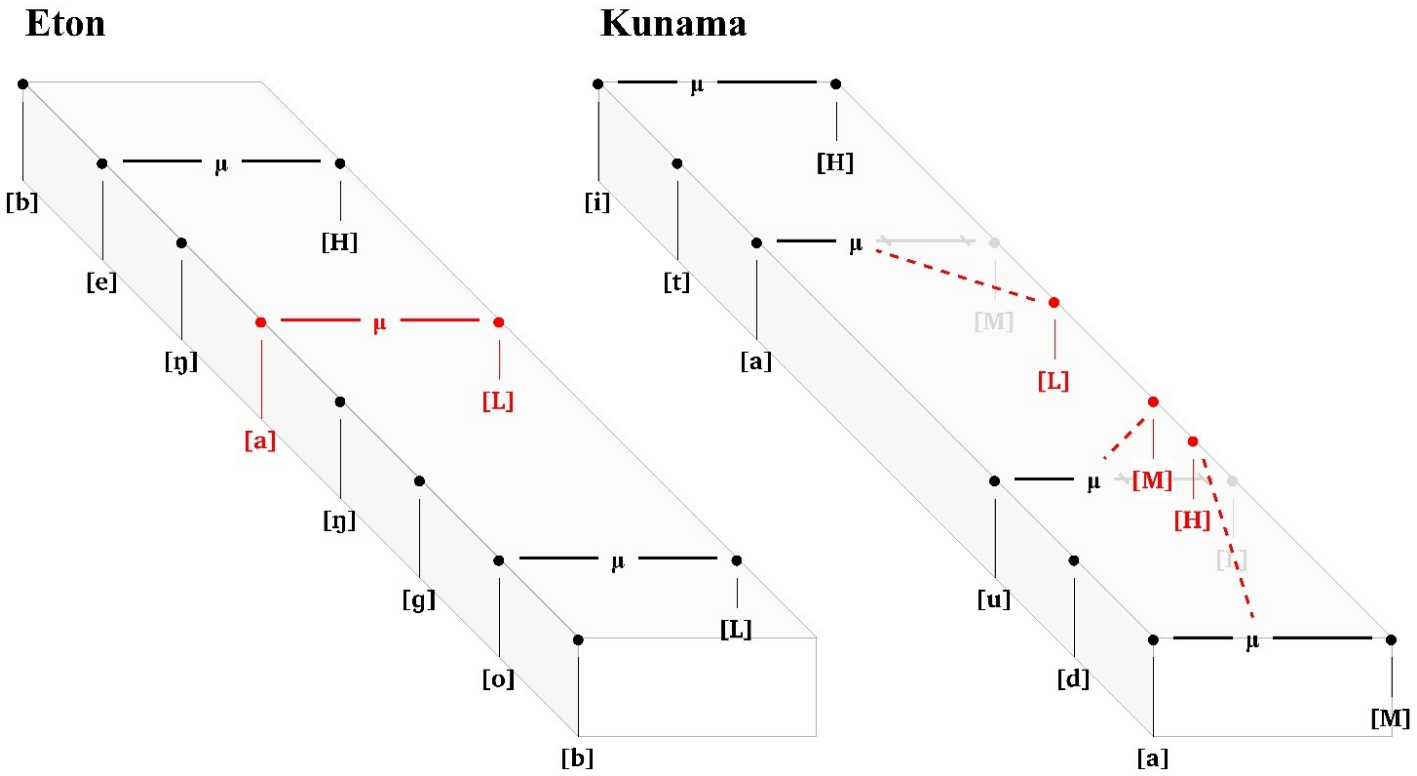
(10) AUTOSEGMENTAL STRUCTURE: Representation as a 3D object, where tones and segments exist on parallel tiers, connected via association lines[14]



(11) PARITY OF EXPONENCE PRINCIPLE: All grammatical meanings can be expressed by segmental exponents, tonal exponents, or their combination[15]

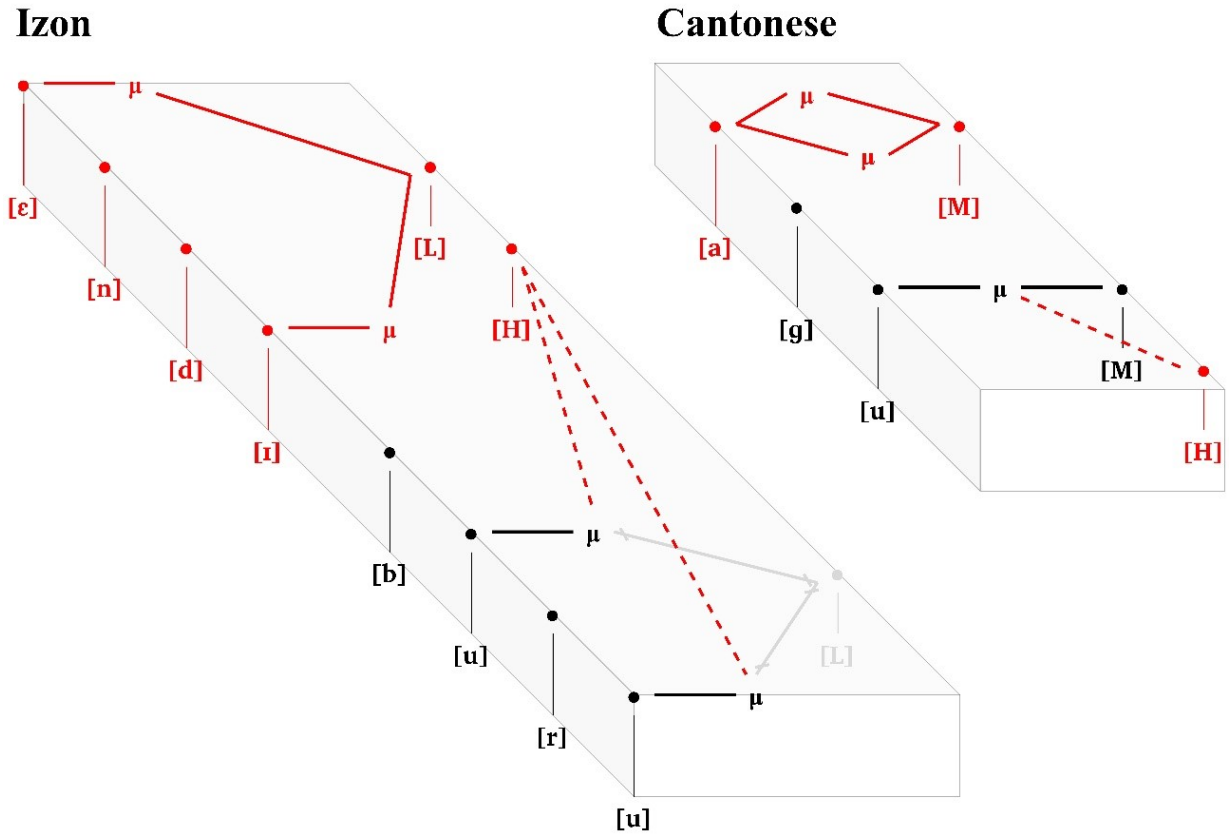
(12) Eton [eto]: **béŋ à ŋgòb**
only LINK shoes ‘only shoes’[16]

(13) Kunama [kun]: **ítā** Ⓛ Ⓜ Ⓗ **ùdā** → **ítà ūdā́**
house LINK door ‘house’s door’[17]



(14) Izon [ijc] **èndìⒽ bùrù** → **èndɪ́ búrú**
that yam ‘that yam’[18]

(15) Cantonese [yue] **ā:-gū-Ⓗ** → **ā:-gǔ** ‘Mr. Gu’[19]

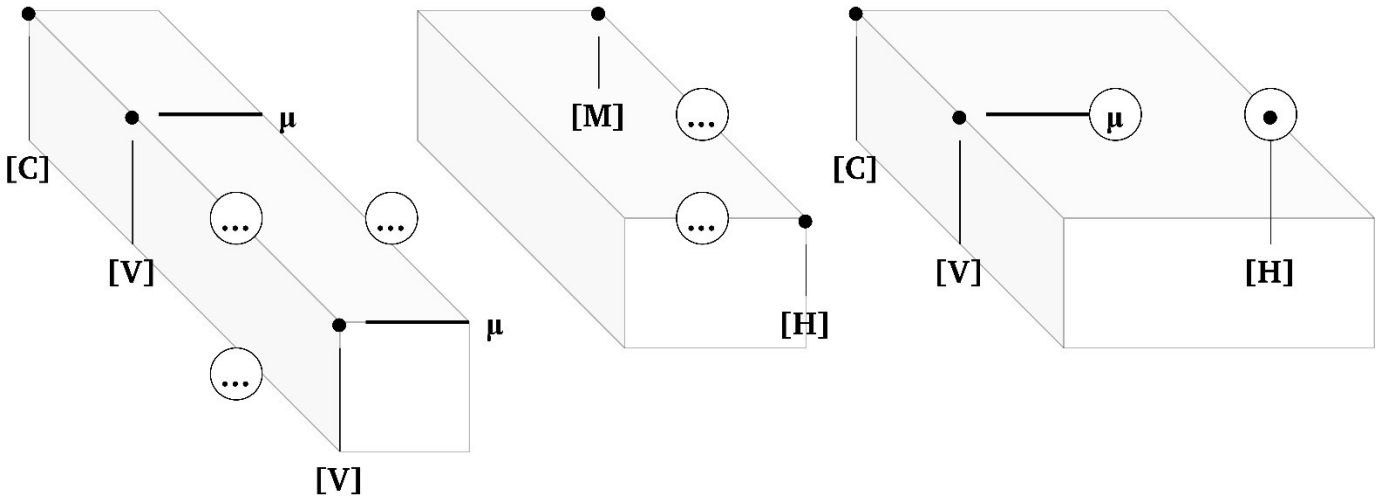


1.2 *A restrictive theory of exponent shape*

(16) A *restrictive theory* can be stated in terms of PRECEDENCE[20]

- *Direct precedence*: All roots nodes of an exponent have a precedence relation with all other root nodes on the *same* tier (i.e. *no gapped structures*)
- *Indirect precedence*: All roots nodes have an (indirect) precedence relation with all other root nodes on a *different* tier (i.e. *no unassociated nodes*)

(17) If we obey precedence, certain exponent shapes become *impossible*



(18) Apparent cases are *two* exponence rules: e.g. [F] ↔ **ā:** and [F] ↔ Ⓗ, e.g. (15)

1.3 *What are the predictions?*

(19) If apparent bipartite morphemes actually constitute two separate exponence rules, what are the *predictions* (i.e. how to tell the difference)?

(20) If separate rules – [F] ↔ /**æ**/ & [F] ↔ /**β**/ (Cf. single rule [F] ↔ /**æ…β**/)

- [1] *Appearance*: The conditions governing the (non-)appearance of one co-exponent (**æ**) never affect that of the other co-exponent (**β**)
- [2] *Allomorphy*: Suppletive allomorphy that is *triggered by* or *targets* one of the co-exponents (**æ**) does not necessarily reference or affect the other (**β**)
- [3] *Derivedness*: When the co-exponents (**æ** and **β**) are incidentally local, they act as a derived environment w.r.t. morpho-phonological processes
- [4] *Minimality*: If there is minimality-based faithfulness (e.g. don't delete vowel of 1σ 'morphemes'), co-exponents (**æ** and **β**) are evaluated separately

1.4 *A useful starting point: Two morphological patterns of circumfixation*

(21) DISJOINT CIRCUMFIXATION (the expected type)

- The components of the circumfix act independently from one another with respect to their morphological distribution, patterns, forms, *etc*.

(22) German participle marking *ge-…-t*, e.g. used in past (perfect), passives

- *googeln* → ***ge**-google-**t*** [**gə-gugəl-t**] '(have/be) googled'

(23) *Quirk 1*: Irregular suffixal allomorph

- *geben* → ***ge**-geb-**en*** [**gə-geb-ən**] '(have/be) given'

(24) *Quirk 2*: Prefix *ge-* can only appear before stress

- *ántworten* → ***ge**-ántwort-**et*** [**gə-ˈʔantvɔʁt-ət**] '(have/be) answered'
- *probíeren* → *probíer-**t*** [**pʁoˈbiʁ-t**] '(have/be) tried/tasted'
- Cf. ****ge**-probier-**t*** *[**gə-pʁoˈbiʁ-t**] ~ *[**gə-ˈpʁobiʁ-t**]

(25) "As far as (morpho-)phonology proper is involved, there is no evidence whatsoever for the link between the affixes." (Drijkoningen 1999:78)

(26) Shape of suffix *never* determines whether prefix appears

- *sprech-en* → *ge-sproch-en* [**gə-ˈʃpʁɔx-ən**] '(have/be) spoken'
- No verb with irregular form akin to **sproch-en* without *ge-*

(27) Presence or absence of prefix *never* determines shape of suffix[21]

- *ver-sprech-en* → *ver-sproch-en* [**fɛɐ-ˈʃpʁɔx-ən**] '(have/be) promised'
- No verb which reverts to default in absence of *ge-*, e.g. **ver-sprech-t*

(28) Cf. CONJOINT CIRCUMFIXATION (the unexpected type)

- The components act as a single unit co-dependent upon each other with respect to morphological distribution, patterns, forms, *etc*.

(29) German *Ge-…-e* deverbal nominalization for repeated action (pejorative)[22]

- *brüll-* 'roar, shout' → *Ge-brüll-e* [**gə-bryl-ə**] 'shouting'
- *Hört doch endlich mit eurem sinnlosen* ***Gebrülle*** *auf!*
  'Stop with your pointless **shouting**!'

(30) Without initial stress, forms are ungrammatical/questionable/odd

- *telefonier-*[**teləfoˈniʁ-**] 'telephone (v.)' → ***ʔGe-telefonier-e*** ~ ***ʔTelefonier-e***

(31) In general, speakers do not accept forms which contain only suffix – Cf. (24)

(32) Typologically: Disjoint circumfixation *common*, conjoint circumfixation *rare*

2 ASSESSING GRAMMATICAL TONE

(33) When exponence involves grammatical tone in a bipartite construction, does it:

- Behave like *disjoint circumfixation* (in line with our thesis), or
- Behave like *conjoint circumfixation* (against our thesis)?

2.1 *Data point 1: Appearance*

(34) *Appearance*: The conditions governing the appearance or non-appearance of one co-exponent (**æ**) never affect that of the other co-exponent (**β**)

(35) *Tonal circumfixes* in Liko [lik][23]

- Adjectives are derived from verbs by circumfix Ⓛ … Ⓗ around verb stem
- H-toned verb root: **ɓúng-** 'lose'
  mù-ɓúkù **mú-Ⓛ-ɓúng-à-Ⓗ** → **mùɓúkù mú↓ɓúngǒ**
  3-quiver 3-**DER**-lose-FV-**DER** 'a lost quiver'
- L-toned verb root: **ɓàk-** 'carve'
  dàgă-tù **tí-Ⓛ-ɓàk-à-Ⓗ** → **dàgătù tíɓàkă**
  13.arrow-13 13-**DER**-carve-FV-**DER** 'carved arrows'

(36) However, while non-derived adjectives do not occur with Ⓛ-, all *do* end in H

• **-kúɗú**	'short'	**-dìngĭ**	'big'	***HL**	***LL**
• **-kɛ́ɗɛ́**	'small'	**-lìlă**	'too well-done'		
• **-kúngú**	'tall, high'	**-ndă**	'long'		
• **-kúkúkú**	'short' (PL)	**-tĭ**	'heavy'		
• **-kɛ́kɛ́kɛ́**	'small' (PL)	**-ɓìsĭ**	'raw, new'		

(37) We therefore can assume suffixal floating -Ⓗ portion is present here

(38) Supports treating the two components as separate exponence rules

Exponence rule 1 (derived Adj)	Exponence rule 2 (derived & non-derived Adj)
[ADJ, (F)] ↔ Ⓛ-	[ADJ] ↔ -Ⓗ

(39) What would a *canonical counter-example* look like?

- In the relevant contexts, one of the floating tones could *never* appear without the other (i.e. complete co-variation of the two components)

2.2 *Data point 2: Grammatical tone (GT) suppletive allomorphy*

(40) *Allomorphy*: Suppletive allomorphy that is *triggered by* or *targets* one co-exponent (**æ**) does not necessarily reference or affect the other (**β**)

(41) Brief study from Cilungu [mgr] grammatical tone[24]

(42) First, our *baseline*: GT *without* suppletive allomorphy

- Far Past Tense (T): A prefix **a-** plus a (non-local) GT Ⓗ$^{2\text{-}F}$
- **yá-a-sukilil-a** Ⓗ$^{2\text{-}F}$ → **yá-a-sukílíl-á** [yáásùkílílá]
  3P-T-accompany-FV T ‘they have already accompanied’
- **tú-a-sópolol-a** Ⓗ$^{2\text{-}F}$ → **tú-a-sópólól-á** [twáàsópólólá]
  1P-T-untie-FV T ‘they have already untied’
- **u-a-yá-sukilil-il-e** Ⓗ$^{2\text{-}F}$ → **u-a-yá-sukíl-ííl-é** [wààyású!kílíílé]
  3S-T-3P-accompany-ASP-FV T ‘he/she accompanied them’

(43) Now, our *focus*: GT *with* suppletive allomorphy[25]

- Recent Past Tense (T): A prefix **á-** plus a (non-local) GT Ⓗ^{F} ~ **Ø**
- Whether *word-final* GT surfaces depends on *word-initial* tone (boxed)[26]
- **yá-á-sukilil-a** Ⓗ^{F} → **yá-á-sukilil-á** [yáásúkìlìlá]
  3P-T-accompany-FV T ‘they have just accompanied’
- **u-á-sukilil-a** **Ø** → **u-á-sukilil-a** [wààsúkílìlà]
  3S-T-accompany-FV ‘he/she has just accompanied’
- **yá-á-sópolol-a** Ⓗ^{F} → **yá-á-sópolol-á** [yáásópólòlá]
  3P-T-untie-FV T ‘they have just untied’
- **u-á-sópolol-a** **Ø** → **u-á-sópolol-a** [wààsópólòlà]
  3S-T-untie-FV ‘he/she has just untied’

(44) Cilungu generalization: Ⓗ^{F} appears only when initial subject marker (SM) is high

(45) Larger point: Tonal allomorphy does *not* affect segmental co-exponents

$$[\text{T:RECENT}] \leftrightarrow \{\ \textbf{á-}\ \} \qquad \& \qquad [\text{T:RECENT}] \leftrightarrow \left\{ \begin{array}{ll} Ⓗ^{F} & / \ [\text{H}\ \_ \\ \textbf{Ø} & \text{(elsewhere)} \end{array} \right\}$$

(46) What would a *canonical counter-example* look like?

- Tonal allomorphy has a long-distance effect on segmental prefix: absence of Ⓗ^{F} would cause absence of **á-** prefix (again, complete co-variation)

2.3 *Data point 3: Derived environment effects*

(47) *Derivedness*: When the co-exponents (**æ** and **β**) are incidentally local, they act as a derived environment with respect to morpho-phonological processes

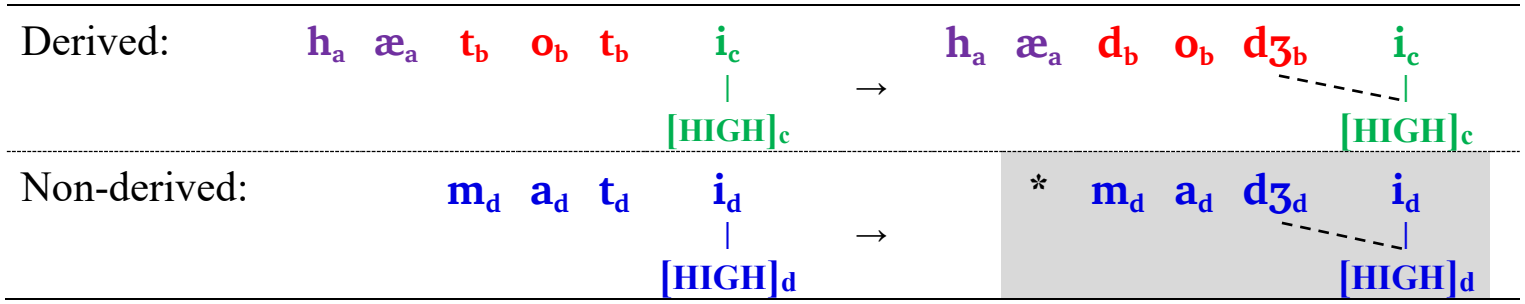
(48) Argument involves DERIVED ENVIRONMENT EFFECTS (DEEs): Phonological processes that apply *across* but not *within* 'morphemes'

(49) Korean palatalization[27]

- Non-derived: /**mati**/ 'knot' → [**madi**] *[**madʒi**]
- Derived: /**hæ-tot-i**/ 'sun-rise-NOM' → [**hæ-dodʒ-i**] *[**hæ-dod-i**]

(50) Formalized as a constraint ALTERNATION (van Oostendorp 2007)

- "if an association line links two elements of colour α" (i.e. same morphemic index), then "the line should also have colour α" (i.e. not be epenthetic)
- In short, do not create new associations with structure of the same color



(51) *Local floating tone*: Tone docks to vowel *adjacent* to accompanying segments

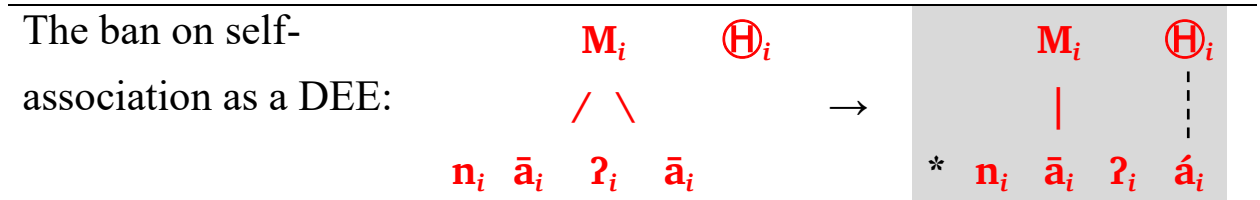
(52) Southeastern Nochixtlán Mixtec [mxy][28]

- **βēʔē** **jājàⁿ** → [**βēʔē jājàⁿ**]
  house coyote 'the coyote's house'
- **nāʔāⒽ** **jājàⁿ** → [**nāʔā jájàⁿ**]
  hand coyote 'the coyote's front paw'

(53) What happens in isolation? → *Complete neutralization*

- **βēʔē** → [**βēʔē**] 'house'
- **nāʔāⒽ** → [**nāʔā**] 'hand' *[**nāʔá**] ~ *[**nāʔǎ**]

(54) Local floating tone here cannot '*self-associate*' (typologically, very common)[29]



(55) Cf. bipartite morpheme with grammatical tone in Idakho [ida][30]

- The (right-oriented) IMPERFECTIVE suffix **-aang** is co-expressed with a (left-oriented) floating tone Ⓗ², which docks to 2nd mora of stem
- **a-(reeβ-Ⓗ²-aang-a)** → **a-(reéβ-aang-a)** [àrèéβáàngà]
  3S-ask-**ASP**-**ASP**-FV 's/he asks'
- **a-(kalushits-Ⓗ²-aang-a)** → **a-(kalúshits-aang-a)** [àkàlúshítsààngà]
  3S-return-**ASP**-**ASP**-FV 's/he returns'
- **a-(sebulukhanyiny-Ⓗ²-aang-a)** → **a-(sebúlukhanyiny-aang-a)**
  3S-scatter-**ASP**-**ASP**-FV 's/he is scattering' [àsèbúlúkhànyìnyààngà]

(56) When **–aang** itself is incidentally in 2nd mora position, 'self-association' found

- **a-(lekh-Ⓗ²-aang-a)** → **a-(lekh-áang-a)** [àlèkháàngà]
  3S-leave-**ASP**-**ASP**-FV 's/he leaves'

(57) If the two constitute separate exponents (w/ distinct morphological 'colors'/ 'indices'), correctly predicts not subject to self-association bans – Cf. (53)

Ⓗ$_i$		Ⓗ$_i$
a_g l_h e_h kh_h a_j a_j ng_j a_k	→	a_g (l_h e_h kh_h $á_j$ a_j ng_j a_k)

(58) What would a *canonical counter-example* look like?

- Non-local floating tone would *never* associate to sponsoring affix, resulting in ineffability or in exceptional association to another position (i.e. not 2nd)

2.4 *Prediction: A primary two-way split with floating tone*

	Two exponents: V_i + Ⓗ$_j$ (*Idakho type*)	**Single exponent**: V_i Ⓗ$_i$ (*S. N. Mixtec type*)
a. *Locality*	Floating tone Ⓗ can appear non-local to **V**	Floating tone Ⓗ appears on segments adjacent to **V**
b. *Derivedness*	No prohibition on self-association (i.e. Ⓗ---**V** okay)	Avoid self-association (i.e. ban on Ⓗ–**V**)
c. *Appearance*	Appearance/non-appearance of one should not affect the other	Appearance/non-appearance should always affect both **V** and Ⓗ
d. *Allomorphy*	Allomorphy involving one should not affect the other	Allomorphy should always involve both **V** and Ⓗ

3 REPERCUSSIONS OF THE PROPOSAL

(59) *Repercussion 1*: Must reinterpret bipartites *without* non-contiguous exponence

✓	Contiguous exponence	[F]	↔ **CVC-**	[F]	↔ **ⒽⓁⒽ-**	[F]	↔ **CV̀Ⓗ-**
*	Non-contiguous exponence	[F]	↔ **CV-…-C**	[F]	↔ **ⒽⓁ-…-Ⓗ**	[F]	↔ **CV-…-Ⓗ**
✓	Multiple exponence (*reinforcing*)[31]	[F] [F]	↔ **CV-** ↔ **-C**	[F] [F]	↔ **ⒽⓁ-** ↔ **-Ⓗ**	[F] [F]	↔ **CV-** ↔ **-Ⓗ**
✓	Multiple exponence (*overlapping*)	[F] [F,G]	↔ **CV-** ↔ **-C**	[F] [F,G]	↔ **ⒽⓁ-** ↔ **-Ⓗ**	[F] [F,G]	↔ **CV-** ↔ **-Ⓗ**
✓	Non-overlapping exponence	[F] [G]	↔ **CV-** ↔ **-C**	[F] [G]	↔ **ⒽⓁ-** ↔ **-Ⓗ**	[F] [G]	↔ **CV-** ↔ **-Ⓗ**

(60) Requires the incorporation of grammatical tone into relevant theory

- *Partially Superfluous Extended Exponence Generalization*: More general co-exponent appears inside more specific one (Grofulović & Müller 2023 [*under review*])
- *Nanosyntactic* theories w/o multiple exponence entirely (Caha 2023 [*forthcoming*])
- Theories of the *reinforcing* type of multiple exponence?

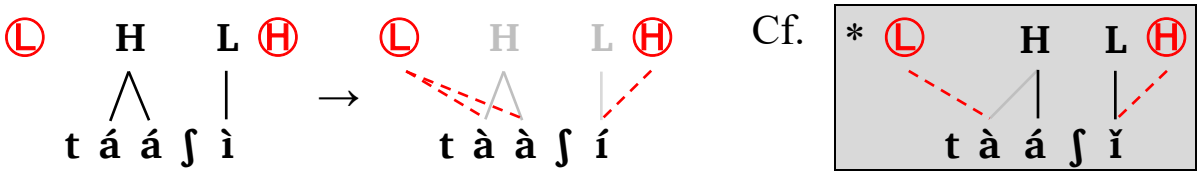
(61) *Repercussion 2*: Circumfixation cannot account for TONAL OVERWRITING[32]

(62) Example: LH overwriting in the Hausa imperative [**hau**][33]

- H **kwáánáː** → LH [**kwàànáː**] 'spend the night!'
- HL **tááʃì** → LH [**tààʃí**] 'get up!'
- LHL **sùnkújà** → LH [**sùnkùjáː**] 'bend down!'
- HLH **kàràntáá** → LH [**kàràntáá**] 'read!' *etc.*

(63) Trommer (2022): Overwriting = circumfixation plus constraint CONTIGUITY[34]

- LH overwriting consists of Ⓛ- prefix and -Ⓗ suffix which have same morphological identity, i.e. same morphological 'color' or 'index' – (50)
- All components of an exponent (here, the Ⓛ- and -Ⓗ) want to be adjacent, which is achieved if we delete the intervening lexical tones of the stem



(64) This is an impossible move under our approach, because the two tones of the 'circumfix' *never* have the same morphological color/index

4 SUMMARY

(65) *Bipartite morphemes*: Linguistic category expressed by discontinuous /**æ…β**/

(66) Our focus was bipartite circumfixes and bipartite grammatical tone

- 1) **CV-…-C** 2) ⒽⓁ-…-Ⓗ 3) **CV-…-**Ⓗ

(67) In response, argued for a *restriction on exponent shape*

- All phonological material of an exponent must be strictly local, i.e. there is a single association/precedence path without any 'gapped' structure

(68) Bipartite morphemes as separate rules – [F] ↔ /**æ**/ & [F,(G)] ↔ /**β**/

- (Cf. single rule [F] ↔ /**æ…β**/)

(69) Three predictions of the separate rules approach (largely borne out):

- *Appearance*: The conditions governing the (non-)appearance of one co-exponent (**æ**) never affect that of the other co-exponent (**β**)
- *Allomorphy*: Suppletive allomorphy that is *triggered by* or *targets* one of the co-exponents (**æ**) does not necessarily reference or affect the other (**β**)
- *Derivedness*: When the co-exponents (**æ** and **β**) are incidentally local, they act as a derived environment w.r.t. morpho-phonological processes

(70) *Take away*: Supports the *independence* of tonal and segmental exponence

- On the Oto-Manguean family of Mexico: "a verb may simultaneously belong to various inflectional classes: one for its endings, another for its stem changes and a third for its tonal changes" (Palancar 2016:112, underlining mine)

5 REFERENCES

(71) As a [**list**] or [**bibtex**], or email me: **rolle@leibniz-zas.de**

Endnotes

[1] "[T]he translational process cannot take place in either morpho-syntax or phonology: the Translator's Office has access to the structure and the labels of both sides" – Scheer 2011:352

[2] Especially in Distributed Morphology, e.g. Embick 2015, *inter alia*

[3] Hockett 1947:322, Crysmann & Bonami 2016:314, Haspelmath 2020, *inter alia*

[4] Harris 2017:17, citing Kuryłowicz 1966 [1945-1949]; Marušič 2003 on non-compositionality

[5] Bergenholtz & Mugdan 1979:59, Greenberg 1980, Mel'čuk 1982:84f., Bauer 1988:20f., Anderson 1992:53, Spencer 1991:12-13, Hall 2000, Marušič 2003, Lieber 2017, Zingler 2022

[6] Harris 2017:19, my underline

[7] Tacitly in Kurisu 2001:198; overtly in Caballero & Harris 2012: 171, Trommer 2015:100, 2022, Harris 2017:19, Zingler 2022

[8] Marušič 2003, Crysmann & Bonami 2016:347, Haspelmath 2020; on German *ge-…-t* in particular: Drijkoningen 1999, Wiese 2000:89f., Newell 2008:191

[9] Navajo [**nav**] – Spencer 1991:210-211; Witsuwit'en [**bcr**] – Hargus 2017

[10] Yoruba [**yor**] – Awobuluyi 1971, Sebba 1987, Parrish & Feldscher 2019; Edo [**bin**] – Ogie 2009:167; Guébie [**gie**] – Sande 2017:37ff.

[11] Lakhota [**dak**] – Boas & Deloria 1941, Buechel 1970, Albright 2000

[12] Bauer 1988, Hall 2000

[13] Kisi example: Childs 1995:49; For extensive references on grammatical tone, see Lionnet, McPherson, & Rolle 2023 (introduction to special issue of *Phonology*)

[14] AUTOSEGMENTAL PHONOLOGY, Goldsmith 1976/1990, and select earlier works

[15] Hyman 2011; "[T]onal morphology... exhibits essentially the same range of morphological properties as in all of segmental morphology" – Hyman & Leben 2000:588

[16] < **H-bέŋ** **à=ŋgòb** AUG-only I.CON=[10]shoe – van de Velde 2008:183

[17] < **ít-ā** 'house-SG' + **ùd-ā** 'door-SG' – Connell *et al.* 2000

[18] < **èndìⒽ** 'that' + **bùrùⓁⒽ** 'yam' – Rolle 2021

[19] < [**aː^{33}-gu^{35}**] – Alderete, Chan, & Tanaka 2022

[20] Precedence plays major role in some theory, e.g. see Papillon 2020 and references therein

[21] One could state that each co-exponent has its own SUBCATEGORIZATION FRAME (Kalin & Rolle 2022)

[22] Kurth 1953, Plank 1986, Olsen 1991, Adamzik 2001. This circumfix is very productive, e.g. with recent loanwords *Ge-chatt-e* 'chatting', *Ge-fax-e* 'faxing', *Ge-rav-e* 'raving', *inter alia* – Adamzik 2001:154. The sample example here is from Olsen 1991:353.

[23] Data is from de Wit 2015:162-163,219

[24] Data is from Bickmore 2007, Rolle & Bickmore 2022

[25] The idiosyncrasy of this allomorphy is discussed in detail in Rolle & Bickmore 2022. Briefly, the same grammatical tone allomorphy always appears with Recent Past prefix **á-**, which appears in several related tense designations (e.g. the 'Yesterday Past', the 'Yesterday Past Progressive', the 'Recent Past Progressive', and the 'Recent Perfect'). At the same time, this grammatical tone allomorphy appears only in the context of the Recent Past prefix **á-**; other comparable tense/aspect/mood (TAM) contexts (with other morphology) show no grammatical tone allomorphy. In other words, the alternation is not phonologically general. Importantly, for our argument, other TAM contexts in Cilungu which show grammatical tone allomorphy also

show the morphological independence of tonal and segmental components (e.g. the plain 'Perfect' with a suffix **–il**, and the 'Subjunctive'/'Imperative').

[26] This is informally called 'first-last tone harmony' in the Bantu literature – See Rolle & Bickmore 2022 and Hyman & Nyamwaro 2023 for details and references

[27] Korean data: van Oostendorp 2007, citing Iverson 1993, Polgárdi 1998, Rhee 2002; for DEEs generally, see Inkelas 2014, Chong 2019, *inter alia*

[28] Data is from McKendry 2013:136-137

[29] Self-association bans are prevalent in literature, e.g. Myers & Carleton's 1996 *DOMAIN, Revithiadou 1999:75-80, Wolf's 2007 no 'tautomorphemic docking' constraint, Trommer's 2011 'incest taboo problem', McPherson's 2014:89 parameterization of 'self-control', inter alia. As Trommer 2022 summarizes, "floating features show a strong tendency to associate to segmental material which is not part of the same morpheme".

[30] Idakho data: Ebarb 2014:144,161,322

[31] Terminology based on Harris 2017

[32] Overwriting (sometimes 'overriding') also variably called additive-dominant grammatical tone (Rolle 2018, after Kiparsky & Halle 1977, Inkelas 1998), replacive grammatical tone (Welmers 1973:132-133), tonal overlays (McPherson & Heath 2016), and construction tonology (Harry & Hyman 2014).

[33] Trommer 2022, citing Newman 2000:262-263, 1986:256

[34] Trommer (2022)'s original definition of CONTIGUITY-τ: "For every pair of melodically adjacent tones (τ_1,τ_2), Count a violation for every phonetic tone τ that intervenes between τ_1 and τ_2 (where two tones are melodically adjacent iff they are of the same type *T* (e.g. both H, or both L) and no other tone of type *T* intervenes between them)"