

Sebastian Bredemann, Goethe-University Frankfurt

The role of phonology in Vata adjectival agreement

13th conference on Syntax, Phonology, and Language Analysis (SinFonJA 13), Budapest, Hungary

Content

1. Introduction
2. Adjectival agreement in Vata and its theoretical implications
3. Analysis
4. Conclusion



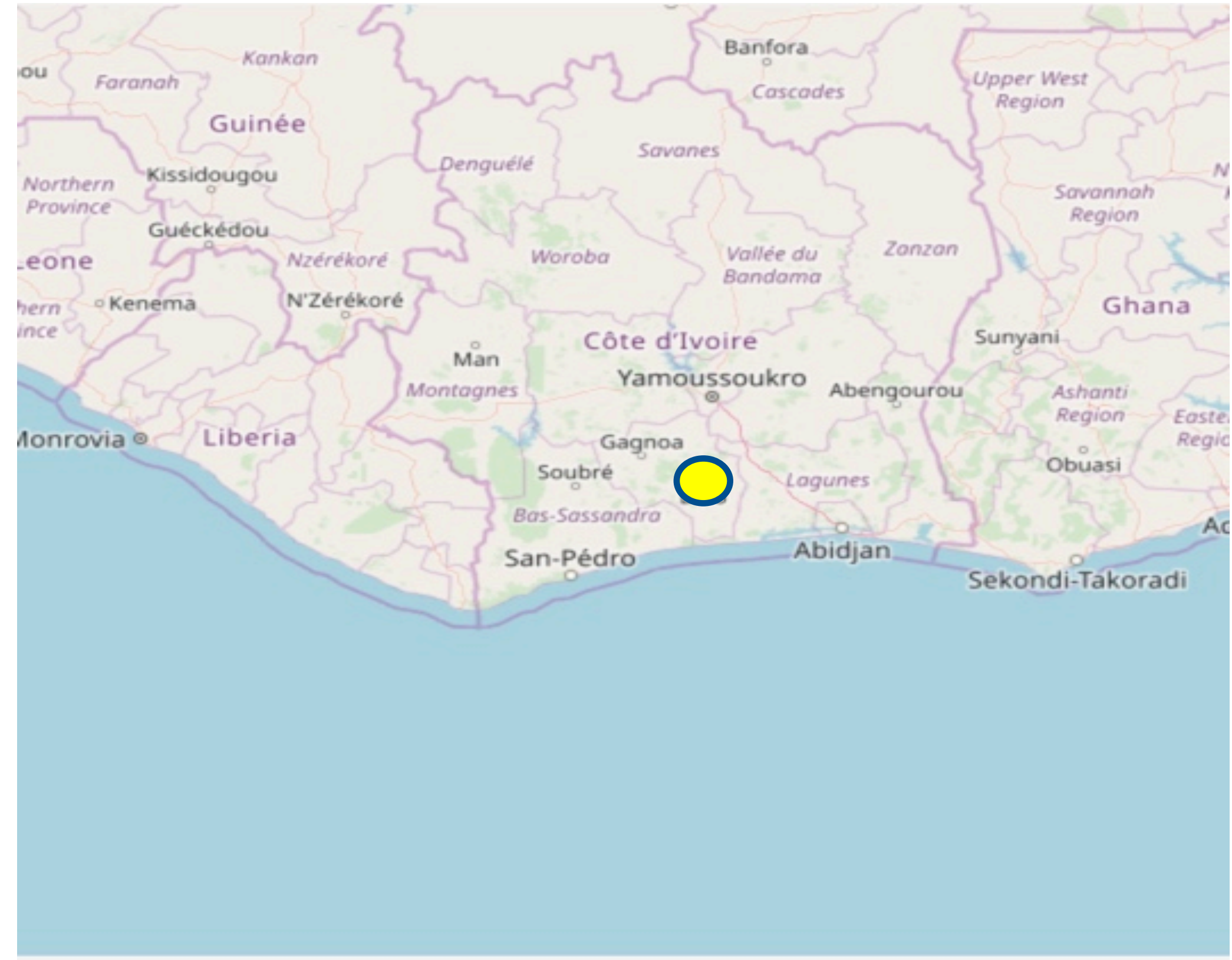
1. Introduction

Vata: general background

- Language family: Eastern Kru
- Country: Cotê d'Ivoire

Data: Obtained during a one-month fieldwork trip to Cotê d'Ivoire.

- Informants: 6 male native speakers



(1) Geographical location of Vata
(Source: <https://glottolog.org/resource/languoid/id/lako1244>)

1. Introduction

Background on the phonology of Vata

(2) Vowel inventory (Kaye 1981), confirmed during personal fieldwork:

| | | | | | | | |
|------|---|-----|---|------|---|--|---|
| +ATR | | | | -ATR | | | |
| i | | | u | ɪ | | | ʊ |
| | e | | o | | ɛ | | ɔ |
| | | (ʌ) | | | a | | |

- The ATR value of a vowel is determined via ATR-harmony.
- [ʌ] is not attested for all speakers (see Kaye 1981 for the same result). In my data it is rarely identified.
- All vowels are nasalized following a nasal consonant.

(3) /granr-a/ → [granrã] ([a] is nasalized following [n])
lion-PL

- Four tonal levels: high [4], mid-high [3], mid [2], low [1]

1. Introduction

Plural agreement in Vata: phonologically conditioned agreement mismatch

Under agreement with class-1 nouns (humans and some animals), adjectives take the agreement marker [wa]:

(4) Class 1: *ŋl-ĩ⁴* *zal-wa^{1.1}*
 woman.CL 1-PL red-CL 1.PL

Under agreement with class-2 nouns (default), adjectives take the agreement marker [i/I]:

(5) Class 2: *ful-i^{3.1}* *zal-ɪ^{1.1}*
 rat.CL 2-PL red-CL 2.PL

When the adjectival stem contains the vowel [ɔ], it takes the **CL-2** agreement marker [ɪ] under agreement with a **CL-1** nouns:

(6) Class 1: *ŋl-ĩ⁴* *zal-wa^{1.1}* *pɔp-ɪ^{3.4}* *(pɔp-wa)
 woman.**CL1-PL** red-**CL1.PL** white-**CL2.PL**

1. Introduction

Plural agreement in Vata: phonologically conditioned agreement mismatch

| | | | | | |
|--------|----------|--|---|--|------------------|
| (7) a. | Class 1: | <i>ŋl-ĩ⁴</i> woman. CL1-PL | <i>zal-wa^{1.1}</i> red- CL1.PL | <i>pɔp-ɪ^{3.4}</i> white- CL2.PL | <i>*(pɔp-wa)</i> |
| b. | Class 2: | <i>ful-i^{3.1}</i> rat. CL2-PL | <i>zal-ɪ^{1.1}</i> red- CL2PL | <i>pɔp-ɪ^{3.4}</i> white- CL2PL | |

- Class 1: The stem-vowel [ɔ] creates an overt mismatch in class between adjective and noun.
- The morpheme [ɪ] has two functions:
 - The morpheme [ɪ] realizes agreement with Class-2 nouns in **all cases**.
 - The morpheme [ɪ] is restricted to adjectives with the **vowel [ɔ]** under agreement with Class-1 nouns.

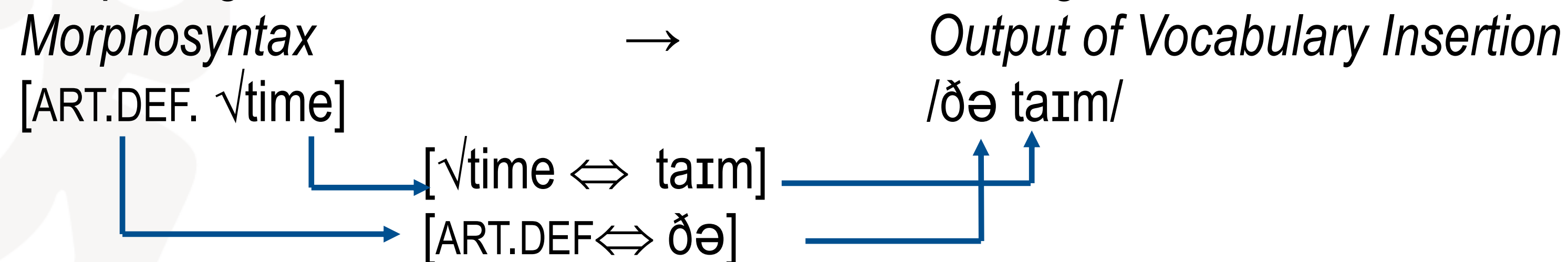
1. Introduction

Topic of the talk: What can adjectival agreement in Vata tell us about the role of phonology in morphology?

Realizational models of morphology (Halle 1990)

- Morphology interprets syntax.
- The syntax is abstract, it contains no phonological information.
- The morphology maps the syntactic output to a phonological representation.
- The phonological realization of the syntactic output is determined by vocabulary items (VIs; lexical pairings of phonological features and morphosyntactic structure).

(8) Morphological realization of the DP *the time* in English



1. Introduction

(9) Agreement mismatch: *ŋl-ĩ*⁴ *zal-wa*^{1.1} *pɔp-ɪ*^{3.4} **(pɔp-wa)*
 woman.**CL1-PL** red-**CL1.PL** white-**CL2.PL**

Topic of the talk: What can adjectival agreement in Vata tell us about the role of phonology in morphology?

- Show that accounts which assume a strict separation between phonology and morphology (Distributed Morphology, Halle and Marantz 1993) fail to provide an adequate account for Vata adjectival agreement.
 Syntax → Vocabulary Insertion → Phonology
- Phonology plays a role in morphology: OT analysis where phonological markedness constraints apply at Vocabulary Insertion.
 Syntax → Vocabulary Insertion & Phonology

2. Adjectival agreement in Vata and its theoretical implications

- Agreement in Vata is sensitive to the animacy status of the noun
- Two classes
 - Class 1: Human nouns and some animals
 - Class 2: default

Class 1: Human nouns and some animals

Singular agreement: adjectives take the agreement marker [ɔ].

- (10) a. $\eta l\tilde{\sigma}^4$ $zal-\text{ɔ}^{1.1}$ b. $d\text{ɔ}lj\text{ɔ}^{4.1}$ $zal-\text{ɔ}^{1.1}$
 woman.N.3P red-AGR:N.3P mouse.N.3P red-AGR:N.3P

Plural agreement: adjectives take the agreement marker [wa].

- (11) a. $\eta l-\tilde{\text{ɪ}}^4$ $zal-\text{wa}^{1.1}$ b. $d\text{ɔ}lj-\text{a}^{4.1}$ $zal-\text{wa}^{1.1}$
 woman.N.3P-PL red-AGR:N.3P.PL mouse.N.3P-PL red-AGR:N.3P.PL

- Nouns in this class are characterized by the presence of a [PERSON] and a noun [N] feature (see Sande 2018 for Guébie).
- Adjective-noun agreement for [N, PERSON, PL].

2. Adjectival agreement in Vata and its theoretical implications

Class 2: default

Singular agreement: adjectives take the agreement marker [ε,υ,a] (phonologically determined agreement, see Kaye 1981a, Sande 2018 for the closely related language Guébie).

(12) a. *ble*^{3.1} *zal-ε*^{1.1} b. *fulu*^{3.1} *zal-υ*^{1.1} c. *saka* ^{3.4} *zal-a*^{1.1}
 COW.N red-AGR:N rat.N red-AGR:N gold.N red-AGR:N

Plural agreement: adjectives take the agreement marker [ɪ].

(13) a. *bl-i*^{3.1} *zal-ɪ*^{1.1} b. *ful-i*^{3.1} *zal-ɪ*^{1.1}
 COW.N-PL red-AGR:N.PL rat.N-PL red-AGR:N.PL

- Nouns in this class only carry an [N] feature but are not lexically specified for [PERSON].
- Adjective-noun agreement for [N, PL].

2. Adjectival agreement in Vata and its theoretical implications

Implications for morphological theories

Distributed Morphology

- Vocabulary Insertion applies independently from phonology.
- Syntax → Vocabulary Insertion → Phonology
 - General phonological rules or constraints do not apply at Vocabulary Insertion.
 - Sensitivity to phonological contexts is specified in VIs (Paster 2006, Embick 2010).

(14) Allomorphs for indefinite articles in English ('a car' vs 'an apple')

- a. [DET.INDEF. ⇔ an / _V] b. [DET.INDEF. ⇔ a]

- Vocabulary Insertion is determined by the Subset Principle.

(15) **Subset Principle** (Halle 1997):

- I. A vocabulary item may apply, when all or a subset of its features are specified in the input.
- II. Where more than one vocabulary item may apply, only the most specified vocabulary item applies.

2. Adjectival agreement in Vata and its theoretical implications

Implications for morphological theories

(16) Vocabulary items for the agreement features on the adjectives.

| | | |
|----------|------------------------------------|---------------------------------------|
| Class 1: | a. [AGR:N.3P \leftrightarrow ɔ] | b. [AGR:N.3P.PL \leftrightarrow wa] |
| Class 2: | c. [AGR:N \leftrightarrow ε/a/ʊ] | d. [AGR:N.PL \leftrightarrow I] |

| | | | | | |
|---------|---------------------------------|---|---|-----------------------|-------------------------------|
| (17) a. | [$\sqrt{\text{mouse.N.3P}}$ | $\sqrt{\text{red-AGR:N.3P}}_{\text{DP}}$ | → | dɔljɔ ^{4.1} | zal- <u>ɔ</u> ^{1.1} |
| b. | [$\sqrt{\text{rat.N}}$ | $\sqrt{\text{red-AGR:N}}_{\text{DP}}$ | → | fulu ^{3.1} | zal- <u>ʊ</u> ^{1.1} |
| c. | [$\sqrt{\text{mouse.N.3P-PL}}$ | $\sqrt{\text{red-AGR:N.3P.PL}}_{\text{DP}}$ | → | dɔlj-a ^{4.1} | zal- <u>wa</u> ^{1.1} |
| d. | [$\sqrt{\text{rat.N-PL}}$ | $\sqrt{\text{red-AGR:N.PL}}_{\text{DP}}$ | → | ful-I ^{3.1} | zal- <u>I</u> ^{1.1} |

- Up to this point, the agreement patterns in Vata are in line with the Subset Principle.

(15) **Subset-Principle** (Halle 1997):

- I. A vocabulary item may apply, when all or a subset of its features are specified in the input.
- II. Where more than one vocabulary item may apply, only the most specified vocabulary item applies.

2. Adjectival agreement in Vata and its theoretical implications

Agreement mismatch: Adjectives with the stem vowel [ɔ]

(16) a. [AGR:N.3P ⇔ ɔ] b. [AGR:N.3P.PL ⇔ wa] c. [AGR:N ⇔ ε/a/ʊ] d. [AGR:N.PL ⇔ ɪ]

Violation of the Subset Principle: The VIs in (a,d) are selected over the more specific VI in (b) to avoid the combination [ɔ+w]:

Younger speakers: non-realization of [PERSON]:

(18) [$\sqrt{\text{mouse.N.3P-PL}}$ $\sqrt{\text{white-AGR:N.3P.PL}}$]_{DP} → dɔlj-a^{4.1} pɔp-ɪ^{3.4} *(pɔp-wa)

Older speakers: non-realization of [PL]:

(19) [$\sqrt{\text{mouse.N.3P-PL}}$ $\sqrt{\text{white-AGR:N.3P.PL}}$]_{DP} → dɔlj-a^{4.1} pɔp-ɔ^{3.4} *(pɔp-wa)

(15) **Subset-Principle** (Halle 1997):

- I. A vocabulary item may apply, when all or a subset of its features are specified in the input.
- II. Where more than one vocabulary item may apply, only the most specified vocabulary item applies.

2. Adjectival agreement in Vata and its theoretical implications

Other instances where the combination of [ɔ] and [w] is avoided.

- The combination of [ɔ] and [w] seems to be avoided noun-internally.
- Kaye (1981b) shows that in nouns the combination [w+ɔ] is not allowed and [w] is deleted.

| (20) | UR | SR | meaning | (Kaye 1981b, 82-83) |
|------|----------------------|---------------------|---------------|---------------------|
| a. | /lwε ² / | [lwε ²] | 'elephant' | |
| | /lw-ɔ ² / | [lɔ ²] | 'elephant-PL' | |
| b. | /gwε ⁴ / | [gwε ⁴] | 'ape' | |
| | /gw-ɔ ⁴ / | [gɔ ⁴] | 'ape-PL' | |

2. Adjectival agreement in Vata and its theoretical implications

Implications for morphological theories

(16) a. [AGR:N.3P \Leftrightarrow ɔ] b. [AGR:N.3P.PL \Leftrightarrow wa] c. [AGR:N \Leftrightarrow ε/a/ʊ] d. [AGR:N.PL \Leftrightarrow I]

Non-realization of [PERSON] (younger speakers):

(21) [$\sqrt{\text{mouse.N.3P-PL}}$ $\sqrt{\text{white-AGR:N.3P.PL}}$]_{DP} \rightarrow dɔlj-a^{4.1} pɔp-I^{3.4} *(pɔp-wa)

Non-realization of [PL] (older speakers):

(22) [$\sqrt{\text{mouse.N.3P-PL}}$ $\sqrt{\text{white-AGR:N.3P.PL}}$]_{DP} \rightarrow dɔlj-a^{4.1} pɔp-ɔ^{3.4} *(pɔp-wa)

Violation of the Subset Principles: The features [PERSON] and [PL] are not realized by vocabulary items to avoid the sequence [ɔ-w].

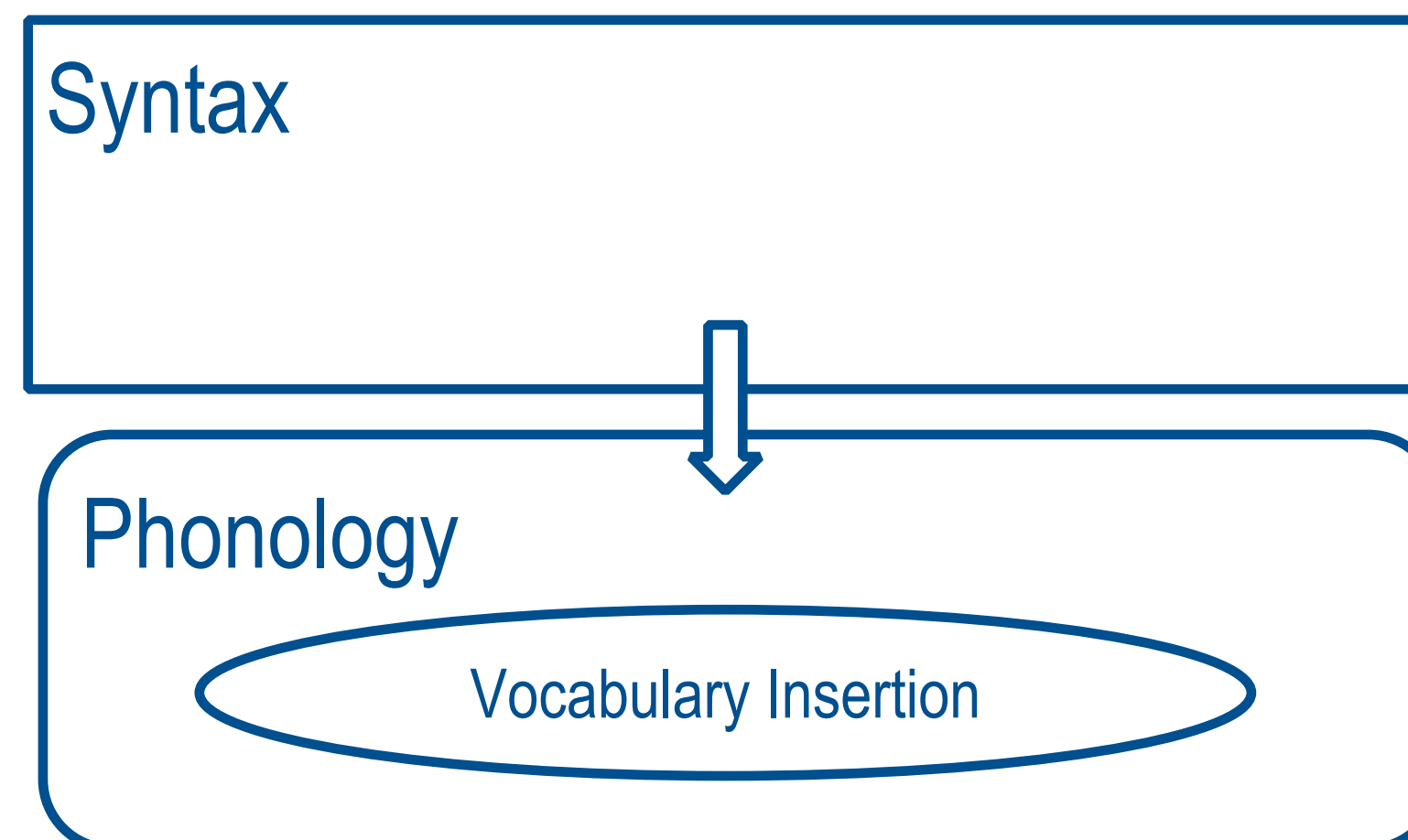
- Not predicted by theories as DM that assume a separation between morphology and phonology.
- Proposal: phonological constraints apply at Vocabulary Insertion and overrule the demand to express morphosyntactic features.

3. Analysis

3.1 Basic assumptions

- Vocabulary Insertion applies within the phonology.
Syntax → **Vocabulary Insertion & Phonology**
- Vocabulary Insertion is determined by an Optimality-theoretic (Prince and Smolensky 1993) component (Trommer 2001; Wolf 2008, 2015).
 - Phonological markedness constraints
 - Faithfulness constraints demanding the morphological realization of morphosyntactic features.

(23)



3. Analysis

3.2 Two levels in the phonology

- The phonological evaluation consists of two levels: The *Morphophonological Level* and the *Phonological Level*.

(24) Vocabulary items for agreement markers:

a. [AGR:N.3P ↔ ɔ] b. [AGR:N.3P.PL ↔ wa] c. [AGR:N ↔ ε/a/ʊ] d. [AGR:N.PL ↔ I]

(25)

a. [$\sqrt{\text{mouse.N.3P-PL}}$ $\sqrt{\text{red-AGR:N.3P.PL}}$]_{DP}

The Morphophonological Level: Vocabulary Insertion

- Input: output of morphosyntax (syntactic features):
- Output: string of vocabulary items



b. [$\sqrt{\text{mouse}} \leftrightarrow \text{dɔljɔ}$]-[PL ↔ a] [$\sqrt{\text{red}} \leftrightarrow \text{zal}$]-[AGR:N.3P.PL ↔ wa]

The Phonological Level: regular phonological processes

- Input: output of the Morphophonological Level
- Output: phonological representation



c. [dɔlja zalwa]

3. Analysis

3.3 The Morphophonological Level

Input: output of morphosyntax (syntactic features):

(26) [$\sqrt{\text{mouse.N.3P-PL}}$ $\sqrt{\text{red-AGR:N.3P.PL}}$]_{DP}

GEN is restricted to Vocabulary Insertion: all candidates consist of a linear string of vocabulary items contained in the language's lexicon.

(27) { Candidate 1: [$\sqrt{\text{mouse}} \Leftrightarrow \text{dɔljɔ}$]-[PL \Leftrightarrow a] [$\sqrt{\text{red}} \Leftrightarrow \text{zal}$]-[AGR:N.3P.PL \Leftrightarrow wa]
Candidate 2: [$\sqrt{\text{mouse}} \Leftrightarrow \text{dɔljɔ}$]-[PL \Leftrightarrow a] [$\sqrt{\text{red}} \Leftrightarrow \text{zal}$]-[AGR:N.PL \Leftrightarrow I]
Candidate 3: [$\sqrt{\text{mouse}} \Leftrightarrow \text{dɔljɔ}$]-[PL \Leftrightarrow a] [$\sqrt{\text{red}} \Leftrightarrow \text{zal}$]-[AGR:N.3P \Leftrightarrow ɔ]
Candidate 4: ... }

EVAL: phonological markedness constraints, morphological faithfulness constraints

(28) Output: [$\sqrt{\text{mouse}} \Leftrightarrow \text{dɔljɔ}$]-[PL \Leftrightarrow a] [$\sqrt{\text{red}} \Leftrightarrow \text{zal}$]-[AGR:N.3P.PL \Leftrightarrow wa]

3. Analysis

3.3 The Morphophonological Level

Faithfulness constraints on vocabulary items

- Morphosyntactic features in the input must be realized by vocabulary items in the output.
- Faithfulness is evaluated based on **correspondence relations** (McCarthy & Prince 1995) between features in the morphosyntactic input and features of vocabulary items in the output (see Wolf 2008).

(29) MAX-M(PERSON):

For every instance φ of the feature [P] in the input, assign a violation mark if there is no instance φ' of [P] in the output, such that $\varphi \mathcal{R} \varphi'$.

(=> All [PERSON] features in the input must be realized by a vocabulary item in the output.)

(30) MAX-M(PL):

For every instance φ of the feature [PL] in the input, assign a violation-mark if there is no instance φ' of [PL] in the output, such that $\varphi \mathcal{R} \varphi'$.

(=> All [PL] features in the input must be realized by a vocabulary item in the output.)

(31) Input: AGR:N.3P.PL \mathcal{R} Output: [AGR:N.3P.PL \leftrightarrow wa]

3. Analysis

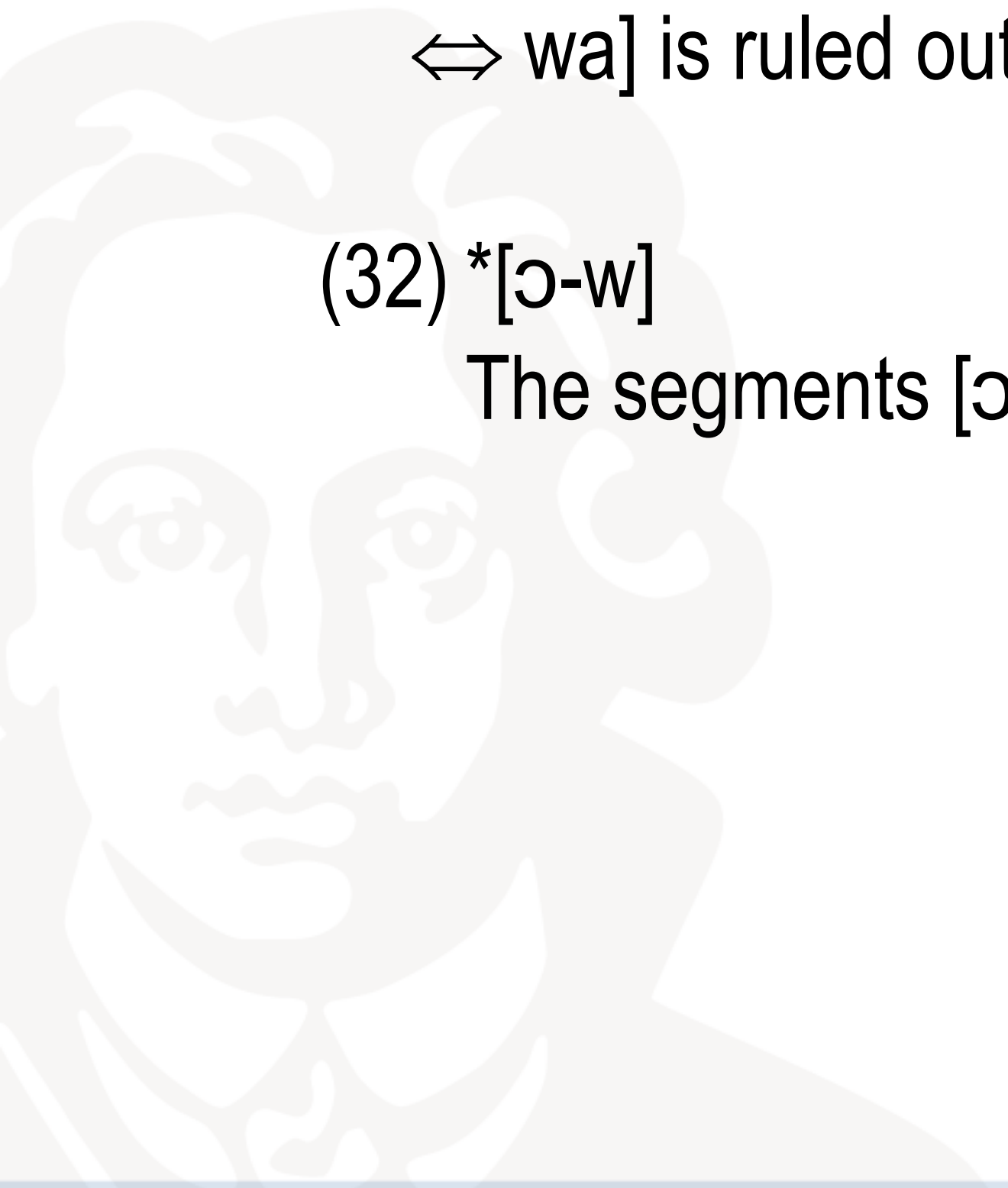
3.3 The Morphophonological Level

Ruling out the combination of $\text{ɔ} \dots \text{w}$ ($*[\text{pɔp-wa}]$)

- The combination of adjectives with the stem vowel $[\text{ɔ}]$ and the vocabulary item $[\text{AGR:N.3P.PL} \Leftrightarrow \text{wa}]$ is ruled out by the phonological markedness constraint $*[\text{ɔ-w}]$:

(32) $*[\text{ɔ-w}]$


The segments $[\text{ɔ}]$ and $[\text{w}]$ must not cooccur.



3. Analysis

3.3 The Morphophonological Level

(33) Agreement mismatch: younger speakers


| input: | $\sqrt{\text{white-AGR:N.3P.PL}}$ | *[ɔ-w] | MAX-M(PL) | MAX-M(P) |
|--------|---|--------|-----------|----------|
| a. | $[\sqrt{\text{white}} \Leftrightarrow \text{pɔp}]-[\text{AGR:N.3P.PL} \Leftrightarrow \underline{\text{wa}}]$ | *! | | |
| b. | $[\sqrt{\text{white}} \Leftrightarrow \text{pɔp}]-[\text{AGR:N.3P} \Leftrightarrow \text{ɔ}]$ | | *! | |
| c. |  $[\sqrt{\text{white}} \Leftrightarrow \text{pɔp}]-[\text{AGR:N.PL} \Leftrightarrow \text{ɪ}]$ | | | * |
| d. | $[\sqrt{\text{white}} \Leftrightarrow \text{pɔp}]-[\text{AGR:N} \Leftrightarrow \text{ɛ/a/ʊ}]$ | | *! | * |

- *[ɔ-w] >> MAX-M(PL) >> MAX-M(PERSON): the form [pɔp-wa] (a) is ruled out.
- MAX-M(PL) >> MAX-M(PERSON) rules out the form [pɔp-ɔ] (b).
- Candidate (c) [pɔp-ɪ] is the winner.

3. Analysis

3.3 The Morphophonological Level

(34) Agreement mismatch: older speakers

| input: $\sqrt{\text{white-AGR:N.3P.PL}}$ | *[ɔ-w] | MAX-M(P) | MAX-M(PL) |
|--|--------|----------|-----------|
| a. $[\sqrt{\text{white}} \Leftrightarrow \text{pɔp}]-[\text{AGR:N.3P.PL} \Leftrightarrow \underline{\text{wa}}]$ | *! | | |
| b.  $[\sqrt{\text{white}} \Leftrightarrow \text{pɔp}]-[\text{AGR:N.3P} \Leftrightarrow \text{ɔ}]$ | | | * |
| c. $[\sqrt{\text{white}} \Leftrightarrow \text{pɔp}]-[\text{AGR:N.PL} \Leftrightarrow \text{ɪ}]$ | | *! | |
| d. $[\sqrt{\text{white}} \Leftrightarrow \text{pɔp}]-[\text{AGR:N} \Leftrightarrow \text{ɛ/a/ʊ}]$ | | *! | * |

- Reversed ranking: MAX-M(PL) >> MAX-M(PERSON) selects [pɔp-ɔ] (b) over [pɔp-ɪ] (c).

4. Conclusion

(35) Phonologically conditioned agreement mismatch in Vata
 ŋl-ĩ⁴ zal-wa^{1.1} pɔp-ɪ^{3.4} / pɔp-ɔ^{3.4} *(pɔp-wa)
 woman.N.3P-PL RED-AGR:N.3P.PL white-AGR:N.PL white-AGR:N.3P

➤ Phonology overrules morphology: not predicted by theories that assume a separation between phonology and Vocabulary Insertion.

➤ Analysis

- Vocabulary Insertion applies in an OT-phonological component.
- Morphophonological Level + Phonological Level
- **The Morphophonological Level:**
 - Phonological constraint *[ɔ-w]: rules out the VI [AGR:N.3P.PL ↔ wa] in combination with [ɔ].
 - Younger speakers: *[ɔ-w] >> MAX-M(PL) >> MAX-M(P) [√white ↔ pɔp]-[AGR:N.PL ↔ ɪ]
 - Older speakers: *[ɔ-w] >> MAX-M(P) >> MAX-M(PL) [√white ↔ pɔp]-[AGR:N.3P ↔ ɔ]

➤ **Similar cases:** Theme vowel allomorphy in Catalan (Bonet et al 2015), Plural allomorphy in Catalan (2007), French Liaison (Côté 2011), spurious se in Spanish (Grimshaw 1997)

References

- Bobaljik, Jonathan D. 2000. The Ins and Outs of Contextual Allomorphy. In *University of Maryland Working Papers in Linguistics*, 35–71.
- Bobaljik, Jonathan D. 2012. *Universals in comparative morphology: Suppletion, superlatives, and the structure of words*. Cambridge, MA: MIT Press.
- Bonet, Eulàlia, Maria-Rosa Lloret & Joan Mascaró. 2007. Allomorph selection and lexical preferences: Two case studies. *Lingua* 117(6). 903–927. <https://doi.org/10.1016/j.lingua.2006.04.009>.
- Bonet, Eulàlia, Maria-Rosa Lloret & Joan Mascaró. 2015. The prenominal allomorphy syndrome. <http://filcat.uab.cat/clt/publicacions/reports/pdf/GGT-10-03.pdf>
- Côté, Marie-Hélène. 2011. French Liaison. In *The Blackwell Companion to Phonology*, 1–26. John Wiley and sons Ltd. <https://doi.org/10.1002/9781444335262.wbctp0112>. <https://onlinelibrary.wiley.com/doi/abs/10.1002/9781444335262.wbctp0112> (2020-09-18).
- Embick, David. 2010. *2010. Localism versus globalism in morphology and phonology*. (Linguistic Inquiry). Vol. 60. Cambridge, MA: MIT Press.
- Grimshaw, Jane. 1997. The Best Clitic: Constraint Conflict in Morphosyntax. In Liliane Haegeman (ed.), *Elements of Grammar* (Kluwer International Handbooks of Linguistics), 169–196. Dordrecht: Springer Netherlands. https://doi.org/10.1007/978-94-011-5420-8_4. http://link.springer.com/10.1007/978-94-011-5420-8_4 (2020-06-18).
- Halle, Morris. 1990. An approach to morphology. In J.A Carter, Philipp B. Dechaine & Toby Sherer (eds.), *Proceedings of the North eastern Linguistics Society annual Meeting*, 150–184. Amherst, MA: GLSA.
- Halle, Morris. 1997. Distributed Morphology: Impoverishment and Fission. In Benjamin Y.K. Bruening & M. McGinnis (eds.), *Papers at the Interface* (MIT Working Papers in Linguistics), vol. 30, 425–449. Cambridge, MA: MITWPL.

- Halle, Morris & Alec Marantz. 1993. Distributed morphology and the pieces of inflection. In *The view from Building 20: Essays in honour of Sylvain Bromberger*, 111–176. Cambridge, MA: MIT Press.
- Kaye, Jonathan D. 1981a. La selection des formes pronominales en vata. *Revue quebecoise de linguistique* 11.117-135.
- Kaye, Jonathan D. 1981b. Les diphtongues cachees du Vata. *Studies in African Linguistics* 12(3). 225-243.
- McCarthy, John J & Alan Prince. 1995. Faithfulness and reduplicative identity. In Jill Beckman, Laura W Dickey & Suzanne Urbanczyk (eds.), *Papers in Optimality Theory* (University of Massachusetts Occasional Papers), vol. 18, 294–384. Amherst, MA: Graduate Linguistic Student Association. <http://roa.rutgers.edu>.
- Paster, Mary. 2006. *Phonological Conditions on Affixation*. PhD-dissertation. Berkeley, California: University of California, Berkeley. <https://escholarship.org/uc/item/7tc6m7jw#author> (2020-09-21).
- Prince, Alan & Paul Smolensky. 1993. *Optimality Theory: Constraint Interaction in Generative Grammar*. Rutgers Center for Cognitive Science, Rutgers, the State University of New Jersey.
- Sande, Hannah. 2018. Phonologically determined nominal concord as post-syntactic: Evidence from Guébie. *Journal of Linguistics* 55(4). 831–878. <https://doi.org/10.1017/S0022226718000476>.
- Trommer, Jochen. 2001. *Distributed optimality*. PhD-dissertation. Potsdam: Universität Potsdam.
- Vogler, Pierre. 1987. Le Parler Vata. *Travaux de l'Institut d'ethnologie de Strasbourg*, 3. Strasbourg: University of Strasbourg.
- Wolf, Matthew A. 2008. *Optimal interleaving: Serial phonology-morphology interaction in a constraint-based model*. PhD-dissertation. Amherst, MA: University of Massachusetts. <https://scholarworks.umass.edu/dissertations/AAI3336987>.
- Wolf, Matthew. 2015. Lexical insertion occurs in the phonological component. In Eulàlia Bonet, Joan Mascaró Altimiras & Maria-Rosa Lloret (eds.), *Understanding Allomorphy: Perspectives from Optimality Theory* (Advances in Optimality Theory), 361–407. Sheffield: Equinox. http://wolf.phonologist.org/Lexical_Insertion.pdf.

Thank you for your attention!



Appendix: Analysis

Two levels in the phonology

(i) a. [AGR:N.3P \Leftrightarrow ɔ] b. [AGR:N.3P.PL \Leftrightarrow wa] c. [AGR:N \Leftrightarrow ε/a/ʊ] d. [AGR:N.PL \Leftrightarrow ɪ]

(ii) Agreement mismatch: non-realization of [PERSON]

Output of morphosyntax: [√mouse.N.3P-PL √white-AGR:N.3P.PL]_{DP}

Morphophonological Level



Output of Vocabulary Insertion: [√mouse \Leftrightarrow dɔljɔ]-[PL \Leftrightarrow a] [√white \Leftrightarrow pɔp]-[AGR:N.PL \Leftrightarrow ɪ]

Phonological Level



Output of phonology: [dɔlj-a pɔp-ɪ]

Appendix: Analysis

Two levels in phonology

(iii) a. [AGR:N.3P \Leftrightarrow ɔ] b. [AGR:N.3P.PL \Leftrightarrow wa] c. [AGR:N \Leftrightarrow ε/a/ʊ] d. [AGR:N.PL \Leftrightarrow I]

(iv) Agreement with the default class

Output of morphosyntax:

[$\sqrt{\text{rat.n-PL}}$ $\sqrt{\text{red-AGR:N.PL}}$]_{DP}

Morphophonological Level



Output of Vocabulary Insertion:

[$\sqrt{\text{rat}} \Leftrightarrow \text{fil}$]-[PL \Leftrightarrow I] [$\sqrt{\text{red}} \Leftrightarrow \text{zal}$]-[AGR:N.PL \Leftrightarrow I]

Phonological Level



Output of phonology:

[fil-i zal-I]

Appendix: Adjectival agreement in Vata and its theoretical implications

Phonological context specified in the VIs:

- (v) a. [AGR:N.3P.PL \Leftrightarrow wa] b. [AGR:N.3P.PL \Leftrightarrow I / ɔ_]
 c. [AGR:N.3P \Leftrightarrow ɔ] d. [AGR:N. \Leftrightarrow ε/a/ʊ]

Wrong predictions for adjectives that do not carry a [PERSON] feature:

- (vi) a. $\sqrt{\text{red}}$ -AGR:N.3P.PL \rightarrow zal-wa ✓
 b. $\sqrt{\text{red}}$ -AGR:N.PL \rightarrow zal-ε/a/ʊ ✗ (correct form: zal-I)
 c. $\sqrt{\text{white}}$ -AGR:N.3P.PL \rightarrow pɔp-I ✓

(vii) **Subset-Principle** (Halle 1997):

- I. A vocabulary item may apply, when all or a subset of its features are specified in the input.
- II. Where more than one vocabulary item may apply, only the most specified vocabulary item applies.

Appendix: Adjectival agreement in Vata and its theoretical implications

Other solution

Impoverishment:

- Impoverishment of a morphosyntactic feature in a phonological environment.

(viii) Impoverishment rule: [PERSON] → ∅ / [ɔ] _

Cyclic spell-out (Bobaljik 2000)

(ix) √white-AGR:N.3P.PL → pɔp-AGR:N.3P.PL → pɔp-AGR:N.∅.PL. → pɔp-I

- Unexplanatory:


- Cooccurrence restrictions of phonological and syntactic features are conceptually unmotivated.
- Two impoverishment rules must be assumed to account for the same phonological effect (*ɔ+w).

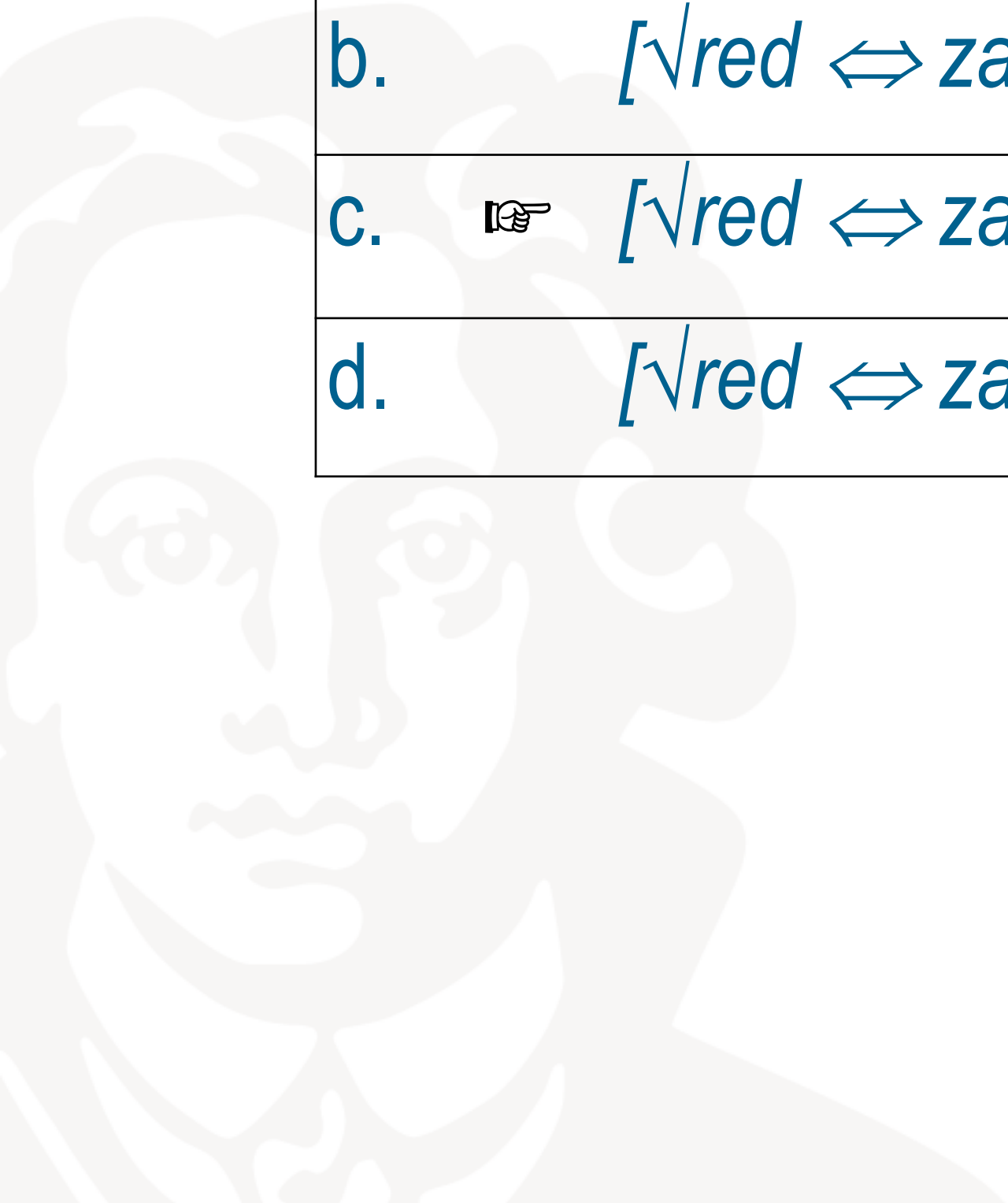
(x) a. [PERSON] → ∅ / [ɔ] _ b. [PL] → ∅ / [ɔ] _

- Failure to capture phonological motivation of the avoidance of [ɔ+w].

Appendix: Analysis


(xi) Realization of the agreement features [PERSON], [N], [PL] (no agreement mismatch)

| input: $\sqrt{\text{red-AGR:N.3P.PL}}$ | $*[\text{ɔ-w}]$ | MAX-M(PL) | MAX-M(P) |
|---|-----------------|-----------|----------|
| a. $[\sqrt{\text{red}} \Leftrightarrow \text{zal}]-[\text{AGR:N.PL} \Leftrightarrow \text{I}]$ | | | *! |
| b. $[\sqrt{\text{red}} \Leftrightarrow \text{zal}]-[\text{AGR:N.3P} \Leftrightarrow \text{ɔ}]$ | | *! | |
| c.  $[\sqrt{\text{red}} \Leftrightarrow \text{zal}]-[\text{AGR:N.3P.PL} \Leftrightarrow \text{wa}]$ | | | |
| d. $[\sqrt{\text{red}} \Leftrightarrow \text{zal}]-\emptyset$ | | *! | * |



Appendix: Analysis

(xii) Realization of the agreement features [N], [PL]

| input: $\sqrt{\text{red-AGR:N.PL}}$ | *[ɔ-w] | MAX-M(PL) | MAX-M(P) | DEP-M(P) |
|--|--------|-----------|----------|----------|
| a.  $[\sqrt{\text{red}} \Leftrightarrow \text{zal}]-[\text{AGR:N.PL} \Leftrightarrow \text{I}]$ | | | | |
| b. $[\sqrt{\text{red}} \Leftrightarrow \text{zal}]-[\text{AGR:N.3P} \Leftrightarrow \text{ɔ}]$ | | *! | | * |
| c. $[\sqrt{\text{red}} \Leftrightarrow \text{zal}]-[\text{AGR:N.3P.PL} \Leftrightarrow \text{wa}]$ | | | | *! |
| d. $[\sqrt{\text{red}} \Leftrightarrow \text{zal}]-\emptyset$ | | *! | | |

(xiii) DEP-M(PERSON)

For every instance φ' of the feature [P] in the output, assign a violation-mark if there is not an instance φ of [P] in the input, such that $\varphi \mathcal{R} \varphi'$.

(=> Vocabulary items must not be specified for [PERSON], if the input does not contain [PERSON].

Appendix: Ruling out accidental Homophony (cf Bobaljik 2012)

- The following change would be implied:

| | | |
|-----------------------|---|--------------------|
| (xiv) older speakers | → | younger speakers |
| a. [AGR.N.3P. ⇔ ɔ] | | [AGR.N.3P. ⇔ ɔ] |
| b. [AGR:N.PL ⇔ I] | | [AGR:N.PL ⇔ I] |
| c. [AGR.N.3P.PL ⇔ wa] | | [AGR.N.3P.PL ⇔ wa] |
| d. [AGR.N.3P.PL ⇔ ɔ] | | [AGR.N.3P.PL ⇔ I] |

- Such an analysis implies that the change from [ɔ] to [I] is independent from the VI [AGR:N.PL ⇔ I].
- Such a change, however, is not expected, since [ɔ] and [I] are phonetically too different as one could be reanalyzed as the other.
- More likely:
 - The VIs in (d) do not exist.
 - Reranking from **MAX(PERSON) >> MAX(PL)** to **MAX(PL) >> MAX(PERSON)**.

Appendix: Ruling out accidental Homophony (cf Bobaljik 2012)

- Assuming accidental homophony in the younger speaker's grammar implies the following change:

| | | |
|-----------------------------------|-------|--------------------------------|
| (xiv) older speakers | → | younger speakers |
| a. [AGR.N.3P. ⇔ ɔ] | | [AGR.N.3P. ⇔ ɔ] |
| b. [AGR:N.PL ⇔ I] | | [AGR:N.PL ⇔ I] |
| c. [AGR.N.3P.PL ⇔ wa] | | [AGR.N.3P.PL ⇔ wa] |
| d. [AGR.N.3P.PL ⇔ ɔ] | ————— | [AGR.N.3P.PL ⇔ I] |

- Such an analysis implies that the change from [ɔ] to [I] is independent from the VI [AGR:N.PL ⇔ I].
- Such a change, however, is not expected, since [ɔ] and [I] are phonetically too different as one could be reanalyzed as the other.
- More likely:
 - The VIs in (d) do not exist.
 - Reranking from **MAX(PERSON) >> MAX(PL)** to **MAX(PL) >> MAX(PERSON)**.

Appendix: Transcription of tones

- Procedure: speakers who speak a language with three tonal levels.
- Reference grammar by Pierre Vogler (1987)

Vogler, Pierre. 1987. *Le Parler Vata. Travaux de l'Institut d'ethnologie de Strasbourg*, 3. Strasbourg: University of Strasbourg.

Method: If the 3-tone transcription 'matched' the 4-tone transcription in the reference grammar, the tone sequence provided in the reference grammar was assumed for my fieldwork data.

(xv) H → 3,4; M → 3,2; L → 2,1

(xvi) Transcription of *pɔp-I* 'white-PL'
 Vogler (1987): [pɔp-I^{3.4}]
perception in a 3-tone system: [pɔ̄p-í]
 Transcription: [pɔp-I^{3.4}]