Revisiting Chamorro: A Cyclic Account of Reduplication and Infixation

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The Puzzle

Can the overapplication of umlaut in Chamorro be captured without BRCT?

A

Exponents

Progressive aspect -> reduplication of the (C)V of the stressed syllable (1)

(1) ‘konni? ‘take’ -> **‘ko~ko**nni? ‘taking’
take PROG~take

Passive voice with transitive verbs -> infix -in- appears before the first vowel (2)

(2) konni? ‘take’ -> k**<i’n>e**nni? ‘taken’
take <PASS>take

Infixation of -in- triggers a phonological alternation, often called umlaut; the vowel of the **immediately following** syllable is realized as a front vowel:
/u/ ->/i/,
/o/ ->/e/
/ɒ/ -> /a/

Note that, synchronically, Chamorro umlaut is **not** a language general alternation and **overapplication of umlaut** is only observed in the context of reduplication and **does not normally spread to the right** (Harizanov, 2017)

The Interaction of Reduplication, Infixation, and Umlaut

When progressive aspect and passive voice cooccur within a single transitive verb, Chamorro exhibits opacity effects:

(i) infix -in- triggers umlaut, as in (3)

(ii) the progressive reduplicant systematically ignores the presence of the infix -in-, as in (4)

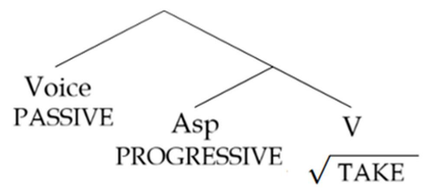
(iii) umlaut triggered by -in- appears to overapply, surfacing not only in the base but also in the reduplicant, as in (4)

(3) **VERB** **INFIX AND UMLAUT**
'konni? k<**i’n>e**nni?

(4) **VERB** **INFIX AND REDUPLICATION AND UMLAUT**
'konni? **k<i‘n>eke**nni? ***k<i‘n>eko**nni?

C

Step 1: Building



Step 2: Linearizing

[PASSIVE-[PROGRESSIVE-[√TAKE]]]

Step 3: Cyclic operations

Cycle 1

a.	Exponent choice: √TAKE → *konni?*	*konni?*
b.	Linear displacement: n/a	- - -
c.	Restricted phonology: n/a	- - -
→	Output:	*konni?*

Cycle 2

a.	Exponent choice: PROGRESSIVE → *red*	*<red>konni?*
b.	Linear displacement: *red* → __ *'σ*	*ko<red>nni?*
c.	Restricted phonology: *link*	*ko<(C)V>nni?*
→	Output:	*ko<(C)V>nni?*

Cycle 3

a.	Exponent choice: PASSIVE → *-in-*	*<in>ko<(C)V>nni?*
b.	Linear displacement: *-in-* → __ *V*	*k<in>o<(C)V>nni?*
c.	Restricted phonology: *umlaut*	*k<in>e<(C)V>nni?*
→	Output:	*k<in>e<(C)V>nni?*

Step 4: Surface phonology

kinekenni?

Figure 3: Derivation of *kinekenni?* using Kalin’s (2022) model of morphosyntax-phonology interface

What happens?

C

The morphosyntactic structure is built and linearized.

The operations start to apply from the root upwards

A **linking operation** applies as part of the restricted phonology, linking the reduplicant to the corresponding segments of the base

The infixal exponent for the PASSIVE is inserted and it undergoes **linear displacement**

The exponent -in- triggers **umlaut** as part of the restricted phonology

The **phonological grammar fills in the reduplicant** with the previously linked segments from the base

So what?

D

–The overapplication of umlaut in Chamorro can be modelled via:

(i) a **link operation** that applies as part of the restricted (early) phonology

(ii) a **copy operation** that applies as part of the surface phonology

– At least some putative cases of reduplication in other languages **may be reanalysed** in this framework without invoking BRCT.

–This case provides **further support** for a model like Kalin’s (2022), since the umlaut and the opaque interaction between infixation and reduplication in Chamorro align with the model’s cyclic architecture and her conclusions regarding restricted (early) phonology.

More on Link/Copy

C

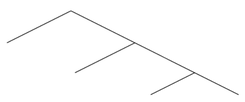
Following Arregi & Nevins (2012), agreement is not a single operation but a **split dependency** distributed across modules of the grammar. We extend this logic to reduplication by proposing an analogous **Link/Copy split inside phonology**.

That is, just as **Agree-Link** and **Agree-Copy** distribute agreement across syntax and morphology, reduplication can be modelled as an **early linking relation** between base and reduplicant followed by a **later copy operation** that fills phonological content.

B

Background

Step 1: Building the morphosyntactic structure



Step 2: Cyclic operations

Cycle
a. Linear concatenation:
b. Exponent choice:
c. Exponent insertion:
d. Restricted/cyclic phonology:

Step 3: Surface phonology

Figure 1: Kalin’s (2022) model of morphosyntax-phonology interface

Kalin (2022) proposes **a model of morphosyntax-phonology interface** in which infixation is indirect and pre-phonological.

The model incorporates **restricted phonology**, prior to surface phonology, where phonological rules that are not language general can apply.

Chamorro umlaut fits well within the description of cross-linguistically “natural” but **not language general** phonological processes.

Harizanov (2017) demonstrates that the opaque interaction in Chamorro requires **a cyclic approach** with a serial architecture in the grammar.

Derivation of kinekenni?

a. Output of syntax
[Voice [Asp [V]]]
b. Vocabulary insertion of V
[Voice [Asp [’kɔnni?]]]
c. Vocabulary insertion of Asp
[Voice [red [’kɔnni?]]]
d. Reduplication
[Voice [ko [’kɔnni?]]]
e. Phonological affixation of RED
[Voice [’kokɔnni?]]
f. Vocabulary insertion of Voice
[-in [’kokɔnni?]]
g. Phonological affixation of -in
[ki’nokɔnni?]
h. Umlaut
[ki’nekenni?]

Figure 2: Cyclic derivation of kinekenni? adapted from Harizanov (2017)

However, **the overapplication effect** of the umlaut triggered by infixation **does not receive a detailed explanation**

Harizanov accounts for this overapplication via **base-reduplicant "identity effect"** in reference to Base-Reduplicant Correspondence Theory (McCarthy and Prince 1993, 1995, 1999).

He adds that "different implementations are possible as long as they ensure base-reduplicant identity".

Could we model this interaction without invoking BRCT?

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Bibliography

Arregi, Karlos & Andrew Nevins (2012): *Morphotactics: Basque Auxiliaries and the Structure of Spellout*. Springer, Dordrecht.
Harizanov, Boris 2017. The interaction between infixation and reduplication in Chamorro. In *Asking the Right Questions: Essays in Honor of Sandra Chung*, ed. Jason Ostrove, Ruth Kramer, and Joseph Sabbagh, 158-172. Santa Cruz, CA: Linguistics Research Center.
McCarthy, John J., and Alan Prince. 1993. Prosodic morphology I: Constraint interaction and satisfaction. Technical report, Rutgers University, Center for Cognitive Science. [Also ROA 482].
McCarthy, John J., and Alan Prince. 1995. Faithfulness and reduplicative identity. In *University of Massachusetts occasional papers in linguistics* 18: Papers in Optimality Theory, ed. Jill Beckman, Suzanne Urbanczyk, and Laura Walsh Dickey, 249–384. Amherst, MA: GSLA.
McCarthy, John, and Alan Prince. 1999. Faithfulness and identity in prosodic morphology. In *The prosody morphology interface*, ed. René Kager, Harry van der Hulst, and Wim Zonneveld, 218–309. Cambridge, UK: Cambridge University Press.
Kalin, L. (2022). Infixes really are (underlyingly) prefixes/suffixes: Evidence from allomorphy on the fine timing of infixation. *Language*, 98(4), 641–682. https://doi.org/10.1353/lan.2022.0017

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