

A Subcategorization Approach to Opacity and Non-Suppletive Allomorphy in the Cupeño Habitative Mood

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I. Introduction

Cupeño is a language of southern California belonging to the Takic branch of Uto-Aztecan that no longer has any native speakers.



<http://www.fourdir.com/cupeno.htm>

Cupeño's habitative mood ('ability to perform [verb]') exhibits non-suppletive allomorphy and opaque morphophonemic phenomena. In previous analyses (McCarthy & Prince 1990; Crowhurst 1994; McCarthy 2000), not all of the allomorphs were accounted for, nor were the opaque data addressed.

Neither issue can be addressed using a two-level Optimality Theory approach.

Treating the morpheme as an infix within a Subcategorization Framework which logically precedes phonological processes addresses both matters.

II. Data

| Allomorph | Example (habitative is double-underlined) | | |
|---|---|-------------------|-------------------------------------|
| | <u>base</u> | <u>Hab</u> | <u>gloss</u> ⁱ |
| ʔVʔV | təwáʂ ⁱⁱ | təwáʔaʔaʂ | lose-HAB (Hill 2005:59) |
| ʔVʔ | ŋí:j | ŋíʔiʔij | go.away-HAB (Hill 2005:410) |
| ʔV | júj muk | júj muʔuk | be.cold-HAB (Hill 2005:59) |
| ZERO ALLOMORPH | | | |
| a) Consonant-final base | pínaʔwəx | pínaʔwəx | sing.enemy.songs-HAB (Hill 2005:60) |
| c) Epenthesis consonant-final base ⁱⁱⁱ | k ^w á | k ^w áʔ | eat-HAB (Hill 2005:117) |
| b) Vowel-final base | sájki | sájki | gather.səʔiʂ-HAB (Hill 2005:58) |

Epenthesis and realization of the habilitative in consonant-final words are in a counterfeeding relationship. As we will see, a two level OT approach cannot handle this data.

III. True Infixation

A. *The habilitative infix*

The habilitative is an added syllable requiring a branching trochaic foot to its left and a non-epenthetic final consonant to its right.

1. Verb roots with final stress ending in a consonant (?V?V-allomorph)

(A syllable is added to expand the foot.)

| <i>base</i> | <i>Hab</i> | <i>gloss</i> | |
|-------------|-------------|-------------------|----------------|
| ηάη | (ηά?a)?aη | <i>cry-HAB</i> | |
| təwás | tə(wá?a)?aʂ | <i>lose-HAB</i> | |
| náf | (ná?a)?af | <i>sit-HAB</i> | |
| həłəp | hə(łə?ə)?əp | <i>hiccup-HAB</i> | (Hill 2005:59) |

2. Verb root with penultimate stress ending in consonant (?V-allomorph)

| <i>base</i> | <i>Hab</i> | <i>gloss</i> | |
|-------------|------------|----------------------|----------------|
| nónəη | (nónə)?əη | <i>play.pion-HAB</i> | |
| jújmuκ | (jújmu)?uκ | <i>be.cold-HAB</i> | |
| túluʃ | (túlu)?uʃ | <i>grind-HAB</i> | (Hill 2005:59) |

3. Long stressed vowel (?V?-allomorph)

| <i>base</i> | <i>Hab</i> | <i>gloss</i> | |
|-------------|-------------|--------------------|-----------------|
| nəjá:n | nə(ηά?a)?an | <i>hide __-HAB</i> | (Hill 2005:59) |
| ηί:j | (ηί?i)?ij | <i>go.away-HAB</i> | (Hill 2005:410) |

4. Verb root with antepenultimate stress ending in consonant (too long for infixation)

| <i>base</i> | <i>Hab</i> | <i>gloss</i> | |
|-------------|------------|-----------------------------|----------------|
| ?əpə?-jax | (?əpə?)jax | <i>ease.a.pack-INT-HAB</i> | |
| pína?wəx | (pína?)wəx | <i>sing.enemy.songs-HAB</i> | (Hill 2005:60) |

5. Verb root ending in a vowel (no final consonant “pivot” for infixation)

| <i>base</i> | <i>Hab</i> | <i>gloss</i> | |
|-------------|------------|-------------------------|----------------|
| móqa | móqa | <i>kill-HAB</i> | (Hill 2005:50) |
| nóqə | nóqə | <i>come-HAB</i> | (Hill 2005:50) |
| sáyki | sáyki | <i>gather.səjiʎ-HAB</i> | (Hill 2005:58) |
| jəwájwə | jəwájwə | <i>talk-HAB</i> | (Hill 2005:58) |

This analysis of the Cupeño habilitative infix provides empirical support for Yu’s (to appear) typology of potential infix pivots, demonstrating evidence for final consonant pivots.

B. Infixation in OT

But what about the opaque cases?

6. Verb root ending in an epenthesis consonant

| <i>base</i> | <i>Hab</i> | <i>gloss</i> | |
|------------------|-------------------|--------------|-----------------|
| itú | itúʔ | steal-HAB | (Hill 2005:32) |
| taβxá: | taβxá:ʔ | work-HAB | (Hill 2005:50) |
| hiqsá | hiqsáʔ | sigh-HAB | (Hill 2005:58) |
| k ^w á | k ^w áʔ | eat-HAB | (Hill 2005:117) |

ALIGN (L, INFIX, R, TrFOOT) [L-ALIGN]:

‘Align the left edge of the infix with the right edge of a branching trochaic foot’

ALIGN (R, INFIX, L, FINAL C) [R-ALIGN]:

‘Align the right edge of the infix with the final consonant.’

(Adapted from Yu 2003)

These constraints work for non-epenthesis consonant-final words:

| ηάν + μ | R-ALIGN | L-ALIGN | MAX-μ | DEP-μ | DEP-C |
|-------------------------|---------|---------|-------|-------|-------|
| i. ηάν | | | *! | | |
| ii. ηάηα | *! | * | | | |
| iii. ηάʔη | | *! | | | * |
| iv. ηάʔaʔη | *! | | | * | ** |
| v. ηάʔaʔη ^{IV} | | | | * | ** |

...but fail for others:

| k ^w á + μ | R-ALIGN | L-ALIGN | MAX-μ | DEP-μ | DEP-C |
|--------------------------|---------|---------|-------|-------|-------|
| i. k ^w á | | | *! | | |
| ii. k ^w á: | *! | * | | | |
| iii. k ^w áʔ | | | *! | | * |
| iv. k ^w áʔaʔ | | *! | | | ** |
| v. k ^w áʔaʔaʔ | | | | * | *** |

| sájki + μ | R-ALIGN | L-ALIGN | MAX-μ | DEP-μ | DEP-C |
|--------------|---------|---------|-------|-------|-------|
| i. sájki: | *! | * | | | |
| ii. sájki | | | *! | | |
| iii. sájkiʔi | *! | | | | * |
| iv. sájkiʔiʔ | | | | | ** |

An OT approach to the Cupeño habitative cannot be successful because the R-ALIGN constraint is inviolable, and yet no repairs are allowed. McCarthy (2000) offered an OT account of the Cupeño habitative, but failed to address vowel-final words which would have undermined his analysis.

IV. A Subcategorization Approach

Subcategorization, as discussed by Lieber (1980), Kiparsky (1982a, 1982b), Selkirk (1982), Inkelas (1990), Yu (2003; to appear), and Paster (2006), among others, provides a solution to both the non-suppletive allomorphy problem and the opacity problem.

Subcategorization frames for the habilitative.

Habilitative construction #1

[[$\acute{o}\sigma$] [- μ -] C]_{verb stem}

Habilitative construction #2

[[\emptyset]]_{verb stem}

V. Underspecification in the Habilitative Constructions

Because repairs can be made for the left infixation requirement but no repairs are allowed for the right infixation requirement, the infixation requirements are underspecified in the morphology, but must be able to unify with the proper structure in the phonology.

Habilitative construction #1

[A[- μ -] B]_{verb stem}

Habilitative construction #2

[[\emptyset]]_{verb stem}

A = unifies with a branching trochaic foot

B = unifies with a consonant

(input from Construction #1)

| $\eta\acute{\alpha}\eta + \mu$ | R-ALIGN | L-ALIGN | MAX- μ | DEP- μ | DEP-C |
|---|---------|---------|------------|------------|-------|
| i. $\eta\acute{\alpha}\eta$ | | | *! | | |
| ii. $\eta\acute{\alpha}\eta\alpha$ | *! | * | | | |
| iii. $\eta\acute{\alpha}\eta\alpha\eta$ | | *! | | | * |
| iv. $\eta\acute{\alpha}\eta\alpha\eta\eta$ | *! | | | * | ** |
| v. $\eta\acute{\alpha}\eta\alpha\eta\eta^v$ | | | | * | ** |

(input from Construction #2)

| $k^w \acute{\alpha} + \emptyset$ | * \acute{v}] | R-ALIGN | L-ALIGN | MAX- μ | DEP- μ | DEP-C |
|-------------------------------------|-----------------|---------|---------|------------|------------|-------|
| i. $k^w \acute{\alpha}$ | *! | | | | | |
| ii. $k^w \acute{\alpha}:$ | *! | | | | * | |
| iii. $k^w \acute{\alpha}\eta$ | | | | | | * |
| iv. $k^w \acute{\alpha}\eta\eta$ | | | | | *! | ** |
| v. $k^w \acute{\alpha}\eta\eta\eta$ | | | | | *!* | *** |

VI. Prosodic Circumscription Analyses (McCarthy & Prince 1990; Crowhurst 1994)

Acting as a complementary function to extrametricality, prosodic circumscription defines a portion of a root on which a rule operates.

7. Operation Applying under Positive Prosodic Circumscription

$$O:\Phi(B) = O(B:\Phi) * B/\Phi \quad (\text{McCarthy \& Prince 1990:229})$$

$O:\Phi(B)$ is defined as the concatenation of the constituent resulting from an operation on the portion of the base B returned by the function $\Phi(O(B:\Phi))$ and the portion of the base B leftover by the function $\Phi(B/\Phi)$.

Example of prosodic circumscription for $təwás$:

$$\begin{aligned} 8. \quad O:\Phi(təwás) &= O(təwás:\Phi) * təwás/\Phi \\ &= O(wá) * tə * s \\ &\quad [\sigma \quad \sigma \quad \sigma] \\ &= (wá\sigma\sigma) * tə * s \\ &= təwá\sigma\sigma s \end{aligned}$$

However, this analysis is unsatisfactory because it is inconsistent with Cupeño's regular prosodic patterns.

In Crowhurst's (1994) analysis, the initial iambic foot and final consonant of the root are both circumscribed, and the habitative form is mapped to a disyllabic template inserted onto the non-extrametrical portion of the word. Initial foot extrametricality is dependent on final-consonant extrametricality.

$$\begin{aligned} 9. \quad O:\Phi(təwás) &= O(təwás:\Phi) * təwás/\Phi \\ &= O([\sigma\sigma]) * (wá) * s \\ &= \sigma\sigma * (wá) * s \\ &= təwá\sigma\sigma s \end{aligned}$$

However, neither analysis is able to cope with the ?V? -allomorph, presented above and repeated here (example 10) with an additional example:

| 10. <i>base</i> | <i>Hab</i> | <i>gloss</i> | |
|-----------------|--------------------|---------------|-----------------|
| neḡá:n | neḡá <u>ḡa</u> ḡan | hide.____-HAB | (Hill 2005:59) |
| ḡí:j | ḡí <u>ḡi</u> ḡij | go.away-HAB | (Hill 2005:410) |

Both McCarthy & Prince's trisyllabic template analysis and Crowhurst's disyllabic template analyses would yield

11. *neḡá:ḡaḡan
12. * ḡí:ḡiḡij

Neither analysis is prepared to cope with words with long stressed vowels.

