

The Origin of a Crazy Rule: [du] in the Southern Pomoan Group

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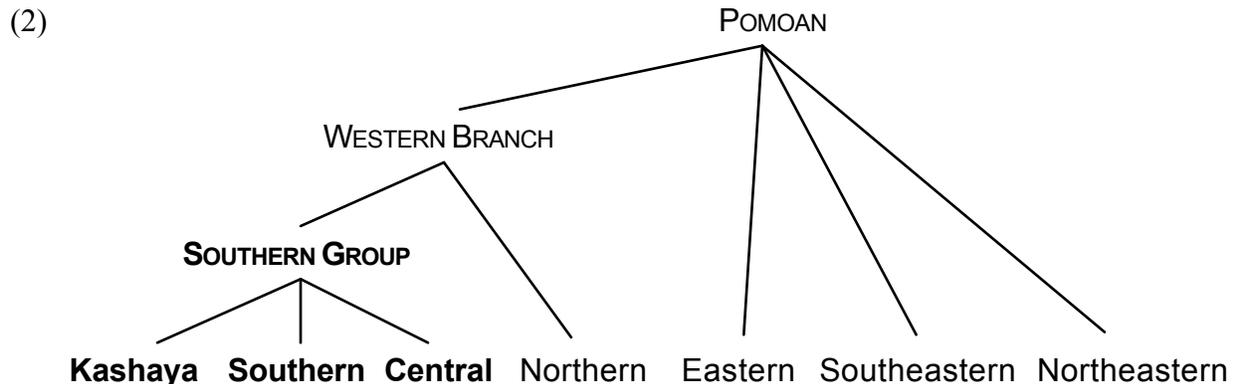
Bach and Harms (1972) use the term “**crazy rule**” to describe phonological processes that make no phonetic sense. Often they arise from processes that were originally transparent phonetic effects, but whose result or conditioning environment has been obscured by subsequent changes. In this paper I argue that a crazy rule in Pomoan originated in the **reanalysis of a morphological juncture**, leading to a **new phonological process**.

Pomoan

The Pomoan family consists of **seven languages** spoken on the northern California coast; they are named by relative location, except for Kashaya (which was earlier called Southwestern). Maps adapted from McLendon and Oswald (1978).



The rule explored in this paper occurs in the three languages Kashaya, Southern Pomo, and Central Pomo, which make up the **Southern Group** in the Western Branch (Oswald 1964a).



The Pomoan rule

By a surprising but productive rule, a vowel that normally surfaces as [i] occurs as [u] after [d]. Oswald (1976: 20) identifies this change as “apparently unique to, and an innovation in” the Southern Group. The basic effect of the rule:

(3) i → u / d ____

Kashaya: Singular Imperative *-i* occurs as *-u* after [d] (Oswalt 1961, Buckley 1994).

- (4) šu-qa:t-**i** ‘groan!’
qo-c-**í** ‘drink!’
du-še:k-**i** ‘pleat it!’
- (5) čad-**ú** ‘look!’
wa:-d-**u** ‘come here!’
du-kil-í:č-ed-**u** ‘keep pointing at yourself!’

Kashaya: Same-Subject Simultaneous *-in* after most consonants, but *-un* after [d].

- (6) mo-mú:l-**in** ‘while running around’
du-ře:t-**ín** ‘while fastening’
du-kis-**ín** ‘while scratching’
- (7) mahsad-**ún** ‘while taking away’
mo-q-a:d-**ún** ‘while running out from here’
ʔolo:q-od-**ún** ‘while poking (head) up’

Southern Pomo: Imperative *-in* after various consonants but *-un* after [d] (Halpern 1940, 1964, Robert Oswald p.c.). Cf. also Reflexive *-uč* from underlying *-ič*.

- (8) ba-:č^hit-**in** ‘pry them out!’
ča:d-em-č-**in** ‘look inside!’
- (9) huw-:ad-**un** ‘walk along!’
ča:d-**un** ‘look!’
ča:d-**uč**-in ‘watch out!’

Central Pomo: Imperative *-im* occurs as *-um* after [d] (Mithun 1990, 1993, 2000, p.c.).

- (10) ló:-č-**im** ‘help!’
q^ha:díway-**im** ‘buy!’
- (11) ló:-h-d-**um** ‘help out!’
p^h-dé-:d-**um** ‘watch!’
čanó-:d-**um** ‘talk!’

This change is **not found in other languages** of the family, for example **Northern Pomo** (O’Connor 1992: 32), where the Imperative remains *-im* after [d].

- (12) daka:-l-č-**im** ‘start crawling!’
daka:-l-ad-**im** ‘crawl along!’

The rule's craziness

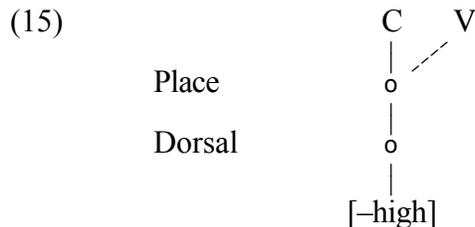
Given usual assumptions about distinctive features, there is **no “natural” rationale** for the [du] rule. Two other segments that share the same place of articulation, specifically /n, t/, do not trigger the rule, so we must refer to a voiced obstruent in the environment.

$$(13) \begin{array}{|c|} \hline \square \\ \hline \square \\ \hline \square \\ \hline \square \\ \hline \end{array} \begin{array}{|c|} \hline -\text{cons} \\ \hline -\text{back} \\ \hline -\text{round} \\ \hline +\text{high} \\ \hline \end{array} \begin{array}{|c|} \hline \square \\ \hline \square \\ \hline \square \\ \hline \square \\ \hline \end{array} \rightarrow \begin{array}{|c|} \hline \square \\ \hline \square \\ \hline \square \\ \hline \square \\ \hline \end{array} \begin{array}{|c|} \hline -\text{cons} \\ \hline +\text{back} \\ \hline +\text{round} \\ \hline +\text{high} \\ \hline \end{array} \begin{array}{|c|} \hline \square \\ \hline \square \\ \hline \square \\ \hline \square \\ \hline \end{array} / \begin{array}{|c|} \hline \square \\ \hline \square \\ \hline \square \\ \hline \square \\ \hline \end{array} \begin{array}{|c|} \hline \text{Cor} \\ \hline -\text{son} \\ \hline -\text{cont} \\ \hline +\text{voice} \\ \hline \end{array} \begin{array}{|c|} \hline \square \\ \hline \square \\ \hline \square \\ \hline \square \\ \hline \end{array} \text{ —}$$

Compare this to a **natural rule** found in Pomoan, which lowers [i], among other vowels, to [a] when preceded by the uvular [q].

$$(14) i \rightarrow a / q \text{ —}$$

If uvulars are Dorsals with the feature [–high], the **assimilatory nature** of this rule is apparent, and it can easily be analyzed as a **simple and natural** process (details follow Buckley 1994).



The [du] rule, however, is **not true assimilation** in this sense: No feature spreading from [d] will yield the vowel [u]. That is what makes it a “crazy” rule.

Recycled suffixes

The reconstruction of Pomoan aspectual suffixes by Mithun (2000) points to the origin of this unusual pattern in a **reanalysis of morphological juncture in one suffix, the Imperfective** (also called the Durative by Oswald). In her analysis of **Central Pomo**, this single original morpheme has been **repeatedly grammaticized** along with the Perfective (generally *-w* but *-h* before a consonant) to create a range of aspectual distinctions.

(16)	Central Pomo	Components
a. Imperfective	-ad(u)	IMPFV
b. Habitual imperfective	-ad -ad(u)	IMPFV-IMPFV
c. Perfective	<i>-w</i>	PFV
d. Imperfective stative	<i>-w -ad(u)</i>	PFV-IMPFV
e. Continuative	<i>-h -du -w</i>	PFV-IMPFV-PFV
f. Habitual perfective	<i>-h -du -w -ad(u)</i>	PFV-IMPFV-PFV-IMPFV
g. Frequentative	<i>-h -du -w -ad -ad(u)</i>	PFV-IMPFV-PFV-IMPFV-IMPFV

The tokens of [u] in parentheses occur only in the presence of a following suffix that requires epenthesis (normally [i]) or that begins with underlying /i/; I treat the surface [u] as the result of the [du] rule. Notice that the suffix has the reflexes *-ad(u)*, *-du*, supporting reconstructed **-adu*.

Forms in **Kashaya** (Oswalt 1961, Buckley 1994) also show apparent **repetition of similar elements**. Kashaya has many **Durative allomorphs**, which do not originate in a single Proto-Pomo suffix, but all end in /d/ and condition the [du] rule synchronically.

(17)		<u>Kashaya</u>		<u>Reconstruction</u>
a.	Durative (default)	-ad	<	* - ad(u)
b.	after a vowel (first foot)	-čid	<	* -kid
c.	after /č, č̣/	-id / -ed	<	* -(k)id <i>by junctural reanalysis</i>
d.	after a vowel (later foot)	-med	<	* -m -(k)id ?
e.	optional after Causative -hqa	-wad	<	* -w - ad(u) ?
f.	in plural, after underlying /č̣/	-(i)wad	<	* (i) -w - ad(u) ?
g.	after suffixal /d/	-učed	<	* (...u) -kid
h.	Habitual (= Dur + Dur)	-ad -učed	<	* - adu -kid

Especially noteworthy is the **Habitual**, containing two Durative allomorphs, *-ad-učed*; I reconstruct **-adu-kid* where the second suffix preserves the [u] normally lost from the first suffix, with reanalysis of juncture following the general pattern for *-ad*, as evidenced by *-učed*. For **k*, see McLendon (1973).

Repetition of the element *-ad(u)* is also found in **directional suffixes** reconstructable for the family (Oswalt 1976). This suffix, meaning ‘along’ by itself, may share an origin with the Imperfective — perhaps **-kid* was the original Durative or Imperfective, and directional **-adu* was extended to an aspectual meaning. Other directional elements appear to be **related to aspectual suffixes**: Oswalt identifies **-č̣* ‘hence’ (= Semelfactive, with emphasis on inception) and **-m* ‘across, past’ (= Essive, with a stative meaning).

(18)		<u>Kashaya</u>		<u>Reconstruction</u>
a.	‘along, in one direction’	-ad	<	* - ad(u)
b.	‘afar, away to a distance’	-aduč	<	* - adu -č̣
c.	‘as far as, up to’	-maduč	<	* -m - adu -č̣
d.	‘do while moving’	-ad -ad (-ad)	<	* - ad(u) <i>repeated</i>

The final **-č̣* in two suffixes appears responsible for **preservation of the original /u/** in the directional reconstructed as **-adu*, even though the /u/ has been lost from many of its reflexes. This exactly parallels the preservation of /u/ before Perfective *-w* in the Central Pomo Continuative and related forms (see (16)), but also shows that the features of /w/ are not relevant to the /u/ that is preserved (since /č̣/ has the same effect).

Proposal

What began as **-adu* took on the variants [ad] and [adu] depending on whether the final vowel was necessary for syllabification. At a later stage, the morpheme was **reinterpreted as underlying /ad/, with insertion of [u]** where it was necessary to syllabify an adjacent consonant.

(19)	ORIGINAL SUFFIX	LATER VARIANTS	REANALYSIS
	/adu/	/adu/ <i>underlying form</i>	/ad/ <i>underlying form</i>
		[ad] <i>by syncope</i>	[adu] <i>by epenthesis</i>

Since a single morpheme came to be **part of many composite aspectual and directional suffixes**, the *u-∅* alternation was **very widely attested**. The alternation was then generalized so that the epenthetic vowel, normally [i], became [u] after any [d] regardless of its origin. It was then a short step to change even underlying /i/ to [u] in this context. The proposed steps:

- (20) a. *Syllabically determined allomorphy*
Delete /u/ of *-adu* when permitted by syllable structure
(a general syncope process, widely attested in the family)
- b. *Morphologically conditioned epenthesis*
Insert [u] after *-ad* when necessary for syllabification
- c. *Phonologically conditioned epenthesis*
Insert [u] after /d/ when necessary for syllabification
(rather than the usual [i])
- d. *Phonological rule*
Change [i] to [u] after /d/
(fed by the usual [i]-epenthesis rule, and also applies to non-epenthetic /i/)

Even today, a great many of the examples of [du] application involve the Imperfective/Durative suffix, no doubt still reflecting the frequency of these contexts that made established the conditions for reanalysis. The **extension to other contexts** (stem-final /d/ as well as /i/-initial suffixes) was the crucial step in generalizing the rule.

A Pomoan precedent

It is noteworthy that **another, somewhat crazy rule** of consonant-vowel interaction is that the same epenthetic and underlying /i/ vowel becomes [a] after /m/, but not after any other labial or nasal consonant. Examples are **Kashaya** *-i* and *-in* and epenthetic vowels (shown bracketed).

- | | | | |
|------|-------------------------|------------------------------|-------------------------------|
| (21) | p ^h a-nem-a | ‘punch him!’ | (Imperative <i>-i</i>) |
| | baq ^h a:-m-a | ‘finish them!’ | (Imperative <i>-i</i>) |
| | da-na:-m-a | ‘cover (it) with your hand!’ | (Imperative <i>-i</i>) |
| | mo-m-an | ‘while running across’ | (Same-subj simul <i>-in</i>) |
| | kel-m-[a]-w | ‘look directly down’ | (epenthetic) |

Similar for epenthetic vowels in **Southeastern Pomo** (Moshinsky 1974), illustrating the rule’s presence throughout the family.

- | | | |
|------|----------------|------------------------|
| (22) | čí-d-[i]-t | ‘he can do it’ |
| | mpú-k-[i]-t | ‘he whistles’ |
| | cá-mlo-l-[i]-t | ‘he ran around’ |
| | c-lót-[i]-t | ‘scrape something off’ |
-
- | | | |
|------|--------------|------------------------------|
| (23) | któ-m-[a]-t | ‘stands still’ |
| | b-ʔí-m-[a]-t | ‘many are gathering edibles’ |

Oswalt (1976: 20) says the [ma] rule “may be considered a feature of Proto-Pomo” since it is absent only from Northeastern Pomo, where the epenthetic vowel is a copy of the vowel in the preceding syllable (an apparent innovation in that language). The change of the same vowel to [a] after a uvular /q/, also dating from Proto-Pomo (found throughout the family, even where *q has become /k/ as in NE, N, S), is not crazy at all. Interestingly, however, the less natural [ma] rule seems to have had a similar degree of persistence over time.

This [ma] association **may also have an origin in the directionals**; one repeated element is found as *-m(a)* ‘across, past’ and ‘in’. Oswalt (1976) reconstructs an Essive function for the suffix **-m*, “indicating a steady condition or state, action in a delimited area, or, when the verb root already denotes an unmoving position ... then that position is on something up off the ground.” He reconstructs homophonous ‘across (a river), past (a house)’ just for the Western branch. I suggest they are probably from the same (pre-)proto-suffix, which must be **originally **-ma***. As with **-adu*, where deletion of [u] was reinterpreted as insertion after [d], it seems likely that deletion of [a] in **-ma* was reinterpreted as insertion after [m]. Thus both crazy rules appear to have similar origins, in the same complex of directional and aspectual suffixes.

(24)	<u>Kashaya</u>		<u>Reconstruction</u>
a. ‘across, past’; Essive	-m(a)	<	* -m(a)
b. ‘as far as, up to, arrive’	-maduč	<	* -m -adu -č
c. ‘in hence’	-mač	<	* -ma -č
d. ‘in hither’	-maq ^w	<	* -ma -oq (<i>S. Group only</i>)

Once again the presence of **-č* in two suffixes preserves the preceding vowel.

The [ma] rule occurs throughout Pomoan (except Northeastern), and has no direct relation to the [du] process. But the **prior existence of contextually determined epenthetic vowel quality**, namely [qa, ma], might have played a role in **predisposing speakers to posit an additional such rule**, [du], once reanalysis of the underlying form of the Durative made this possible.

Discussion

Because the [du] rule has spread widely to other suffixes, it must be **encoded in the grammar** just like the more phonetically motivated rule [i] □ [a] after [q]; the changes in [ma] and [du] are just as productive in Kashaya, and probably in Southern and Central Pomo.

It is the organization of the grammar, or the learning process, that must have led to the generalization of the rule beyond its original morphological context (cf. Buckley 2000).

- (25) a. For example, learners (like linguists) **prefer purely phonological rules** to morphologically conditioned ones (step 20c).
- b. They apparently also **prefer epenthesis to syllabically conditioned deletion**, perhaps due to the simpler underlying representations — obviously not a phonetic criterion, but a true phonological one (step 20b).

While elucidating the history of Pomoan, this analysis also has **broader implications**. If phonetic naturalness were a significant direct pressure on the phonology, the [du] rule should have been abandoned rather than being extended to new domains. Instead, the learner constructs a grammar based on the **patterns in the language**, without regard to their origins or naturalness.

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