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Yokuts as a target language in a shift from Miwok Marvin Kramer

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1. Introduction

The many lexical and grammatical resemblances between the Utian (Miwokan and Costanoan) and Yokutsan languages have led to various claims of relationship. These claims at present, however, are generally not accepted. I propose that the resemblances are due instead to contact, having occurred during the three milennia these languages have been immediate neighbors. In particular, while lexical resemblances are borrowings, resemblances in morphology are the result of language shift with interference. The interference is in Yokutsan, resulting from a shift by a group of Proto-Eastern Miwok speakers to Proto-Yokuts.

An outstanding feature of Utian, particularly Eastern Miwokan, and Yokutsan is templatic morphology. The templatic morphology of Utian and Yokutsan is extremely rare in the languages of the world, the most notable other similar example being Semitic. Finding it therefore in two neighboring languages generally considered to be unrelated suggests contact rather than chance. It is fortuitous that a rare and easily identified feature is a candidate for interference. It is fortuitous as well that there is an identifiable archaeological scenario which makes a plausible case for a social setting compatible with language shift.

2. Archaeological history of the Miwok and the Yokuts

Archaeological continuities through time suggest that Utian speakers arrived in the Sacramento Delta area *circa* 2400 BCE (Moratto 1984). The Yokuts appear in the Delta and northern San Joaquin Valley between 1500 and 1000 BCE. The Utian and Yokutsan people appear to have arrived in California at different times and from different directions, the situation for other Penutian families as well (Whistler 1977). A possible origin of the Yokuts is southern Oregon. The Utians may have been refugees from the drying Great Basin Pluvial Lakes. They were able to gain control of the rich San Francisco Bay marshlands, and eventually expand, splitting into Miwokan and Costanoan. By 500 BCE the Miwoks occupied the entire Delta and either blended with the Yokuts, or replaced them, forcing them south and east into the Sierra Nevada foothills.

About 400 AD a catastrophic climatological change altered cultural patterns throughout California and the Great Basin. A cool moist climate gave way abruptly to a period of intense warming and drought, which lasted until 1300 AD. The impact of the environmental change was greatest near ecotones, or biological 'edge' communities, and least deep within a life zone (Moratto 1978). The Delta was climatologically 'complacent', with minimal impact. Trade ended with the foothills, but continued with the coast. The basic social organization was not disrupted. The foothills, on the other hand, were climatologically 'sensitive', and suffered a considerable impact. The foothills were basically depopulated. Nuclear villages broke up and populations dispersed into small groups near available water. Politcal organization deteriorated. Trade ceased. Violence increased, as 50% of male burials show evidence of violent death (M 1978). Various Yokuts groups may have assimilated with neighbors. Linguistically, this period has been called the Yokuts 'bottleneck' (Whistler 1978 in M 1984); the linguistic diversity of the previous millennium disappeard and a single variety emerged, namely Proto-Yokuts. Interesting because the date corresponds, Proto-Yokuts has a lexicostatistical time depth claim of 15 centuries (Levy 1978 in M 1984).

It appears that highly stressed Yokuts communities were forced to compete with the Miwok for resources in the marshlands, where most Yokuts groups were linguistically assimilated into the presumably more prestigious Miwok speech community. But one group, the Proto-Yokuts speech community, was able to prevail linguistically and induce shift in a community of Proto-Eastern Miwok, or perhaps the later Proto-Sierra Miwok speakers. Callaghan (1980) estimates Proto-Sierra Miwok at roughly 300 - 900 AD. Such a shift would no doubt take place under duress and in a relatively short period of time, and probably also involve a proportionately large number of Miwok speakers. This accounts for the interference. This Yokuts variety would naturally be associated with resource availability, and so would be a logical candidate to survive the bottleneck.

3. Background

The Penutian Hypothesis, as originally proposed by Dixon & Kroeber (1919), included Wintun, Maidun, Costanoan, Miwokan and Yokutsan. It was subsequently expanded by Sapir, Swadesh, and Greenberg (Golla 1994) to include many languages of the western hemisphere. However, only Costanoan and Miwokan can now be shown to be related by the reconstruction of Proto-Utian (C 1983). Wintun, Maidun, and Yokutsan are generally considered to be unrelated to each other or to Utian (G 1994). Yet there are many phonological, morphological and syntactic resemblances between Utian (especially Eastern Miwokan) and Yokutsan. There are lexical resemblant sets as well (C 1994d), but no cognates have been proposed.

Structural resemblances and a lack or scarcity of vocabulary from the source language are characteristic of language shift with interference (Thomason & Kaufman 1988). Language shift is the replacement of the native language in a speech community, the source language, with another, the target language. Interference in the target language is the presence of source language features retained by the shifting population. Often interference is reinterpreted as a standard language feature, and is acquired by native speakers of the target language. Source language lexicon tends not to be retained, since a shifting population is motivated to learn the target language, and thereby at the very least to relexify. Shifting speakers often do learn the target language quite well, but any resulting interference is a function of the relative size and social status of the shifting population, the speed of the shift, and access to the target language.

4. Phonological resemblances

Resemblances between Eastern Miwokan and Yokutsan which could be interpreted as interference include epenthesis and epenthetic vowel harmony, ghost segments, stem templates, and template conditioning suffixes. Interference, rather than borrowing, could explain the similarities in structure and phonological rules between these unrelated or very distantly related languages. Retained interference features would not be a complication of target language grammar for source language speakers, since they would already control those Structure and rule borrowing, on the other hand, is an unlikely explanation, because new constraints would complicate the grammar for borrowing speakers. In any case we would expect the borrowing of phonological rules to be accompanied by wholesale lexical borrowing. Through the borrowing of words, a familiarity with the source language develops, as does, over time, enough bilingualism to control the borrowed features (T & K 1988). There is no indication of any single period of intense lexical borrowing between Miwokan and Yokutsan, although there are examples, such as (1) and (2) below, suggesting retention or borrowing subsequent to shift. It appears now that there had been considerable borrowing among all the California languages (Shipley 1980), which was mistaken for genetic relationship, in part leading to the establishment of the Penutian Hypothesis in the first place.

An explanation of relationship for the resemblances between Eastern Miwokan and Yokutsan is unlikely, since it would assume that very particular rules and structures, some more characteristic of Eastern Miwokan than of Utian, would survive in Yokutsan where cognates did not.

5. Templates in Southern Sierra Miwok and Yawelmani Yokuts

The Eastern Miwokan and Yokutsan languages have come to the attention of phonologists because of their templatic morphology phenomenon involving an analysis of biplanar representation (Smith 1984, Archangeli 1983, et al.). The templates are representations of roots or stems in terms of consonants and vowels (the CV skeleton), or of prosodic structure (μ , σ , F), without reference to the identity of the consonants or vowels. Nouns and verbs in Eastern Miwokan (Broadbent 1960 for Southern Sierra Miwok) and verbs in Yokutsan (Newman 1944) occur in a number of templates. The Yawelmani form in the example (1) appears to be a borrowing from Miwokan;

SSMiwok CVCVVC- hiwaat- CVVCVC- hiiwat-'to run' Yawelm. CVCVVC- hiwiit-CVVCChiiwt-

Both language families employ 1) various templatic shapes with conditioning suffixes and 2) default templates with nonconditioning suffixes. Suffixes that determine the template are conditioning. Nonconditioning suffixes do not specify a particular template, so the stem occurs in its default template;

Conditioning suffix -mh-, 'absent', requires CVCCV-(2) SSM hiwta-mh- > hiwtamheetii 'let's run away'

Noncond. sfx -mh-, 'reciprocal imp.', default in this case is CVCVVChiwaat-mh- > hiwaatimheetii 'let's run a race' B.514

Ym Cond. sfx-(?)in'ay, 'contemporanious gerundial', requires CVCC $hiwt-(?)in'ay \rightarrow hiw'tin'ay$ 'while walking' N.19:5

Noncond. sfx -iin, 'future', default in this case is CVCVVC-

'will walk' N.18:14 hiwiit-iin > hiweeten

Yokutsan resembles Utian in the use of templates, but more closely resembles Eastern Miwokan in its use of default templates. In Lake Miwok, a Western Miwokan language, the use of default templates is not as robust, in that thematic verbal suffixes are conditioning and post thematic suffixes are not (C 1963). The Primary Stem in Mutsun Costanoan (Okrand 1977) suggests the default template in Miwokan, from which the others may be predicted, is Utian in origin.

Yokutsan templates resemble characteristically Eastern Miwokan templates, particularly CVCVVC-, which does not exist as a template in Lake Miwok (C Yet resemblances in Yokutsan for the Proto-Miwok Light Stem C₁VC₂VC₃-, Geminate Stem C₁VC₂C₂VC₃-, and Cluster Stem C₁VC₂C₃V- (C 1992) are conspicuously absent. These stems, commonly referred to as Stems 2, 3, and 4 (Freeland 1951, Broadbent 1960, et al.) are hallmark Utian templates, existing in some form in all the Utian languages. An explanation for their absence in Yokutsan is given in 11.

Below is a general idea of the two templatic systems, using Southern Sierra Miwok (SSM) and Yawelmani (Ym) as representatives. These two languages have the advantage of not being immediate neighbors, and of having the most complete grammars. In addition, SSM is somewhat more similar phonemically (11) and syntactically to Yokutsan than other Eastern Miwok languages. In Proto-Eastern Miwok, a southern dialect would be the most likely to encounter Yokutsan in 400 AD. For this reason the Smith (1984) table of templates (3) will be used, with fictitious data due to gaps in the attested data, even though Callaghan (1994c) has assembled a Central Sierra Miwok table with real data. Not included in the Smith table are irregular forms and forms where the suffix specifies no C₃, the Simplex Grades in Callaghan (1986). The boldface underlined entries in the SSM table are those that resemble the Ym;

(3) Southern Sierra Miwok (Smith 1984)

	Default			Stem 2	Stem 3	Stem 4			
I		polat			pollat		poolat	polaat	poltaa
II	kelti	kelit	kelit	kelit	kellit	kelti	keelit	keliit	keltii
Ha	halh	<u>hali h</u>	halih	halih	hallih	halhi	<u>haalih</u>	haliih	halhii
III	tappu	tapu?	tapuu	tapu?	tappu?	tap?u	taapu?	tapuu?	tap?uu
IIIa	katt	kati?	katii	kat i ?	katti?	kat?∔	kaati?	katii?	kat?ii
IV	peeki	peki?	pekii	peki?	pekki?	pek?i	peeki?	pekii?	pek?ii
IVa	tiil	<u>til</u>	til	tili?	tilli?	til?i	<u> tiili?</u>	tilii?	til?ii

(4) Yawelmani Yokuts (Archangeli 1983)

D-6--14

	Default			 	 		
I	?amc'	?amc'			?aamc'	?amaac'	approach
Ia	caw	caw			caaw	cawaa	shout
II	diiyl	diyl			diivl	diviil	guard
Ha	c'uum	c'um			•	•	destroy
III	biniit	bint			biint	biniit	ask
IIIa	hoyoo	hoy			hooy	hoyoo	name
1 41-	- 0		0011	 	,	,	

In the Smith table, SSM uses the default vowel i and consonant i to fill in deficient templates, or templates lacking a V_2 or C_3 . The default consonant is not always i, it may be one of a set of default consonants (11) determined by the suffix. The default short vowel i is also the epenthetic vowel (see i), and will be supplied by epenthesis rules according to the template (6), which is also determined by the suffix. The boldface SSM forms represented without the default consonant and short vowel are strikingly similar to the Ym templates;

(5) halh haalh haliih till tilii

Of the seven SSM template types, only I and II have three consonants and two vowels. III, IIIa, IV and IVa have two consonants, and IIa, IIIa, and IVa have one vowel. Historically the most common template probably involved two consonants and one vowel, as Callaghan's (1988, 1994b) Proto-Miwok and Proto-Eastern Miwok reconstructions show roughly half *CVC- or *CV₁CV₁-. These templates could have been expanded, as CVC- and CVCVV- templates in the modern language are, by particular suffixes or default segments, see (11) and 9, which would supply the third consonant. The second vowel space could have been filled by vowel spread, as nearly one third of the roots in the modern languages have identical first and second vowels (B 1960, C 1987, et al.).

In a shift from PEM to PY, the only part of the template system to be retained in PY applied to those PY verb roots which happened to fit the common PEM roots with a single vowel, or with vowel spread to the second syllable. This would explain why only bi- and triliteral Ym verb roots where $V_1 = V_2$ are templatic. A significant number of Ym verbs and most nouns are simply suffixed without participating in templatic morphology. In SSM, all verbs and many nouns fit the templates (even borrowings from English and Spanish). This may have been true historically as well, although verb templates can often be reconstructed further

back than noun templates (C 1994c). The introduction of templates into PY would undoubtedly add to its structural complexity. But selecting only a part of the templatic system would be a simplification on the part of PEM speakers, since simplification occurs in the source language, the language the shifting speakers control.

6. Default, epenthetic and ghost segments

Vowel epenthesis rules in SSM are the same in Ym. This contrasts with LM which does not have vowel epenthesis. The SSM default vowel for template expansion is the same as the epenthetic vowel, and harmonizes L > R by [+round]; i:u. The Ym epenthetic vowel is i:u, harmonizing L > R with [+round] a factor.

Neither language allows syllable initial or syllable final consonant clusters. In both languages consonants parse, by vowel epenthesis, rather than delete when in conflict with syllabification. Vowel epenthesis in both SSM and Ym is sensitive to the right edge of the template (for Ym see Zoll 1994). Considering consonants beyond the right edge of the template, the rule is;

(6) <u>Epenthesis</u>: In a series of extra-templatic consonants, the first is an onset, and subsequent consonants pair off as coda-onset;

underlying <u>Template</u> CCCC surface <u>Template</u> C&C.C&C

Examples are given, though the template will be further defined in 8. The template is underlined;

(7) SSM <u>hiwaa.tam.hi-</u> 'run a race' < hiwaat- + -mhi 'recip' B.514
Ym <u>hogoo.naw.sei</u> 'float' < hogoon- + -wsiil 'recip/rflx' Z.19
There are ghost consonants in both SSM and Ym. Ghost consonants surface only

if they do not force epenthesis (Archangeli 1991);

(8)

SSM ?ipii-pii-wiye- 'uncles' < ?ipii-pii- + (?)wiye- 'pl' B.750
SSM ?it?a-yya-?wiye- 'sisters' < ?it?a-yya- + (?)wiye- 'pl' B.750
Ym maxaa- -(h)niil > maxahnel 'procure-cons.pas.adj'A.52

Ym yawaa.1- -(h)niil > yawalnel 'follow' (note NSM yoowu-'go') In Ym, suffixes with initial ghost consonants in effect often supply the C₃ for biliteral roots. SSM, on the other hand, employs various default consonants to supply the third consonant in deficient templates (11). Like the ghosts in Ym and

SSM, these are determined by the suffix;

(9) SSM liwa-?-pe- 'speaker' < liwwa- 'speak' + -pe- 'ag.'

SSM moli-y-:ate- 'umbrella' < molli- 'shade' + -:ate- 'inst. ag.'B.755

Particular suffixes also expand deficient templates in SSM, whereas most do not (Sloan 1991, et al.). The template expanding suffixes require CVC- (one vowel, see 11) or CVCVV-(two vowels). An expanded biliteral template is interpreted as a triliteral template. For example;

(10) SSM weel- 'fetch': wel-ki- 'fetch', wel-h- 'seek'

SSM kaal- 'kick': kal-ya- 'kick all over', kalaa-n- 'dance'

Epenthesis serves as a test for template expansion in SSM, since epenthesis is sensitive to the right edge of the template (see 9).

Ghost consonants in SSM differ from default consonants in that, lacking the epenthesis test for template expansion, they are not reinterpreted as part of the template. They differ too in not being restricted to following templates.

Table (11) compares the SSM default, CVC-(one vowel) template expanding and ghost consonants with the Ym ghost consonants. Interestingly, consonants affecting vowel quality match these sets;

(11) SSM default consonants for templates; - y SSM CVC-template expanding sfxs; -wa -la -ya -ki/-ku SSM ghost consonants; У k SSM cons. affecting vowel quality; w y k h Yawelmani ghost consonants: 1 m Ym cons. affecting weak-strong ablaut; 7 h

By regular sound correspondence, the SSM suffix h is \ddot{s} in other Eastern Miwokan languages (F 59.II.1). In this respect, SSM, more than other Eastern Miwokan languages, resembles the Yokutsan languages.

PEM CVC- template expanding suffixes could have been grammaticalized into default C_3 status by occurring frequently with particular suffixes, possibly as bipartites. SSM has several bipartite suffixes. One such suffix is -ee-ni-, 'discontinuous (in time) iterative', B.519. This suffix, as a further example, specifies? as the default C_3 , except for templates whose C_3 is h, in which case the h is replaced by y. Another suffix, -yee-ni, 'discontinuous (in space) iterative', B.521, always follows the vowel of Stem 4. It is not concerned with h; (12) SSM tiin-y-ee-ni- 'heel showing' tiin-h 'heel' B.519

(12) SSM tɨɨŋi-y-ee-nɨ- 'heel showing' < tɨŋŋi-h 'heel' B.519 SSM lak-h-ɨ-yee-nɨ- 'to bob up and down' B.521

I propose that the semantic difference between these two suffixes lies in the template, as suffixes often follow different templates with a difference of meaning. Thus an earlier suffix *-ee-ni-occurring frequently after the template expanding suffix *-ya > *-y/_V would replace other expanding suffixes such as *-h (which also expands CVCVV-). The expanding suffix *-y would not occur after triliteral stems, and so could be reinterpreted as a default C_3 consonant. For templates other than Cluster (Stem 4), the syllable onset for *-ee-ni-would be either the stem C_3 or *-y. In this context *-y could be interpreted as a ghost: surfacing to supply an onset, but otherwise not, to avoid a complex onset or epenthesis. The interpretation of *-y as a ghost must have been fairly stable when the semantic distinction (time/space) brought in Stem 4, since-y was generally replaced as a default by the more common 2. This suffix occurs again as -lee-ni-, 'discontinuous iterative', B.522, also after Stem 4, using the expanding suffix *-la > *-l /_V.

This example implies that SSM ghost consonants developed from template expanding suffixes by way of default consonants, a view supported by the similarities in table (11). There is no such development implied for the ghost consonants in Ym, since there are no expanding suffixes or default consonants. This, I propose, is because ghost consonants transferred into PY as interference, having already developed in PM (there are ghost consonants in LM). This view is also supported by the similarities in table (11).

The most common default consonants in SSM are h and 2. Ym h and 2 do not occur as root final consonants. In shifting to PY, PEM speakers may have reinterpreted PY root final h and 2 as default consonants of the suffix, thus eliminating them in that position in the PY root. h and h are extremely rare as root final consonants in SSM as well, probably for the same reason.

7. Suffixes in SSM

SSM has non-conditioning and conditioning suffixes. Non-conditioning are concatenating to the default template, but conditioning suffixes put requirements on the preceding template. In addition, suffixes of both types may put a requirement on the preceding syllable, whether part of a template or not. The most common requirement is that the preceding syllable be heavy, namely $\sigma_{\mu\mu}$.

Some suffixes do this by geminating the preceding consonant (13a), or vowel (13b). Some do not specify, and will geminate only when necessary (13c). Some require that the preceding syllable be closed by the suffix. Of these, some require that it be closed with the melody of the suffix (geminate) onset (13d), and some supply a different consonant (13e). These requirements will force epenthesis if necessary. There is another category of suffixes that is not specific as to the type of the heavy syllable, created by geminating their onset if necessary (13f). They will not force epenthesis. And, parallel to the epenthesizing suffixes, some will supply a different consonant, avoiding epenthesis(13g). These are the ghost consonants. Suffixes not affecting the preceding syllable also pair ghost (13h) and regular (13i) consonants for their onsets. In (13) the conditioned syllable requirement is underlined. The ghost segments are in parentheses. The reference is to Broadbent (1960) with her representations;

3)	(a)	CVC	Cu-ma	passive participle	B.763	-:u-ma-
	(b)	<u>CV-V</u>	n i	augmentative	B.761	-: n i
	(c)	$CV-\mu(:)$	na	'animal with a big'	B.762	-Hna
	(d)	<u>cv-p</u>	рa	dimin, distributive	B.739	-ppa
	(e)	<u>CV-t</u>	k i	diminutive	B.743	-tki
	(f)	$CV - \mu(p)$	puțe	kind, species	B.740	-pHuțe
	(g)	$CV-\mu(2)$	wiye	plural	B.750	-wiye / -?wiye
	(h)		(y)aa	andative	B.505	-aa / -yaa
	(i)		noksu	reflexive	B 527	-naksu

(1

The underlined syllables may be summarized as CVC, CVV, or CV μ , and might be considered templates conditioned by the following suffix. The syllable types, CVC, CVV, or CV μ , are also the bimoraic syllable types in the stem templates (Crowhurst 1992, Sloan 1991, et al.). The suffix conditioned stem templates and the conditions put on syllables preceding some suffixes are obviously part of the same system. Examples of SSM conditioned syllables are underlined;

Janic System	ii. Examples of confidence synaples are andermies,	
(14) (a)	?e <u>lut.ta- 'a float' < ?elut- < ?eltu- 'to float' + -:a 'ag.'</u>	B.753
(b)	pi?ca-a.li- 'jackrabbit' < pi?ca- 'cottontail' + -:li	B.758
(c)	lawwaati-i.meti- 'several snakes' < lawwaati +(:)meti(:)	B.760
(d)	hiwaat-i-t.ho- 'running' < hiwaat- + -tho 'gerund'	B.742
(e)	$2am\underline{mu-n}$. $\eta = 'to get hurt' < 2ammu- + -(\eta)\eta = 'pass.'$	B.525
(f)	komta.poksu- 'to hit oneself' < komta- + -poksu 'rflx'	B.527

I propose that SSM stem templates are like these conditioned syllables; the template includes one of the heavy syllable types, and extends up to but does not include the following consonant, which serves as an onset for the following syllable, forcing epenthesis if necessary. Stem templates also include monomoraic syllables, such as the syllable that happens to precede the suffix in (14i). These syllables are also followed by an onset, since if they were followed by a consonant cluster, the first C would become a coda and the syllable would no longer be monomoraic. Thus for both monomoraic and bimoraic templatic syllables, the template and syllable right edge coincide.

Suffixes in Ym only condition stem templates, they put no conditions on other syllables. In this regard, Ym templates stand out from the rest of the system. They need special phonological treatment (different direction of association, Archangeli 1991; ALIGN-Template constraint, Zoll 1994). It is as if templates had been introduced from an alien system. In the proposed shift to PY, stem templates would be retained as a simplification of a more general system in PEM.

8. SSM templates and template expansion

Trochaic templates (σμμσμ) exclude the C after the heavy syllable, which must be the onset of the following light syllable. Triliteral roots interpret the light syllable as templatic because it is part of the lexical representation (15a). Monosyllabic (σμμ) templates may be reinterpreted as bisyllabic (σμμσμ) templates if the second syllable qualifies. To qualify, it must be one of the template expanding suffixes (15b) or a default consonant (15c);

- (15)(a) part of the lexical repr.; <u>hiw.wa.t-</u> to run <u>hii.wa.t-</u> hii.wa.t-
 - (b) one of the tmp. exp. sfxs.; wel.-ki- wel.li.k- 'to fetch'
 - $\frac{\text{wee.l-ki-} \rightarrow \text{wee.li.k-}}{\text{tis.s-?-} \rightarrow \text{tis.s1}?-} \text{'hand'}$
 - tii.s-?- > tii.s\frac{1}{2}.?
 (d) not expanded; \quad \text{voh} \text{meh} \quad \text{voh} \text{.meh} \quad \text{kill}, \text{ indef.}'

lambic templates $(\sigma_{\mu}\sigma_{\mu\mu})$ exclude the C after the light syllable, which must be an onset of the following heavy syllable. Triliteral roots (16a) interpret the heavy syllable as templatic as in (15a). Monosyllabic (σ_{μ}) templates may be reinterpreted as two syllable $(\sigma_{\mu}\sigma_{\mu\mu})$ surface templates if the second syllable qualifies, under the conditions of (15b,c);

- (16) (a) lexical representation; <u>hi.waa.t- hi.waa.t-</u> 'to run'
 - (b) template exp. sfx.; $\underline{ka}.1aa.-\eta-\rightarrow \underline{ka.1aa}.\eta-$ 'to dance'
 - (c) default C₃; <u>ha.lee.-?-</u> ha.lee.?- 'wild animal'
 - (d) not expanded; <u>yo.h-meh-</u> yo.humeh- 'kill, def.'

The SSM stem template has in effect been defined as not including the stem final consonant. But the closed syllable iambic template (Stem 2) and the closed monosyllabic template (15d) do not appear to fit this definition;

(17) trilit. <u>hu.lep</u>.-pa-'a whistle' < huleep-'to whistle', -:a- agt B.753

exp. 1i.wa-?.-pe-'speechmaker' < 1iwwa- 'to speak',-pe- agt B.737 It has been observed (Freeland 1951, Crowhurst 1992, et al.) that Stem 2 is always followed by an onset consonant. If the suffix has no onset, gemination of C₃ will supply it. This also holds for closed monosyllabic templates. I propose that this onset consonant, which appears only when it will not force epenthesis, is a ghost. Postulating closed templatic syllables with a ghost consonant;

(18) hu.lep.-(p)-a- li.wa-?,-(?)-pe- yoh.-(h)-meh

Thus when the ghost surfaces, closed templatic syllables are parallel to the syllable before suffix (13a), <u>CVC</u>.-:u-ma-. It is possible for one such suffix, -:a-, 'agentive', B.753, that the gemination is not a ghost, since it also occurs following open templatic syllables, providing an example of a type of Simplex Grade stem template; <u>mol.la.p-:a > mol.lappa-</u>, 'mush making place'. However, all other vowel initial suffixes indicate that this gemination is a ghost, most efficiently represented as part of the closed templatic syllable (representing it as part of the following syllable also fits the shift scenario in 11).

- (19) SSM <u>hil.li.w-ay-</u> whitefish <u>ho.pon.-n-ay</u> 'trout' B.703
- (20) Underlying representation of closed templatic syllables; <u>CVC</u>. (:)

Ghost consonants are essentially a hedging device on syllabification. They are a protective tactic, in this case protecting the coda consonant from becoming an onset and thereby preserving the right edge alignment of the template and the syllable. The trochaic templates Stem 3 and Stem 4 have a closed heavy syllable, which must be protected to maintain the template. Stem 3 specifies that V_2

follows the closed syllable, and for Stem 4 the closed syllable is followed by C_3 . For template expansion (15);

(21) Stem 3 \underline{CVC} . (:) $-V_2C_3 > \underline{CVC}.CV_2.C_3$ Stem 4 \underline{CVC} . (:) $-C_3V_2 > \underline{CVC}.C_3V_2$

For example; Stem 3 $\underline{kow}.(w)a.t- \rightarrow \underline{kow.wa}.t-$ 'to bump into'

Stem 4 $\underline{kow}.(w).ta \rightarrow \underline{kow}.ta$

Interestingly, the <u>CVC</u>.- represented with ghost consonants (21) is the same <u>CVC</u>.-(one vowel) whose template expanding suffixes match the SSM and Ym ghost consonants (11).

9. Epenthesis as a test for template expansion in SSM

As mentioned in 6, epenthesis tests a suffix regarding template expansion. In example (22a) the suffix specifies Stem 3, the C₃ qualifies (15a), so the template is expanded. Stem 3 licenses the default vowel as V₂, allowing the ghost consonant to surface. The post-templatic consonant cluster forces epenthesis according to the pattern in (6);

(22a) tek.(k).m- mma- to kick with toe- to excess

tek.kd.mdm.ma- one who always kicks B.729

In (22b), the suffix specifies Stem 3, the C_3 qualifies (15c), so the template is expanded. Stem 3 licenses the default V_2 and the default consonant which is supplied by the suffix (9). The ghost consonant surfaces, and as in (22a), the pattern of epenthesis locates the right edge of the template;

(22b) <u>kal.(1).</u>? - -mma- to kick with heel- to excess

kal.14.74m.ma- kicking horse B.729

In (22c), the suffix specifies Stem 3, but the suffix does not qualify (11), so the template does not expand. Stem 3 licenses a V_2 , so the ghost consonant surfaces. But this V_2 is epenthetic, not default, since it is not followed by an expanding suffix:

(22c) <u>nit.(t)--cc--ni-</u> to be quiet- static- can, ought <u>nit.tåc.cå.ni-</u> might be quiet B.732

*nit.ti.cic.ni- (note Ym ninee- 'to quieten')

10. Yawelmani underlying templates and surface forms

As already mentioned (6), SSM and Ym have the same epenthesis pattern, sensitive to the right edge of the template. Epenthesis, then, serves as a test for the template right edge in Ym as well as in SSM.

Ym templatic moras associate only to vowels (Archangeli 1983, Zoll 1994, et al.). Therefore the underlying representation of Ym templates contains no consonantal codas. There are no CVC syllables in Ym underlying templates;

As in SSM, conditioning suffixes require particular templates, while nonconditioning suffixes follow default templates (2). Aside from this, the phonological shape of suffixes may alter these templates. The alteration consists of moving the syllable right edge to include a consonantal coda, with vowel shortening if necessary. This is because in Ym template alignment will be sacrificed if it prevents epenthsesis (Z 1994). Template alignment will also be sacrificed so that a ghost consonant may surface. But ghost consonants will be sacrificed to prevent epenthesis. The nonconditioning suffix -hin, 'aorist', demostrates the alteration on the default templates. In (24), template realignment prevents epenthesis;

(24) σ_{μ} du.b--hin > dub.hun 'lead by hand' (NSM tuppu-'pull')

σμμ hii.x- -hin > hex.hin 'be fat' σμσμμ bi.nii.t- -hin > bi.net.hin 'ask'

In (25), templates are saved from alteration since it would not prevent epenthesis anyway:

 $(25)\sigma_{\mu}$ ho.gn--hin ho.gln.hin 'float'

σμμ <u>dii.yl-</u> -hin > <u>dee.yll.hin'guard'(NSM tiiyli-</u> 'tie someone up') In (26), Ym onset initial suffixes, like -hin, do not alter $\sigma_{\mu}\sigma_{\mu\mu}$ biliteral templates;

 $(26)\sigma_{\mu}\sigma_{\mu\mu}$ <u>ni.nii</u> -hin > <u>ni.nee</u>.hin 'become quiet'

In (27), cluster initial suffixes, like -wsiil, 'rflx., recip. cons. adj.', alter the alignment of biliteral $\sigma_{\mu}\sigma_{\mu\mu}$ templates to prevent epenthesis, and do not alter the triliteral since it would not prevent epenthesis anyway;

27) <u>t'i.k'ii</u>- -wsiil <u>t'i.k'ew</u>.sel 'tie' (NSM tiikema- web')

1u.k'uu.1- -wsiil 1u.k'oo.1uw.sool 'bury' (PIM -mši- 'recip')

In (28), biliteral $\sigma_{\mu}\sigma_{\mu\mu}$ template alignment is altered to save the ghost consonant, but this alone cannot prevent epenthesis in the triliteral, so the ghost is sacrificed. The suffix -(h)niil, 'consequent passive adjunctive', requires the $\sigma_{\mu}\sigma_{\mu\mu}$ template;

(28) <u>ma.xaa</u> -(h)niil <u>ma.xah</u>.nel 'procure' <u>ya.waa</u>.l- -(h)niil <u>ya.wal</u>.nel 'follow' (h

'follow' (NSM yoowu- 'go')

This analysis of Ym by Zoll (1994) allows a comparison of phonotactics in Ym and SSM. The SSM template always aligns itself with the right edge of the syllable. The surface forms of Ym templates also align with the right edge of the syllable. The SSM template is always followed by a single consonant which is an onset. The surface forms of Ym templates are also followed by a single consonant which is an onset.

11. Transfer of Miwok templates into Yokuts

In the proposed shift to PY, PEM speakers would bring with them the PEM open templatic syllables CV- and CVV-. What did not survive the shift was the PEM closed syllable CVC-, which included the extra-templatic ghost consonant (20). The loss of the closed templatic syllable might be accounted for by the elimination of the protective ghost, as a simplification of the source language. Without protection, coda consonants could become onsets, thus destroying the template-syllable right edge alignment. This would encourage the retention of open templatic syllables only, where alignment would be stable. Stem templates involving closed syllables, like SSM Stems 2, 3 and 4, would not transfer into PY.

The extra-templatic ghost consonant in SSM guarantees an extra-templatic onset, as in Stem 2. Lack of this ghost in Ym accounts for its lack of the closed syllable iambic, or Light (C 1992), template. The ghost allows for gemination, as in Stem 3, and its absence in Ym accounts for the lack of a Geminate template. This ghost also prevents epenthesis due to analogous reinterpretation of CVC. as CV.C in the Cluster template, Stem 4, which explains the virtual lack (12) of the Cluster template in Ym. The realignment of Ym surface templates to include CVC-may be the effect of the instability of templatic closed syllables during shift.

12. Induced glottalization as the residue of Stem 4 in Yokuts

There are several suffixes in Ym that exhibit a 'floating glottal stop' (Newman 1944,1:8). The various properties of the floating glottal stop have been given a uniform analysis in Zoll (1995).

An example is -(?). . .aa, 'continuative' (N.15:32);

- (29) (a) caa.w--(?). .aa > caa.w'aa- shout glot 2nd post-voc sonorant
 - (b) ?ii.lk--(?)...aa > ?el'.kaa- sing glot 2nd post-voc sonorant
 - (c) maa.x--(?)...aa > max.?aa- procure otherwise, as ghost
 - (d) ho.gn--(?). .aa > hog.naa- float otherwise, as ghost

Glottalized sonorants only occur post-vocalically (N.1:8). Newman suggests that they are secondary phonemes historically.

The ghost 2 in (29c,d), like most ghosts in Ym, matches the SSM default C_3 . There is an interesting parallel to (29) in SSM;

- (30) (a) tetye--pu older half sister cf. teete- older sister B.738
 - (b) ?amyi- -pu stepmother cf. ?ami- mother B.738
 - (c) tunyi- -pu stepdaughter cf. tune- daughter B.738

The SSM suffix -pu has a default C_3 which is -y. This suffix in NSM has 2 as a C_3 ; $tune^2pu$ - stepdaughter. If in SSM this suffix specified Stem 4, the C_3 would appear after the second consonant; Stem 2 tu.niy-, Stem 4 tun.yi-. By far 2 is the most common default C_3 in SSM. Many suffixes are associated with $^2/C_3$ /Stem 4. For suffixes like these borrowed into PY subsequent to shift, the C_3 would be added to the stem of biliteral roots. For a sonorant C_2 , the 2 could be incorporated into a glottalized consonant, since there is no equivalent to Stem 4 in Ym and so no need for a C_3 in that place. C_2 is a coda in Stem 4, which explains why Ym glottalized sonorants are post-vocalic. Once established, the pattern could have been analogized to triliteral roots as well. As for non-sonorants, the SSM default C_3 pattern continued.

As an example, the Ym suffix in (29a-d); -(2). .aa, 'continuative', may be the reflex of a borrowed PEM suffix, whose SSM reflex is; -a-, 'it is (bitter, warm, dead, wild, etc.)' B.702, with 2 as the C_3 default.

13. An alternative analysis

Callaghan (1994c) offers an analysis of Sierra Miwokan which denies there is epenthesis, and denies the templatic status of the iambic open syllable form CVCVV.C-. The epenthetic -i- is part of the underlying representation, deleted by the rule $V > \emptyset / V$. The iambic open syllable is derived by CVCVC-V(C) > CVCVVCV(C). Callaghan justifies these rules historically, particularly regarding the UR status of -i-. PU *-i-, 'verbalizer', originally on some monosyllabic consonant-final noun stems, spread to all consonant-final verb stems in PEM.

This analysis, by capturing history, strengthens the argument for interference from PEM in PY. We see that these features developed in PEM, ruling out the possibility that they are interference from PY in PEM. These features developed to the point where either synchronic description, the Callaghan analysis or that presented in this paper, would be adequate. Either interpretation would be possible of course, since the history of a language is opaque to its speakers. In the case of PEM, the most salient reinterpretation appears to have involved epenthesis and the iambic open syllable template. This is the interpretation PEM speakers would bring with them in the shift to PY.

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