

NOTES

MORE PALATABLE RECONSTRUCTIONS FOR UTO-AZTECAN PALATALS

Alexis Manaster-Ramer (1992*a*) recently established the sound change of Proto-Uto-Aztecan (PUA) medial **-c- > -y-* in Northern Uto-Aztecan (NUA). A corollary to Manaster-Ramer's law is his suggestion that the origins of NUA *-c-* be sought in sources other than PUA **-c-*. Without necessarily seeking data relevant to Manaster-Ramer's observation, I periodically notice evidence of it; and inadvertently stumbling upon further evidence when not looking for it is often the strongest kind of support.

Regarding other sources from which some *c* may have derived, many data suggest an earlier **t > c* or perhaps ***t > *c*. The affrication or palatalization of *t > c/č* before high vowels is a common phenomenon in world languages generally and is synchronically (or recently) apparent in some UA languages: e.g., in Cahitan **hamut* 'woman' vs. **hamuč-im* 'women' and fairly recently in some Tepiman languages (**t > c / __i, i, u*); Sapir (1913–14) offers perhaps two viable diachronic instances. Beyond the recent and obvious, however, certain data indicate that several earlier palatalizations seem to have occurred with more pervasive effect over more of the language family.

A statistical count of the initial syllables in Miller's (1988) "Computerized Data Base of Uto-Aztecan Cognate Sets" reveals that the syllabic frequencies of various CV-combinations in UA would suggest that ***ti > *ci* may have occurred more frequently early in UA than is presently recognized.¹

¹ I would like to thank the anonymous referees, whose comments were kind and helpful in improving the final version of this article. Regarding the syllabic frequency tabulations from Miller (1988), I might mention that Miller's (1988) sets constitute rough draft material that Miller would have further organized and refined had he had the opportunity before his untimely death; a few pairs of sets need to be combined, while other sets need to be separated and/or distributed among other existing sets. Nevertheless, those are few enough that they constitute a small percentage and would not appreciably skew the statistical proportions; and the alphabetical ordering according to initial CV is helpful for such a count. I did not undertake a count of medial consonants or second syllables for the following reasons: (1) The organization of Miller's (1988) sets does not lend itself to an easy count of medial consonants. (2) Medial consonants are much more dubious in UA reconstructions than initial consonants, as one can see by the great variation in the medial consonant correspondences in Miller (1967); that uncertainty makes statistical counts of them more doubtful at this point. (3) Miller's earlier work (1967) does provide indexes to both initial and medial consonants, but that work is much smaller, containing less than half as many cognate sets as Miller (1988) and is made somewhat obsolete by Miller's later work; nevertheless, the statistics of those indexes show similar proportions; only one viable initial **ti* syllable exists when we find that the three in Miller

TABLE 1

	ʔ	c	h	k	k ^w	m	n	p	s	t	w	y	
a	39	18	17	43	16	43	38	64	29	48	27	28	410
i	11	23	7	10	16	6	2	28	18	1	18	—	140
ɨ	19	15	9	17	6	11	15	17	22	54	12	19	216
o	27	18	8	38	—	11	12	26	15	26	14	10	205
u	9	20	21	37	—	23	5	23	21	24	2	28	213
	105	94	62	145	38	94	72	158	105	153	73	85	1,184

Table 1 provides the frequencies of initial CV-combinations as counted from Miller (1988). The first column is the number of sets with initial vowel (possibly preceded by a glottal stop); the subsequent columns are the numbers of sets beginning with the specified CV combination. Totals of the rows (vowel totals) are to the right; and totals of the columns (consonant totals) are below. The right column and the bottom row both total 1184, the number of sets in Miller's (1988) data base of UA cognate sets.

Some significant ratios present themselves: (1) Note that the vowel *a* is about twice as frequent as other vowels. (2) Note that the syllables *k^wo*, *k^wu*, and *yi* are absent, and *wu* and *ni* are nearly so. Note the increase in *ko/ku* syllables, which is probably related to the absence of *k^wo/k^wu* syllables.² (3) Note that among all **tV* syllables, only one **ti* syllable exists, far less than *tV* for other vowels (**ta* 48, **ti* 54, **to* 26, **tu* 24); in contrast, the number of **ci* syllables (23) is more than other **cV* syllables (**ca* 18, **ci* 15, **co* 18, **cu* 20). In addition, the high of 23 for **ci* occurs in spite of the fact that *i* is the least frequently occurring vowel overall (*i* 140 vs. *o* 205, *u* 213, *ɨ* 216, and *a* 410). Because it is natural and frequent in lan-

(1967) have been combined into the same set in Miller (1988): **ti/*ti'o/*tiho* 'boy, man'; regarding instances of medial **-ti* in Miller (1967), PUA **mati* has an alternate form **maci*, more widespread than **mati*, which fact strongly supports the proposal of many PUA **ti* > *ci*. UA **kuti/*kuli* 'nephew' is another listed instance of medial **-ti*, but the facts that the cognates in the individual Takic and Tepiman languages all reflect *l* instead of *t* and that Miller gives an alternate reconstruction showing medial *l* instead of *t* cast doubt on that medial *t*; thus, only one etymon—**haʔtis* 'sneeze'—out of 34 in Miller (1967) seems to contain an unambiguous, unchanged, noninitial **-ti*; however, its being clustered with a glottal stop probably helped preserve the stop feature of that lone substantiatable medial *-t-*. (4) In contrast to the 514 sets in Miller (1967), Miller (1988) contains 1,184 sets, which gives us a larger data base for more dependable statistics; my "A Comparative Vocabulary of Uto-Aztecan Languages" (in preparation) will contain more than 2,300 sets and several appendixes, but those are not yet completed. Worth noting among the medial **-c-* listed in Miller (1967) is that 15 of the 20 that show a following vowel exhibit **-ci*; the other 5 show **-ca*; thus **co*, **cu*, **ce* do not appear. So the vowel *i* in **-ci* accounts for 75% of the listed occurrences of medial **-cV* or medial **-c-* followed by a vowel.

² The **k^wo/k^wu* phenomenon is treated in Stubbs (1995a).

guage change³ for high front vowels to cause the affrication/palatalization of *t* > *c/č*, the change ***ti* > **ci* should not surprise us. The high occurrence of **ci* versus the near nonexistence of **ti* may suggest that many apparent PUA **ci* are from an earlier ***ti*; and if that is the case for initial syllables, it is at least as likely for noninitial syllables. (See n. 1.) In other words, if PUA medial **-c-* > *-y-* occurred in NUA, then the presence of some NUA medial *-c-* may signify an original **-t-* in some instances.

A prime example in which **-t-* should probably be reconstructed for an apparent *-c-* emerges from the UA words for 'bat'. Consider the following NUA and Cora (from Southern Uto-Aztecan [SUA]) forms:

(1a) Tubatulabal (Tb)	<i>pacaawa-l</i>	'bat'
Southern Paiute (SP)	<i>paačʔa</i>	'bat'
Kawaiisu (Kw)	<i>paacaʔaa-zi</i>	'bat'
Chemehuevi (Ch)	<i>páácaʔaci</i>	'bat'
Colorado Ute (CU)	<i>pááčæ-č̣i</i>	'bat'
Cora (Cr)	<i>háciʔi</i> ⁴	'bat'
Cahuilla (Ca)	<i>páli-l</i>	'bat'
Northern Paiute (NP)	<i>pidahanaʔa</i>	'bat'
	(<i>*-i-</i> → NP <i>-d-</i>)	

Thirty years ago Miller (1967:no. 25) reconstructed PUA **paca* 'bat' based on Tb and SP. Outside of Miller's listing more Numic forms in Miller (1988:no. pa-29) (but with no reconstruction), no one has dealt with the forms since, except for Manaster-Ramer's (1992a) mention of the NUA set as a potential anomaly to the sound law of medial **-c-* > *-y-* in NUA. However, closer inspection of more UA terms for 'bat' lends striking support for Manaster-Ramer's sound law. In fact, I reconstructed intervocalic **-t-*, rather than **-c-*, before realizing its alignment with that sound law and its relevance to Manaster-Ramer's suggestion (1992a) that we seek other sources for NUA medial **-c-* besides PUA **-c-*.

A reconstruction similar to **paca* is viable when considering only Tb and most Numic forms, as Miller did. However, inclusion of the Cr, Ca, and NP forms sheds quite a different light on the matter. Since Cr *háciʔi* of SUA agrees perfectly with the first three segments' **pac* (Cr *h* < **p*), we can hardly suggest that it is not related. Then *i* for the fourth segment also agrees with Ca *i*. However, Ca shows *l* instead of *c* for the second consonant. Intervocalic *l* and *c* may initially appear to have little in common, except that universally they both often derive from intervocalic *t*. In fact, it is known that PUA **t* intervocalically does result in Ca *l* (Sapir 1913-14 and Manaster-Ramer 1992b), so Ca *pali-* aligns perfectly with **pati*. In

³ Though PUA **c*, as an alveolar affricate, is not a palatal in a strict sense, its pronunciation is the alveopalatal *č* in many UA languages; thus, the phenomenon *t* > *c/č* will loosely be referred to as palatalization in this paper.

⁴ Miller (1988) lists *háciʔi* in the Jesus Maria dialect of Cora, as Eugene Casad communicated in a manuscript to Miller. Grimes et al. (1981) lists *áciʔi*, which is quite consistent with the *háciʔi* form of the other dialect; and since an initial *h* is extremely feeble diachronically (cf. Spanish *hablar*, English *hour*, etc.) *háciʔi* can be safely considered the base form of Cora, in line with **p* > Cr *h*.

addition, the most universal cause of $t > c/\tilde{c}$ is a following high front vowel, which vowel (i) is exactly what we find in both Ca *páli-l* and Cr *háci?i*. Thus, PUA $*t$ begins to appear as the more likely reconstruction for the second consonant, and its case is only strengthened by further considerations.

A proto-form of $*pati$, or perhaps more fully $*pati?a$, would account nicely for these and other forms, since Kw, Ch, and SP in NUA and Cora in SUA all show a glottal stop beginning a third syllable, while Tb has w . So let us posit $*pati(?a)$ for now, with a tentative third syllable.

Further supporting a reconstruction of $*pati(?a)$, the *pita*- portion of Northern Paiute $*pitahana?a$ 'bat' shows two features worth noting: (1) it actually shows the stop (t); and (2) it also shows the first two vowels ($a-i$) as proposed, though metathesized ($i-a$), which metathesis probably assisted in the preservation of t , since the vowel a , instead of i , would then have followed t .

Furthermore, the reconstruction $*pati(?a)$ aligns with Manaster-Ramer's suggestion that the origins of many NUA $-c-$ should be sought in sources other than PUA $*-c-$, in light of the recently established sound change of PUA medial $*-c- > \text{NUA } -y-$ (Manaster-Ramer 1992a). In fact, neither the medial consonants of Ca *pali*- nor NP *pita* . . . could possibly have come from $*c$, but only from $*t$.

For Southern Numic $*paca?a$ (Kw, Ch, SP, CU), the following scenario is plausible: the high front vowel encouraged palatalization of $*t > c$, and then i assimilated to a , being between two other a 's. Both steps are natural processes: $*pati?a > *paci?a > *paca?a$.

For Ca, PUA intervocalic $*t > l$ is common: $*pati?a > pali$. For Cr, the sound change of initial PUA $*p > h$ is well known; likewise, the same palatalization occurred as in Southern Numic; and the last vowel assimilated to the second: $*pati?a > *haci?i$. Those processes are all quite expectable as well.

Now consider the following Southern Uto-Aztecan (SUA) forms:

(1b) Tarahumara (Tr)	<i>so?péçi/so?pičí</i>	'bat'
Guarijio (Wr)	<i>so?péci</i>	'bat'
Eudeve (Eu)	<i>cikúrsopic</i>	'bat (mouse-bat)'
Mayo (My)	<i>sotčik</i>	'bat'
Yaqui (Yq)	<i>sóočik</i>	'bat'
Pima of Yepachic (PYp)	<i>ho?opisa</i>	'bat'

The first five languages (Tr, Wr, Eu, My, Yq) belong to what we might call "core Sonoran" among the branches of UA. The last (PYp), as with all Pima dialects, belongs more specifically to the Tepiman branch. Since the sound changes from PUA to Tepiman include PUA $*s > h$ and PUA $*c > s$, then PYp $h (<*s)$ and PYp $s (<*c)$ correspond to the consonants of the other SUA forms as expected. Thus, the SUA forms unanimously point to SUA $*so?o-pVci$ for the consonants, and the last two vowels in PYp may be explained by the same kind of vowel metathesis apparent in NP. PYp would suggest that syncope of the second o occurred in Tr, Wr, and Eu ($*so?opVci > *so?pVci$), because vowel (and syllable) syncope is very common in UA noninitial syllables. The Cahitan languages (Yq and My), though cognate, are hardly helpful in the reconstruction, having syncopated one more vowel and then a bilabial (p) in a consonant cluster after a round vowel (o)— $*so?pVci > *sopci > *sooči-(k)$ —which phenomena are also frequent in UA.

As for the origin of **soʔo-* in a hypothesized compound **soʔo-pVci*, nothing is certain, but a couple of possibilities emerge. Note that Eu *cikursopic* ‘bat’ contains Eu *cikur-* ‘mouse’; German *fledermaus* ‘bat’ similarly attests to the frequency of ‘mouse’ words in ‘bat’ lexemes due to the mouselike appearance of the little flying mammals. With that in mind, Yaqui (Yq) *ʔasóʔola* ‘little mouse’ is noteworthy in that it contains a sequence of four segments (*-soʔo-*) identical to the unidentified, but reconstructed, element in SUA compounds for ‘bat’—**soʔo-pVci*. The sequence would also recommend syncope having occurred in the other Sonoran languages—**soʔo-pVci* > *soʔpeci*—since both Yq and PYP show the syncopated vowel that is not apparent in Tr, Wr, and Eu. A more remote possibility is Hopi (Hp) *sawya* ‘bat’, which has only initial *s* and rounding in common with **soʔo-*. Nevertheless, regardless of the uncertainty of **soʔo-*, the similarity of the latter portion **-pici* to intermediate **paci* (< **patiʔa*) ultimately) is considerable—three of four segments—which recommends our seeking an explanation for the one differing segment. Yet the NUA and SUA forms have not been previously associated with each other, at least not that I am aware of.

Miller (1967) reconstructs the NUA forms as **paca* and Lionnet (1985) reconstructs the Sonoran forms as **sopi-ci* (Sonoran belonging to SUA), but the PYP form was not available at that time. Questioning the suggested morpheme break,⁵ we see substantial similarity between Sonoran **-pici* and Cora *háciʔi* (< **paciʔi* < **patiʔa*) and NUA **pac . . .* (< **patiʔa*). Furthermore, since loss of a possible third syllable and a very natural palatalization are not unusual in UA, the only looming difference between the NUA and SUA forms is the first vowel—*a* (in NUA) vs. *e/i* (in SUA, except for Cr *a*, which also agrees with the *a* of NUA).

The most common reflex of **i* in SUA is *e*. Yet while *e* is the reflex of PUA **i* in most SUA languages, an assimilation of *a* > *e/*—*i* motivated by a following *i* would not necessarily have anything to do with PUA **i*, especially if the assimilation occurred after the change of **i* > *e*. Only the twin-sister languages Tr and Wr show *e* anyway. Eu and PYP show *i* and *i-a*, respectively, which vowels do not correspond to **i*. So if *e* was already in the repertoire of the vowels of Tr and Wr (after **i* > *e*), then the *e* in *-peci* could as easily be an assimilation from *a* toward *i* rather than deriving from **i*, because *e* is directly in line with a change from *a* halfway toward *i*. Furthermore, assimilation of the first vowel (*a*) halfway (*e*) toward the second (*i*) is highly natural (**pati* > *peci*). The vowel metathesis in PYP may have occurred before the assimilation of *a* > *e/i*—**pati* > **paci* > **pica* > Tepiman **pisa*—and would also recommend an original voweling of *a-i*. Or since Eu and PYP both show the same first vowel (*i*), the history of PYP *i* may simply parallel Eu *i*, whatever that may have been. Regardless, neither PYP *i* nor Eu *i* correspond to **i* either, so even if we assume a reconstruction of **i*, then assimilation would also have to

⁵ Though I laud Lionnet’s valuable contributions to Sonoran linguistics, I must question this particular morpheme break, since none of the four individual languages as reflected in Lionnet’s set no. 258 **sopi-ci* ‘murciélago’ shows a morpheme break where Lionnet has it in the reconstruction: Yq *soóči-k*; Mayo (My) *sóči-k*; Wr *soʔéci*; Tr *soʔeči/soʔpiči*. However, if something like a diminutive suffix were fossilized into those forms, then such a morpheme break would be opaque. So it is possible that Lionnet is correct and that I am incorrect, though I must consider this paper’s proposal to be more probable at this point.

explain the further fronting of *i* to *i* in Eu and one Tr alternate, due to the following *i* (even if that *i* was later lost in Eu). Thus, in either scenario, the first vowel assimilated toward the second in at least some of the forms, if not all of them, whether a partial assimilation (**a-i > e-i*) or a full assimilation (**a/i-i > i-i*). Depending on the possibility of metathesis, the presence of PYP *a* and Cr *háci?i* both encourage a reconstruction of *a*, instead of *e/i*, in SUA **paci* (< **pati*). In any case, it seems likely that the NUA and SUA forms above are related, and when considered together, the reconstruction **pati(?a)* best explains all forms of both NUA and SUA:

- *pati?a* > **pita* . . . (NP)
- > **pali* (Ca)
- > **paci?a* > **paca?a* (Tb, Kw, Ch, SP, CU)
- > **paci?i* > *háci?i* (Cr)
- > **paci* > *-peci* (Sonoran: Tr, Wr, Eu)
- > **paci* > **pica* > Tepiman *-pisa* (PYP)

Thus, the evidence may point to an adjusted reconstruction—**pati(?a)* ‘bat’—a reconstruction that better aligns with the data and better aligns with the sound law of medial **-c- > -y-* in NUA.

Other sets also suggest palatalizations of **t > c/_i*. These sets reveal apparent alternate forms: some are palatalized before the vowel *i*, while others remain unpalatalized without the presence of the high front vowel. Consider forms involving UA **patta/*paci* ‘bare, naked, bald, smooth, flat’:

(2)	<i>*patta/paci</i>	‘bare, naked, bald, smooth, flat’
NUA		
Mono (Mn)	<i>padagwinigi</i>	‘be naked’
NP	<i>patakwiní?a</i>	‘be smooth’ (<i>*-tt-</i> → NP <i>-t-</i>)
NP	<i>copata</i>	‘flathead’ (<i>co-</i> ‘head’ in compounds)
NP	<i>copatakwa?ama</i>	‘bald’ (<i>co-</i> ‘head’ in compounds)
NP	<i>sikipatadî</i>	‘flat’
Panamint (Pn)	<i>hippatta</i>	‘flat’
Shoshoni (Sh)	<i>hippattaa</i>	‘flat’
: Shoshoni (Sh)	<i>pacci</i>	‘smooth, shiny’
Comanche (Cm)	<i>pahci</i>	‘smooth, slick’
Comanche (Cm)	<i>paciketî</i>	‘slick, smooth’
Ca	<i>pálaa</i>	‘be flat’
SUA		
Tr	<i>biči</i>	‘naked’
Arizona Yaqui (AYq)	<i>viiči</i>	‘bald’

A stem **patta/pata* is evident in at least four Numic languages (Mn, NP, Pn, and Sh) as part of various words meaning ‘naked, bald, smooth, flat, etc.’. A probable variant of that stem seems to be **paci*, appearing in lexemes of similar meaning—‘smooth, naked, bald’—since final *a/i* alternations are common in UA. The fact that this alternation yields *c* before *i* and *t* before *a* suggests that the medial *-c-* in these forms also derives from an original *t*. The two SUA forms (Tr and AYq) again show that a similar palatalization occurred in SUA also, as in the lexemes for ‘bat’. Also, like ‘bat’, the SUA terms for ‘bare’ assimilated the vowel *a* toward *i* (**paci >*

**pici* . . .), while the NUA forms generally did not, and Ca *-l-* again aligns with the *-t-*'s and *-c-*'s of the other UA languages.

Another prominent NUA stem—**piti* 'arrive'—is found in every branch of NUA and to a lesser extent also demonstrates the medial *-t-/c-* dichotomy. Most languages reflect medial *-t-* (or Tb *-l-*), but two reflect *-c-*. A mere sample follows:

- (3) **piti* 'arrive'
- | | |
|----|------------------------------|
| Hp | <i>piti</i> |
| Tb | <i>pilit</i> ~ ? <i>ibil</i> |
| Mn | <i>piti</i> |
| Pn | <i>piti</i> |
| Sh | <i>piti</i> |
| Kw | <i>pidi</i> |
| SP | <i>piči</i> |
| CU | <i>piči</i> |

A set very similar to 'arrive' is UA **pati* 'daughter', which palatalizes in the same two languages and with a corresponding array of final vowels:

- (4) **pati* 'daughter'
- | | |
|----|--|
| Mn | <i>pédi</i> |
| NP | <i>bati</i> |
| Pn | <i>paiti</i> |
| Sh | <i>paiti</i> |
| Kw | <i>pedi</i> |
| SP | <i>pači/pači</i> |
| CU | <i>pá-či</i> ⁶ 'daughter, teenage and up' |
| CU | <i>pati-či</i> 'young daughter' |

A widespread UA form—**ati* 'louse, lice'—appears in all branches of SUA quite clearly and in Hp **ati* and in Tactic. Yet a change of the final vowel from **i* > *i* in Kw of the Numic branch of NUA apparently triggers a subsequent palatalization:

- (5) **ati* 'louse, lice' (in many languages of most branches)
- | | |
|----|-----------------------|
| Kw | <i>aci-vi</i> 'louse' |
|----|-----------------------|

While 'arrive', 'daughter', and 'louse' exhibit seemingly more recent palatalizations restricted to Numic, the forms for 'tick' below, like 'bat' and 'bare', show a more pervasive, and probably earlier, palatalization that pervades most of both

⁶The Ute Dictionary of the Ignacio dialect (here referred to as Colorado Ute) lists **pá-či* 'daughter, teenage and up' with a perceived morpheme break separating *-či*, which synchronically appears valid, though Sapir's lack of such a morpheme break in the very parallel forms of SP *pači/pači* 'daughter' could raise some doubt; but even if **pá-či* is correct, this probably involves the same stem as the other Numic forms and then the *-t-* was either lost/absorbed in a cluster or palatalized: **pat-či* > **pač-či*/**pa-či*. So even if we discount CU, the variants of SP still show palatalizations (SP *pači/pači*) with vowelings matching **pati* of the other Numic forms. Interestingly, CU kept *-t-* with the one voweling pattern in CU **pati*, while SP changed **-t-* > *-č-*, which suggests that the palatalization in SP is rather recent, i.e., since the Colorado Utes moved further east. Regarding the first vowel, it is evident in these lexemes and dozens of other sets that assimilation occurred in a vowel pattern of **a-i/i* > **ai-i/i* > *e-i/i*.

SUA and NUA, though the evidence suggests that **-t-* (or **-tt-*) was the original consonant.

UA terms for 'tick' (Miller 1988:no. ma-1 and Bright and Hill 1967 **mac-* ? 'tick') do show a few lone *t*'s amidst mostly *c*'s in both NUA and SUA, as well as the expected Tepiman *s* (for PUA **c*), again suggesting that this palatalization occurred in SUA before **c > s* in Tepiman, as in 'bat' also. Fowler (1983), in fact, reconstructs Proto-Numic **mata* 'tick' with a *t*.

(6)		<i>*matta/maca/maci</i> 'tick'	
	NUA		
	NP	<i>madabi</i>	'wood tick' (< <i>*mata-pi</i>)
	CU	<i>matá-ci</i>	'tick' (< <i>*matta-ci</i>)
	Cupeño (Cp)	<i>máči-ly</i>	'wood tick'
	Ca	<i>máči-l</i>	'tick, flea'
	Luiseño (Ls)	<i>?amáča</i>	'tick'
	Serrano (Sr)	<i>maça-ç</i>	'wood tick'
	Hp	<i>màaca</i>	'tick'
	SUA		
	Oʔodham (Od)	<i>maamş</i>	'animal tick'
	Guarijio (Wr)	<i>macá</i>	'tick'
	Tr	<i>mačá</i>	'tick'
	Huichol (H)	<i>máte</i>	'tick'

Interestingly, NUA forms (NP, CU) and one SUA form (H) actually show *t* for the medial consonant, while most other languages show *c* and its expected correspondence *s* (< **c*) in Tepiman (Od). Like the array of forms for 'bat', the fact that *t* actually exists in some languages and the fact that *c* exists in NUA (instead of expected *-y-* < **-c-*) as well as in SUA both suggest that we are dealing with something involving PUA **t* rather than **c*. However, in contrast to 'bat', the presence of a following high vowel is not as strongly apparent as a motivator for **-t- > -c-* in the forms for 'tick' as it is in those for 'bat'.

Another natural question arises: why did some intervocalic **-t-* become *-c-*, while others became liquids *-l/r-*? For example, in NUA we often see intervocalic **-t- > -r/l-*, in apparent contrast to these proposals of **-t- > -c-*; likewise, **-t- > Tb -c-* in 'bat', but **-t- > Tb -l-* in 'arrive'. Though a secure explanation is not readily available at this point, geminations of *t* and clusters involving *t* vs. lone *t*'s may underlie the matter in part. For example, a geminated **-tt-* may be reconstructed for 'tick', because the above CU *matá-ci* 'tick' derives from an underlying geminated **-tt-* (> *-t-*), as opposed to a nongeminated **-t-* (> *-r-*), which yields 'metate'.

CU *matá-či* 'tick' < **matta-ci*

CU *mará-či* 'mortar, rock bowl for grinding' < **mata-ci*

Gemination is also apparent in some forms under **patta/paci* 'bare, naked, bald, smooth, flat' and *patti* 'daughter'. (8) below presents a suggested *-tk-* cluster (**-tk- > -c-*). Yet regardless of our lack of a satisfactory solution, the first step is to note that some apparent **-c-* derive from something near **-t-* or involving **-t-*, while some **-l/r-* also result from **-t-*; the second step, explaining why, adds only one

more unsolved puzzle to the dozens of others already vexing Uto-Aztecans, a mere straw for a good strong camel.

As for palatalizations at different stages in UA, the variants of UA **mata/ *mati/ *maci* ‘know, perceive, see/seen, appear/visible’ point to both earlier and later palatalizations. This rather pervasive UA stem is cited in Sonoran (**mati, mac-i*) by Lionnet (1985), in Tepiman (**maati*) by Bascom (1965), in Aztecan (**mati*) by Campbell and Langacker (1978), and in UA generally by Voegelin, Voegelin, and Hale (1962: **mati*), and by Miller (1967: **ma/ *mai/ *mati/ *maci*). In addition, Manaster-Ramer (1992a) focuses on the **maci* form as it applies to the lenition of medial **-c-* > *-y-* in NUA. Very telling are the following Hp forms, all from the same NUA language of course:

- (7) Hp *maata-q* ‘visible, noticeable, obvious, standing out’
 Hp *maata-q-ti* ‘become visible, noticeable, come into view’
 Hp *maaci-l-ti* ‘become visible, appear’
 Hp *maaci-w-ta* ‘be visible, stand out’

The complex network of forms relating to **mati/mati/maci/mai* suggests that the palatalized form of an earlier split (**maci* < **mati*) did undergo *-c-* lenition, as treated by Manaster-Ramer (1992a); then afterward other palatalizations occurred subsequent to the productive period of Manaster-Ramer’s law, the above Hp forms exemplifying the latter.

The above sets show a general pattern of *t* > *c/č* before *i*, but less often before other vowels. Regardless of whether high vowels can always be identified as the motivating factor, the above sets demonstrate that many UA medial **-c-* do derive from an earlier medial **-t-*, in both NUA and SUA. In light of the frequency of intervocalic palatalizations, various UA forms for ‘worm’ may merit an adjusted reconstruction, in a possible palatalization of a medial cluster involving *t*:

- (8) **k^wicia* (< **k^witko(w)a*)
 Yaqui (Yq) *b^wičia* ‘worm’
 Mayo (My) *b^wičia* ‘worm’
 Tubar (Tbr) *k^wici-t/hi-k^wici-t* ‘caterpillar’
 Huichol (H) *k^wīci* ‘worm’
 Guarijio (Wr) *ihkucīwa* ‘worm’
 Tarahumara (Tr) *kučīwa-ri* ‘worm’
 Nahuatl (N) *k^wit-kooaa-λ* ‘tapeworm’ (lit. ‘feces-snake’)
 Nahuatl *iʔkoc-in* ‘worm’
 SP *nakk^wicu* ‘worm’

Miller (1967:no. 475; 1988:no. k^wi-11) lists N *k^wit-kooaa-λ* (< PUA **k^wita-kowa* ‘feces-snake’) as a possible cognate with the others, which general sets he reconstructs as **k^wic. . .* The Yq, My, Tbr, and H forms suggest **k^wici(a)*, the Cahitan languages (Yq, My) showing final *-ia*. Tr *kučīwa* and Wr *ihkucīwa* underwent *k^wV*-reduction (*k^wV* > *ku/ko*), and also show the last two vowels as *i-a*, though separated by *w*. As mentioned previously,⁷ the similarity of N *k^wit-kooaa-λ* to the **k^wici* or

⁷ In Stubbs (1995), I address this form briefly and explain the *k^wV*-reduction (*k^wV* > *ku/ku*) in the Tr and Wr forms.

k^wicia* forms is considerable; the differences are merely a vowel assimilation and a palatalization very similar to what we see in 'bat'. A proposed palatalization of an original UA *-tk-* cluster to *-c-* is almost identical to Latin *-kt-* clusters palatalizing to *ch* in Spanish: *okto* > *ocho* 'eight'; *noktem* > *noche* 'night'. The only difference is a possible *-tk-* cluster in UA vs. a *-kt-* cluster in Latin, but either would palatalize to *c/ĉ* as easily as the other. Beginning with the intermediate UA form **k^witkoa* (rather than PUA **k^wita-kowa*), we can see that if the second of three vowels in UA **k^witkoa* assimilated to its preceding vowel (i-oa* > *i-ia*), then that following high front vowel would also more likely encourage a subsequent palatalization: **k^witkoa* > *k^witkia* > *k^wicia*. Furthermore, word-final *-ia* is such a common final pattern in Sonoran, and especially in the Cahitan languages, that analogy may also have encouraged the assimilation of **k^wiCoa* to **k^wiCia*. Furthermore, the *w* in Tr and Wr **kuciwa* strengthens the case of these Sonoran forms being from **k^wit-ko(w)a* in the underlying *w*'s survival even after the transposition of the vowel series **k^wiCVwa* > **kuciwa* (*-^wi-V-a* > *u-i-a*), which vowel transpositions are frequent in Tr. I list N *i?koc-in* merely as an item of interest by virtue of its similarity to Wr *ihkucíwa*, the N form perhaps being a southward diffusion from something similar to Wr *ihkucíwa*.

Manaster-Ramer (1992a) questions the relatedness of SP *nakk^wicu* 'worm', suggesting that the lack of a definitive morphological analysis may not allow SP *nakk^wicu* to be a valid comparison, which suggestion may be correct. On the other hand, if a viable *na-* prefix were verified, the remainder (*-k^wicu*) matches **k^wit-koa* better than the Sonoran and Corachol forms of SUA, since the SP round vowel (*u*) after the affricate may depict the round vowel following the cluster in the possible reconstruction **k^wit-ko(w)a*, in which case it would not be an exception to the sound law of PUA medial **-c-* > *-y-*, because it would be from **-tk-* not **-c-*.

Manaster-Ramer (1992b) proposes that **k^wici* 'smoke' (<**k^wit-*) may also involve an original *t*, on the strength of the Hopi evidence: Hp *k^wiit-an-ta* 'purify with (juniper) smoke, fumigate'; Hp *k^wiit-* 'smoke. n.' (combining form of Hp *k^wiiciŋw* 'smoke, n.') in contrast to **k^wici* for most other UA languages. The phonological parallel between 'smoke' and 'be visible' above is worth noting, in that both show *t* before *a* or another morpheme, but *c* before *i*.

If we turn now from palatalized stops to the palatal glide *y*, an illuminating parallel to one of Bascom's Tepiman reconstructions, but found outside of Tepiman, reveals how easily some PUA phonemes can be disguised.

In his enduring work "Proto-Tepiman," Bascom (1965:no. 267) lists Proto-Tepiman **vidinai-a* 'to make thread':

- (9) Northern Tepehuan *vid^yiñai*
 Southern Tepehuan *vid^yña*
 Upper Piman *wijini*

The standard sound correspondences for Uto-Aztecan have Proto-Uto-Aztecan **y* yielding *d* in Tepiman. In other words, Tepiman **vidina(i)* would correspond to PUA **piyina*.

The presence of **y* in PUA **piyina*, though clear in Tepiman **vidina*, would be much less obvious in a PUA segmental sequence of **-iyi-*. In light of the near phonological identity of *y* and *i*, a PUA **y* between two *i*'s would likely become

invisible in UA languages that reflect *y* from PUA **y*, probably reducing to simply *i* or long *ii* (*-*i*yi- > *ii*).

That supposition was later verified upon noticing Huichol *hiina* 'torcer mecate (twist/make rope)'. The correspondence of PUA initial **p* > *h* in Huichol provides a perfect match, which also confirms the relative invisibility of **y* between *i*__*i* in some UA languages (Huichol in this case).

Miller does not list Huichol *hiina* in his (1988) computerized cognate collection (where Tepiman **vidina* is found under pi-3),⁸ nor am I aware of any other proposal tying Huichol *hiina* 'torcer mecate' to Tepiman **vidina* 'twist/make thread'. Nevertheless, the sound correspondences and the semantics both match, and it is an intriguing example of a proto-phoneme, occurring in a rather disguising phonological environment, but appearing quite clearly in at least one branch (Tepiman) of UA.

In conclusion, several examples feature palatalizations of *-*t*- > -*c*-, usually before *i*. Furthermore, for those cognate sets in which the phenomenon is widespread, some palatalizations may be mistaken for PUA **c*. That is, certain data point to the probability that some apparent PUA **ci* syllables may, in fact, derive originally from **ti* syllables: (1) a count of initial syllables in Miller (1988); (2) Manaster-Ramer's suggestion that NUA medial *-*c*- derives from other sources than PUA *-*c*-; and when we consider what those other sources could be, PUA *-*t*- emerges as a likely source theoretically, strictly on the basis of phonological tendencies, especially when preceding high front vowels; and (3) PUA **pati*(?a) 'bat' and other cognate sets exemplify those theoretical suggestions. Ironically, some of the protolexemes originally deemed problematic to the sound law under discussion, upon closer examination, lend compelling support to the sound law indirectly, by specifically supporting the corollary to the sound law, as a growing number of apparent *-*c*- are shown to derive more likely from *-*t*- or something approximating *-*t*-.

The paths of the palatals toward obscurity occurred not only in the sequence *-*i*yi-, but NUA medial -*y*- (< *-*c*-) often became invisible as well: e.g., Sh/SP *ia* (< **iya* < **ica*C) 'wound, sore'; Hp *paa-kiw* (< **kiyu* < **kicu*C) 'fish'; Serrano/Sh/SP **mia* (< **miya* < **mica*) 'moon' vs. Hp *miiyaw*, which does show *y* (all from Manaster-Ramer 1992a). This obscurity more often occurs in environments of high vowels. Therefore, whatever residual evidence we can detect to illuminate these palatals on their paths toward obscurity is crucial to note at this late date in the lives of most Uto-Aztecan languages.

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⁸ Along with Tepiman **vidinai*-a, Miller (1988) also lists Mayo *biirite* 'torcer', Tr *biʔ-ri* 'torcerse, enrollarse', Wr *piʔri-na* 'darse vuelta', and O'odham *wijin* 'to twist', but he queries whether the Sonoran forms (My, Tr, and Wr) should be a separate set from the Tepiman forms; in either case, Huichol *hiina* is definitely cognate with the Tepiman forms; and relevant to the others, I have written two unpublished papers, in 1981 and 1995 (see Stubbs 1995b), presenting evidence that some PUA **y* may have originally derived from liquids (***l/r* > **y*), which liquids most commonly appear in Sonoran. Karen Dakin, in a paper presented at the 1997 Friends of Uto-Aztecan Conference, subsequently added more data to strengthen that case. Thus, in light of the liquids in the Sonoran languages above (My, Tr, Wr), this may be one of those **y* deriving from an earlier liquid.

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ON THE ORIGIN OF BELLA COOLA /-uks/¹

1. There is in Bella Coola (BC) a pluralizing suffix /-uks/,² which has no known cognates in Salishan. All of the neighboring (Wakashan, Athapaskan) languages, too, lack a similar suffix. On the other hand, BC has not only been

¹ This report is a revised version of my 1997 conference paper (Nater 1997).

² Nater (1984:55–56). Generally, /-uks/ serves to pluralize nouns, while in intransitive verbs, /uks/ indicates plurality of the agent; in transitive verbs, /-uks/ pluralizes the patient(s): *λ'msta* 'person'–*λ'mstayuks* 'persons'; *λ'apit* 'we (two or more) go'–*λ'apuksit* 'we (multitude) go'; *caaxatic* 'I will chase them (two or more) out'–*caaxayukstic* 'I will chase them (multitude) out'.