



## The Origin of Aztec Tl

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IN 1923 J. Alden Mason, in a consideration of the consonants to be reconstructed for original Uto-Aztecan, wrote "*tl*, on the other hand, is found only in certain Nahuatlan languages. Other dialects and all other Uto-Aztecan languages replace it with normal *t*. It seems a more rational explanation, therefore, to consider *tl* as developed from *t* in Aztec under as yet unelucidated rules."<sup>1</sup>

The alternative to this explanation is, of course, to regard *tl* or its ancestor as an original Uto-Aztecan consonant distinct from *t*. In two recent publications<sup>2</sup> I reaffirmed the thesis of Mason's, stating that it could be considered as undoubtedly correct, but gave no proof. In the present paper I wish to submit the proof; or in other words to elucidate the rules, which Mason supposed to exist, and which in point of fact do exist, for the development of original *\*t* under the influence of wholly local Aztec surroundings into two Aztec consonants, *tl* under one set of Aztec conditions and *t* under the complementary or alternative set.

From this point on I shall use the symbol  $\lambda$  in place of *tl*, as denoting a single phoneme, not a cluster of *t* and *l*. Mason's "certain Nahuatlan languages" can probably be amended to "a group of specially related dialects of the Nahuatl language, forming one major dialectal division, which may be called Central Nahuatl, or Aztec." The crucial observable fact concerning the interrelation of  $\lambda$  and *t* in Aztec has not hitherto been pointed out, to my knowledge. It is this: with the exception of (1) the absolute noun suffixes  $-\lambda$  and  $-\lambda i$ , and (2) a statistically small scattering of sporadic occurrences,  $\lambda$  is found only before the vowel *a* in the same word, while *t* is found only in the complementary distribution, that is before sounds, whether vowel or consonant, other than *a*, and as word-final, with the exception of (3) a statistically small scattering of occurrences before *a*. The relatively few irregular exceptions under (2) and (3) seem to stand outside the phonological system of the language, which, aside from them, works with quite mechanical regularity. Thus, in a certain class of verbs, change of final *-i* to *-a* changes the meaning from intransitive to transitive. Accordingly we find that *pa·ti* 'it melts' becomes *ki·pa· $\lambda$ a* 'he melts it.' Or again, final *-a* is changed to *-ilia* to form an "applicative," a doubly transitive verb

<sup>1</sup> J. Alden Mason, *A Preliminary Sketch of the Yaqui Language* (University of California Publications in American Archaeology and Ethnology, Vol. 20, pp. 195-212, 1923).

<sup>2</sup> B. L. Whorf, review of A. L. Kroeber, *Uto-Aztecan Languages of Mexico* (American Anthropologist, Vol. 37, pp. 343-45, 1935); B. L. Whorf, *The Comparative Linguistics of Uto-Aztecan* (American Anthropologist, Vol. 37, pp. 600-608, 1935).

with both direct and indirect objects; so that  $\lambda so^? \lambda a$  'love' and  $\lambda a \lambda a$  'burn' become  $\lambda so^? tilia$  and  $\lambda atilia$ .

So much can be ascertained simply from a thorough synchronic study of present-day Aztec. Comparative Uto-Aztec study however yields a confirmatory result—namely that original UA\* $t$  when followed by \* $a$  gave rise to Aztec  $\lambda$ , in other situations to Aztec  $t$ . Thus, on the one hand, UA \* $tama^n$  'tooth' > Tübatulabal  $tama^-n$ , Hopi  $tama$ , S. Paiute  $ta\eta^w a^-n$ , Tarahumar  $\dot{d}ami$ , Aztec  $\lambda an^-$ ; or UA \* $k^w ita$  'excrement' > Ho.  $k^w ita$ , S.P.  $k^w i\dot{c}a^-$ , Yaqui  $b^w ita$ , Tepecano  $bit$ , Cora  $\dot{c}^w ita$ , Az.  $k^w i\lambda a^-$ . On the other hand UA \* $i\dot{e}ka$ , \* $i\dot{e}ke$ , \* $i\dot{e}ki$  'cut' > Ho.  $i\dot{t}k\dot{i}$ , Tüb.  $i\dot{t}ha$ , S.P.  $i\dot{t}yami^-$ , Papago  $\dot{c}\dot{i}k$  ('hole'), Az.  $teki$ ; UA \* $s\dot{u}tu^n$  'finger-nail' > Tüb.  $\dot{s}ulu^-n$ , S.P.  $\dot{s}\dot{i}\dot{c}u^-$ , Tar.  $sutu$ , Pap.  $hu\dot{c}\dot{i}$ , Co.  $\dot{s}ite$ , Az.  $-ste^-$ ,  $iste^-$ ; UA \* $tusi$  'grind' > Ho.  $tosi$ , S.P.  $tu\dot{s}u$ , Tar.  $\dot{d}u\dot{s}\dot{i}$ , Pap.  $\dot{c}uh^i$ , Co.  $ti \cdot \dot{s}i$ , Az.  $te \cdot si$ ; UA \* $toka$  'call, cry, name' > Ho.  $t\dot{o}i\dot{o}ka$ , Az.  $to \cdot ka^-$ , and so on.<sup>3</sup>

If now the method of comparative linguistics be pushed further and deeper, it will not only confirm the Aztec situation as revealed by synchronic linguistics, but will throw a further light upon that situation that no amount of synchronic study could make forthcoming. In brief, it will provide a harmonious explanation of the most troublesome of the exceptions to the Aztec complementary distribution of  $\lambda$  and  $t$ , and the remaining exceptions will be reduced to a number entirely permissible as stray cases due to unknown disturbing influences—special phonological situations, analogies, and loan-words.

It is first found that Uto-Aztec \* $a$  does not invariably yield Aztec  $a$ , but in a statistically small number of cases yields Aztec  $e$  (or more rarely  $i$  that may be considered a development from  $e$ ). This vagary cannot be correlated with anything in the Aztec phonetic surroundings. In the wider Uto-Aztec purview it can be correlated, to a fair degree of probability, with the matter of the length of the Uto-Aztec vowel, but the evidence is rather scanty, due to our lack of information on the vowel-lengths in so many Uto-Aztec languages.

In my *Comparative Linguistics* I stated that the first vowel of the typical CVCV root might be of one, two, or three moras, \* $a$ , \* $a \cdot$ , \* $a \cdot a$ . On the basis

<sup>3</sup> The phonetic orthography used is the one recommended by Sapir and used in my *Comparative Linguistics of Uto-Aztec*. The symbols  $\dot{s}$ ,  $c$ ,  $\dot{c}$ , stand for older  $c$ ,  $ts$ ,  $tc$ , respectively. Accent of words is generally not indicated, but in modern Aztec it is nearly always on the penult. As will be explained, the three vowel-lengths in Hopi are indicated differently from the usage of the cited work. I should also say that while a synchronic treatment of Hopi conveniently recognizes two main types of guttural stop,  $k$  and  $q$ , for comparative purposes it is best to write Hopi in terms of  $k$  that takes in all complementarily distributed  $k$  and  $q$ , and  $\dot{k}$  for the residuum, an especially fronted  $k$  like  $ky$ .

of statistical occurrence, however, the situation does not suggest a simple build-up of length units by singles, pairs, and triplets of such units. So far as our rather scanty length evidence goes, it seems to show that the middle degree of length, \*a· above, is much the most common, and the shortest length is the least common. Hence this shortest length does not seem like the elementary structural unit, as the above graphic symbolism somewhat tends to imply. Perhaps it would be better to use the symbolism \*ǎ, \*a, \*a·, and the terminology "reduced mora or ultra-short," "full mora or short (or medium)," "two-mora or long." In Hopi we have precisely this odd three-length system. In Southern Paiute, Tübatulabal, and Aztec we have information on the length of vowels, but these languages have two-length systems,<sup>4</sup> and their short vowel corresponds on the whole both to the ancient short and the ancient ultra-short. "On the whole" should be emphasized, for any language may change the length of a vowel for obscure reasons. For one thing, most Uto-Aztecan languages have stress accent, and stress often alters vowel-length. However, such evidence as we have seems to show that a rather uncommon, sporadic, special type of short *a* in Uto-Aztecan yields *e* in Aztec except when preceded or followed by \*k—not to be confused with \*k̄ or \*k<sup>w</sup>. This vowel may even have had a tinge of *e*-equality in Uto-Aztecan, for it occasionally gives an *e*-reflex outside of Nahuatl. Here is the evidence:

UA \*k̄ǎca > Ho. *k̄ahcan-* 'bite,' Tüb. *ha·izi·bī?* 'chew cud,' Az. *kecoma* 'bite.' The Hopi vowel is not ultra-short, but ultra-short does not occur before pre-aspirated consonants in Hopi.

UA \*k̄wǎ+ determinative of water-animal = 'frog' > Ho. *pa·-k<sup>w</sup>a*, S.P. *pa-k<sup>w</sup>a-n'a*, Tüb. *wa·-ga·iš-*, Huichol *šu·-k<sup>w</sup>a*, Az. *k<sup>w</sup>e-ya-*, all 'frog.'

UA \*k̄wǎsa > Ho. *k̄wǎsa* 'skirt,' Az. *k<sup>w</sup>ešan-* 'a tunic-like garment.' Note that here the Hopi vowel is ultra-short, as in three instances below.

UA \*k̄wǎna > Ho. *k̄wǎna* 'split, cleave,' Az. *k<sup>w</sup>emi-*, *-k<sup>w</sup>en* 'a furrow.' It is suggested that the *m* in the Az. full grade may be from \**n* assimilated towards the preceding labial sound.

UA \*lǎŋi 'tongue' > Ho. *lǎŋi*, Tüb. *lalan-*, Opata *nene-*, Varohío *yeni*, Cora *nanuri-*, Huichol *neni*, Az. *nene-pil-*, all 'tongue.' The *e* that appears in other than Aztec indicates perhaps the fronting effect of the original \**l-*.

UA \*mǎta 'stone mortar for grinding' > Ho. *mǎta*, S.P. *mara-*, Tüb. *mana·-l* (dissim. < \**mala·-l*), Yaqui *mata*, Tarahumar *mata*, Huichol *mate*, Az. *meŋa-*, all 'stone mortar.'

<sup>4</sup> I thought at first that Tübatulabal had a three-length system, judging this from the orthography used by Voegelin in his grammar, but it would seem from the careful examination that has since been made by Voegelin and Swadesh that this is not the case.

UA \**nǎ-*, reflexive and duplicative prefix > Az. *ne-*, all other languages *na-*. However, when secondarily lengthened in UA it gives Az. *na-*, e.g. UA \**na·wo-y* 'four' (<*wo* 'two') > Ho. *na·lǎ-y*, Az. *na·wi*.

UA \**nǎk<sup>w</sup>a* 'agave drink, pulque' > Cora *nawa*, Huichol *nawa*, Az. *nek<sup>w-</sup>*.

UA \**nǎsi* 'ashes' > Cora *nasi*, Az. *neš-*.

UA \**pǎhi* 'three' > Ho. *pahi-w*, Tüb. *pa·i*, S.P. *pai-*, Mayo *bahi*, Tepecano *va·i-*, Heve *vei-*, Cora *wai* (the *w* is anomalous for Cora), older Az. *ei*, modern Az. *yei*.

UA \**sǎk<sup>w</sup>a* > Ho. *sak<sup>w</sup>a* 'green, green-blue, turquoise,' S.P. *say<sup>w</sup>a-* 'blue, green,' Heve *sag<sup>w</sup>a* 'leaf,' Az. *šiw-* 'green, green-blue, turquoise.' Here the Aztec change has gone beyond *e* to *i* (*e* sometimes secondarily becomes *i*, *še* is rare, syllable-closing *k<sup>w</sup>* sometimes becomes *w*, e.g. *čik<sup>w</sup>na·wi* or *šiwna·wi* 'nine').

UA \**tǎk<sup>w</sup>a* > Cora *tak<sup>w</sup>a* 'master, lord, god,' Az. *tek<sup>w-</sup>* 'master, lord, god.'

UA \**te<sup>m</sup>pǎ* 'ground, hill, mountain' is the form indicated by several cognates, but the Aztec is *tepe-* 'mountain.' Another explanation, vowel-assimilation, is also possible here.

The non-*e* reflex when flanked by *k* is shown by e.g. \**kǎte* > Ho. *kǎti* 'sit,' Az. *kat-ka* 'was,' \**mǎka* > Ho. *mǎka* 'give,' Az. *maka* 'give.'

There are some other evidences for the existence of ultra-short vowels in Uto-Aztec, such as the complete loss of them in Aztec under certain conditions—perhaps stress conditions—as in \**sǎtu<sup>n</sup>* > Az. *iste* cited above, or \**kǎsi* > Ho. *kǎsi* 'thigh,' Az. *ikš*i**, *-kš*i** 'foot, leg'—the compressed word then acquiring a prothetic vowel *i-* perhaps borrowed from a frequent pronominal prefix *i-* and lost after other preposed elements. Again, there are the occasional doublets in Aztec like *mama* 'carry' and *meme* 'carry,' as if they derived from \**mama* and a shortened variant \**mǎmǎ*. However, whether or not "ultra-shortness" be the best explanation, the above evidence shows that UA \**a* was here and there in a peculiar condition in which it regularly gave rise to Aztec *e*.

The greatest exception to the rule of  $\lambda a$  in Aztec is provided by the hosts of words ending in the absolute noun suffix  $-\lambda$ ,  $-\lambda i$ . This corresponds to the Uto-Aztec absolute suffix \**-t* for the nominative case, to which could be added the case suffixes \**-e* genitive and \**-a* objective (accusative). The genitive suffix may have survived only in Tübatulabal, Heve, and some of the Southern California tongues, but the objective ending has survived to a much more widespread extent, either as *-a* or as *-ta*. Where a caseless language like Aztec has descended from one with a system of nominative,

genitive, and objective, the caseless noun is perhaps especially likely to be derived from the objective form, the one of most frequent occurrence. Names other than those of persons are more likely to occur in discourse as object or in relations expressed by the objective case like to, at, in, with, etc., than as nominative actor. This is seen in the Romance languages, whose nouns are derived from the Latin accusative. Hence the pre-Nahuatl objectives ending in *-ta* would yield old Aztec nouns ending in *- $\lambda$ a*. The *-a* however may have been of the "ultra-short" type; indeed the Hopi evidence suggests this. In Hopi the objective *-a* is not heard at all unless it ends a sentence. Within the sentence it disappears, leaving the objective case terminating in *-t*, which distinguishes it from the nominative case, the latter using the bare stem. Now this is not a property of all final vowels in Hopi, but occurs only in certain forms, with vowels most or all of which seem to be historically the vowels of nominal case endings.

If now we assume that \**t* yields  $\lambda$  in Aztec not only before Az. *a* but also before Az. *e* when that *e* corresponds to Uto-Aztecan *a*, in other words before *a* of the earliest stage of Aztec, then we explain both the occasional occurrences of  $\lambda e$  in Aztec, and the absolutive suffixes. The nouns in \**-t $\delta$*  became nouns in \**- $\lambda\delta$* , and then in \**- $\lambda e$* —indeed the transcription "*tle*" instead of "*li*," is found in the oldest Spanish chroniclers such as Bernal Diaz. The further fate of this vowel when final and preceded by  $\lambda$  was determined by its position relative to the stress accent, and ties up with the fact that *e* is "weak" as a final vowel in Aztec, scarcely ever occurring in unstressed final position. The words commonly written as ending in *e*, like [cate, topille, pixque, yazque, tlacuanime],\* actually end in the "saltillo," a glottal consonant, and in my orthography are *kate?*, *topille?*, *piške?*, *yaske?*,  *$\lambda ak^wani \cdot me?$* . Immediately after a stress, which is also equivalent to after a consonant, the weak final *e* narrowed further to *i*, producing nouns of the type of *me'c- $\lambda i$*  'moon,' *nemili's- $\lambda i$*  'life,' *si'c- $\lambda i$*  'hare,' *to'c- $\lambda i$*  'rabbit,'  *$\lambda aka'c- $\lambda i$$*  'day,' *wi'c- $\lambda i$*  'thorn,' etc. When two syllables distant from the stress the final vowel became so weakened as to disappear, producing the nouns of the type *ko'ne- $\lambda$*  'child,' *ko'yo- $\lambda$*  'coyote,' *ma'sa- $\lambda$*  'deer,' *me' $\lambda a- $\lambda$$*  'mortar,' *si'wa- $\lambda$*  'woman,' *so'ei- $\lambda$*  'flower,' etc. Hence the  $\lambda$  in the absolutive suffixes is accounted for.

There remains one other small source of final  $\lambda$ . In the possessed forms *-k $^w i \lambda$* , *-ma $\lambda$* , *-me $\lambda$* , *-pe $\lambda$*  of the nouns respectively 'excrement,' 'net,' 'mortar,' 'mat,' an ordinary *a* has been lost, not by weakening but by morphological apocopyation, from the absolutive forms *k $^w i \lambda a- $\lambda$$* , *ma $\lambda a- $\lambda$$* , etc. Here, of

\* Brackets here indicate that the words enclosed are not phonetically transcribed, but represent quoted forms.—Editor.

course, the  $\lambda$  determined by the  $a$  vowel remains after secondary loss of the vowel. In the case of *maš $\lambda$ a- $\lambda$*  'breecloth,' the apocopated possessed form *\*-maš $\lambda$*  is replaced by *-maš $\lambda$ i* through analogy with the other words in *- $\lambda$ i*.

This same principle explains the only occurrences of  $\lambda e$  in stems. The syllable occurs only initially, except as a result of combining stems. The word  $\lambda e$ - 'fire' is clearly the Aztec representative of Uto-Aztec *\*ið*, *\*iðʔi* 'fire,' whence Yaqui *tahi* 'fire,' Cora *ta* 'fire,' *taire* 'kindle,' Opata *ta* 'burn,' *tai* 'fire,' Papago *tai* 'fire,' Heve *te* 'fire,' Hopi *ta-k-* stem (in derivatives) meaning 'burn.' During the pre-Aztec period the word evidently occurred as a doublet, *\*ta* and *\*ið*, the latter yielding  $\lambda e$  'fire' and the former  $\lambda a\lambda a$  'burn' and  $\lambda a\lambda i a$  'burn.' The word  $\lambda e\omega a$ ? 'species of large snake' evidently bears the suffix *-wa*? 'possessor of' and means 'possessor of fire.'

The word  $\lambda eʔko$  'rise' may be compared with *ako* 'up' and Hopi  $\text{ʔ}\acute{a}k^{\omega}a$  'upward to, up.' If we reconstruct the root as a doublet *\*ʔako*/*\*ʔ\acute{a}ko* and assume the latter form to have been combined with the verb-prefix *\*i-* 'something' (later  $\lambda a$ -) in a reduced form *\*ið-*, as a goal-object ('upward to something'), we arrive at a pre-Aztec *\*iðʔ\acute{a}ko*. In Aztec the second ultra-short vowel is syncopated, leaving however the glottal consonant or "saltillo," while the first one becomes  $e$ , yielding  $\lambda eʔko$ .

The words  $\lambda ein$ ,  $\lambda en$ ,  $\lambda ei$  (final  $n$  lost by weakening) 'what, something' have evidently resulted from combination of the demonstrative pronoun *in* 'this' with an element *\*ta*, *\*ið* ultimately the same as the verb-prefix  $\lambda a$ - 'something.' This is shown by the fact that in some dialects, such as that of Milpa Alta, D.F.,  $\lambda ein$  is replaced by  $\lambda aon$ , the parallel compound with the demonstrative *on* 'that.' While *\*ai* does not ordinarily yield Aztec *ei*, *\*\acute{a}i* would do so. The particle  $\lambda e$  sometimes used with the imperative is very likely a similar sort of doublet with the particle  $\lambda a$  'if.' The word  $\lambda eyo$ - 'fame, honor' is again perhaps derived from the above-mentioned *\*ið* 'something' with the abstract-noun suffix *-yo*, perhaps influenced by analogy of an unrelated noun *tenyo-*, *teyo-* of the same meaning; compare English 'to amount to something.'

The word  $\lambda eko$ - 'line traced in middle of ball court' may be explained as a doublet of  $\lambda ako$ - 'rod,' it means secondarily 'delay,' and  $\lambda ekotia$  'grant a delay or stay of time' is a derived verb no doubt alluding to the ball game. This completes the known cases of  $\lambda e$ .

We may now consider the very few cases of  $\lambda$  before other vowels than  $a$  or  $e$ . The words  $\lambda ila$ - 'abyss, dark depths,'  $\lambda ilan\acute{a}$  'make black,'  $\lambda il-li$  'black paint, ink,'  $\lambda il-$  'black,' I derive from Uto-Aztec *\*tu<sup>x</sup>* 'black' (whence, e.g., S.P. *tu<sup>-x</sup>* 'black,' Tüb. *tu-l* 'charcoal'), which is the source

of the much more common root *\*tu·<sup>2</sup>ka* 'black, dark, night' found in most Uto-Aztec languages. The simple root took on the noun-theme suffix *\*la*,<sup>5</sup> and I then assume an ultra-short first vowel in pre-Nahuatl, i.e. *\*tūla*, which then underwent assimilation to *\*tāla*. This gave in Aztec at first *λela*, then the change went further to *λila*. This last change may have been aided by the analogy of some neighboring dialect which had not made the vowel-assimilation and therefore showed *\*tila* as the straight descendant of pre-Nahuatl *\*tula*.

The postposition *λok* 'with, near' is in the Milpa Alta dialect *λak<sup>w</sup>*, and this is probably the primary form of the word. The spelling [tloc] of classical Aztec is either the approximation of a Spanish scribe to the unfamiliar sound *ak<sup>w</sup>* or represents a dialect in which the *a* was actually rounded to *o* by the following lip-rounded sound *k<sup>w</sup>*. The name of the indwelling universal god, Tloque Nauaque, is derived from this particle; the first word is in my orthography *λak<sup>w</sup>ke?*

As for *λo?*- 'hawk,' we may note that Aztec *o* is occasionally derived from *\*aw*, and compare Heve *toha'wo* 'hawk.' An original *\*toha'wo* would yield Nahuatl *\*toa'wo*, which would probably assimilate to *\*tawo*, whence Aztec *\*λawo* and eventually *λo?*—for the saltillo sometimes represents a lost syllable in *w*-. The difference between this case and *to·ē-* 'rabbit' (<UA *\*tavu*> Hopi *ta·vo*, S.P. *tavu-*, Heve *tavu*, all 'rabbit,' pre-Aztec *\*taw->\*to·-*, with addition of thematic *-ē*>*to·ē-*) is that in the latter case the stage *\*to·-* was reached in the pre-Aztec period, while with 'hawk' the form in this period remained *\*taw-* so that in the Aztec period it could become *\*λaw-*, and last of all *λo-*. The word *λololotin* 'gathering, group' is contracted from *λa-ololotin*. This finishes the cases of initial *λ* occurring otherwise than before *a* in the two great Aztec dictionaries.<sup>6</sup>

Cases of *λ* otherwise than before *a* in the interior of words are very rare and always due to the juxtaposition of elements in a compound. One of the most interesting such cases is the name of the god Tezcatlipoca, for it tends to confirm my explanation of the reason for the *λ* of the absolutive noun suffixes. In one of the earliest post-Conquest Aztec manuscripts, the *Historia Tolteca-Chichimeca*, the name is always written Tezcatlepoça (*teskaλepo·ka*). It means "smoking mirror," from *teska-λ* 'mirror,' *po·ka* 'gives off smoke.' According to my explanation, we have here a very old

<sup>5</sup> It may turn out with the discovery of just a little more evidence that the formula *\*tu<sup>s</sup>* should be *\*tul*, a contracted form, of which *\*tula* is the original and primary root, and that there is no suffix involved.

<sup>6</sup> Fr. Alonzo de Molina, *Vocabulario de la Lengua Mexicana* (Julio Platzmann, ed., Leipzig, 1880); Rémi Siméon, *Dictionnaire de la Langue Nahuatl* (Paris, 1885).



combination, dating from the time when the absolute suffix was *\*-tā*, giving the combination *\*teskatā-po·ka*. This later yielded in regular fashion *teskaλe-po·ka*, the ultra-short vowel preserved because word-internal, although lost when word-final in *teskaλ* 'mirror.' The vowel change then went further to *i*, giving *teskaλi-po·ka*. In the few other cases of internal *λi* the *i* belongs to the second component, e.g., the name of the goddess Coatlicue and the plant *a·λi·nan*, which represent the combinations *koa·λ-i·k<sup>w</sup>ei* 'serpent her skirt' and *a·λ-i·nan* 'water its mother.' Most Aztec compounds, however, are made according to a pattern that is even older than that of Tezcatlipoca, dating from a time when according to my theory the absolute suffix and its vowel signaled *case-distinctions*, so that *λ* is not found in such compounds, because it would have to represent *\*-tā* of the *objective case*, which is not the case of the compounding relation. Such compounds usually show no trace of any absolute suffix (old caseless form) internal to the word; sometimes they have an internal *-ti-* or *-t-* which must represent an old *\*-ti* or *\*-te*, perhaps of the genitive case. We have now accounted for all that statistically small scattering of cases which at first seem to be exceptions to the rule that *λ* occurs only before *a* as an alternate for *t* in all other positions.

There remain to be considered those other apparent exceptions to the rule, the scattering occurrences of *ta*. First, the rule when completely formulated does not apply to *\*ta* preceded by a consonant in pre-Aztec; *t* as second member of a consonant-cluster was somehow "protected" against the change. This explains the *ta*'s in *i'talwia* 'tell to,' *ista-* 'salt,' *ista-*, *-sta-* 'white,' *i'taka* 'secretly,' *itta* 'see.' Probably also *itaka-* 'provisions' belongs here, to be regarded as simplified from *\*ittaka-*, just as *itta* has become *ita* in some modern dialects. Another way of stating this revision of the rule is that *λ* does not occur in clusters *within the root of a word*, that is, which were firm clusters in pre-Aztec. Where *λ* occurs in a cluster, as in *i'šλawa*, *i'šipλayoa*, *mosλa*, *cinλan*, the cluster is of later origin and represents the juncture of elements. The cluster formed by the old absolute suffix *\*-tā* was of course not a "firm" cluster; it represented a juncture of elements each of which was freely replaceable by others, hence the *t* was analogous to one at the beginning of a word, and was not "protected."

The fact that the syllable *ta* survived into Aztec by way of these old firm clusters resulted in that *ta* remained a possible or "pronounceable" combination in Aztec speech patterns. This made it possible for the pronominal prefixes *ti-* and *to-*, in becoming elided to *t-* before vowels, to produce the sequence *ta=t-a*, as in *tawi=t(o)-awi* 'our aunt.' In other words, since *ta* remains a possible sequence in Aztec, there is no reason why it

should not result from a juncture of elements; and since the parts of a juncture tend to conserve their typical forms as members of their two different systems, this secondarily formed *ta* undergoes no conversion to  $\lambda a$ . In the same way Aztec is able to borrow a word containing the sequence *ta* from another language or from a *t*-dialect of Nahuatl without necessity that this *ta* be repatterned to  $\lambda a$ .

The word *ta*?- (*ta*?- $\lambda i$ ) 'father' however probably belonged originally to the class of "baby words," "nursery words," "Lallwörter," and as such passed through the shift from *ta* to  $\lambda a$  unaffected. It is known that words of this type may be conservative of their original form in the face of a change that sweeps over the adult language. It is worth noting that this word is not the regular Uto-Aztecan word for father, but apparently a Uto-Aztecan word for uncle, \**taha*, whence Hopi *-taha* '(one's) maternal uncle,' Yaqui *tata* 'maternal uncle,' Tarahumar *date* 'uncle,' which word in this meaning has in conformity with adult language undergone the Aztec shift in the regular manner, to  $\lambda a$ ?- ( $\lambda a$ ?- $\lambda i$ ) 'uncle.'

There now remain in the dictionaries the following stems containing *ta*: *taka*-, *tataka* 'dig, scratch' (from which are derived *takaliwi*, *takapiliwi*, *takašotia*, and perhaps *takanal*- 'root of a certain plant'), *taka*- 'species of shrub,' *tačitowia*(*n*) 'species of bird,' *taletek* 'small lizard,' *tamačiwā* 'measure,' *tamal*- 'tamale,' *tamasolin* 'toad,' *tamati* 'take as a patron,' *tana*?- 'palm-fibre basket,' *tapa*- 'break up, blister, frizzle up' (whence *tapalka*- 'sherds, broken tile,' *tapaliwi* 'be blistered,' *tatapačoa* 'frizzle, curl, crimp, hair or cloth,' *tatapa*?- 'old worn garment'), *tapač*-, 'coral,' *tapasol*- 'nest,' *tapayašin* 'small toad,' *tapayol*- 'ball,' also 'thick,' *tawi* interjection 'oh!'. The word *tačkaw* 'first, principal' = *t(o)-ačkaw*. Now most if not all of these stems are typically Nahuatl in general structure and appearance. It is quite in line with this fact that *ta* is found almost entirely as initial, including initial reduplications—entirely so if we except *ta* in clusters and *itaka*-, which may be the result of a cluster or a prefix. Similarly in Aztec  $\lambda a$  is overwhelmingly predominant as initial and relatively uncommon in other positions; and this situation is the natural reflex of two facts: (1) that many Uto-Aztecan roots begin with *ta* while comparatively few have *ta* internally, (2) that Nahuatl builds up a vast number of derivative words from various roots with the aid of a prefix *ta*-, which in the Aztec dialect is of course  $\lambda a$ -. Hence the above words in initial *ta*- have the appearance of being Nahuatl but not Aztec, that is, loan-words which the Aztec dialect has taken from the other or "t" dialects. In fact *tačitowia*(*n*) and *tamačiwā* are rather definitely earmarked as *t*-dialect words, and perhaps as much might be said of the root *tapa*-, which looks like a dialectal form of the Aztec root

*λapa-* 'break.' There are a number of these *t*-dialects of Nahuatl, which have no *λ* but *t* instead, outlying and adjoining the area of the Aztec dialect.<sup>7</sup> Since there was more or less political affiliation, free intercourse, commerce, and a common culture over the whole Nahuatl area, we might expect such loan-words, especially for names of plants, animals, and commercial products like coral coming from outside the Aztec or *λ*-dialect domain.

Hence the statistically small scattering of exceptions to the complementary distribution of *λ* and *t* in Aztec are all or practically all proved to be due to special laws or principles operating within Aztec, and do not invalidate the general truth of a dichotomy of one elementary sound-type into *λ* and *t*. Even if more exceptions be found, they must needs be few in number and not disturbing to the entire case. And even if *λ* were discovered in another Uto-Aztecan language it could have no effect on these facts, and would have to be interpreted as a separate development. We may conclude that *λ* or *tl* is purely a local development in the Aztec or Central Nahuatl dialect from Uto-Aztecan *\*t*, and does not represent an original distinct sound of Uto-Aztecan.

One point of interest in this study to the anthropologist who is not primarily interested in linguistics as such, but is perhaps interested in it as a precise methodology that deals with a certain realm of culture, may be the fact that a combination of synchronic and historically reconstructive techniques is necessary to a solution of the problem, and that either technique alone would be helpless.

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<sup>7</sup> Certain present-day Nahuatl dialects that do not contain *λ* evidently once did, as they have *-l* corresponding to final *-λ* but *t* corresponding to *λ* before vowels. An example of one is given in Kroeber, *Uto-Aztecan Languages of Mexico* (Ibero-Americana: 8, 1934). Such dialects are derived from Aztec or old Aztec, and are to be distinguished from original *t*-dialects of Nahuatl.