

Chapter 16

Nahuan relative chronology: How and when did Nahuatl develop?

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Traditionally, Nahuatl has been seen as a language with a shallow chronology and proposed dates for Proto-Nahuatl tend to locate it in the early Mesoamerican post-classic period (c. 800–900 CE). At the same time, the Uto-Aztecan language family has been described as having two main branches with well-defined subgroups. As such, though the development from Proto-Uto-Aztecan (c. 3500 BCE) to Proto-Nahuatl is relatively well understood, no intermediate stages have been reconstructed so far. Dakin proposed a highly useful chronology of phonological changes in the development from Proto-Uto-Aztecan to Proto-Nahuatl. Nevertheless, some recent findings suggest a need to revise her chronology somewhat, especially because her proposal does not operate with an intermediate Proto-Corachol-Nahuan stage which seems to be necessary. At the same time a major question in the study of Mesoamerican history, is the question of whether Nahuas (or rather pre-Nahuas) were present in Central Mexico, during the classic period, perhaps with a significant population at the classic-period megalopolis of Teotihuacan. Some efforts to read the Teotihuacan writing system has proposed phonetic readings anachronistically using colonial Nahuatl. This, however, begs the question of what the pre-Nahuan language would have sounded like in the classic period, during the heyday of Teotihuacan. This paper presents an analysis of the relative chronology of the main phonological changes in the development of Proto-Nahuatl from pre-Nahuatl, and their relevance for understanding what pre-Nahuatl might have been like in the classic period (c. 200–600 CE) during which the language's assimilation to the Mesoamerican Language Area must have taken place.

1 What would a Nahuatl language have been like if it were spoken at Teotihuacan?

The Nahuatl languages constitute a branch of the Uto-Aztecan language family, the only branch spoken in the Mesoamerican cultural and linguistic area. It has been a matter of considerable debate when Nahuatl languages arrived in Central Mexico, how they spread throughout Mesoamerica from Durango in the North to Costa Rica in the South, and what their interactions with other Mesoamerican cultures were like.

One of the major questions concerning the linguistic history of Mesoamerica remains the question of whether a Nahuatl language was spoken in the metropolis of Teotihuacan during its heyday (c. 200–550 CE), and whether this language was encoded in the Teotihuacan script (Helmke & Nielsen 2021). Some scholars of Teotihuacan avoid the question of language by declaring the city to be thoroughly multilingual with no majority or dominant language and an “open”, language-neutral, writing system (Houston 2004: 277). Scholars such as Kaufman & Justeson (2007, 2009) have argued that if Teotihuacan had a dominant language it would not have been Nahuatl, because Nahuatl languages must have arrived too late in Mesoamerica for them to have been present there at that time. Other scholars, including Dakin & Wichmann (2000) have suggested the possibility of an early presence of speakers of Nahuatl languages in Mesoamerica based on their suggestions of early Nahuatl borrowings into other languages. And several scholars of Teotihuacan writing, including Taube (2000), Cowgill (1992), Whittaker (2012, 2021), and King & Gómez Chávez (2004), have proposed potential phonetic readings of Teotihuacan glyphs using Nahuatl forms (see Nielsen & Helmke 2011: 345–347 for a summary). Nevertheless, a serious challenge for any argument about the presence of Nahuas in Teotihuacan in the classic period as well as Nahuatl decipherment proposals of Teotihuacan writing, is that, so far, we do not have a good idea about what a Nahuatl language would have been like a thousand years before Nahuatl languages were first documented in alphabetic writing in the early 16th century. Would a Nahuatl language even be recognizable to us as such at that time depth? We are faced with the task of finding out when Nahuatl came to look like the language we know from the colonial sources, and what it would have looked like before. Answering this question would be fundamental for understanding the possible roles of Nahuatl speakers and their ancestors in the development of Mesoamerica, to find out if they are likely to have been present at Teotihuacan or not, and crucially to ground decipherment proposals based on reading Teotihuacan glyphs in Nahuatl.

In this paper, I argue that previous proposals of Nahuan languages at Teotihuacan have severely overestimated the degree of similarity between Nahuan languages as spoken today, and what the Nahuan language would have looked like in the first half of the first millennium. By setting up a relative chronology of sound changes in Nahuan, we can see which developments were shared between Nahuan and Coracholan (and therefore date before the split between the two), and we can see which changes are shared by which Nahuan varieties and subgroups and thereby attain more certainty about the chronology of branching within Nahuan. First, in section 2, I revise the chronological model of [Dakin \(1982\)](#), by taking into account recent evidence supporting the Corachol-Nahuan subgroup and new understandings of the development of several key sound sequences. Then in section 3, I use the relative chronology to build a tree-model of the relation between Coracholan and Nahuan languages, including revisions to the internal division of Nahuan. I show that the notion that Pochutec and Salvadoran Nawa (Pipil) represent separate branches outside of Nahuan has to be abandoned, and I suggest Pochutec in spite of its very different appearance, is in fact likely to be a relatively late offshoot from the Western Peripheral branch. In section 4, I look at some proposals of early Nahuan loans in Mayan languages, evaluating what stage in the development of Nahuan they would have to be from. Since some of these loans are documented in well-dated Mayan inscriptions, they provide a possibility of anchoring the relative chronology of sound changes to absolute dating.

Most previous attempts of dating the development of Nahuan languages have relied on classical Swadeshian glottochronology. [Wright Carr \(2016\)](#) dates what he calls Proto-Nahua-Pochuteco to approximately 200–1200 CE, using glottochronological data from [Swadesh \(1956\)](#) and adding a margin of error of 25%. Also using Swadesh’s dating (but from [Swadesh 1967](#)), [King & Gómez Chávez \(2004\)](#) arrive at dates of 500 BCE to 500 CE, plausibly locating “Nahua-Pochuteco” at Teotihuacan. I have not consulted the works by Swadesh to understand the considerable discrepancy in dating between these two works. I do not consider glottochronology to be a particularly useful tool in dating – especially not in the absence of thorough comparative work, which would allow one to identify all the cognates in the Swadesh list (see e.g. [Geisler & List \(2010\)](#) for a cogent critique of the lexicostatistical endeavor).

Another problem with these glottochronological datings, is the branching model of Nahuan, which sees Pochuteco as branching off before Proto-Nahuatl – as first suggested by [Campbell & Langacker \(1978\)](#). This model was already challenged by [Dakin \(1983\)](#) who was able to show that Pochutec vowels can be derived systematically from Proto-Nahuatl. However, many scholars have made

little note of Dakin's important intervention, continuing to see Pochutec as a sibling to Proto-Nahuatl, rather than a descendant of it. In section 3, I show that the comparative value of Pochuteco is much less significant than what has been generally assumed. It has few conservative traits, and most of its innovations are unique (and probably caused by substrate influence) and the innovations it does share with other Nahuatl languages, place it within the Western periphery, as Dakin has consistently argued (e.g. [Dakin 1983, 2021](#)).

Yet another branching-related problem concerns El Salvadoran Nawat (traditionally called Pipil). [Campbell \(1987\)](#) classified Pipil, as having split from the Mexican Nahuatl varieties earlier than the East-West split. Campbell's classification was largely based on the superficial appearance of Salvadoran Nawat as substantially different from the best-known Mexican varieties of Nahuatl, on lack of recognition of similarities between Salvador Nawat and Isthmus and Tabasco Nawat (then not well described), and on some assumptions about the phonological history of Nahuatl that can no longer be sustained (e.g. seeing *ye-* as an innovation rather than a retention). Also here, a well-founded relative chronology of sound changes can establish a better branching model, which locates El Salvadoran Nawat nested within the eastern branch.

A recent study by [Greenhill et al. \(2023\)](#) uses Bayesian statistical methods on lexical data to establish a phylogenetic model and to estimate the time depth of the branches of the Uto-Aztecan family. It finds support for a separate Corachol-Nahuatl node within the Southern Branch of Uto-Aztecan (as originally argued by [Campbell & Langacker 1978](#)), and it dates the beginning of Corachol-Nahuatl node to approximately 1250 BCE and the split-up of Proto-Nahuatl at approximately 250 CE. Sampling only four varieties of Nahuatl, it contrasts Salvador Nawat (Pipil) against the other four Nahuatl varieties ("Classical", Tetelcingo, and Zacapoaxtla), with Salvadoran Nawa splitting off at approximately (250 CE).

Since these previous datings of the development of Nahuatl rely entirely on lexico-statistical dating (Swadeshian and Bayesian) without taking phonological developments into account in the classification, a relative chronology of Nahuatl phonological developments can be used as an independent of these proposed internal classifications of Nahuatl – potentially correcting or corroborating the lexicostatistical branching models.

This leaves us with the following challenges that will be addressed in this chapter:

- **Relative chronology of sound changes:** What is the most likely sequence of changes leading from Proto-Corachol-Nahuatl through pre-Nahuatl to

Proto-Nahuatl? How should we revise Dakin's chronology based on or new knowledge of the developments?

- **Internal branching structure and subgrouping:** Did Pochuteco and Pipil split off before or after the split of Proto-Nahuatl into eastern and western branches?
- **Loan word chronology and Epigraphic calibration:** Previous studies have suggested the presence of Nahuan loanwords in Mayan writing in the classic period, associated with a military incursion from Teotihuacan. If the Teotihuacan language recorded in Maya inscriptions were a form of Nahua, which stage of the phonological development of Nahuan would it be? Given that these inscriptions are dated, this could potentially anchor the relative chronology to absolute dating.

In Section 2.1, I first present and critique the relative chronology presented by Dakin (1982), before presenting a new relative chronology of Nahuan developments divided into stages from Corachol-Nahuan, Pre-Nahua, Proto-Nahuatl and the Late Proto-Nahuatl. In Section 3, I then assess how this chronology should affect our view of the internal branching structure of Nahuan languages demonstrating that both Pochuteco and El Salvadoran Nawat descend directly from Late Proto-Nahuatl and in spite of their divergent innovations and the presence of some archaisms in both, should in fact be grouped within the Western and Eastern branch respectively. In Section 4, I look at the proposed Nahuan loan words in Mayan inscriptions from the classic period (5th century), determining that the stage of Nahuan they encode are consistent with late Corachol-Nahua/early Pre-Nahua, while a proposed later epi-classic example (9th century) from Seibal would be consistent with a Late Proto-Nahuatl stage of development.

2 Chronology of phonological developments

For the past 40 years, Karen Dakin's *La evolución fonológica del protonáhuatl* (1982) has stood as the only systematic account of the phonological history that leads from Uto-Aztecan to Nahuatl. She integrated all of the known developments at the time, including the early work by Sapir (1913, 1915), Whorf (1937), Hasler (1954), Campbell & Langacker (1978), and Canger (1980a). Since then, our understanding of these developments has advanced considerably, not least thanks to work by Dakin herself (Dakin 1996, 2000, 2017, 2021), as well as Canger (1988, 2011), Lastra de Suárez (1986), Monzón & Seneff (1990).

Pharao Hansen (2014, 2024) revised some of the criteria for the East-West split, and Pharao Hansen (2024) also produced important new interpretations of some phonological developments based on phonological evidence overlooked by Dakin. The significance of these past 40 years of insights about Nahuatl has not yet been integrated into the general understanding of the early history of the language group. Doing this is a central part of the intended contribution of this chapter. I begin by summarizing Dakin's original account, and pointing out which aspects by now require revisions.

2.1 Karen Dakin's chronology

Dakin (1982) does not divide her sequence of sound changes, which she posits as a chronologically numbered sequence of rules, into stages. It starts after the changes that Nahuatl shares with most of Corachol (**i* > *e*, **u* > *i*, **p* > *h*) and ends before the changes that characterize the development of the Eastern and Western branches of Nahuatl. This means it covers the periods I refer to as "early pre-Nahuatl" and on to "Late Proto-Nahuatl". Dakin has generally been skeptical of a close relationship between Nahuatl and Corachol, preferring like Kaufman (Kaufman & Justeson 2007) to see the similarities as due to contact (Dakin 2017, 2021). This may be the reason that she tends to compare Nahuatl forms, arrived at by internal reconstruction, directly with PUA and with Northern UA languages regardless of sub-branch affiliation. In Dakin (1982), however she seems to have largely followed Campbell and Langacker's proposal of a Corachol-Nahuatl grouping ("Corachol-Aztecán" in their terminology), also accepting their reconstruction of shared phonological developments between Corachol and Nahuatl.

Several of Dakin's sound rules are morphologically conditioned, particularly occurring before specific suffixes: Her rules 8, 9, 11, 13, 15, 18, 22 all occur before suffixes, and in many cases the same suffixes – for example her first (9), second (15) and third (22) palatalizations. While grammatically conditioned sound change cannot be rejected a priori (Hill 2014), it seems preferable to see whether a broader phonetically based rule can be formulated to account for the facts at hand.

Dakin's syncope 11, 13, 18 also affect only specific vowels before specific suffixes. It is clear that palatalization and syncope must have happened several times or as a continuous process gradually spreading to affect different sound sequences. Nevertheless, it seems preferable to see whether these processes can be described more broadly, with less specific criteria, and preferably conditioned phonologically – for example by the stress pattern of the suffixed word, rather than by reference to specific suffixes. Dakin's proposed sequence of sound rules

are represented in Tables 1 and 2 (divided to avoid an overlong table across several pages).

Table 1: Dakin's proposed sequence of sound changes in Nahuan rules 1–8 (Dakin 1982).

Dakin 1982: rules 1–8		
No.	Rule	Examples
1	$a > \text{ə}$ (Campbell & Langacker 1978)	* <i>mata</i> 'grindstone' > * <i>məta</i> * <i>nasi</i> 'ashes' > * <i>nəsi</i>
2	syncope of first syllables	* <i>sama</i> 'leaf' > * <i>swa</i> * <i>tosa</i> 'white' > * <i>sta</i>
3	<i>i</i> -epenthesis	* <i>swa</i> 'leaf' > * <i>iswa</i> * <i>sta</i> 'white' > * <i>itsa</i>
4	metathesis <i>CV</i> > <i>VC</i>	* <i>tsopa</i> 'sweep' > <i>otfpa:na</i> * <i>tiso</i> 'cave' > <i>osto</i>
5	metathesis <i>CC</i>	* <i>itsa</i> 'white' > * <i>ista</i>
6	loss of final /i/ in suffixes	* <i>mi</i> 'pl' > * <i>-n</i> * <i>ki</i> '3s.O.' > * <i>k</i> * <i>-miti</i> 'PL' > * <i>-mit</i>
7	shortening	<i>CVCV:Ca/i</i> > <i>CVCVCa/i</i>
8	syncope before *-ti/*-ka	* <i>kosa-tika</i> 'yellow' > <i>kostik</i> * <i>-poliwakati</i> 'lost (PL)' > * <i>-poliwkat</i>

In the following, I assess those of Dakin's posited sound rules that I think need to be revised: Rule 1: Here Dakin applies a rule originally posited by Campbell & Langacker (1978: 202) who postulated a change turning **a* into **ə* in the first syllable of CVCV roots before the consonants *t* and *s*. Their examples are *metla* 'grind stone' < **mata*, *petla* 'mat' < **pata*, and *nef* 'ashes' < **nasí*. As demonstrated in Pharaoh Hansen 2014 this change is unnecessary since with the exception of *metla*, the forms with /e/ in the first syllable can be reconstructed as the original forms and the forms with /a/ can be explained as cases of anticipatory vowel assimilation, that primarily affect the Nahuan varieties of the Eastern branch. The only word in which a seemingly unconditioned change from PUA **a* to *e* is needed to explain **maCta* > **metla*. In contrast, Nahua **petla* can be derived regularly from PSUA *(hi)péta 'mat',¹ and in the word for 'ashes' the **a* > *e* change is caused by assimilation to the following **i*. A single case is hardly enough to justify positing this rule and Campbell & Langacker (1978: 279) themselves admit that the cognate forms suggest **pəta* and that their reconstruction of **pata* is questionable.

Rules 2, 3, 5 propose syncope of the first vowel in CVCV stems, followed by the insertion of a prothetic vowel (likely *i*) and the metathesis of the resulting

¹Kaufman (2001) has claimed that this is a loan from Mixe-Zoquean, but if this were the case it would have to be a loan into PSUA as it reconstructs perfectly to that level.

consonant cluster if it is one of a small group of dispreferred sequences (most prominently */ts/ and */pl/). This should probably be considered a single change, where the syncope creates consonant clusters some of which are in violation of phonological patterns, and which are then immediately changed to be in accordance (see examples in Table 1).

Rule 4 is another one of Campbell and Langacker's rules (Campbell & Langacker 1978: 203) that can be dispensed with outright. They posit it to explain the initial vowel in the Nahuatl words *ochpana* 'to sweep the road' and *osto-tl* 'cave'. The origin of the initial *o* in Nahuatl *osto* 'cave' from **tisó* can be explained as anticipatory vowel assimilation affecting an intermediate form **isto*. Nahuatl *ochpana* 'to sweep the road' does not come from **tsopa* as Campbell and Langacker propose, but much more likely from **tsipá*, which would explain the palatalization of **ts* to **tʃ* before the syncope of the short unstressed *i*. The root **tsipá* would then also give rise to the verb *tʃipa:wa* 'to clean'. The initial *o-* then could be explained by having the syllable *ho-* 'path' attached as a prefix/incorporated noun, **hótsipá-na*.²

Rule 6. Dakin posits apocope of final *i* in affixes (she writes suffixes but includes two suffixes and a prefix under the rule), as one of the very early changes. It affects the two plural suffixes *-*ti* and *-*mi* and the third person object prefix *-*ki-*. But there is no pressing reason these changes should be formulated as separate from the other syncope and apocope rules. The variation between full and reduced reflexes of the object prefix form seems to depend on the stress pattern of the word during the early period when the pronominal prefixes were still semi-independent proclitics, and so does not require a separate syncope rule. The loss of the final *i* in the plural suffixes can then be postponed to much later after the rule that fixes accent on the penultimate syllable.

Rule 7. The shortening of long vowels in the penultimate syllable of trisyllabic roots ending in -*a* or in -*i*, is also an unnecessary rule. There is rarely a basis for reconstructing long vowels in the earliest stages of Nahuatl development, and in this case, Dakin is basing her rule on the observation that in contemporary Nahuatl varieties certain long vowels have short and long variant stems. In general, there is little reason to see Nahuatl long/short vowel distinctions as old,

²Canger (1980b) has argued against the interpretation that *ochpana* has incorporated the noun *oh-* 'road/path' as an object, because the intransitive version *ochpani* also ends in *i*, and because in Nahuatl the root *oh* ends in a 'saltillo' which is never expressed. But if the *ho-* was added not as an incorporated object but as a location, and the compound made before **ho* underwent metathesis and became *oh-* (that is before the morphological rules of Classical Nahuatl came into existence) then, we could still reasonably get *ochpana* and *ochpani* from **hotsipana*/**hotsipa-ni* – and additionally *chipa:wa* 'to clean' from **tsipa:wa*.

most of them appear to be explainable as caused by compensatory lengthening after syncope/apocope.

Rule 8. There is little reason to posit the syncope described by this rule as separate from the one that described by rule 2, which elides initial syllables of CVCV roots. As demonstrated by Sapir (1913), early Nahua had an alternate mora stress-pattern, with long vowels always being stressed and short vowels either stress or unstressed. Both rule 2 and rule 8 elide unstressed short vowels regardless of vowel quality and position in the word. This makes it possible to reduce them to a single rule.

Table 2: Dakin’s phonological rules 9–26.

Dakin (1982): rules 9–26		
No.	Rule	Examples
9	first palatalization	* <i>matsi</i> ‘be known’ > * <i>matʃi</i> * <i>patsi</i> ‘seed’ > <i>atʃi</i> * <i>piyka</i> > <i>piʃka</i>
10	devoicing	
11	syncope	* <i>mitsa-ta</i> ‘moon’ > <i>metʃ-ta</i> (intransitive verbs take final <i>i</i>)
12	verb-endings <i>-na/-wa</i> > <i>-ni/-wi</i>	
13	<i>a</i> -loss in * <i>-wa/*-ha</i> before suffix	* <i>kwahaka</i> ‘ate’ > * <i>kwahka</i>
14	accent shift > first syllable of root	
15	second palatalization of <i>i</i> from * <i>a</i>	
16	vowel rounding before <i>w</i> (Canger 1980a)	* <i>poliwa</i> ‘be lost’ > * <i>polowa</i> * <i>polowa</i> ‘be lost’ > <i>poloa</i>
17	<i>w</i> -loss before * <i>o</i> (Canger 1980a)	* <i>ki:sa-</i> ‘exit’ > * <i>ki:si-tika</i> ‘be exiting’ <i>no:tsa</i> ‘call’ > * <i>no:tsi-tika</i> ‘be calling’
18	second reduction of * <i>a</i> before suffixes: * <i>a</i> > <i>i/i</i>	* <i>no:tsitika</i> > * <i>no:tsitika</i> ‘be calling’ <i>ki:sitika</i> > <i>ki:stika</i> ‘be exiting’ * <i>-ta</i> > / <i>tla</i> /
19	syncope	
20	lateralization of <i>t</i> (Whorf 1937)	* <i>no:tsitika</i> > <i>no:tsʃitika</i> * <i>ki:stika</i> > <i>ki:ʃ-tika</i>
21	accent shifts to penult	* <i>tisi</i> ‘grind’ > <i>tisi</i> * <i>haka</i> ‘reed’ > <i>a:ka</i> <i>kwaha</i> ‘eat’ > <i>kwa:</i>
22	third palatalization	* <i>-tla</i> ‘absolute’ > <i>-tlʃ</i> * <i>-tlʃ</i> > <i>-tliʃ</i>
23	fronting of <i>i i</i> > <i>i i/ə</i>	
24	voicing of medial <i>h</i>	
25	loss of <i>a</i> in suffixes	
26	epenthesis of <i>i</i>	

Rule 12. This rule posits that two verbal formant endings *-wa* and *-na* are replaced with *-wi* and *-ni*, respectively, when forming intransitive verbs. Given that it is well known that in Uto-Aztecan languages there is a strong tendency of having intransitive verbs end in *-i* and transitives end in *-a*, this rule seems likely to be unnecessary. If there have always been both *-i* and *-a* variants of verbs, we can also dispense with Dakin’s rule 19. This is also supported by the fact that verb pairs like *mati/matsi* ‘know/be known’ exist in other UA languages (e.g. Hopi), showing that the variation that led to Nahua variant stems such as *mat/mach* ‘know’, *ki:s/kiʃ* ‘exit’ is perhaps even old enough to reconstruct to PUA itself.

Rule 20 is the lateralization of *t* to *tl*. Manaster-Ramer (1996) showed that the lateralization of *t* described originally by Whorf (1937) as occurring regularly before PUA **a*, also happens occasionally before *i* (Pharao Hansen 2024 proposes this to be only in unstressed syllables). If we assume that the original form of the Nahua absolutive suffix was **-ti* (which is justified also by other arguments) this means that also rules 25 & 26 become superfluous – because we then no longer need to explain how **-tla* became *-tli*. It has generally been assumed that the Nahua absolutive suffix comes from the PUA accusative suffix **-ta*, but the motivation for this assumption was precisely that a **ta*-form was needed to explain the *tl*. Because of Manaster-Ramer’s demonstration that lateralization may also occur before high central vowels, we can now see that it is much more likely that the PUA accusative suffix is the source of the Nahua locative suffixes *-tla/-tla:n*. The fact that the cognate *-ta(na)* is a locative suffix in Cora and Huichol shows that the change from accusative to locative function happened already in Proto-Corachol-Nahua, and so predates the development of the Nahua absolutive suffix (which is not cognate to the historical absolutive suffixes in Cora; see Vázquez-Soto 2000). This means that we need to look for another source of the Nahuatl *-tli* absolutive suffix, and here the Corachol same-subject switch reference marker *-ti* fits the bill perfectly (and a cogent explanation of the development can be given, though this is beyond the scope of this work; see Pharao Hansen 2025).

2.2 A new phonological chronology for Corachol-Nahuatl

The phonological chronology presented below is motivated by a series of new insights emerging from a systematic comparison of Corachol and Nahuatl that I have carried out over the past 6 years. The Corachol-Nahua group within Southern Uto-Aztecan is now quite solidly supported by evidence of shared phonological innovations (Campbell & Langacker 1978, Hill 2011, Pharao Hansen 2020, 2024), lexicostatistical evidence (cognate density) (Greenhill et al. 2023, Pharao Hansen 2020) and evidence of shared lexical and morphological innovations (Pharao Hansen 2020).

Though for the sake of convenience in representation I adopt Dakin’s way of showing sound changes as numbered “rules”, I do not necessarily think of the developments they describe as events or as exceptionless sound rules, but rather as phonological processes operating in the language over time. Accordingly, in the proposed chronology, I have preferred to group sound changes that I consider to be somehow related as part of a single phonological process under a single numbered “rule”. Also, rather than positing the same rule many times, I allow

for them to be active over periods of time, so that they may overlap somewhat. I do posit two accent changes, though they are in a way a result of the same process of syncope of unstressed short vowels causing previously stressed vowels to come to stand in unstressed positions – but the two events have a somewhat different set of sequelae as the phonological system adjusts, making it convenient to describe them separately.

I have also segmented the development into six stages of development. Proto-Nahuatl includes only that which can be reconstructed using internal reconstruction among Nahuan languages. This phase basically starts with the change of *t* to *tl*, which defines the beginning of Nahuatl as opposed to Nahuan. A lexeme or morpheme can be reconstructed to Proto-Nahuatl if it is attested in both branches of Nahuan. Pre-Nahua is reconstructed by external comparison with other Southern Uto-Aztecan languages, particularly the Coracholan languages. A lexeme or morpheme can be reconstructed to pre-Nahua only if it is attested with a definite cognate in Nahuan and in a non-Nahua UA language. So, since non-Nahua cognates often lack, many Proto-Nahuatl roots cannot be confidently reconstructed for pre-Nahua, even if we can extrapolate what they would have looked like by reversing all the known sound changes leading from pre- to Proto-Nahuatl.

Table 3: Sound changes from Southern Uto-Aztecan to Proto-Corachol-Nahuan.

Stage	Number	Rule	Examples
SUA before Tepiman split	1	loss of final features	
		1b. lexical stress => CVCCV > CVCV̆	*tinwa ‘name’ > *tiwá
SUA after Tepiman split	2	fronting of *i to e	*tiwá ‘name’ > *tewá
	3	fronting of *u to i	*puhá ‘3sg pronoun’ > *hiha
	4	*p > h in unstressed syllables	*pa ‘water’ > *ha
	5	w > ∅ before o	*hiyawori ‘heart’ > *iyaori
	6	t/r variation	*hitéwa/*rewi ‘say’
			*téwika/*rewika ‘sky’

In the following, I present the sequence of changes leading from proto-Southern Uto-Aztecan to Late Proto-Nahuatl.

Rules 1 and 2 are the ones that define SUA and core SUA (which is SUA except Tepiman), these changes are well understood and generally agreed upon. Pharaoh Hansen (2024) adds rule 1b, which states that the syllables that originally had consonantal “final features”³ (*-n*, *-ʔ*, *-h*, *-p*) counted as heavy two-mora syllables

³Sapir (1913, 1915) originally posited three types of “final features” to account for morphophonemics in Numic languages. Manaster-Ramer has since shown that these features are most likely relics of original consonant segments that have since disappeared.

in the assignation of accent. This means that like syllables with long vowels they had stood in a stressed and an unstressed mora, meaning that the following syllable always had stress, giving a lexical distinction between 'CVCV and CV'CV stress patterns in disyllabic roots – after the loss of final features (e.g. **kapsi* 'leg' > **kasí*, **tinwa* 'name' > **tiwá*).

In the development of Corachol-Nahua, rules 3 and 5 are well established. Pharao Hansen (2024) modifies rule 4, to the effect that PUA **p* only passes to Corachol-Nahua *h* in unstressed syllables but is retained as fortis *p* in stressed syllables. For example this creates the double *paltik* 'wet' / *a:ltia* 'bathe' from **páritiko* and *parítia* respectively. The same reconstruction also posits *r* as a (sporadic?) lenis variant of *t* in unstressed syllables (rule 6).

Rule 7 is the same palatalization of **ts* and **s* before **i* as posited by Dakin, which must have taken place before the syncopation of weak short syllables and its sequelae in rule 8a–f.

The result of rule 8 is a reorganization of the pre-Nahua stress system so that lexical stress with some CV'CV roots is replaced by a system with accent on all long syllables and on the antepenultimate syllables when short. This renders short final vowels liable to apocope, with subsequent compensatory lengthening of the preceding syllable (particularly before sonorants), creating CV(:)C roots. When resulting in consonant clusters, these undergo various forms of accommodation – usually devoicing and/or aspiration.

Rule 9 is a suite of changes involving *h*, which is voiced initially and medially. This voicing creates long vowels, except in front of **e*, where it becomes a palatal glide **y* [j]. Some instances of medial **h* seems to be retained – perhaps when preceded by a morpheme boundary, or perhaps only in pronouns (*neha* 'I', *teha* 'you', *yeha* '3sg'). It has been claimed before that *y*- in this case is a prothetic glide (Campbell 1985), but this is falsified by a detailed comparison. As first suggested by Sapir in 1913, and later by Dakin (2000) and further consolidated by Pharao Hansen (2014, 2024) it is the other way round: the added *y* must be a development of the original **h* before *e*, and only some varieties later drop the *y* (except in words where it no longer precedes an *e*).

Rule 10 affects sequences of vowels and semivowels so that sequences /Vo/ and /Vw/ are rounded (perhaps only when the *o* is stressed, or when the vowel before *w* is stressed).

Rule 11 is the lateralization of **t* to the lateral affricate *tl* which marks the beginning of Proto-Nahuatl. Because it only occurs before central vowels **a* and in some cases before **i*, it appears to have some phonological conditioning. The change is quite unusual phonologically, and in spite of being phonologically conditioned does seem to require some external motivation, perhaps through contact.

Table 4: Sound changes in pre-Nahua.

Pre-Nahua	7	palatalization of sibilants / _i	
			<i>tauhtsi</i> ‘rabbit’ > <i>to:tʃi</i> <i>tsitsi</i> ‘dog’ > <i>tʃitʃi</i> <i>síwi</i> ‘herb’ > <i>ʃiwi</i> <i>*síwa-tsi</i> ‘flower’ > <i>ʃo:tʃi</i>
	8	accent shift	
		8a. syncope of <i>CVCV̆</i> > <i>iCCV</i> > <i>iCCV</i>	<i>*tesó</i> ‘cave’ > <i>*itso</i>
		8b. metathesis of <i>CC</i>	<i>*itso</i> > <i>osto</i>
		8c. apocope	<i>*téni</i> ‘mouth’ > <i>te:n</i>
		8d. compensatory lengthening	–
		8e. <i>CVhV</i> > <i>CVVh</i>	<i>*táhi</i> ‘fire’ > <i>*taih</i>
		8f. devoicing in <i>CC</i> clusters	<i>*piraka</i> ‘gather’ > <i>piska; piyaka</i> > <i>piʃka</i>
	9	changes to <i>h</i>	
		9a. <i>#h</i> to <i>#y</i> before <i>e</i>	<i>*hiha</i> ‘3SG pronoun’ > <i>*yiha</i>
		9b. loss of <i>h</i> initially and between vowels (except pronouns?)	<i>*ha</i> ‘water’ > <i>a:</i>
	10	vowel changes	
		10a. rounding/w-loss <i>CVwV</i> > <i>CoV</i>	<i>*téwaka</i> ‘name’ > <i>to:ka; ʃiwaʃi</i> ‘flower’ > <i>ʃo:tʃi</i>
		10c. diphthong leveling	<i>*yaori</i> ‘heart’ > <i>yo:ri</i>
		10d. <i>kiV/koV</i> > <i>kw</i>	<i>*tsikii</i> ‘dog’ > <i>itskwí</i>

There is another, earlier, change which turned some instances of lenis **t* into **r/l*. Lateralization could perhaps have started in this position and spread by analogy to all cases of *ta*, so that the sequence of changes was lenis **t* > **r* > *tʃ*.

Even if conditioned, the development of **t* to [tʃ] is quite unexpected, and perhaps as suggested by Kaufman (2001) the influence of a prestige language with a prominent [tʃ] phoneme could have played a role in producing this result (especially if this prestige language had no equivalent of a lenis tap-*r* causing speakers to emulate the prestige language by swapping *r* for *tʃ* before **a/*i*).

Rule 12 includes two vowel changes: First the anticipatory assimilation of **a* to **e* when followed by an **i* in a rising *ai*-diphthong or when occurring before a syllable with *i* (12a). And about the same time the fronting of **i* to /e/ or /i/ (12b). The details of this fronting process are quite interesting, and previous scholars have put a lot of work into working them. I think that taking accent into account produces a more straightforward set of developments. Campbell & Langacker (1978) proposed that **i* split to *i* and *ə*, where *ə* had the reflex *o* in Pochutec. Dakin (1983) showed that Pochutec *o* is a regular development of Proto-Nahua *i* when occurring before consonants. This means that Dakin sees **i* as the only reflex of PUA *u* (and Corachol-Nahua **i*) in Nahuan – except for in a small class of words in which the reflex is *e* in Western Nahua and *i* in Eastern Nahua. Canger and Dakin see the variation in these words as being conditioned by the point of articulation of the adjacent consonants. The notion that **i* is the only regular reflex of PUA **u* and PCN **i* is however plainly wrong, as all Nahuan varieties

Table 5: Sound changes in Proto-Nahuatl.

Proto-Nahuatl	11	Whorf's Law (lateralization of lenis <i>t</i> before <i>a</i> and <i>i</i>)	* <i>hita</i> 'something' > * <i>itla</i>
		11b. analogy extending <i>tl</i> before all * <i>a</i>	* <i>tāta</i> 'burn' > <i>tlatla</i> * <i>-ta</i> 'ACC' > <i>tlān</i> 'LOC'
		11c. lateralization of <i>r</i> > <i>l</i>	* <i>hita</i> 'something (ACC)' > <i>itla</i> 'something' * <i>yo:ri</i> 'heart/live' > <i>yo:li</i> * <i>nawári</i> 'thief' > <i>nahual-</i> * <i>piri</i> 'hang' > <i>pil-</i> 'baby'
	12	vowel changes	
Late Proto-Nahuatl		12a. * <i>ai</i> > <i>e</i>	* <i>tlaih</i> 'fire' > <i>tle</i> * <i>maih</i> 'maguey' > * <i>me</i> * <i>-kai</i> 'PST' > <i>-ke</i> 'PPF'
		12b. fronting * <i>i</i> > <i>iə</i>	* <i>kasi</i> 'leg' > <i>kes</i> 'thigh' * <i>nari</i> 'mix' > * <i>neloa</i> 'mix' * <i>miki</i> 'die' > <i>miki</i> - <i>tli</i> 'ABS' > <i>tlə</i> <i>tisi</i> 'grind' > <i>təsi</i>
	13	second accent shift	
		13a. second syncope & apocope	<i>yeha</i> > <i>yeh(wa)</i> <i>kómiti</i> > <i>kontli</i>
		13b. second palatalization [1]	* <i>kate</i> > * <i>kat</i> ; - <i>Vtli</i> > <i>Vtl</i> <i>komiti</i> > <i>komitl</i>
		13(W) metathesis of CV particles	* <i>tesiti</i> > <i>teftli</i> * <i>matsitia</i> > <i>matftia</i> <i>na</i> 'DEF.ART' > <i>in</i> <i>ka</i> 'NEG' > <i>ah</i>

also have reflexes as /e/, and as /o/ (in labial environments) for which Dakin's model does not account. [Pharao Hansen \(2024\)](#) suggests a different explanation of the variation, in which stress is the decisive factor, turning pre-Nahua **i* into Proto-Nahuatl **i* when stressed and **ə* when unstressed. Then /e/ is the regular reflex of **ə* – except in Eastern Nahua when preceding a syllable with the vowel /i/, where it is affected by anticipatory vowel assimilation turning it into /i/. These changes are summarized in Table 4.

Rule 13 is a second set of syncope and apocopes of unaccented short vowels and subsequent readjustments of the resulting consonant clusters. Here we already begin to see some variation in the outcomes in the different dialects, and it looks like it may be the case that slightly different stress patterns applied in Eastern and Western Nahua already at this point. For example from Proto-Nahua **komitli* 'pot' some varieties produce *komitl* with apocope of the final vowel of the absolute suffix *-tli*, and others produce *kontli*, with the syncope of the middle vowel – this suggests respectively **komítli* and **kómitli* as the original accent patterns. This is also where we see the development of differences in the formation of adjectival past participles among the various dialects – with Eastern dialects dropping the final vowel of the preterit suffix *-ki* when it follows a vowel

(**toto:niki* ‘warm’ > *toto:nik*), and Western dialects often retaining it (**totó:niki* > *toto:nki*).

The syncope also led to a second round of palatalizations of **ts* and **s* before **i*, but this time it affects also when the /i/ came from previous **i* (rule 12b) – so that we get *teftli* ‘dough’ from **tesiti*, < *tasi* < *tisi* (see table 3).

Table 6: Sound changes in the split-up of Proto-Nahuan into Eastern and Western branches.

East-West split (1100?–1521)	14	vowel changes	
		14a. ə > e (W)	* <i>tasi</i> ‘grind’ > <i>tesi</i>
		14b. ə/a CeCa > CaCa (E)	<i>yeha</i> ‘3SG pronoun’ > <i>yaha</i>
		14c. ə/i CiCi > CiCi (E)	* <i>tasi</i> ‘grind’ > <i>tisi</i>
	15	Eastern Nahua: #ye > #e	
			* <i>yepatl</i> ‘skunk’ > <i>epatl</i>
			<i>ye:lotl</i> ‘corn cob’ > <i>e:lotl</i>
	16	aspiration	
		16a. -t# > -ʔ/h (after Pochutec and Isthmian split) 16b. *w to h before C (-VwC/-VwC > -Vh#)	* <i>kat</i> ‘be’ > <i>kaʔ/kah</i>

Rules 14, 15 and 16 describe the sound changes that evidence the split between Eastern and Western branches of Nahuan. Rule 14a are a series of differential vowel changes in which Eastern Nahua applies anticipatory vowel assimilation in roots when a syllable with a short front vowel (**i* or **e*) precedes a syllable with /o/ or /a/, or when a syllable with **ə* precedes a syllable with /i/. This change never comes to completion in Eastern Nahua but remains active in different Eastern varieties after they split – meaning that different Eastern Nahua varieties have signs of anticipatory vowel assimilation in different words. This is why we see variation between words like *epa/apa* ‘skunk’ and *yeha/yaha* ‘3SG pronoun’ between different Eastern Nahua varieties.

Rule 15 in Eastern Nahua changes all roots beginning in #ye- to #e (except for the third person pronouns *yeha* (3SG) and *yehamet* (3PL), in those varieties that have not changed them to *yaha* and *yahamet*). Another instructive case described in [Pharao Hansen \(2021\)](#), is the word for ‘avocado’ which we know in Nahuatl as /awakat/, but also as /pawat/ which is a wild variety of Persea. However there are also Nahua varieties where ‘avocado’ is *yewakatl* with an initial glide, and in Cora and Huichol avocado is *yewka* (or *yawka* in the *a*-affected form). It has been suggested by [Kaufman \(2001\)](#) and sustained by Davletshin (pers. comm.) that the Nahua word is a loan from Totonac **lhpaw* ‘wild persea’. However the fact that Nahua has versions with and without initial **p*, shows that in that case this should

have been loaned very early, before pre-Nahua lost initial *p*- in unstressed syllables. Additionally this borrowing does not explain the forms with *e* in Nahuatl and Corachol. Furthermore, we can see that the Proto-Nahua *yewaka* is the form borrowed by Cora and Huichol, which should otherwise have **hewka*. This pattern of westward borrowing in which the PN form is borrowed into Corachol and Western Nahuatl subsequently borrows the EN form *awakatl*, makes sense given that avocados are mostly cultivated in the tropical lowlands east of the Sierra Madre and presumably traded westwards.

Rule 16 changes word-final *t* into /ʔ/. This happens after the split-off of Pochutec from the Western branch and the split-off of Pipil from the Eastern branch, since these varieties retain *-t* in this position. Otherwise it spreads through all the varieties in central Mexico, eventually reaching also the Isthmian varieties in Tabasco and Southern Veracruz. Many varieties subsequently merge this /ʔ/ into /h/, and a few merge /h/ into /ʔ/ (only the Isthmus varieties, which also continue the rule changing word-final *t* and *k* to /ʔ/, continue to have /h/ and /ʔ/ as separate phonemes).

3 Revising the shallow dialect chronology for Nahuatl

Since Canger's (1988) article on Nahuatl dialectology, it has been the consensus that Nahuatl languages have a relatively shallow history, with only two major branches East/West, reflecting two waves of migration into Central Mexico, and relatively little internal branching within them. A question that is still open is the classification of the Nahuatl varieties that are usually given status as separate languages, namely Pochuteco and Salvadoran Nawat (traditionally called Pipil), as either standing without the Nahuatl dialect system, or as falling within the two main branches. However, comparing both of these languages with the chronology of sound changes, we see that they must have shared all of the Nahuatl changes until the East-West split. Consequently, Pochutec and "Pipil" are not separate branches, but nested within Western and Eastern Nahuatl respectively. In this section, I first evaluate the traits of Pochutec and "Pipil" distinguishing between retentions and innovations, and between unique innovations and shared innovations that are relevant for subgrouping.

3.1 Pochutec historical profile

The extinct Oaxacan Nahuatl variety called Pochutec was characterized by two major phonological processes that superficially give the language a completely

different character from other Nahuan languages: (1) Rampant syncopation of unstressed vowels, creating a system with accent on the final syllable (*okíchtli* > *okóft*). (2) A complete restructuring of the vowel system in what appears to be a chain shift: *ǎ* > *e*, *e* > *o*, *i* > *o*, *ō* > *u*. But as already noted by Boas who documented Pochutec in 1917, these changes can be derived regularly from a system that is like that of the better known forms of Nahuatl spoken in central Mexico. Campbell & Langacker (1978) believed that the fact that Nahuan /i/ corresponded both to Pochutec *i* and *o*, meant that Pochutec reflected pre-Nahua **i* different from other Nahuan languages suggesting an early split, but Dakin (1983) demonstrated that this was not the case. The other major differences are: (1) A set of substrate borrowings from an as yet unidentified language (perhaps the Otomanguean language Chatino). (2) The use of *-lo* as a plural marker (which is shared with Nahuan varieties of the Western periphery in Michoacan and Jalisco and the Isthmian Nahua spoken in Tabasco). (3) Retention of final *-t* as a plural marker (the one that became *ʔ* in central Nahuan). (4) The change of Proto-Nahuatl **tl* to *t* in all contexts (but as noted by Boas the fact that stems ending in *l* takes no absolutive suffix suggests that it originally had *tl*). (5) Use of the Western Nahua preterit prefix or augment reflected in Pochutec as *e-* (though it should regularly be *u*). (6) An “e” form in the only one of the diagnostic words, for the reflex of **i*, namely *toso* ‘to grind’ (Canger & Dakin 1985: 360).

When summarizing these changes we see that they consist of mostly of unique innovations, a single retention, and innovations shared with the Western branch.

- Accent change and syncope (unique innovation)
- Vowel changes (unique innovation)
- Substrate borrowings (unique innovation)
- *-lo* plural (innovation shared with western periphery)
- *-t* for plural corresponding to saltillo (retention, suggesting split prior to rule 16)
- *t* for *tl* innovation (shared with periphery)
- preterit prefix (probable innovation shared with Western branch)
- *toso* ‘to grind’ from Western Nahua **tesi* (innovation shared with western branch)

All in all, it seems safe to group Pochutec with Western Nahuatl. Pochuteco could be relatively recent in spite of the very distinct profile – perhaps a result of original L2 learning, similar to what Canger (2017) claims for the Western periphery varieties, and perhaps related to the post-classic trade routes along the Pacific coast. Pochutec does have some conservative traits (such as not having changed *-t* to *saltillo*), but is mostly characterized by the rampant phonological innovations – that look like they might be caused by having been adopted as a L2 – perhaps with an Otomanguean substrate.

3.2 Salvadoran Nawat (Pipil) historical profile

Canger (1980a) classified Pipil with the Eastern periphery, but Campbell (1987) argued that this was erroneous and that Pipil should be seen as outside of Core Nahuatl (his “General Aztec”). Particularly he believes that Canger has interpreted the evidence from the preterit forms wrong, so that it does not require grouping Pipil with eastern Nahuatl. And he also thinks that since the *-met* plural form is shared by Central Guerrero and La Huasteca which Canger (1980a) had included as central varieties, this did not motivate grouping Salvadoran Nawat as Eastern (in fact Central Guerrero and La Huasteca are indeed Eastern varieties as has been later established). He also argues that the phonetic innovations such as *tl* > *t* to motivate a shared grouping with other forms of *t*-Nahuatl, which is correct, but since Salvadoran Nawat shares a number of other traits with Isthmian varieties, we may use it as one of the shared innovations uniting this particular group of *t*-varieties. Campbell lightly brushes off the traits that are shared between Salvadoran Nawat and the Nawat varieties of Southern Veracruz and Tabasco, but they are in fact an entire suite of traits. Pharao Hansen (2014) shows two that are of particular relevance for the grouping of Salvadoran Nawat with the Isthmian varieties: (1) The form of the negation in which the varieties share the change of *ayak* ‘noone’ and *ate* ‘nothing’ to general negation particles (Salvadoran *te*, *tesu*, *inte*) in a process similar to Jespersen’s cycle (Jespersen 2025). (2) The process of anticipatory vowel assimilation in pronouns which gives *yaha* ‘3SG pronoun’ and *tehemet* ‘1PL pronoun’ from PN **yeha* and **tehamet* – these forms are widely shared among Eastern Nahuatl.

Defining traits:

- *t* for plural (correspond to *saltillo*) (retention suggesting split prior to rule 16)
- *t* for *tl*, *u* for *o* (innovations shared with Isthmian)

- *-met* as plural marker in nouns, no use of *-tin* (innovation shared with Eastern Nahua)
- *nemi* as main locative verb (innovation shared with Tabasco Nawat)
- *te* for negation (innovation shared with Isthmian, primarily Tabasco)
- Anticipatory vowel assimilation in pronouns (Innovation shared with Eastern Nahua)
- Loss of initial *y-* before *e* (innovation shared with Eastern Nahua)

Most of the traits that make Pipil stand out are the innovations shared with the eastern varieties, especially the Isthmian ones, and some retentions from Late Proto-Nahuatl which do not support classifying it as a separate branch. So all in all, Salvadoran Nawat can be safely classified within the Isthmian subgroup of Eastern Nahua. This variety seems to simply represent the extreme point of an early migration of Eastern Nahuas south along the gulf coast, crossing the isthmus into Chiapas and Guatemala and along the Pacific coast to what is now El Salvador (Fowler 1989).

3.3 Relic traits of a Nahua trade language

Dakin (1981; Dakin & Lutz 1996) has postulated the existence of a Nahua trade language (or *lingua franca*) in widespread use in Mesoamerica in the post-classic period, and this seems an attractive option for explaining at least some of the shared innovative traits of Nahuan languages in West Mexico, North Guerrero, the Oaxacan coast, Tabasco, and Guatemala.

There are reasons to think that some of the traits that define what Canger (1988) has referred to as the periphery, relative to the Central Dialect area, are in perhaps relics of such a trade language. Canger (2017) has argued that the varieties of the Western periphery are not descended from Proto-Nahuatl by ordinary transmission, but rather show signs of having been acquired as a second language by adults, who did not acquire all of the phonological and grammatical distinctions. Particularly it seems they did not hear word-final *-h* (which is in all honesty very hard to hear). Therefore they were unable to distinguish between plural and singular verb forms, which prompted them to introduce the use of *-lo* (a passive marker) as a plural marker. They also lost the use of directional inflections, and generally use a more analytical morphological structure, with limited use of complex derivational and compounding morphology. They also all lost

the original Nahuatl *tl* sound – some changing it to unvoiced [t], others to [t̥], or sometimes to either in different contexts. Another shared element that could be postulated is the use of the word *xolot* which in Central Nahuatl means ‘servant boy’, in the general meaning ‘child’. This word is found in Michoacan, in Tabasco and in Nicaragua – and seems unlikely to be an independent innovation. Jalisco Nahuatl also shares the *te* negation (from Nahuatl *tle* ‘something’) with Isthmian and Salvadoran Nahuatl.

Probable defining traits of a pre-colonial Nahuatl trade language:

- *-lo* plural (Tabasco, Jalisco, Michoacan, Durango) motivated by loss of word-final *h*.
- loss of *tl* (all Isthmian + Western periphery)
- *xolo* for child (Pipil, Jalisco, Michoacan)
- Loss of directionals (Tabasco, Western Periphery)
- Relatively analytical structure

These changes are all simplifications consistent with having originated in a process of non-Nahuatl acquiring a Nahuatl variety as an L2. On the Michoacan coast, where Nahuatl is spoken today, the *Relaciones geograficas* of the 16th century tell us that “mexicano corrupto” was spoken as a second language, but by people who otherwise had a variety of different (today unknown) mother tongues. Something described as “mexicano corrupto” is also reported as having been spoken in Guatemala and Chiapas, though there is some debate about whether it was the result of the colonial expansion, or represents a precolonial post-classic incursion (van Zantwijk 1963, Viqueira 1997, Madajczak & Pharao Hansen 2016, Matthew 2000, Matthew & Romero 2012, Navarrete Cáceres 1975). Perhaps most mentions of “mexicano corrupto” really refer to such L2 varieties of Nahuatl, adopted in areas where non-Nahuatl interacted with Nahuatl traders, such as the trading centers in Chiapas (Soconusco), Tabasco (Xicallanco) and in the Aztlán region of Sinaloa and Nayarit. This suggests that the maritime trade routes on the Pacific coast were an important vector for the spread of Western Nahuatl already in the post-classic period (11th–14th centuries).

3.4 Revised model of Nahuatl in Uto-Aztecan

The revised model of Nahuatl development (Figure 1) sees early pre-Nahuatl as a sister dialect of Proto-Corachol and all attested Nahuatl languages as developing

from either the Western or the Eastern branch. Languages of probable Nahuan affiliation such as Cazcan or Tecuexe that have insufficient documentation for classification purposes may have descended from pre-Nahua rather than Proto-Nahua.

The analysis of innovations strongly suggests that Dakin's argument locating Pochuteco within the western peripheral branch is correct (Dakin 2017, 2021). It also seems likely that the features shared with the other languages of the western periphery may have developed through a process in which a Nahua trade language, based on central Nahuan, was learned as a L2 by speakers of non-Nahuan languages, who introduced innovations based on "imperfect learning". Canger (2017) has proposed such a process as the origin of all of the dialects of the Western Periphery. We would then date these to late-Nahua expansion along into Jalisco and along the pacific coast in the 13th–15th centuries.

Salvadoran Nawat and Nicarao in turn would have developed from the Eastern branch, forming a dialect chain stretching from southern Veracruz through Tabasco, into Chiapas, Guatemala and finally El Salvador and Nicaragua. This dialect chain, I refer to as the *Isthmian* subbranch of Eastern Nahua, and it would have exited central Mexico soon after the East-West split.

4 Teotihuacan loans in Maya writing

Epigraphers have found several examples of words in Classic Maya inscriptions that are written phonetically, but which defy translation in the Classic Maya language. Several of these have been proposed to represent loan words from the unknown language of Teotihuacan (which as described above is often assumed to have been a Nahuan language). Since Maya monuments tend to be securely dated, if they do in fact include Nahuan loans, they provide a means by which to anchor the relative dates for the different sound changes to an absolute chronology. In this section, I analyze 4 proposed Uto-Aztecan forms in Classic Maya inscriptions, to see what stage of the phonological development of Nahuan they might best represent.

In the Maya area, the archaeological and epigraphic record shows influence from Central Mexican cultures starting in the classic period. The earliest evidence dates to the early classic period, with stelae at Tikal that have been interpreted as describing a military incursion from Teotihuacan into the area in CE 378 (see Stuart 2000). Following this event, called the *entrada*, Teotihuacan influence shows up in different city-states in the Maya lowlands, including Tikal and Copán. Some of the inscriptions associated with these events, contain words

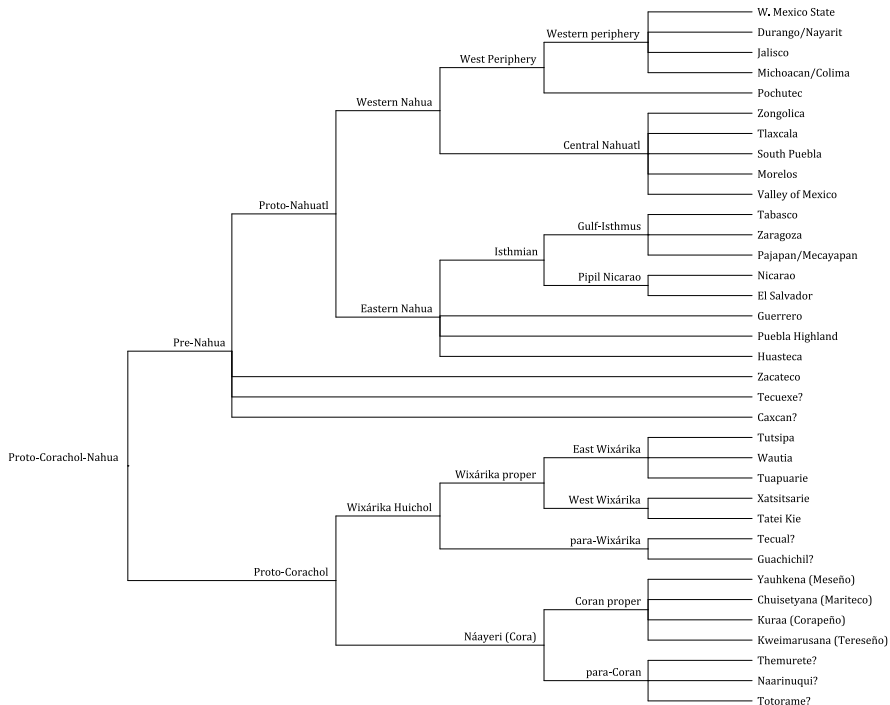


Figure 1: Tree-representation of the proposed relations between Nahuan and Coracholan languages, based on the model of phonological developments presented above.

that stand out as likely to be non-Mayan, as they defy translation and cannot be readily etymologized in the Classic Maya language (Boot 2009, Hull 2019). Stuart (2000) first identified a foreign word in the text of Stela 31 at Tikal, which is closely linked to the arrival of strangers from Teotihuacan. Since then, Maya epigraphers have found several examples of similarly foreign words of potential Nahuan origin in Classic Maya inscriptions.

Below, I first analyze the historical phonology of three words of proposed Nahuan origin found in Maya inscriptions associated with the Teotihuacan *entrada*. Finally, I look at a potential Nahuan word inscribed on a stela in Seibal dating to the mid 9th century, a period several centuries after the fall of Teotihuacan, in which this site experienced a period of central Mexican influence.

There are other proposed Nahuan loans in Maya texts, some of them early, but many of them are dubious as loans, as they either do not correspond well to actual Nahua words or can be etymologized better in Mayan . Among these are

the proposed early loans including: *kakaw* ‘cacao’, *iyuwal*, *kilkum*, *patan*, *wakut’i* and *yohl* ‘heart’ (Dakin & Wichmann 2000, Boot 2009, Macri & Looper 2003, Nielsen & Helmke 2011: 345–348, Prager & Wagner 2017: 12, Hull 2019). I have chosen not to include these words in this chapter, since for various reasons that are too complex to describe here, I consider them unlikely to be Nahuan loans, and therefore not useful for anchoring the relative chronology of Nahuan sound changes.

4.1 KOSAKA

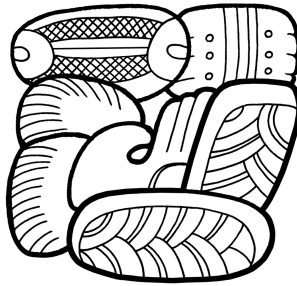


Figure 2: **ko-sa-ka** recorded on Tikal Stela 31 (drawing by Christophe Helmke).

Stela 31 at Tikal is dated to 445 CE, and it is closely associated with the Teotihuacan entrada, depicting what is assumed to be invading forces from Teotihuacan who founded a local ruling dynasty (Stuart 2000). On this stela, among several non-Mayan words written phonetically using syllabic signs, is the sequence *ko-sa-ka* (Figure 2). It has been suggested that this represents the Nahua word *ko:skatl* ‘necklace/jewel’ (Boot 2009: 154). Mayan signs are syllabic representing CV syllables, and writing syllable final consonants require the use of CV syllable signs where the final vowel is not read. The superfluous vowel was however used to denote the length of the preceding vowel. If the preceding vowel was long, the Maya would have been expected to use the sign for *si*, but they write *sa*, suggesting a short preceding vowel. Here it is interesting to note that before the syncopation (rule 8) *ko:skatl* would have been **kosaka-ti*. We know that the syncopated vowel was not an **i* (since this would have caused palatalization of the *s*), and it can in fact be reconstructed as **a*, where the root **kosa* means ‘yellow, nacreous, shiny’ (cognate with Nahuan *ko:stik* ‘yellow’ and *kosamalo:tl* ‘rainbow’). In Proto-Nahuatl *ko:skatl* the /o:/ is long, precisely because of compensatory lengthening following the syncopation. This syncopated form would

be expected to have been written *ko-si-ka* in Maya, but since they wrote *kosa*, it suggests that they actually heard the /a/ vowel pronounced and meant to write both syllables in *kosa* rather than the single syllable *ko:s*. This allows us to conclude that if this inscription indeed represents a word that is ancestral to Nahuatl *ko:skatl*, and if the *sa* syllable is written as such because the Maya heard it as *sa*, then it would seem to predate the syncopation rule (rule 8) – placing the syncopation rule after 445 CE.

4.2 KO'HAW

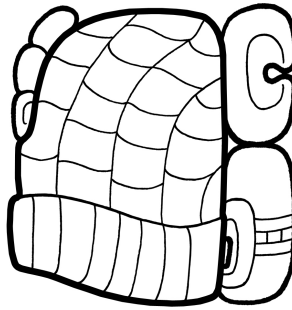


Figure 3: u-KO'HAW-wa recorded on the panels of the Temple of the Inscriptions at Palenque (drawing by Christophe Helmke).

The word *ko'haw* is attested in inscriptions referring to a particular kind of helmet which is iconographically associated with Teotihuacano warriors (Macri & Looper 2003, Boot 2009) (Figure 3). The attestation of *ko'haw* in the Temple of Inscriptions at Palenque is dated to CE 689, although earlier examples are found represented in other Maya monuments (Helmke pers. comm.) It has been suggested that *ko'haw* is a borrowing of the Nahuatl word for 'head' *kwa:* (Macri & Looper 2003: 290–291). On the face of it this would look like a stretch, but it becomes more convincing when we realize that *kwa:-* must have passed through a stage **koha*, since it likely comes from PCN **kīpa* or **kopa*. Rule 8 weakens the *p* to *h* (**kīha*/**koha*), and then disappears (rule 9) and the vowel sequence **oa* changed into **wa* and then into labialization of the *k* to the current form /*kwa:*/. The final *-wa* in **ko'haw* could be a reflex of the pre-Nahuan suffix *-wa* for alienable possession of a semantically inalienably possessed noun (e.g. a detached bodypart). This would give a literal meaning of “detached head”, which makes sense if used to refer to a large helmet. If this Mayan word is indeed from pre-Nahuatl **koha-wa* it must postdate rule 4 *p > h* but predate rule 9.

4.3 MAPATZI'INI



Figure 4: **ma-pa-tz'i-ni** written on Stela P at Copan (drawing by Christophe Helmke).

Prager & Wagner (2017) suggest that some words found in inscriptions from Copan could represent a foreign language, perhaps from Teotihuacan (Figure 4). In the text of Stela P, they identify a series of words, each spelled phonetically, which are not attested in Mayan languages and which they suggest these are the names animals. Of these one is spelled **ma-pa-tz'i-ni** they suggest that it be may be related to the Nahuatl word *mapachtli* ‘raccoon’. However, the root *mapach-* has no cognates outside of Nahuatl, so it can only be reconstructed for Proto-Nahuatl as *mapach-*, and we can extrapolate a pre-Nahuatl form which would be **mapátsi*. In Nahuatl *mapach* has forms both with the *-tli* and *-in* absolutive suffixes, so it could have been both **mapátsi-tli* and **mapátsi-mi*. The inscription is dated 9.9.10.0.0 in the Maya long count calendar, which should correspond to CE 623, which would then be a terminus post quem for rule 13b that would have palatalized **mapátsi* to *mapach*. It would however be nice to have a good contextual reason to consider the word related to ‘raccoon’, which seems a somewhat peculiar word to include in a stela inscription.

4.4 EJEKE

There are several other examples of words of likely Nahuatl origin in the Mayan hieroglyphic record, but most of these are significantly later (from the 8th century onwards), reflecting likely influence from the Nahuatl epi-classic migrations (see Hull 2019 for a recent overview of proposals). We would expect these later borrowings to represent an early Eastern Nahuatl variety, as the eastern varieties were the first to expand southeastwards along the gulf coast and into the Maya



Figure 5: **e-je-ke** as recorded on Stela 13 at Seibal (drawing by Christophe Helmke).

area. Below I assess one example of a potential Nahuatl loanword in an inscription from the site of Seibal in the mid 9th century.

One glyph of interest is found on Stela 13 at the site of Seibal, which dates to around 870–890 AD. During this time, the site was undergoing considerable cultural influence from central Mexico and was under the rule of a foreign warlord named *Wat'ul K'atel* – whose name cannot be readily etymologized in Mayan (Schele & Mathews 1998: 175–196). This period also saw the appearance of representations of the central Mexican storm and wind gods, and the site's first circular temple was raised at this time, in central Mexico such circular temples are associated with the wind-god. In Proto-Nahuatl the word for 'wind', which is also the name of the wind God, is reconstructed as **yeh-yekatl*, from pre-Nahuatl **héka-ti* 'wind'. This word beginning in the sequence /ye/ is one of the words affected by rule 15, which in Proto-Eastern Nahuatl drops the initial glide, turning *yehyekatl* into *ehekatl*.

Remarkably, the text of Stela 13 records the sequence, written **e-je-ke** (see Figure 5)⁴ for /eʎeke/ which has been taken as a Maya spelling of the name of the

⁴In Maya epigraphy the uvular fricative [χ] is transcribed <j>, contrasting with the glottal fricative [h], transcribed <h>.

central Mexican deity (Lacadena 2010: 389–390). For this interpretation, it is not optimal that the final vowel is written as *e* instead of *a*, and it is unclear why Nahuan /h/ would be represented with the symbol usually representing [χ]. It is noteworthy that if this is a Nahua word, it represents an eastern variety, as would be expected, and which would give approximately 850 CE as *terminus ante quem* for rule 15, and place the split of Proto-Nahuatl into Eastern and Western Nahuatl branches in the epi-classic period.

4.5 Assessing evidence from Maya writing

It is significant that the words found in Maya inscriptions seem to chronologically fit the layer of Nahuan development that they encode. The ones dating to the early classic associated with Teotihuacan, all seem to represent the late Corachol-Nahuan/Pre-Nahua layer, without the sound-changes that would eventually transform the pre-Nahua, at this point the eastern dialect of Corachol-Nahuan, into Proto-Nahuatl. The example from the epi-classic period from 9th century Seibal, likewise seems to represent a later form of Nahua, postdating the East/West split. It is of course possible that the Mayan loanwords record forms that were borrowed much earlier than the date when the inscriptions were written. Particularly the form *ko'haw* if it is indeed a Uto-Aztecan loan, would enable us to date the splitting of a distinct Nahuan branch to the period between 450–700 CE.

5 Conclusions

The revised relative chronology of changes from Southern Uto-Aztecan to Nahuan allows us to draw several significant conclusions.

Though the chronology revises Dakin's original 1982 chronology and rejects some of her arguments, the conclusions build on the previous work by Dakin and Canger – accepting several of their important suggestions. The East-West split, Canger's proposal that the Western Peripheral varieties arose through L2 acquisition, Dakin's proposal of a Nahua *lingua franca* in the post-classic, and her realization of Pochutec's affiliation to the Western branch – are all insights that are owed to them. In a way, this paper simply connects the dots between their proposals, within the framework of a relative chronology that accepts the Corachol-Nahuan grouping, and systematically reconstructs the steps in between – taking their suggestions to their logical conclusions.



Figure 6: Map of the spread of Nahuatl languages following the East-West split, according to the revised phonological chronology, showing the likely routes of Pochutec and Salvador Nawat to their current locations. The “lingua franca” or Nahuatl trade language spread West toward the Bajío and from there south and east along the pacific coast likely in the post-classic period.

We must revise our notion of the comparative value of Pochutec – none of its traits should motivate us to classify it as having split earlier than core Nahuatl languages, hence it cannot provide any special information about how the earliest stages of Nahuatl should be reconstructed. But the fact that we must reconstruct it as belonging to the Western Periphery – and the probability that it has the traits it has because it originated as a trade language spreading south along the pacific coast in the post-classic period, should make us revise our ideas about Nahuatl migrations.

Similarly, Salvadoran “Pipil” Nawat should also not be classified as standing outside of Eastern Nahuatl – rather it represents the endpoint of the Eastern Nahuatl migration along the Isthmus, and is closely related to the languages of Tabasco and Southern Veracruz. The traits that set Salvadoran “Pipil” apart from these languages are largely retentions, which simply show that the waves of Central Mexican Nahuatl influence of the late post-classic and early colonial period did not reach El Salvador.

When we recognize that the Western peripheral expansion is late and moves in a Westward direction from Central Mexico, we also realize that the basic split of the East and West Nahuatl appears to have happened in the Central Valleys – with Eastern Nahuatls towards the Southern Puebla Valley and South into Guerrero

and north towards the Huasteca, and Western Nahuas in the Valleys of Mexico, Morelos, Toluca and Tula. If Proto-Nahua was spoken in the Valley of Mexico and not in the northern margins of Mesoamerica as argued by Kaufman – that means that there is no *a priori* reason that a language ancestral to Proto-Nahuatl could not have been spoken at Teotihuacan.

Finally, if the Teotihuacano words in classic Maya inscriptions *do* in fact represent a Nahuan language, and *if* we are right to think that the spellings accurately reflect the pronunciation at the time of contact between Teotihuacan and the classic Maya polities – *then* we must conclude that Nahuatl as such did not exist in the classic period. Rather the language at that point was simply the easternmost dialect of a Proto-Corachol-Nahuan dialect continuum that we can assume to have stretched from Nayarit across the Bajío and into (at least the Northern part of) the Valley of Mexico. The split-off of a distinct Nahuan branch from the Coracholan languages would appear to have occurred around the time of the fall of Teotihuacan (coinciding with the Late Antique Little Ice Age). So that pre-Nahuatl developed into Proto-Nahuatl during the classic period, and Proto-Nahuatl was spoken in the Valley of Mexico at the beginning of the epi-classic, with distinct Eastern and Western branches splitting and consolidating through the epi- and post-classic periods. This model of the Nahua epi- and post-classic migrations is represented in Figure 6.

Abbreviations

ABS	absolute
ACC	accusative
art	article
def	definite
LOC	locative
NEG	negation, negative
PCN	Proto-Coracholan
PL	plural
PPF	pluperfect
PST	past
PSUA	Proto-South-Uto-Aztecan
PUA	Proto-Uto-Aztecan
sg	singular
SUA	South-Uto-Aztecan

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