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Phonology of Nahuatl de San Miguel Tenango, Zacatlán, Puebla

Phonetic Inventory - Consonants

	Bilabial	Alveolar	Postalveolar	Palatal	Velar	Glottal
Plosive	p	t			k k ^h k ^w k ^w _o	ʔ ʔ ^r
Nasal	m	n			ŋ	
Fricative		s	f			h
Approximants	w w _o			j		
Lateral App. voiced		l				
Affricates		ts tʃ	tʃ			

/p/ [p]

Minimal pairs with other bilabial phonemes

/p/ and /m/	totomochtli totopochtli payantli mayantli mitlatl pitlatl	hoja seca de mazorca tostadas molido (tlapayantli ‘algo molido’) hambre metate petate
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/p/ and /w/	uaqui paqui tlauana tlapania	seco/lo seca/secarse alegrarse embaracharse partir (en varias partes), romper
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/t/ [t]

Minimal pairs with other alveolar phonemes

/t/ and /n/	nochtli tochtli nacatl tacatl nicah ticah	tuna conejo carne mata de maiz estoy estas
/t/ and /s/	titl sitl	piedra hielo
/t/ and /ʃ/	ticua xicua topil xopil	tu comes come baston dedo del pie
/t/ and /j/	cotoctic coyoctic tej yej	roto agujerado tú el
/t/ and /l/	-tia -lia cahxitia cahxilia	sufijo, causativo, terminación verbal transitiva sufijo, aplicativo, terminación verbal transitiva él cumple (años) (ajsi ‘alcanza’) le da tiempo (ajsi, ‘alanza’)
/t/ and /ts/	tzicuini ticuini tlatiui tlatziui	corre prende tirar tener flojera
/t/ and /tl/	titl tlitl	piedra fuego
/t/ and /tʃ/	(oc)matia machia tlachia (ic)tlatia	él sabía (contraste en entorno análogo) huele él despierta / él mira (lo) quema

/k/ [k^h] **word finally**
 [k] **elsewhere**

Minimal pairs with other velar phonemes

/k/ and /kw/	cuali cali cualani calani	bueno casa se enoja sonar vacio/roto
/k/ and [?] [tʃ]	[paltik] [palti?] [tʃi tʃi?] [tʃi tʃik]	mojado se moja mamar amargo
/k/ and /h/	[ohthl?] [oktl?]	camino aguamiel
/kw/	[kw] [kw]	before a voiceless consonant or word finally elsewhere

Examples of voiceless realizations of /kw/ in:

nicutli
otlatzacuqueh
icusi
oncahcocu

Minimal pairs with other velar phonemes

/kw/ and /k/	cuali cali cualani calani	bueno casa se enoja sonar vacio/roto
/kw/ and [?] [tʃ]	Contrast in analogous environment [nikw-] [kon?]	miel (appears with absolute suffix, -tli, nicutli) el bebe
/kw/ and /h/	Contrast in analogous environment [nikw-] ['konih]	miel (appears with absolute suffix, -tli, nicutli) ellos beben
	[?] ~ [tʃ]	wordfinally

Phonetically the glottal stop occurs only wordfinally after a vowel. It is not a phoneme, though. It is used after a vowel to clearly mark that the vowel is not followed by /h/, which carries a heavy load grammatically, mostly as a plural marker. In Classical

Nahuatl the phoneme /h/ was pronounced as a glottal stop, and in linguistic literature it is called ‘saltillo’.

[?] and /h/	[neh]	yo
	[ne?]	allá
	[it' malthi?]	te bañas
	[it' maltih]	nos bañamos
	[tiki'tini?]	trabajador
	[tiki'tinih]	trabajadores

/d/ [d] only in the word [dion] ‘ni’

I did not include this phoneme in the chart, because it is a rare exception. [d] appears in the word [dion] ‘ni’, and it does not seem to be a loan from Spanish. In other Nahuatl varieties the word ‘ni’ appears as [nion], and they do not have [d] in their phonetic inventory.

/m/	[m]	only syllable initially
	[n]	word finally
	[n]	before /t/

[m] only appears syllable finally in cases where a syllable final /n/ is realized [m] through a morphophonemic process. Syllable final /n/ assimilates to the initial bilabial plosive of the following syllable, e.g. [kampa] ‘donde’, [pampa] ‘donde’, [itlampa] ‘debajo’. [tzompill] ‘gripe’

/m/ never appears syllable finally.

m-> n/ #

If roots lose their last vowel and /m/ appears at the end of a word without a suffix to follow, the /m/ becomes /n/, e.g.

Presente	Pasado
intlami	onitlan
tlauitomi	otlauiton
nimi	onin
quihtzoma	oquihtzon
nihnimi	onihninquueh

probably:

and $m \rightarrow n$ / syllable finally (Morphophonem. rule 1)
and $n \rightarrow m/ - p$ (Morphophonem. rule 2)

Minimal pairs with other nasal phonemes

/m/ and /n/	(ic)niqui miqui mic nic mixtli nixtli	querer morir mucho por nube cenisa
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Minimal pairs with other bilabial phonemes

/m/ and /p/	totomochtli totopochtli payantli mayantli mitlatl pitlatl	hoja seca de mazorca tostadas molido (tlapayantli ‘algo molido’) hambre metate petate
/m/ and /w/	tomamac tomauc	en nuestras manos grueso/gordo

/n/	[ŋ] before a velar plosive
	[m] before bilabial plosive
	[m] at a morpheme boundary when followed by a vowel
	[n] elsewhere

n -> m / _ p

it + kin + piya -> itkimpia

n no se adapta antes de m:

otonmonamictih	o + t + on + mo + namic + -tia + perf stem
onmonamicti	o + n + mo + namic + tia + perf. stem
inmiqui	in + miqui
nanmahatequiah	nan + mah + atequia + h

n -> m / _#V

itquimompia	it + quin + on + piya
otquimoualcauteu	o + t + quin + on + ual + cau + teu
onamontoocaqueh	o + nan + on + tooca + quej
inquimanas	in + quin + ana + s
namisqueh	nan + isqueh
namehcoh	nan + ehco + h
namahsih	nan + ahsih + h
namatlih	nan + atli + h
namahcotzicuinh	nan + ahco + tzicuini + h

namauiltiya nan + auil + ia

The n that becomes m is the consonant that closes the syllable/the morpheme preceding the vowel.

The morpheme n- (1p. sg. subject) does not adapt before a vowel. The reason may be that the n that indicates 1p.sg.sj, and it can not change to something else without losing its meaning.

Ejemplo:

nahsi n + ahsí

onahsic o + n + ahsí + c

n -> O / _w (optional, when spoken real slowly the n is there, people are conscious of it being there)

n-> O / _ y (optional, when spoken real slowly the n is there, people are conscious of it. Therefore we do write it.

[otkimowal'kaw̥teuu̥]	o [otkimonwal'kaw̥teuu̥]	o + t + kin + on + ual + kau + teu
[oto'walah]	o [oton'walah]	o + t + on + uala + h
[itnetʃo'wikas]	o [itnetʃon'wikas]	it + nech + on + wika + s
[namo'jaweh]	o [namon'jaweh]	nan + on + yawe + j
[inkijektʃalía?]	o [inkinjektʃalía?]	in + kin + yek + tlalia

But: ['tojoh] t + on + yoj is never pronounced with n. Equally, [to'wili?] t + on + uili is never pronounced with the n. It may be that this applies to a handful of verbs that are irregular/frequent verbs. We do not write the n in those cases.

Minimal pairs with other nasals

/n/ and /m/	niqui	querer
	miqui	morir
	mic	mucho
	nic	por
	mixtli	nube
	nixtli	cenisa

Minimal pairs with other alveolar phonemes

/n/ and /t/	nochtli	tuna
	tochtli	conejo
	nacatl	carne
	tacatl	mata de maiz
	nicah	estoy
	ticah	estas

/n/ and /s/	simi	mucho
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	nimi siqui niqui	hace del baño algo querer
/n/ and /ʃ/	nican xican nicua xicua in- ix-	aqui estén como come Ud. yo imp.
/n/ and /j/	naui yaui nacatl yacatl	cuatro se va carne la punta (viene de la palabra nariz)
/n/ and /l/	tlanaui tlalaui pantia paltia nican nical	muy gravemente enfermo resbaloso (tla + lawi, alawi ‘se pone resbaloso’) sospechar de, culpar mojar aqui su casa
/n/ and /tl/	itl in cacalotl cacalon	frijol los, las ,el cuervo tostada
/n/ and /ts/	nontli tzontli	una persona muda cabello
/n/ and /tʃ/	nontli nochtli chantli nantli	una persona muda tuna hogar madre (de alguien indefinido)

/s/ [s]

Minimal pairs with other alveolar phonemes

/s/ and /t/	titl sitl	piedra hielo
/s/ and /n/	simi nimi	mucho hace del baño

	siqui (ic)niqui	algo querer
/s/ and /ʃ/	mas max ixquisa isquisa	aunque disclaimer sal (imp. salir) o se despinta le sale sangre
/s/ and /j/	ixposauí ixpoyauí	se le inflama su cara se marea (se hace oscuro)
/s/ and /l/	coltic costic	corvado amarillo
/s/ and /ts/	sintli tzintli sihtzin (omo)sihsin tipotz tipos	mazorca nalgas abuela se jactó (prefixes o-mo-) espalda fierro
/s/ and /tʃ/	ichtli istli	fibra de maguey sangre
/s/ and /tl/	pohtla (ic-)pohsa tlauil saul	bosque lo pica (can not be without object prefix ic-) lámpara deseo

/ʃ/ [ʃ]

Minimal pairs with other alveolar phonemes

/ʃ/ and /t/	ticua xicua topil xopil	tu comes come bastón dedo del pie
/ʃ/ and /n/	nican xican nicua xicua in- ix-	aquí estén como come yo Imp.

/ʃ/ and /s/	mas max ixquisa isquisa	aunque claimer 'sal' (salir) o 'se despinta' le sale sangre
/ʃ/ and /j/	caxani cayani	aflojarse desbaratarse
/ʃ/ and /l/	caxani calani quixnamiqui quilnamiqui	aflojarse sonido de olla enfrentar acordarse
/ʃ/ and /ts/	ipotz ipox titzmol tixmol tlatzin tlaxin tlatzinia tlaxinia	gorditas rellenas de frijol su barriga encino mole con masa tio borrego rasurado pegar (con la mano) esparcir
/ʃ/ and /tʃ/	max mach nixtic nichtic	question marker particle for reported speech, disclaimer gris soy ladron
/ʃ/ and /tɬ/	xali tlali tocatl tocax	arena tierra araña nuestro plato

/h/ [h]

Never appears word initially, or syllable initially.

In reduplications (CVj-), e.g. [eh'ekatl] 'wind', [aj'awil] 'juguete' it closes the reduplicated syllable.

It should really be interpreted as a vowel modification, because people do not think of it as an independent sound. In teaching how to write náhuatl they learn it better if it is taught together with the preceding vowel: i vs. ih, e vs. eh, o vs. uh, a vs. ah.

In Classical Nahuatl the [h] was pronounced [?], and it is called 'saltillo' in linguistic circles, even though today in most variants it is pronounced [h].

Minimal pairs with other velar phonemes

/h/ and /k/	[<i>ohtɬi</i>] [<i>oktɬi</i>]	camino aguamiel
/h/ and /kw/	Contrast in analogous environment ['nikw-] ['konih]	miel (appears with absolute suffix, -tli, nicutli) ellos beben
/h/ and /χ/	[neh] [neχ?] [it'maltiχ?] [it'maltih]	yo allá te bañas nos bañamos
/j/ and nothing	tlacotonal tlahcotonal	un pedazo de algo medio día

/w/	[w]	before a voiceless consonant
	[ww]	word finally
	[w]	elsewhere

Examples where w is realized voiceless:

ihsiuca
icchiutoc
pachiuqueh

Minimal pairs with other bilabial phonemes

/w/ and /p/	uaqui paqui tlauana tlapana	seco/lo seca/secarse alegrarse tomar alcohol partir (en varias partes), romper
/w/ and /m/	uaxin max	guaje acaso

/j/ [j]

Never appears word or syllable finally.

Minimal pairs with other alveolar phonemes

/j/ and /t/	cotoctic coyocitic teh	roto agujerado tu
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	yeh	el
/j/ and /n/	nauí yauí nacatl yacatl	cuatro se va carne nariz
/j/ and /s/	ixposauí ixpoyaui	se le inflama su cara se marea (se hace oscuro)
/j/ and /ʃ/	caxani cayani	aflojarse desbaratarse
/j/ and /l/	ixalo ixayo	su jarro lágrima
/j/ and /ts/	piyauac pitzauc	lleno delgado
/j/ and /tʃ/	ayotl achotl (ix)cholo (i)yolo	caldo/líquido de algo semilla muy chiquita escapate (imp. ix- + cholo ‘escapar’) (su) corazón
/j/ and /tl/	tlauaqui ya uaqui	seco ya se secó

/l/ [l]

Minimal pairs with other alveolar phonemes

/l/ and /t/	-tia -lia cahxitia cahxilia	sufijo, causativo, terminación verbal transitiva sufijo, aplicativo, terminación verbal transitiva cumplir (años) (ajsi ‘alcanza’) le da tiempo (ajsi, ‘alaniza’)
/l/ and /n/	tlanaui tlalaui icpantia icpaltia nican nical	muy gravemente enfermo resbaloso le culpa, decir que fue (lit. se lo pone encima) lo moja aqui su casa
/l/ and /s/	coltic costic	jorobado amarillo

/l/ and /ʃ/	caxani calani quixnamiqui quilnamiqui	aflojarse sonido de olla le enfrenta se acuerda
/l/ and /j/	ixaloh ixayo	su jarro lagrima
/l/ and /ts/	pipitzca pilpica titzauac tilauac	rechina colgado espeso grueso
/l/ and /tʃ/	cali cachi	casa más? corto para ‘ocachi’
/l/ and /tl/	ipatl ipal tocatl tocal	zorrillo (espero) que/(confio) en que ? araña nuestra casa

/ts/ [ts]

Minimal pairs with other alveolar phonemes

/ts/ and /t/	tzicuini ticuini tlatiui tlatziui	corre flamea (fuego) tirar tener flojera
/ts/ and /n/	nontli tzontli	una persona muda cabello
/ts/ and /s/	sintli tzintli sihtzin (omo)sihsin tipotz tipos	mazorca nalgas abuela se jactó (o- and mo- are prefixes) espalda fierro
/ts/ and /ʃ/	ipotz ipox titzmol tixmol tlatzinia	gorditas rellenas de frijol su panza encino mole con masa pegar (con la mano)

	tlaxinia	esparcir
/ts/ and /j/	piyauac pitzauc	lleno delgado
/ts/ and /l/	pipitzca pipilca titzauc tilauac	rechina colgado espeso grueso
/ts/ and /tʃ/	pipichoua pipitzoua	pegar lamer
/ts/ and /tl/	mitl mitz-	maguey pref. obj. 2.sg.

/tʃ/ [tʃ]

Minimal pairs with other alveolar phonemes

/tʃ/ and /t/	(itcon)mati machia	sabe (contraste en entorno análogo) huele
/tʃ/ and /n/	nontli nochtli chantli nantli	una persona muda tuna hogar madre (de alguien indefinido)
/tʃ/ and /s/	ichtli istli	fibra de maguey sangre
/tʃ/ and /ʃ/	max mach nixtic nichtic	partícula de interrogación disclaimer gris soy ladron
/tʃ/ and /j/	-ayotl achotl (ix)cholo (i)yolo	caldo/líquido de algo semilla muy chiquita escapate (imp. ix- + cholo ‘escapar’) (su) corazón
/tʃ/ and /l/	cali cachi	casa más (corto para ‘ocachi’)
/tʃ/ and /ts/	pipichoua pipitzoua	pegar lamer

/tʃ/ and /tɬ/	tliticostic chitlicostic chichiltic tlitliltic	color como anaranjado (calabaza, cuando se pone amarillo al cocer) color amarillo con algo rojo (p.ej. cabello o chile) rojo con manchas negras
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/tɬ/ [tɬ]

Minimal pairs with other alveolar phonemes

/tɬ/ and /t/	titl tltl	piedra fuego
/tɬ/ and /n/	itl in cacalotl cacalon	frijol los, las ,el cuervo tostada
/tɬ/ and /s/	ichtli istli	fibra de maguey sangre
/tɬ/ and /ʃ/	xali tlali tocatl tocax	arena tierra araña nuestro plato
/tɬ/ and /j/	tluaqui Ya uaqui	seco ya se secó
/tɬ/ and /l/	ipatl ipal tocatl tocal	zorrrillo en su confianza (raíz de icpaluia ‘le encarga’) araña nuestra casa
/tɬ/ and /ts/	mitl mitz-	maguey pref. obj. 2.sg.
/tɬ/ and /tʃ/	tliticostic chitlicostic chichiltic tlitliltic	color como anaranjado (calabaza, cuando se pone amarillo al cocer) color amarillo con algo rojo (p.ej. cabello o chile) rojo con manchas negras

Phonetic Inventory - Vowels

	Front	Central	Back
High close	i i:		
Open high			
Mid close	e e:		o o:
Mid open			
Low open	a a:		

/i/ [i]

Minimal pairs with other vowel phonemes

/i/ and /e/	tlauil tlauel atemi atimi	lámpara corajudo se llena de agua piojo
/i/ and /a/	mihmintoqueh mahmantoqueh	están picando (abejas, con prefijo tla-) están parados
/i/ and /o/	nin non	det(1), ‘este’ det(2), ‘ese’

/e/ [e]

Examples of word initial or word final [e] are very rare, e.g. ['elotl̪]
Minimal pairs with other vowel phonemes

/e/ and /i/	tlauil tlauel atemi atimi	lámpara corajudo se llena con agua piojo
/e/ and /a/	tehuan tahuan mixeuia mixauia	nosotros padres se atreve se enjuaga
/e/ and /o/	elotl olotl	elote mazorca seca sin semilla
/e/ and /e:/	icyecoua	<i>‘lo prueba’</i>

icyeecoua *'lo termina'*

/a/ **[a]**

Minimal pairs with other vowel phonemes

/a/ and /i/ mahmantoqueh están parados
 mihmintoqueh están regando (con manguera)

/a/ and /e/ tehuan nosotros
 tahuau padres
 mixeuia se atreve
 mixauia se enjuaga

/a/ and /o/ ticol carbon
 tical casa de piedra
 tlacotl vara
 tlacatl hombre
 tlacoyaua uitar cascara
 tlacayaua engaña

/a/ and /a:/ tokatl araña
 tookaatl nombre
 tooka siembra

/o/ **[o]**

Minimal pairs with other vowel phonemes

/o/ and /i/ non este, det(1)
 nin ese, det(2)

/o/ and /e/ elotl elote
 olotl mazorca seca sin semilla

/o/ and /a/ ticol carbon
 tical casa de piedra (titl + cal)
 tlacotl vara
 tlacatl hombre
 tlacoyaua uitar cascara
 tlacayaua engaña

/o/ and /o:/ tokatl araña

tookaatl	nombre
tooka	siembra

Syllable Interpretation

Unambiguous CVC syllables:

- [mik] ‘mucho’
 [maʃ] question particle, ‘acaso’

Unambiguous CV syllables:

- [ma-] in ['masatɬ] ‘ciervo’
 [so-] in ['sokitɬ] ‘mud’
 [to-] in ['tonal] ‘day’, ‘sun’

Unambiguous VC syllables:

- [-il] in ['tɬail] ‘liquor’
 [-ol] in ['tɬaol] ‘corn’
 [-ah-] in [o'ahsik]

Apparently most VC syllables occur word finally.

Ambivalent sequences:

[ts], [tʃ], [tl], and [kw] are interpreted as single units representing one consonant, as
 [ts̩], [tʃ̩], [tl̩], and [kʷ].

[tsi' naka?] CV.CV.CVC [ts] = C = [ts̩] because there are no
 unsuspicious CCV
 syllables [tsi' naka?]

['tɬakatl] CV.CVC [tl] = C = [tl̩] because there are no
 unsuspicious CCV or CVCC clusters ['tɬakatl̩]

[tʃa' pulin] CV.CV.CVC [tʃ] = C = [tʃ̩] because there are no
 unsuspicious CCV
 syllables [tʃa' pulin]

['kwalli?] CV.CV.CVC [kw] = [kʷ] because there are no
 ['kʷalli?]

			unsuspicious CCV syllables
[i'tookaa]	V.CV.CV	[aa] = [a:] [oo] = [o:]	because the stress is always on the penultimate syllable in Nahuatl, and here it is on the o.
[tla'tzakwiil]	CV.CV.CVC	[ii] = [i:]	because the stress is on the a.
['t'opan]	CV.V.CVC	[i'o] = [io]	because the stress is on the penultimate vowel o.

CCC patterns are prevented:

['natzkwa] would with the durative suffix normally become *[natzkw] –toc, ['natzkw] being the perfective stem. To prevent a CCC pattern, though, in this case the final a is not deleted, as it normally is, but an [h] is added (to make it a perfect stem) resulting in a permissible CC pattern, each C belonging to a different syllable.
[natz'kwahtok], not *[natzkwtok]

Adaptations of Spanish loans to SMT Nahuatl also show that CVC syllables are the maximum syllables permitted. Syllable heads or codas with clusters of two C are adapted to the Nahuatl syllable pattern by Epenthesis, e.g.

Cristianos → Kiristianos

Even clusters of two C that belong to different syllables are adapted by Epenthesis if they are two consonants that are hard to pronounce for Nahuatl speakers because they are not in the Nahuatl consonant inventory:

pobres → porobes (Epenthesis and Metathesis)

Ambivalent segments:

Through syllable interpretation [j] and [w] are confirmed to be consonants.

['jowal]	CV.CVC	[w] = C = [w]	because there are no unsuspicious VVV sequences	['jowal]
		[j] = C = [j]	because there are no unsuspicious VV sequences	['jowal]
['miʃ̪t̪i?]	CVC.CV	[i] = C = [i]	because it is the nucleus of the syllable	['miʃ̪t̪i?]

Unambiguous V syllables:

[i] in [i'ihti?] ‘su estómago’ V.VC.CV

Both i are syllable nucleuses, the first i- is the possessive prefix 3 p sg., the second i belongs to the root. They are audibly two syllables, the stress is on the second i, because it is the nucleus of the penultimate syllable, which is regularly stressed in Náhuatl.

also:

[i] in [i'eso?] ‘su sangre’ V.V.CV

There are no word final V syllables. They appear only word initially as prefixes, stem initially, or as the second syllable of the stem when the first vowel of the stem is reduplicated, like in [eh'eket̪]

There are VV sequences:

[i'eso?] su sangre

[inmiito'nia?] sudo repetidamente (the i is reduplicated, there is no glottal between the two i, the stress is on the i in the penultimate syllable ni.)

Distribution

Consonants that can stand syllable initially:

/p/	pitlatl	Petate
/t/	totonqui	caliente
/k/	costic	amarillo
/kw/	cuitlaxtli	piel
/m/	mostla	mañana
/n/	nochtli	tuna
/s/	sisic	frío
/ʃ/	xoxo	tono
/w/	uitztlí	espina
/j/	yalua	ayer
/l/	motlaloua	él corre (but no word initial /l/ has been found)
/ts/	tzotzocol	clay jug in which to carry water
/tʃ/	chichic	amargo
/tl/	tlatla	se quema

Consonants that can not stand syllable initially: /h/

Consonants that can stand syllable finally:

/p/ uatzap mora

/t/	onicmat	lo sentí
/k/	tliltic	negro
/kw/	onictzacu	lo cerré
/m/	campa	donde (por un proceso morfológico, canih ‘dónde’ and –pa (locative). El proceso no es activo, la gente no es consciente de que la palabra consiste de dos morfemas).
/n/	tzocotzin	un poco
/s/	oquitlas	lo arrojó
/ʃ/	palax	podrido
/w/	onicou	compré
/l/	ticol	tisne
/ts/	oquiuatz	lo secó
/tʃ/	mach	disclaimer particle
/tl/	tlitl	fuego

Consonants that can not stand syllable final: /j/, /m/ (apart from morphophonemic processes)

Vowel length

There are not very many examples of length, it does not carry a lot of functional load. We write it just in exceptional cases, where there are minimal pairs of words based on the length of the vowels, in order to differentiate clearly between the words. In the case of words that have long vowels but no minimal pair based on the vowel, people easily recognize from the context that the vowel needs to be pronounced long.

(i)toocaa	‘(su) nombre’
tooca	‘plantar’ (ya no lo usamos para enterrar)
toca	‘seguir’
toocaatl	nombre
tocatl	araña
intlatia	‘yo quemo’
intlaatia	‘yo escondo’
icmoqueentih toc	la e es larga, pero no hay par mímimo
icyecoua	‘lo prueba’
icyee coua	‘lo termina’
tlaatzin	‘tio’
tlatzin	‘golpe’
ontlahtlanito se ichpocatl	‘fui a preguntar una muchacha’
ontlahtlaniito se ichpocatl	‘fui a pedir la mano de una muchacha’

[*jo:wa:k*] ‘se secó’ (no lo reflejamos en la ortografía aunque tiene par mínimo con vocales cortas, porque el sentido es tan diferente, y hasta son diferentes categorías de palabras (verbo y sustantivo), que se nota claramente por el contexto de qué palabra se trata)

[*jowak*] ‘noche’

tlatzakwil ‘obstáculo’

tlatzakwiil ‘castigo’

[*inmi:to'nia?*] ‘sudo’ (no lo reflejamos en la ortografía, porque no hay palabra con i corta que forma par mínimo con esta palabra)

[*inmiito'nia?*] ‘sudo otra y otra vez’ (repetidamente)

Vowel reduplication

There is syllable reduplication of V and CV syllables, which grammatically can indicate repetition of an action, intensity, etc. In some cases it follows the pattern Vh.V, or CVh.CV, in other cases the syllable is reduplicated without adding a glottal fricative, V.V, or CV.CV. If the reduplicated syllable consists of a single vowel and no glottal fricative is added, orthographically the reduplicated vowel is written in the same way as a long vowel, but it is pronounced differently. The reduplicated vowel audibly consists of two syllable nucleuses, receiving two stresses, while the long vowel is audibly one long vowel.

queua *lo recoge ,lo guarda, lo levanta queheua ‘recoge tlaol’*

queeuā *enrollar , this is a reduplicated vowel, not a long vowel, the stress is on the second e*

[*inmi:to'nia?*] ‘sudo’ this vowel is long

[*inmiito'nia?*] ‘sudo otra y otra vez’ (repetidamente) this vowel is reduplicated

Stress

Words with more than one syllable usually have the stress on the penultimate syllable. If the root has only one syllable, and the word has a prefix, the stress is on the prefix.

[*'ipox*] ‘su barriga’

[*'nowan*] ‘with me’

[*'ipan*] ‘above it’

There are some postfixes that are not counted, though, like the absolute suffix *-tli*, locative suffix *-co*, plural suffix *-ten*, and *-qui* which makes verbs into nouns. When a word ends on these postfixes, the stress is on the antepenultimate syllable.

[<i>mahtlaktli?</i>]	'five'
[<i>tilmahtli?</i>]	'cloth'
[<i>a'johwitstli?</i>]	'squash seed'
[<i>tla'tzokwelko?</i>]	'place where the soil is uneven'
[<i>tlah'pijalten</i>]	'domestic animals / horses'
[<i>t'opiski?</i>]	'sacerdote', lit. 'templehaver'
[<i>tsi'bohpiiski?</i>]	'sheperd', lit. 'goathaver',

Words borrowed from Spanish that do not have penultimate accent in Spanish do carry penultimate accent in SMT Nahuatl, like

[<i>doktor</i>]	'doctor'
[<i>kahfen</i>]	'café'
[<i>kolal</i>]	'corral'
[<i>biskal</i>]	'fiscal'
[<i>relok</i>] [<i>relos</i>]	'reloj'

Procesos morfológicos

m -> n / _ t

[<i>nih'nimi</i>]	[<i>nih'nintok</i>]
[<i>tlakentli</i>]	[<i>tlakentli</i>]

m-> n/ _syllable finally

(but n -> m / _ p morphophonemic rule 2)

If roots lose their last vowel and /m/ appears at the end of a word without a suffix to follow, the /m/ becomes /n/, e.g.

Presente	Pasado
[<i>in'tلامي</i>]	[<i>o'nitlan</i>]
[<i>tlawi'tomi</i>]	[<i>otla'witon</i>]

n -> m / _ p

it + c + on + piya	-> [<i>itkom'pija</i>]
in + pampa	-> [<i>im'pampa</i>]

nan + poui + h -> [nam'powih]

n -> n̪ / _ k
itenco [i'ten̪ko] 'su orilla'

n -> m / _#V

[itkimom'pija?]	it + quin + on + piya
[otkimowal'kawtew]	o + t + quin + on + ual + cau + teu
[itkimom'pija?]	it + quin + on + piya
[okimahsiqueh]	o + quin + ahsı + queh
[okim'iluih]	o + quin + iluia + h
[o'kimeuŋ]	o + quin + eua + raíz perfectiva cortada
[nimalti'peuan]	nin + altipe + uan
[nim'ohui?]	nin + oh + ui
[nim'iluiuŋ]	nin + ilui + u
[namik'niuan]	nan + icni + uan
[otkim'altih]	o + t + quin + a + ltia + raíz perfectia

But:

[itkon'ana?]	it + c + on + ana
[otkon'iluih]	o + t + c + on + iluia + raíz perfectiva

Further investigation is needed to determine why the rule holds in some cases, but not in others. I think it depends on the prefix, some do it, others, like on- (honorific) don't.

Also, first person sg. subject prefix n- never changes before a vowel, e.g.

[nelmoyaui] n + elmoyaui 'me mareo'.

n -> O / _w (optionally, when spoken slowly the n is audible)

n -> O / _y (Before approximants. Is optional, when spoken slowly the n is there.)

[otkimowəlkawteww]	o + t + quin + on + ual + cau + teu
[oto'walah]	o + t + on + uala + h
[itnetʃo'wikas]	it + nech + on + uiaca + s
[namo'jaweh]	nan + on + yaue + h
['tojoh]	t + on + yoh
[inkijektlia?]'	in + quin + yec + tlalia

w/kw -> w/kw / _ C

[-voiced]

the following orthographical u and cu are all voiceless:

ihsiuca	'rápido'
nicutli	'miel'
icchiutoc	'él está haciendo'

pachiuque	' lleno'
xiumeh	' años'
sicunotl	' huérfano'

C + C -> i is introduced

x- + *tlali* -> *ixtlali*

x- + *ehco* ->*xehco*

Some subject and object prefixes consist of only one consonant, for example *n-* (subj. 1st sg), *t-* (subj. 2nd sg and 1.pl.), *c-* (def. obj. 3rd sg.), and also the imperative prefix *x-*.

Most often they precede a prefix or a root that starts with a consonant. In order to maintain the permitted syllable pattern (CVC as a maximum) an *i* is introduced before or after the consonant, thereby forming a syllable. In most cases the syllable does not carry the stress, and in that case the *i* is introduced before the consonant, e.g.

itquimpiya

incowa

ictlalia

If, however, the syllable carries the stress, the *i* is introduced after the consonant, e.g.

quicua

oquipix

niyoh

ticah

icpixtoc / oquipix

iccuauhtoc / quicuas

icchiuas / oquichiu

iccuítoc / quicui

ictohtoc / oquihtoh

The definite 3rd person sg. object prefix El *c-* is a special case. If no prefix comes before the *c-*, an *i* is added in order to complete the syllable. This is the same process as with the other prefixes that consist of only one consonant, as indicated in the examples above.

However, if the *c-* comes between two consonants, in order to maintain the allowed syllable structure, no *i-* is added, but the *c-* is suppressed. The *c-* only appears if the prefix that comes before it ends in a vowel, or if the prefix or root that comes after it starts with a vowel, with which it then forms a syllable.

E.g.

<i>itniqui</i>	'quieres'	<i>t + (c) + niqui</i>
<i>itconniqui</i>	'Ud. quiere'	<i>t + c + on + niqui</i>
<i>itnalita</i>	,tú ves de lejos'	<i>t + (c) + nal + ita</i>
<i>itquita</i>	,tú ves'	<i>t + c + ita</i>
<i>itconi</i>	'tú bebes'	<i>t + c + oni</i>
<i>incana</i>	'lo tomo'	<i>n + c + ana</i>
<i>intzacua</i>	'la ciervo'	<i>n + (c) + tzacua</i>
<i>onictzacu</i>	'la cerré'	<i>o + n + c + tzacu</i> (stressed <i>n-</i> becomes <i>ni-</i> , not <i>in-</i>)

Only in the case of *nan-* + *c-* + *C* the last *n* of *nan-* is suppressed instead of the *c-*, in order to maintain the maximum permitted syllable pattern.

nan (subj 2.pl) + *c* + (syllable limit) *C* -> *nac* + (syllable limit) *C*

nan + c + milowaj-> nacmilouah

pero:

nan + c + on + milouah -> nanconmilouah

nan + c + on + cuah -> nanconcuah

In this morphophonemic process *w* can act as a consonant or as a vowel, se puede comportar como consonante o como vocal, optionally *c-* dropped or stays and the /k/ + /w/ is reinterpreted as /kw/.

<i>in- c- ual- cuah -teua elotl</i>	‘acabo de comer elote’
<i>in- (c)- ual- cuah -teua elotl</i>	‘acabo de comer elote’

<i>ic- uilana / c- uilana</i>	‘lo jala’
<i>ic- ualuilana/ c-uwaluilana</i>	‘lo jala’ (con prefijo wal-)
<i>ic- uitiqui / c- uitiqui</i>	‘lo pega’
<i>ic- ualuitiqui / c- ualuitiqui</i>	‘lo pega’ (con prefijo wal-)

ta -> ts / _ + t (between stem and postfix, i.e. before a morpheme break)

<i>inquita + toc</i>	<i>inquitztoc</i>
<i>intlaocolita + toc</i>	<i>intlaocolitztoc</i>
<i>inquixnicilita + toc</i>	<i>inquixnicilitztoc</i>

ya -> ix / ?_ + t

<i>icpiya+ toc</i>	<i>icpixtoc</i>
	<i>quipipix</i>
<i>tlaocoya + toc</i>	<i>tlaocoxtoc</i>
	<i>tlaocox</i>
<i>tlachiya + toc</i>	<i>tlachixtoc</i>
	<i>tlachix</i>

s -> x / _ i (but not always)

<i>otontis</i>	<i>o + t + on + tis</i>
<i>inquintixiliya</i>	<i>o + quin + tis + ili + ya</i>
<i>incahxitia</i>	<i>in + c + ahs + tia</i> (Pero: <i>itcahsitiu</i> <i>it + cahsi + tiu</i>)

ts -> tʃ / _ i (sometimes)

<i>mitzmanochilia</i>	<i>mitz + mo + notz(a) + ilia</i>
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The variation between *tz* and *ch* in *tzokotzitzin / chokochichin* ‘small’, does not show fluctuation, because it does not happen in other words and surroundings. It seems to be a playful children-talk.

<i>ictzacua</i>	but not	* <i>icchacua</i>
<i>tzinaca</i>	but not	* <i>chinaca</i>

There is variation between *tz* and *ch*, though, between different Nahuatl varieties and within the same variety. Tenango *tzinaca* ‘bat’, Mexikanero *chinacat* ‘bat’. And Tenango *tzictli* ‘pegajoso’ and *chictli* ‘chicle’.

It seems that some verb stems begin with [h]. Further investigation is necessary when the glottal fricative shows and when it is suppressed.

Examples:

radical	con obj.indef.	con obj. def.	con durativo
htoua ‘decir’	tl-a- htoua	qui- htoua / ic- toua	ic- toh -toc
htzoma ‘coser’	tl-a- htzoma	qui- htzoma	ic- tzon -toc

Proclitic

The article *n* attaches to a noun if it starts on a vowel, for example
n + itzcuintli -> *nitzcuintli*

If the noun starts on a consonant, an *i* is inserted before the *n*, and it forms an independent word of one syllable, for example
n + miston -> *in miston*

In that case *in* has to be seen as an independent word, because it never receives the stress, even if the noun consists of just one syllable, as in *in titl* ‘the stone’. If *in* were a part of the noun, it would receive the stress.

If the word that follows does not start on a vowel, but the preceding word is the Spanish loan *de*, the article leans on this word -> *den*. It never attaches to preceding Nahuatl words, all Nahuatl words end on a consonant or on a glottal stop (which is non phonemic).

Adaptations of loan words

Adaptation of syllable patterns through Epéntesis, prevention of sequences of two consonants in a syllable head or coda:

Cristianos	Kiristianos
pobres	porobes

Adaptation of non-Nahuatl sounds:

f -> b/w

fiscal	biscal
Fernanda	Bernanda
fuerza	ikchiua wuerza
foco	boco
café	[kəjfen] / ['kajfen]
refresco	rehresco

rr -> l

corral	colal
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j -> k/s

reloj	[relok] / ['rellos]
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stress adaptation, loans are stressed on the penultimate syllable:

doctor	[‘doctor]
café	[‘kajben] / [‘kajfen]
Gaspar	[‘Gaspar]
reloj	[‘relok] / ['rellos]
Zacatlán	[sa'katlan]