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## **The 4-M Model and Convergence in Modern Nahuatl<sup>2</sup>**

### **Abstract**

Almost 500 years of constant contact with the Spanish language have influenced Mexican indigenous languages and their speakers in many different ways, and Nahuatl language makes here no exception. Apart from code-switching and massive borrowings (that include, for instance, core vocabulary and function morphemes), the convergence processes can be clearly found in many modern varieties of Nahuatl language as a step that can be observed next to a process of language shift. The present contribution investigates and examines the convergence process in Nahuatl language within the 4-M model (described in detail in Myers-Scotton & Jake 2000) in order to test the claim that this model can be applied to different kinds of contact language phenomena other than code-switching. This model distinguishes four morpheme types which do not participate equally in language contact phenomena. Some of them, for example, show retention, while others easily undergo an external change. The investigation discussed in the article was carried out in the city of San Sebastian Zinacatepec which is situated in southeastern Puebla in Mexico.

*Keywords:* 4-M model, morphemes, convergence, Nahuatl, language shift.

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## Introduction

Convergence, also denominated by certain authors as *interference* (Muysken 2004; Thomason & Kaufman 1988) or *static interference* (Grosjean 1990), refers to invisible changes in the structure of a language as a consequence of language contact in unstable and asymmetrical bilingual communities. In situations when social, political and/or economical pressure exist, one of the languages (the dominant one) serves as the model for structural changes in the other, and in a certain way, convergence can be considered a kind of borrowing at the abstract level of language. Myers-Scotton (2006: 271) defines it as “speech by bilinguals that has all the surface-level forms from one language, but with part of the abstract lexical structure that underlies the surface-level patterns coming from another language.”

However, it is not the structure of the languages in question what determines the results of the linguistic contact, but the sociolinguistic history of its speakers, as Thomason and Kaufman (1988) have pointed out. One of the problems in studying convergence is finding reliable criteria for distinguishing internal vs. external language changes. According to Thomason and Kaufman (1988: 6), external explication is appropriate when we can identify the source. For example, in directional construction in Nahuatl, the opposition between non-past and optative forms has been lost, which probably has nothing to do with Spanish, but what can undoubtedly be attributed to the Spanish influence is the use of periphrastic *ir a + infinitive* (only in present or future) to maintain distinction between those forms.

(1) *Niyas domingo nitlanamakati tiánkistle.*

Ni-ya-s-ø domingo ni-tla-namaka-ti-ø tiánkis-tle.<sup>3</sup>

1.sg.S-go-FUT-sg Sunday 1.sg.S-OBJ.indef-sell-DIR-sg market-ABS

“On Sunday we’ll go to the market to sell.”

(2) *Tiyawi titlanamakatiwe.*

Ti-yawi-ø-ø ti-tla-namaka-tiwe.

1.pl.S-go-PRES-pl 1.pl.S-OBJ.indef-vender-DIR.pl

“We’re going to merchandise.”

It’s worth of mentioning that this periphrasis is not used for the past of directional construction:

(3) *Okawato nikone.*

O-ø-kawa-to-ø ni-kone-ø

AUM-3.SUJ-abandon-DIR.ext-sg 3.sg.POSS-son-sg

“She abandoned her son.”

### 1. Morpheme classification: The 4-M model

The 4-M Model (Myers-Scotton & Jake 2000) is a morpheme classification whose starting point was a distinction between content and system morphemes within Myers-Scotton’s *Matrix Language Frame*

3 Observe the use of absolutive instead of locative.

Model (1993), one of the models proposed to account for code-switching. Content morphemes transmit meaning, such as nouns, verbs, adjectives, some prepositions, while system morphemes indicate relations between content morphemes, such as functional and derivational morphemes. The formal classification is based on the combination of two sets of features [+/- Quantification] and [+/- Theta Roll-Receiver], [+/- Theta Roll-Assigner]. All categories with deictic function, *i.e.* those with feature [+ Quantification] are system morphemes. They all “involve quantification across events (tense, aspect) [...] or individuals (determiners, quantifiers, possessives)” (Myers-Scotton 1993: 100). The rest of morphemes (*i.e.* those which are [- Quantification]) can be content morphemes, but only if they either assign or receive thematic roll (Myers-Scotton 1993: 100).

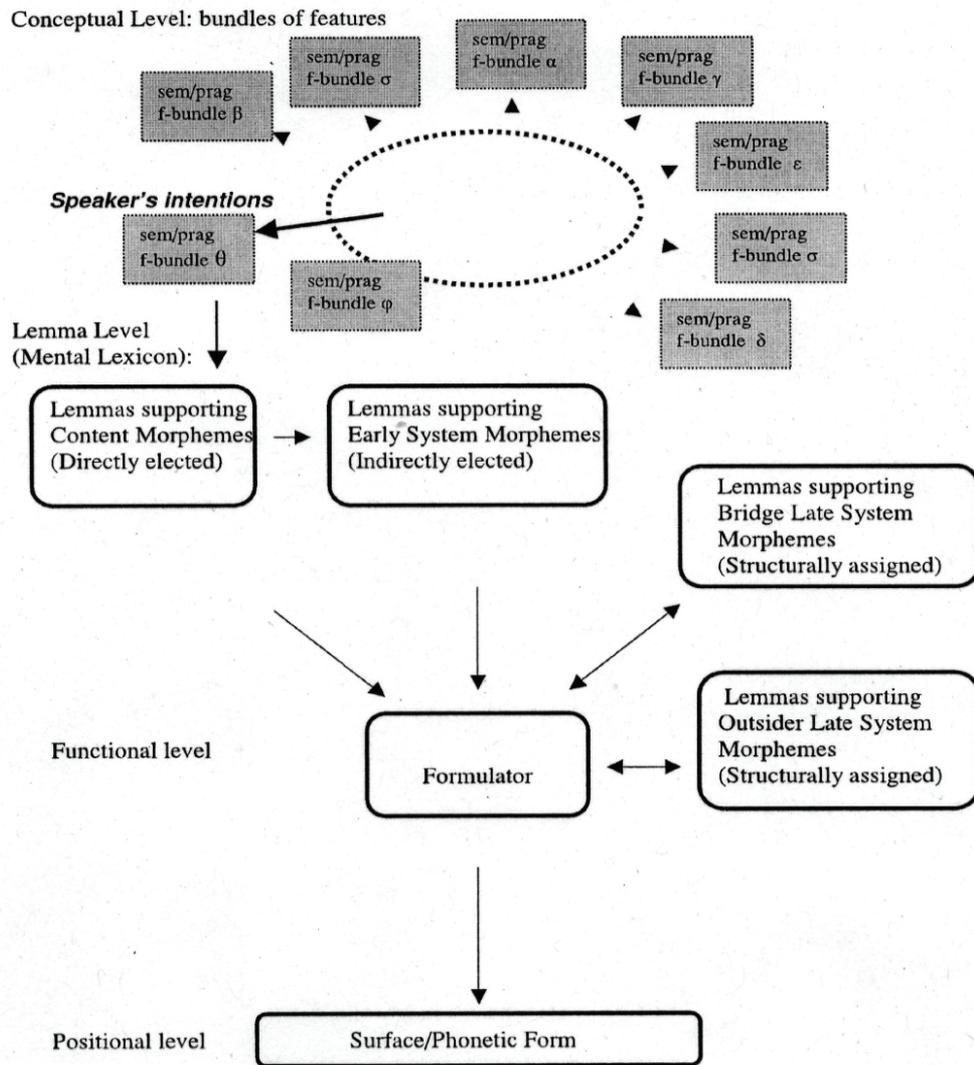


Figure 1. Language production model (Myers-Scotton & Jake 2013: 6)

This basic distinction was further developed by Myers-Scotton and Jake (2000) into the 4-M model, which relies on the *Differential Access Hypothesis* that states: “relevant information in lemmas supporting

surface-level morphemes does not all become salient at the same level of language production” (Myers-Scotton 2006: 268). Some morphemes are conceptually activated at the lemma level, such as *content* and *early system morphemes*. The difference between them, besides the fact that the earlies, like all system morphemes, don't receive nor assign thematic roll, is that the content morphemes are directly elected by the speaker's pragmatic and semantic intentions, while the early system morphemes are indirectly elected by their head, *i.e.* content morpheme.

There are also morphemes which become salient at the later level of language production, the reason for which they are called *late system morphemes*. They contain linguistic information about the formation of constituents and are structurally assigned at the level of formulator. Amongst them, Myers-Scotton and Jake (2000) distinguish so called *bridges*, which serve to integrate content morphemes into constituents and whose form depends on grammatical information within their maximal projection, and *outsider system morphemes*, which “make the argument structure in a clause transparent” (Myers-Scotton 2008: 26). For their form, they have to look outside their maximal projection. Graphic representation of morpheme classification and their activation at different abstract levels of language production is shown in Figure 1.

According to Myers-Scotton (2008), morpheme types participate in related ways in language-contact phenomena, so the asymmetry between morphemes found in code-switching can also be applied to convergence (and other language-contact phenomena as well). The Differential Access Hypothesis is of crucial importance for predicting externally-motivated change. As Myers-Scotton (2008: 31) states “those elements and patterns that arise because of the speaker's intentions regarding semantic and pragmatic messages are most likely to show convergence and other types of changes that involve substitution, reconstitution, or loss.” What follows is that these four morpheme types won't be equally affected by language-contact phenomena and that the morphemes activated at the early stage of language production (*i.e.* content and early system morphemes) are open to change, while late system morphemes are supposed to be more resistant to convergence due to their abstract nature. In the following sections, this claim will be tested on Nahuatl.

## 2. Convergence affecting content morphemes in Nahuatl

Content morphemes represent a fertile area for change for their conceptual activation at the lemma level. One of the earliest testimonies of lexical convergence in Nahuatl is found in verb *piya*, originally ‘to keep,’ which acquired the meaning of ‘to have’ after the Spanish conquest, approximately between 1540–1545, according to Lockhart (2001).

(4) *Nikpiya se compromiso.*

Ni-k-piya-ø-ø se compromiso

1.sg.S-3.sg.OBJ-have-PRES-sg DET engagement

“I have an engagement.”

Changes in subcategorization frame following Spanish model are very common in modern Nahuatl. For example, the verb ‘to be called,’ intransitive in Classical Nahuatl (hereafter CN), appears as reflexive in modern Nahuatl varieties (*cf.* Olko & Sullivan 2014; Hill & Hill [1986] 1999).

- (5) *Ninotoka Angélica.* vs. *Nitoka* (Classical Nahuatl)

Ni-no-toka- $\emptyset$ - $\emptyset$

1.sg.S-1.sg.REFL-*to be called*-PRES-sg

“My name’s Angélica.”

Spanish reflexive verb *enojarse* (‘to get angry’) corresponds to *cualani*, intransitive verb according to the dictionaries of Molina ([1555] 2004) and Siméon (2007), so in the case of convergence the expected form would be like *ninokwalani* for *me enojo* (‘I’m angry’), which is attested in El Malinche Nahuatl as *ōmocualānihqueh* (Hill & Hill [1986] 1999: 325). Nevertheless, in San Sebastian Zinacatepec the unexpected form *yonechkwálanke* is registered, probably because of the confusion between 1st person sg of direct object and 1st person sg of reflexive, which have the same form in Spanish (*me*). Yet, I cannot fully claim that this particular example has already entered general use, since it appeared in my data only once in 1st person sg, so there’s a possibility that this is not convergence, but interference.

- (6) *Axa nikchias ma wiki, yonechkwálanke.*<sup>4</sup>

Axa ni-k-chia-s- $\emptyset$  ma  $\emptyset$ -wiki- $\emptyset$ - $\emptyset$ , y-o- $\emptyset$ -nech-kwálan-ke- $\emptyset$

ADV 1.sg.S-3.sg.OBJ-*wait for*-FUT-sg OPT 3S-*come*-PRES-sg already-AUM-3.S-1.sg.OBJ-*get angry*-PRET-sg

“Now I’m going to wait for him to come, I’ve already got angry.”

Generally speaking, the use of reflexive pronoun with transitive verbs serves to hide the agent of the action. However, the verb *chiwa* ‘to do’ with reflexive *-mo-* developed the meaning of ‘to become,’ following Spanish *hacerse* (cf. Flores Farfán [1999] 2012a) *omochi nonovio* ‘he became my boyfriend’ (Petrović 2016a), or *omochi tunto* ‘he acted/became stupid’ as Tuggy (1979: 22) registered.

The example of convergence affecting nouns is represented by *chantli* ‘home,’ which in its possessive form used to have locative meaning (the reason for which Launey (1992) considers it “autolocative”), as can be observed in (7). However, the locative meaning of *chantli* has disappeared, so nowadays it is used with a preposition, just like any other noun (*itech nocha* in (8)).

- (7) *Nochan xicalaqui.*

“Come in into my home.” (Launey 1992: 120)

- (8) *Ne niknamaka tláxkalle nika, itech nocha.*

Ne ni-k-namaka- $\emptyset$ - $\emptyset$  tláxkal-le por kilo nika itech no-cha- $\emptyset$

1.sg.PRON 1.sg.S-3.sg.OBJ-*sell*-PRES-sg *tortilla*-ABS P N DET P 1.sg.POSS-*home*-sg

“I’m selling tortilla here, at my home.”

The calques, *i.e.* literal translations of entire phrases coming from the model language, are another illustration of convergence in content morphemes. For instance, *ompa tiyawí*<sup>5</sup> corresponds to Mexican

4 Observe the absence of subject prefix *ni-*.

5 For more examples of calques in Nahuatl, see Flores Farfán ([1999] 2012a).

Spanish colloquial expression *ahí vamos*. It should not be understood literally as ‘we’re going there,’ but rather as ‘we’re struggling to make a better future.’

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(9) *Ompa tiyaw iwa nopilwa.*

Ompa ti-yawi iwa no-pil-wa

ADV 1.pl.S-go.PRES.pl P 1.sg.POSS-child-POSS.pl

“We’re struggling with my kids to make a better future.”

Kinship terminology has suffered erosion. For example, a classical Nahuatl *noyacapantzin* ceded to *noprimerchokotsi*, a literal translation of Spanish *mi primer hijo* (‘my first-born child’) (Petrović 2012).

(10) *Noprimerchokotsi*

No-primer-choko-tsi-ø

1.sg.POSS.-NUM-son-DIM-sg

“My first-born child”

A tendency toward more analytic forms can also be observed in *amo nikpiyas tiempo* after Spanish expression for ‘I don’t have time,’ while *amo maxilia* is still used in more conservative Nahuatl.

### 3. Convergence and early system morphemes

Early system morphemes are all those morphemes activated conceptually at the lemma level, whose form depends on the content morpheme that selects them indirectly (such as the plural of nouns, determiners, *etc.*). Examples of convergence in early system morphemes are numerous and they include various mechanisms of change, such as addition or loss of categories, sometimes accompanied by reinterpretation and syntagmatization, or even by change in markedness (in syntactic order, for example). According to Winford (2003: 96):

The addition and loss of morphological categories often depend on functional constraints. There are cases where a category present in one of the languages in contact is absent in the other(s). Depending on the direction of influence, such mismatches may lead either to the addition of a new category to the language that previously lacked it, or to its loss in the other.

Weinreich ([1953] 1968) was the first to observe that zero morphemes tend to be substituted by the overt ones. Starting from this point, Winford (2003: 96) formulated a morphological restriction for borrowings, which can also be applied to convergence, and which states that “the existence of gaps in the morphemic inventory of a recipient language facilitates the importation of new morphemes and functional categories from a source language.”

Such was the case of indefinite article in Nahuatl. The importation of this category by means of reinterpretation of already existent *se* (numeral ‘one’) is an obvious consequence of Spanish influence (in Spanish ‘one’ is *uno*, while the indefinite article has the form of *un, una*): *se tlakatl* ‘a man.’ Flores Farfán (2004: 92) considers that “the identification of *see* as the indefinite article has contributed to the erosion of classifying system in Nahuatl.”

Nahuatl suffix *-s*, originally the future marker, was reinterpreted as infinitive, an inexistent category in CN. It appears as a complement of the preposition *para* (*para nitlapakis* ‘to wash,’ *para nikisas* ‘to go out’) or as a verb complement:

(11) *Nikneki nikisas iwa ye.*

Ni-k-neki- $\emptyset$ - $\emptyset$  ni-kisa-s- $\emptyset$  iwa ye

1.sg.S-3.sg.OBJ-want-PRES-sg 1.sg.S-go out-FUT-sg P 3.sg.PRON

“I want to go out with her/him.”

The pluralization of inanimate nouns is another evidence of Spanish influence over Nahuatl. In CN, only animate nouns could be pluralized, with few exceptions, as the names for stars, mountains and stones, which were considered animate entities in their cosmovision (Launey 1992). As Lockhart (2001) and Karttunen and Lockhart (1976) state, the change in pluralization started in the third phase of contact, approximately around 1640–1650, allowing not only native (nahuatl) suffixes (*regidor-me*), or the Spanish ones (*regidor-es*), but also their combination (*regidor-es-me* or *regidor-es-tin*) (Lockhart 2001: 122).

In modern Nahuatl dialects, the plural has been extended to inanimate nouns, just like in Spanish. The category [+/- animate] has been substituted by [+/- countable], so we can hear examples such as *omeme* ‘bones,’ *ihwime* ‘feathers,’ *yolome* ‘hearts,’ *kwame* ‘trees.’ On the other hand, these forms coexist with conservative ones in the speech of balanced or Nahuatl-dominant older/middle-aged bilinguals (*ome tlakotl* ‘two sticks,’ *miyak tláxkalle* ‘a lot of tortillas’).

The process of structural accommodation between these two languages is also reflected in the loss of certain categories in Nahuatl which do not exist in Spanish as, for example, is the case of directional prefixes *on-/wal-*. They are considered early system morphemes because they modify the meaning of the verb by adding spatial information of distance or closeness.

Also, the distinction between indicative/vetative-optative negation *amo* vs. *makamo* registered in colonial “artes,” *i.e.* grammars of the Nahuatl language, has been reduced to one – *amo* (*cf.* Flores Farfán 2004). This might be attributed to Spanish influence, since in Spanish all verbs in negative form are preceded by *no*, regardless of tense or mood.

(12) *Amo xikchiwa.*

Amo xi-k-chiwa- $\emptyset$ - $\emptyset$

NEG 2.S.IMP-do-PRES-sg

“Don’t do it.”

Possessional suffixes *-huâ* (pl. *-huâquê*), *-ê* (pl. *-êquê*) ‘the owner of’ (Launey 1992), have got eliminated as well, but unlike the previous case, not without leaving a trace. Instead, the construction with verb *piya* is used, which is a direct syntactic calque and an example of what Flores Farfán (2004: 86) calls syntagmatization, *i.e.* “a trend in which incorporation is disfavored and syntactic constructions are preferred.”

(13) *Nikpiya se notiendatsi.*

Ni-k-piya- $\emptyset$ - $\emptyset$  se no-tienda-tsi- $\emptyset$

1.SUB.sg-3.DO.sg-have-PRES-sg DET 1.sg.POSS-shop-DIM-sg

“I have a small shop.”

- (14) *Lupe kipiya siete ikonewa.*  
 Lupe Ø-ki-piya-Ø-Ø siete i-kone-wa  
 Lupe 3.SUB.sg-3.DO.sg-*have*-PRES-sg NUM 3.POSS.sg-*child*-POSS.pl  
 “Lupe’s got seven children.”

#### 4. Convergence and late system morphemes

It has already been said that late system morphemes become salient at later levels of language production than the earlies, *i.e.* at the level of formulator and that they are structurally assigned. Two types of late system morphemes can be distinguished: *bridges*, which serve to join phrases to larger constituents (such as possessive “of” (*de* in Spanish), the complementizers and the relativizers) and the *outsiders* which participate in argument structure.

In classical Nahuatl, the complementizers had a form of a zero morpheme, which was substituted, through direct importation (*i.e.* borrowing), by Spanish *que* (as in (15)), but only in Spanish dominant bilinguals. Balanced or Nahuatl-dominant bilinguals still use zero morpheme instead (16).

- (15) *In teópixke kihtoa que topapahwa kintlakitaske.*  
 In teópixke ø-k-ihtoa-ø-ø *que* to-*papah*-wa ø-kin-tlakita-s-ke  
 DET *priest* 3.sg.S-3.sg.OBJ-*say*-PRES-sg COMP 1.pl.POSS-*parent*-POSS.pl 3.sg.S-3.pl.OBJ-*respect*-FUT-pl  
 “The priest says that we should respect our parents.”
- (16) *Entons, kihtoa neká omotransformaro, omóketske de ik itsonteko.*  
 Entons, ø-k-ihtoa-ø-ø neká ø-ø-mo-transformaro-ø-ø, ø-ø-mó-kets-ke<sup>6</sup>-ø de ik itsonteko  
 3.S-3.sg.OBJ-*say*-PRES-sg DIM AUM-3.S-REFL-*transform*- PRET-sg AUM-3.S-REFL-*pararse*.PRET-PRET-sg de con 3.sg.POSS-*head*  
 “So, it is said (that) that guy transformed, (that) he stood (up) on the top of his head.”

Possessive *de* (“of”) was also introduced into Nahuatl, but not without consequences. Typical possessive construction in Classical Nahuatl consisted of Genitive-Nominative, *i.e.* “my neighbor’s”-“her daughter,” as given in (17a). This order is still maintained in conservative Nahuatl (17b), whereas in more Hispanized varieties, the presence of Spanish possessive *de* caused reordering within the possessive construction (Nominative-Genitive) as in (17c).

- (17)
- a. *My neighbor’s her daughter*  
 Genitive      Nominative
  - b. *No-vecina i-chpoch* (conservative Nahuatl)  
 my-neighbor’s her/his-daughter

6 In this example, *-ke* is not a preterit plural marker, but an allomorph of a participle *-k*. Singular is indicated by stress change to antepenultimate syllable (*cf.* Petrovic 2016b).

- c. *I-chpoch de no-vecina* (Hispanized Nahuatl)  
her/his-daughter of my neighbor's  
“My neighbor's daughter”

The Hills ([1986] 1999: 241) ascribed this reordering to the importation of *de*, because the possessor has to follow it. Yet, this Nominative-Genitive order (even without *de*) had already existed in Classical Nahuatl, which can be seen in the following examples from the *Florentine Codex*:

- (18) *In ichan calpixqui*  
In i-chan- $\emptyset$  calpixqui- $\emptyset$   
DET 3.sg.POSS-home-sg majordomo, butler-sg  
“At majordomo's place” (Sahagún [1577] 1979: II-68)
- (19) *In cuicatl in ehua itoca tlaxotecayotl, icuic in Huitzilopochtli.*  
In cuica-tl in  $\emptyset$ -ehua- $\emptyset$ - $\emptyset$  i-toca- $\emptyset$  tlaxo-teca-yo-tl, i-cuic- $\emptyset$  in Huitzil-opoch-tli.  
DET song-ABS REL 3.S-start-PRES-sg 3.sg.POSS-name-sg tlaxotlan-GENT-ABST-ABS 3.sg.  
POSS-song-sg DET hummingbird-left-ABS  
“The song they were singing was called *tlaxotecayotl*,<sup>7</sup> Huitzilopochtli's song.” (Sahagún [1577] 1979: II-141)

What can undoubtedly be attributed to the Spanish influence is *preference* for possessed-possessor form, introduction of the preposition *de* and an analytic form in examples below (20 and 21).

The same pattern (Nominative-*de*-Genitive) is followed even when the incorporation would have been preferred:

- (20) *Se huerta de se tekompare*  
Se huerta de se te-kompare- $\emptyset$   
DET N P DET OBJ.indef-person-sg  
“Somebody's garden”
- (21) *Se kóralle de yolkame*  
Se kóral-le de yolka-me  
DET pen-ABS P animal-pl  
“Animal pen”

The examples above represent another illustration of syntagmatization. In more conservative variants of Nahuatl the prefix *te-* would be used for marking unknown possessor (*te-huerta* in (20)). On the other hand, the incorporation *yolkakóralle* would be preferred instead of the analytic form in (21).

The relativizers serve as a bridge between the antecedent and a relative clause they introduce. Instead of classical *in*, nowadays the interrogative adverbs *tlen* ‘what’<sup>8</sup> and *akin* ‘who’ are employed.

7 *Tlaxotecayotl* is the name of hymn honoring Huitzilopochtli.

8 Note that in Spanish *que* corresponds to ‘what’ and ‘which.’

(22) *Itla cosa tlan kitoka*

Itla cosa tlan  $\emptyset$ -ki-toka- $\emptyset$ - $\emptyset$

ADJ N REL 3.S-3.sg.OBJ-sow-PRES-sg

“Whatever (that) he sows”

(23) *Amo ma kikixti tomin akin oktok.*

Amo ma  $\emptyset$ -ki-kixti- $\emptyset$ - $\emptyset$  tomin akin  $\emptyset$ - $\emptyset$ -k-tok. $\emptyset$ - $\emptyset$

NEG OPT 3.S-3.sg.OBJ-earn-PRES-sg NOM REL AUM-3.S-3.sg.OBJ-sow.PRET-sg

“May not earn any money the one who has sown it.”

Sometimes Spanish and Nahuatl relativizers can co-occur, as in Hill and Hill’s example *lo que tlen*.

(24) *Pero amo techentenderoah lo que tlen tictoah en mexicano.*

“But they don’t understand what we’re saying in Mexican (Nahuatl).”

(Hill & Hill [1986] 1999: 351)

As far as it concerns the outsider system morphemes, they are quite resistant to change, according to Myers-Scotton’s hypothesis, because they are carriers of the most important grammatical information, which is the argument structure: “Any morphemes that build structure across the clause are *less likely* to participate in convergence or attrition than other morphemes” (2008: 35, emphasis added).

Indeed, in my corpus these morphemes have remained intact: the distinction between 2nd person indicative vs. optative-imperative subject (*ti-* vs. *xi-*), indicative vs. imperative number (*-ke* vs. *-kan*). Object morphemes and beneficiary have also been preserved. Even though tense markers are mentioned as a candidate for outsider system morphemes (Myers-Scotton 2008), in Nahuatl they are considered early system morphemes, because they do not interact with agreement. Anyway, they have not suffered any changes.

Nevertheless, Flores Farfán (2004, [1999] 2012a, 2012b) registered *-n* in Hispanized varieties of Balsas region Nahuatl as a plural marker in the present tense instead of a historical glottal stop, which is the only case of change in outsiders that I have come across so far.

(25)  $\emptyset$ -cochi- $\emptyset$ -n vs.  $\emptyset$ -cochi- $\emptyset$ -?

3PL-sleep-PRES-SP.PL

“they are sleeping” (Flores Farfán 2004: 88)

The author interprets it as a “contact induced phenomenon,” “a clear case of morphological convergence,” “favored both by the presence of *-n* as a plural marker in Spanish, as well as in Nahuatl” (Flores Farfán 2012b: 34–35). This nasalization is “historically prefigured” (Flores Farfán 2004: 88), since it appears in optative and imperative plural forms (Flores Farfán 2012b).

## Conclusions

In this paper the contact-induced changes in modern Nahuatl have been analyzed. Even though most of these changes have already been registered (Hill & Hill [1986] 1999; Lockhart 2001; Karttunen & Lockhart 1976; Flores Farfán 2000, [1999] 2012a, 2004, 2012b, *inter alia*), this paper offers different perspective by applying the 4-M model (Myers-Scotton & Jake 2000) to convergence. It provides insight into the reasons why some morphemes in Nahuatl remain intact in spite of the heavy contact situation, while others have propensity for change. This research also confirms (but not in absolute terms) Myers-Scotton's hypothesis of morpheme asymmetry in convergence and retention of the outsider system morphemes in language contact.

## Abbreviations

ABS	absolute
ABST	abstract
ADJ	adjective
ADV	adverb
AUM	augment
DET	determinant
DIM	diminutive
DIR	directional
FUT	future
IMP	imperative
N	noun
NEG	negation
NUM	numeral
OBJ	object
OPT	optative
pl	plural
POSS	possessive
PRON	pronoun
P	preposition
PRES	present tense
PRET	preterit
REFL	reflexive
REL	relativizer
S	subject
sg	singular

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