
Numeral Classifiers in Lhiimaqalhqama'

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1 Introduction

Like many indigenous languages of Mesoamerica, Lhiimaqalhqama', which is more commonly known as Huehuetla Tepehua, utilizes a system of nominal classification. However, the Lhiimaqalhqama' classifier system is limited to numeral classifiers. A numeral classifier is a morpheme that occurs in the context of a number or quantifier and that classifies or categorizes the referent of a noun based on its inherent properties or its arrangement (Aikhenvald 2000; Allan 1977; Craig 1986; Grinevald 2000). In this paper, I describe the numeral classifier system in Lhiimaqalhqama', I investigate how the system is manipulated by context, and I compare the classifiers with the class of Parts.

Lhiimaqalhqama' is a member of the Totonacan language family and is spoken by fewer than 1,000 people—mostly over the age of forty—in Huehuetla, Hidalgo, in Northeastern Mexico. Lhiimaqalhqama' is a polysynthetic, head-marking (Nichols 1986) language. Sentential word order is pragmatically determined (Mithun 1992), but phrasal word order is more fixed.

The number system of Lhiimaqalhqama' is vigesimal (that is, it is based on the number twenty). The numbers one through thirty-nine are bound morphemes, while the numbers forty and higher are free morphemes, at least in the function of counting. Only the native numbers one to five appear

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in my recordings; numbers higher than five are borrowings from Spanish. The majority of native speakers can count only as high as the number ten. I met only one speaker who could count to 111 and another speaker who could count to 100. An informative sampling of the numbers is shown in Table 1.¹

1	tam	21	p'uuxam-tam
2	t'uy	30	p'uuxam-kaw
3	t'útu	31	p'uuxam-kaw-tam
4	t'áti	40	t'u-p'uuxam
5	kiis	50	t'u-p'uuxam-kaw
6	chaaxan	60	t'utum-p'uuxam
7	tujun	70	t'utum-p'uuxam-kaw
8	tzajin	80	t'ati-p'uuxam
9	najatz	90	t'ati-p'uuxam-kaw
10	kaw	100	kiis-p'uuxam
11	kaw-tam	101	kiis-p'uuxam-tam
15	kaw-kiis	110	kiis-p'uusam-kaw
20	p'uuxam	111	kiis-p'uusam-kaw-tam

Table 1: Selected Lhiimaqalhqama' Numbers²

¹ All data in this paper come from my field work on Lhiimaqalhqama' (Huehuetla Tepehua), which was funded by Fulbright García-Robles, the National Science Foundation (# 0078453), and the Project for the Documentation of the Languages of Mesoamerica. I would like to express my deepest gratitude to the following Lhiimaqalhqama' speakers: Nicolás Vigueras Patricio and Angela Patricio Tolentino, who helped me with the classifiers, and Antonio Vigueras Huerta—may he rest in peace—who taught me the numbers through 111. When don Antonio passed away in October of 2005, so too died the native numbers of the language.

I use a practical orthography; the symbols that differ from the standard IPA symbols are the following: VV = long vowel, C'= glottalized consonant, ' = glottal stop, x = /ʃ/, tz = /ts/, ch = /tʃ/, lh = /ʌ/, y = /j/, j = /h/. The phonemes /y/ and /w/ are semi-vowels. The phoneme /q/ disappeared from the language within the last 60 years, and currently the phoneme /q/ is in the process of merging with the phoneme /ʔ/ (Smythe 2002, 2003). The abbreviations are the following: ART Article, CAUS Causativizer, CL Classifier, EMP Emphasis, FOC Focus, FUT Future, IMPFV Imperfective, IRR Irrealis, LOC Locative, N Noun, NUM Number, PAST Past, PFV Perfective, PL Plural, POS Possessor, PUNC Punctual, Q Question, RPT Reportative, SUB Subject, V Verb, 1 first person, 2 second person, 3 third person, + clitic, ́ primary accent.

² For the class of numbers, primary stress falls on the last syllable; exceptions bear accent marks. All word-final short vowels are devoiced.

2 Numeral Classifiers in Lhiimaqalhqama'

2.1 Classification of the Classifiers

In Lhiimaqalhqama' the classifiers are prefixed to the numbers and quantifiers, as seen in example (1).

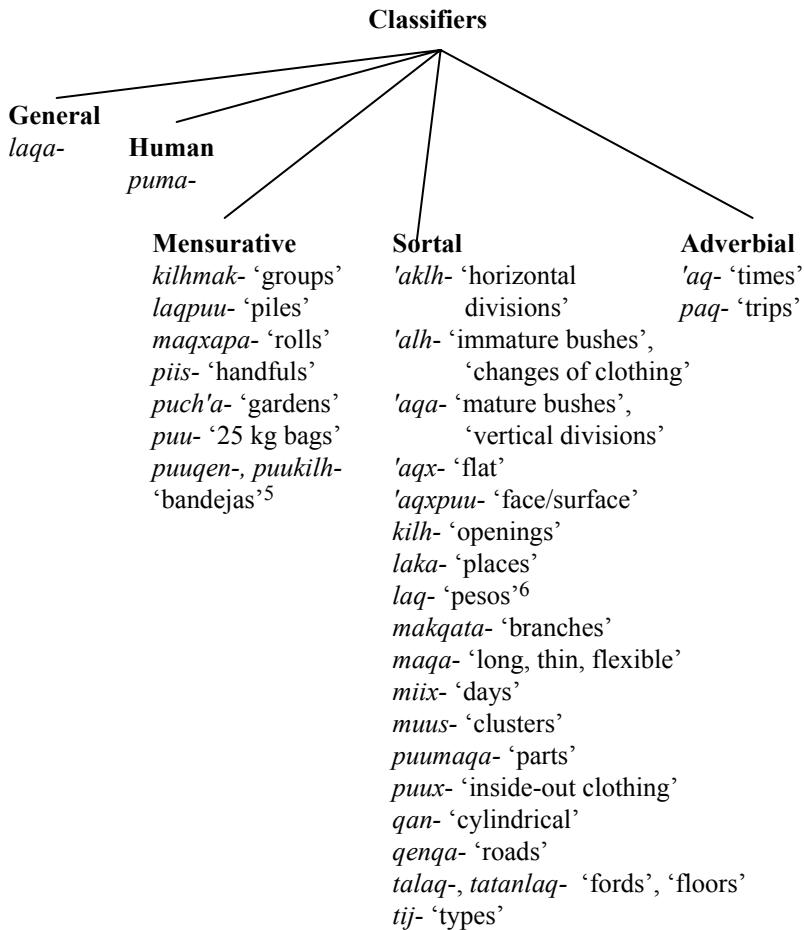
- (1) **maqa**-tam luu
CL:flexible-one snake
 'one snake'

Classifiers are obligatory on the numbers one through thirty-nine and optional on the numbers forty and higher, at least in the task of counting.³ Given that only the numbers one through five appear in my recordings, I cannot know if the classifiers are obligatory on numbers greater than five in contexts other than counting. According to Aikhenvald (2000: 100), it is very common for numeral classifiers to be used obligatorily with small numbers and optionally with larger numbers. The division between 'smaller' numbers and 'larger' numbers is language specific; in the case of Lhiimaqalhqama', the division is between thirty-nine and forty.

Many researchers have made typologies of the classification of nouns, including Aikhenvald 2000, 2004, Allan 1977, and Grinevald 2000. I have not strictly adopted any of their typologies, but rather I have incorporated aspects of each in the categorization of the numeral classifiers in Lhiimaqalhqama'. I have divided the classifiers into five groups: (i) the general classifier *laqa-*, which can be used in place of any of the other classifiers; (ii) the human classifier *puma-*,⁴ (iii) mensurative classifiers that measure entities; (iv) sortal classifiers that identify inherent characteristics of entities; and (v) adverbial classifiers that function only as adverbs. The classification is shown in Figure 1, which is a complete list of the Lhiimaqalhqama' numeral classifiers.

³ The only exception is the use of the number *tam* 'one' without a classifier as the indefinite article.

⁴ There is no specific classifier for animals or inanimate entities.

Figure 1: Classification of the Numeral Classifiers in Lhiimaqalhqama'

⁵ A *bandeja* is a unit of measure in the Mexican market place; it is used to measure and weigh dry, pourable, noncountable entities like coffee beans and black beans.

⁶ The monetary unit of Mexico.

2.2 Morphosyntax of the Classifiers

Classifiers in Lhiimaqalhqama' appear in two morphosyntactic constructions: (i) in adjectival position or as anaphora and (ii) in adverbial position. Although sentential word order is pragmatic, phrase word order is relatively fixed: in particular, (i) nouns follow adjectives and (ii) adverbs occur directly before the verb or at the end of the sentence, and they never appear immediately before a noun.

The first construction in which classifiers occur, is one in which a classified number modifies an optionally overt nominal, as seen below in example (2).

- (2) [CL-NUM (N)]

When the noun occurs, the classified number precedes it, as seen in the examples in (3).

- (3) a. **'aqx-tam** 'alhik
CL:flat-one paper
 'one sheet of paper'

b. **puma-t'útu** lapanák
CL:human-three people
 'three people'

When a classifier categorizes its prototypical referent, the noun may be omitted, and the classified number or quantifier behaves anaphorically, as seen in the examples in (4).

- (4) a. taas **puma**-chuux (lapanák) ka-ta-min-aa
 Q **CL:human**-how.many (people) IRR-3PL.SUB-come-FUT
 ‘How many people will come?’ [Q7]

b. naa **puma**-lhuu ka-ta-min-aa
 EMP **CL:human**-many IRR-3PL.SUB-come-FUT
 ‘Many people will come.’ [Q7]

However, when a classifier categorizes a noun that is not its prototypical referent, omission of the noun changes the meaning of the sentence, as seen in the examples in (5).

- (5) a. **qan-t'uy** lapanák
CL:cylindrical-two people
 'two people'
- b. **qan-t'uy**
CL:cylindrical-two
 'two cylindrical things'
 NOT: 'two people'

Furthermore, when the classifier is *laqa-*, the general classifier, omission of the noun can result in a lack of meaning, as seen in example (6).

- (6) a. **laqa-t'uy** lapanák
CL:general-two people
 'two people'
- b. **laqa-t'uy**
CL:general-two
 'two X'
 NOT: 'two people'

In the second morphosyntactic construction in which a classifier may appear in Lhiimaqlhqama', the classified number occurs in the two adverbial positions, shown in example (7). The first adverbial position occurs immediately before the verb, as seen in (7a), while the second adverbial position occurs clause-finally, as seen in (7b).

- (7) a. CL-NUM V
 b. V . . . CL-NUM

The examples in (8) show a classified number acting as an adverb. In the examples in (8a) and (8b), the adverb precedes the verb, while in (8c), the adverb is clause-final.

- (8) a. **'aq-t'uy+ch** xa-k-masqati-y
CL:times-two+PUNC PAST-1SUB-try-IMPFV
 'I tried two times.' [T0069: 005]

- b. **paq**-t'u't'u+ch xa-la-y juu 'atzi'
CL:trips-three+PUNC PAST-can-IMPFV ART girl
juu 'ix-xkaan
ART 3POS-water
'The girl went for water three trips (times).' [Q7]
- c. maa-lach'ap'a-y juu 'alhik puu-'aqx-tuy
CAUS-glue-IMPFV ART paper LOC-**CL:flat**-two
'She glues the paper in two places.' [MNB13: 96]

3 Contextual Dependency

Nouns in Lhiimaqlhqama' are not rigidly divided into different classes, as the nouns in the Bantu languages are; therefore, instead of serving to coreference a noun class, the classifiers are fluid and serve to highlight certain characteristics of the noun that are relevant to a given context.

For example, in (9) the noun is *lapának* 'person'. The classifier in example (9a), *puma-*, is the default human classifier that is prefixed to any number that modifies a human noun. Although the same noun *lapának* also appears in (9b), the classifier *qan-* is used to modify a long, cylindrical noun; here the use of *qan-* instead of *puma-* communicates the fact that the people are lying down, more dead than alive. The example in (9c) also contains the human noun *lapának*, and here it is modified by the classifier '*aklh*', which indicates that the noun is divided along a horizontal axis. The use of the classifier '*aklh*' indicates that the division between the human half and the animal half is horizontal, not vertical, and this information is more important to the context than the fact that the noun *lapának* is human.

- (9) noun = *lapának* 'person'

- a. juu **puma**-tam lapának nii-lh
ART **CL:human**-one person die-PFV
'One person died.' [T0009: 001]
- b. maa ta-laxtaqni-lh+ch juu x-taqanqat-'an
RPT 3PL.SUB-contract-PFV+PUNC ART 3POS-illness-PL.POS
juu **qan**-tam **qan**-tam lapának
ART **CL:cylindrical**-one **CL:cylindrical**-one person
'The people contracted the illness one by one.' [T0057: 019]

- c. waa 'aklh-tam lapának
 FOC CL:**horizontal**-one person
- 'aklh-tam maqtili'
 CL:**horizontal**-one wild.animal
 'It is half person, half wild animal.' [MNB16: 50]

The ten examples in (10) demonstrate the use of various classifiers that describe arrangements or measurements of the noun *k'iw* 'tree'. All of these examples are of sortal classifiers with the exception of examples (10d), which is a Part (see Section 4), and examples (10e) and (10f), which are mensurative classifiers. The examples in (10a) and (10b) use the general classifier *laqa-* and the cylindrical classifier *qan-*, respectively, in order to form the noun phrase 'two trees'. The classifier in (10c) indicates 'types' of trees. In example (10d), *kinka-* is a Part that means 'point' and that is used here as a classifier; in this context, the use of *kinka-* indicates that the two trees are pointy and bare of branches and leaves. The classifiers in examples (10e) and (10f) measure the noun by 'gardens' and 'rolls', respectively. The examples in (10g) through (10j) form a set using the compound noun *lht'a-qala-k'iw*, meaning 'board'. In (10g) the classifier '*aqx-*' simply indicates that the board is flat, while the classifiers in (10h) through (10j) indicate the form of the division between the parts of the board. In (10h) *puumaqa-* indicates only that the parts all come from the same board; it does not actually specify information about the shape of the division. The arrows in the drawing in the corresponding Figure 2 indicate that the division can be in any part of the rectangle. This classifier is frequently used with pieces of fruit or bread. The classifier in example (10i) '*aqa-*' indicates that the division in the board is vertical, as seen in the drawing in Figure 3; and the classifier in example (10j) '*aklh-*' indicates that the division is horizontal, as seen in the drawing in Figure 4.

(10) noun = *k'iw* 'tree'

- a. **laqa**-t'uy k'iw
 CL:**general**-two tree
 'two trees'
- b. **qan**-t'uy k'iw
 CL:**cylindrical**-two tree
 'two trees'

- c. **tij-t'uy** k'iw
CL:type-two tree
 'two types of tree'
- d. **kinka-t'uy** k'iw
CL:point-two tree
 'two pointy trees'
- e. **puch'a-t'uy** k'iw
CL:garden-two tree
 'two gardens of trees'
- f. **maqxapa-t'uy** k'iw
CL:roll-two tree
 'two rolls of firewood'
- g. **'aqx-t'uy** lht'aqala-k'iw
CL:flat-two flat-tree
 'two boards'
- h. **puumaqa-t'uy** lht'aqala-k'iw
CL:part-two flat-tree
 'two parts of a board' (cut from the same board)
- i. **'aqa-t'uy** lht'aqala -k'iw
CL:vertical-two flat-tree
 'two vertical sections of board' (cut from the same board)
- j. **'aklh-t'uy** lht'aqala-k'iw
CL:horizontal-two flat-tree
 'two horizontal sections of board' (cut from the same board)

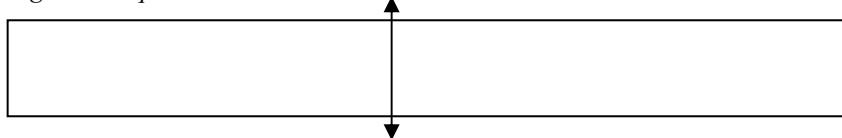
Figure 2: puumaqa-*Figure 3: 'aqa-*

Figure 4: '*aklh-*

Finally, the six examples in (11) are based on the noun *kapen* ‘coffee’. The classifiers in examples (11a) through (11e) are sortal, while the one in (11f) is mensurative. Again the general classifier *laqa-* appears with the noun in example (11a). In (11b) '*alh-*' refers to an immature plant that is just beginning to grow, while in (11c) '*aqa-*' refers to a mature plant that is already fully grown and ready for harvesting. In (11d) *mákqata-* refers to branches of the plant, and in (11e), *muus-* indicates clusters of the fruit of the plant. Given the specificity of the classifiers in (11b) through (11e), it is obvious that plant life (like coffee, bananas, beans, corn, etc.) is very important for the Tepehua culture. The classifier *puuqen-* in (11f) is mensurative and it measures the coffee beans by bandejas.⁷

(11) noun = *kapen* ‘coffee’

- a. **laqa-t'áti** kapen
CL:general-four coffee
‘four coffee beans’
- b. **'alh-t'áti** kapen
CL:immature.bush-four coffee
‘four immature coffee bushes’ (just beginning to grow)
- c. **'aqa-t'áti** kapen
CL:mature.bush-four coffee
‘four mature coffee bushes’
- d. **makqata-t'áti** kapen
CL:branch-four coffee
‘four branches of a coffee bush’

⁷ See Footnote 5.

- e. **muus-t'áti** kapen
CL:cluster-four coffee
‘four clusters of coffee beans’
- f. **puuqen-t'áti** kapen
CL:bandeja-four coffee
‘four bandejas of coffee beans’

4 Parts and Classifiers

Lhiimaqlhqama' has a class of lexicalized prefixes that refer to Parts (of a body or a structure) and that appear on verbs, nouns, and dimensional adjectives.⁸ The Part *kik-* ‘mouth’ is prefixed to a verb in (12a), to a noun in (12b), and to a dimensional adjective in (12c).

- (12)a. **kik-ch'aqa-y**
mouth-wash-IMPFV
‘She washes her mouth.’
- b. **kik-ch'awti**
mouth-hair
‘mustache’, ‘beard’
- c. **kik-lhman**
mouth-long
‘bearded’

While *all* of the numeral classifiers in the related language Papantla Totonac come from the class of Parts (Levy 2004: 284), this is not the case in Lhiimaqlhqama', where only some of the classifiers seem to have origins in the Parts class. In fact, the majority of the Lhiimaqlhqama' classifiers are distinct from the Parts; however, there is overlap—both syntactic, semantic, and phonological—between the Parts and the classifiers.

There are five points of comparison between the Parts and classifiers.⁹ First, some of the classifiers bear no similarities—either syntactic, semantic or phonological—to any of the Parts prefixes. These classifiers are shown in Table 2 and are exemplified in the majority of the examples above.

⁸ Please see the Appendix for a complete list of Parts.

⁹ It is important to note that all of the Parts that contain /k/ or /q/ participate in sound symbolic phonemic alternations that are symbolic of size or affection, e.g. 'aq- 'head' ~ 'ak- 'small head' (Smythe Kung, in press).

Prefix	Part Meaning	Classifier Meaning
'aklh-	---	horizontal division of N
'alh-	---	immature bush; change of clothing
'aqa-	---	mature bush
'aqxpuu-	---	face, surface
kilhmak-	---	group of people or animals (e.g. teams, herds)
makqata-	---	branch
maqa-	---	long, thin, flexible N
maqxapa-	---	roll of N
miix-	---	day or week
paq-	---	trip
piis-	---	handful of N
puch'a-	---	garden of N
puma-	---	human
puumaqa-	---	part of N
puuqen- ~ puukilh-	---	bandeja or dipperful of N
puux-	---	inside-out clothing
qan-	---	cylindrical N
talaq- ~ tatanlaq-	---	floor of a building; ford of a river
tij-	---	type of N

Table 2: Prefix is a Classifier

Second, some of the Parts prefixes bear no similarities to any of the classifiers. These Parts are shown in Table 3.

Prefix	Part Meaning	Classifier Meaning
'ak-	head	---
ka-	nose, tip	---
lak-	body	---
lakpuu-	face, eye	---
muuntz'a-	forehead	---
tamp'us-	belly	---
tzoqot-	knee	---

Table 3: Prefix is a Part

Third, some of the Parts can be prefixed to numbers in place of classifiers. In these cases, the Part preserves its part meaning, as seen in the examples below in (13).

- (13)a. **ch'an-t'uy**
foot-two
'two feet'
- b. **katu-t'uy**
ear-two
'two ears'

However, the constructions in (13) present the following question: Are these prefixes Parts used syntactically as classifiers, or are they classifiers that are semantically and phonologically identical to Parts? For now, I consider them to be Parts, not classifiers, and I do not include them in the list of classifiers in Figure 1. These prefixes are shown in Table 4.

Prefix	Part Meaning	Classifier Meaning
ch'an-	foot, paw	foot, paw
kapii-	palate (of mouth)	palate (of mouth)
katu-	ear	ear
kik-	mouth, beak, edge	mouth, beak, edge
kilhtu-	edge	edge
lakapaa-	head	head
laqxtan-	cheek, jaw	cheek, jaw
laqxtii-	crown of the head	crown of the head
mak- ~ maq-	hand	hand
maqaxtu-	elbow, corner	elbow, corner
muunti-	forehead	forehead
paaka-	armpit, wing	armpit, wing
piixtu-	neck	neck
qaatu-	thigh	thigh
staa-	back	back
tampuu-	belly	belly
tan-	front of trunk of body	front of trunk of body
tasa-	tooth	tooth
tiι-	tail, butt, hip	tail, butt, hip

Table 4: Part & Classifier Have Same Meaning

Fourth, other Parts are homophonous with some classifiers, but the Part and the classifier have different meanings, as seen in Table 5. For example,

'aq-, when used as a Part, means 'head', but when used as a classifier, it indicates the number of times the action of the predicate was performed.

Prefix	Part Meaning	Classifier Meaning
'aq-	head	number of times action of V completed
laka-	body	place
laq-	body	peso
laqa-	body	general
laqpuu-	face, eye	pile of N
qenqa-	nose, tip	road

Table 5: Part & Classifier Have Different Meanings

Finally, other Parts are homophonous with some classifiers, and the Part and the classifier have transparently similar meanings, as seen in Table 6. For example, 'aqx- as a Part means 'shoulder', and as a classifier, it means 'flat'. An example is seen in (10d), where *kinka-* is prefixed to the number *t'uy* 'two'.

Prefix	Part Meaning	Classifier Meaning
'aqx-	shoulder, upper back	flat
kilh-	mouth (full N)	opening
kinka-	nose, tip	point, tip (not nose)
muusa-, muus-	groin	cluster
puu-	innards, insides	gunny sack, abt 25 kg

Table 6: Part & Classifier Have Similar Meanings

In conclusion, nineteen of the twenty-nine classifiers shown in Figure 1—that is, two-thirds of the classifiers—do not correspond syntactically, semantically, or phonologically to any of the Parts prefixes. Eleven of the twenty-nine—or one-third—are homophonous with Parts; of those eleven, six are semantically distinct while five are semantically similar. Given that one-third of the classifiers are homophonous with corresponding Parts and that two-thirds¹⁰ of the Parts shown in Table 8 of the Appendix can be used as classifiers, it is probable that at least some of the members of the two classes share a common origin. However, given that the majority of the classifiers are not phonologically or semantically similar to the Parts, it is also possible that these particular classifiers have some other origin.

¹⁰ Nineteen of thirty.

5 Conclusion

This work is a first pass in the description of the classifier system of Lhiimaqalhqama'. Unfortunately, I doubt that I will discover more classifiers because today the majority of Lhiimaqalhqama' speakers use only the general classifier *laqa-* and the human classifier *puma-*. Although I have found some thirty classifiers during the task of elicitation, only eight of these appear in the recordings that I have analyzed so far. These eight classifiers appear in Table 7. I should add that I still have many recordings to analyze, so I hope to find more classifiers, but I am not overly optimistic.

Classifier	Gloss
'aklh-	parts
'aq-	times
'aqx-	flat
kilh-	openings
laq-	pesos
laqa-	general
puma-	human
qan-	cylindrical

Table 7: Classifiers Found in Recordings

Although I have begun the task of categorizing the Lhiimaqalhqama' numeral classifiers here, the categorization needs more specification, especially in the area of form; for example, many of the classifiers under the Sortal category, could be further divided based on whether they describe the general shape of a referent (e.g. *maqa-* ‘flat, long, and flexible’) or whether they describe a more specific type of noun (e.g. *'alh-* ‘immature bush’).

Additionally, further analysis needs to be done regarding the morphology that can cooccur with the numeral classifiers. For example, in (8c), a locative prefix precedes the numeral classifier; testing still needs to be done to determine what other morphemes may cooccur with the classifiers.

Finally, the relationship between the classifiers and the Parts prefixes needs to be investigated further, along with the question of the origins of the numeral classifiers.

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Appendix

Prefix Part	Full Noun	Gloss
'aq-, 'ak-, lakapaa-	'aqtzulh	head
'aqx-, 'akx-, 'aqxp'in-	'aqxp'un	shoulder, upper back, flat surface
'aqxspuu-	'ukxpu'	face, surface
ch'an-, tz'an-	ch'aja'	foot, paw
kapii	kapiiya'	palate
katu-	'aqaxqolh	ear
kik-, kilhtu-, qelh-	kilh	mouth, beak, edge
kinka-, ka-	kinkati'	tip, nose
kinka-	lhiixin	tip, nose
laka-, lak-, laqa-, laq-	lakatunaj	body
lakpuu-, laq(a)puu-, laq-, lak-	'ukxpu'	face
lakpuu-, laq(a)puu-, laq-, lak-	laqchulh	eye
laqxtii	'apkux	crown of the head, hair
mak-, maq-	maka'	hand, arm
maqaxtu-	maqaxtu'	elbow, corner
muuntz'a-, muunti	muuntz'an	forehead
muusa-	muusan	groin
paka-	pakapu'	armpit, wing
piixtu-	piixtu'	neck
puu-	---	insides, inside
qaq-, kaq-, laq(a)xtan-	laqxtan	cheek
qaq-, kaq-	kaalhtz'an	jaw
qaatu-, 'aatu-	qaatu'	thigh
staa-	puulakan	back
tamp'us-	tamp'uktz'ulh	belly button
tan-	tampuu	stomach
tan-	tankilhak	chest
tasa-	tatzalat	tooth
ti-	tiimus	tail, butt, hip
tzoqot-	tzoqot	knee

Table 8: *Lhiimaqalhqama' Parts Class*