

Ideophones in Yucatec Maya

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Abstract: This paper considers a new word class in Yucatec Maya, the ideophones. Although this class of words shares a number of features with other ideophones described in the literature (Doke 1935; Voeltz & Kilian-Hatz 2001a): syntactic isolation, specific phonological and morphological profile and onomatopoeic iconicity (i.e. form is semantically motivated), ideophones in Yucatec Maya are special in being derivations from various types of roots (verbo-nominal, adjectival, positional, noun and onomatopoeic). Hence, their meaning can be partly retrieved from the root they are derived from. As it is the case with many ideophones in various languages (Dingemans 2011), Yucatec Maya ideophones are semantically complex with a multimodal character describing an event in mixing its auditory and visual features. For this reason, an analysis of the multimodal production is often necessary to understand the full meaning of ideophones.

Key words: ideophones, roots, expressivity, multimodality, Yucatec Maya

1 Introduction

This paper presents a new class of word in Yucatec Maya, the so-called ideophones. I will show that ideophones in Yucatec Maya is a new class of word never described before in this language (as far as I am aware of) and that ideophones in Yucatec Maya share most of the features of ideophones in languages around the world (Voeltz & Kilian-Hatz 2001a; Digemanse 2011; Nuckolls 1995a inter alia) and hence fit this label. One distinct feature of ideophones in Yucatec Maya is that they are derivations of existing roots. However, far from being a precluding factor, it responds to the overall pattern of the language. For this reason, a discussion of root and word class will be proposed. Because ideophones are derivations, their semantics is predictable on the basis of the meaning of the root and the meaning of the derivation (i.e. the additional morphemes added to the root).

The paper is organized as follow. Section 1 presents an overview of expressive morphology in the literature and what it is in Yucatec Maya, for only ideophones will be considered in this paper. Section 2 concerns the definitions of roots and stems and the theoretical implication for the language overall. Section 3 exposes the various features of ideophones, detailing their morphology, syntax and semantic. A sub-section is dedicated to the analysis of the multimodal production of ideophones, more precisely, it deals with the following question: how gesture can help us understand the semantic of ideophone derivations. Finally, section 4 discusses the origin of ideophones (i.e. what roots can derive ideophones) and how ideophones can get lexicalized to enter a more central part of the lexicon (i.e. become nouns or verbs for instance).

2 Expressive morphology in Yucatec Maya: an overview

2.1 Yucatec Maya and its speakers

Yucatec Maya belongs to the Maya family, specifically to the Yucatecan Branch. It is spoken by approximately 786 000 speakers in 2010 (INEGI 2010). Yucatec Maya is a tonal language with VOS word order, although a number of focalization and topicalization processes are available (that make word order closer to SVO). It is a head marking type ergative language (using set A & B) with split ergativity constrained by aspect. Typical root profile is CVC with very productive inflection and derivation processes (mostly suffixes) (Bricker, Po'ot Yah, & Dzul de Po'ot 1998; Lois & Vapnarsky 2006). Tense does not exist as a grammatical category and temporal information is encoded by a combination of aspect and a large set of temporal deictics.

2.2 What is expressive morphology?

Many authors have argued that, in the study of a language, two contrastive lexicon and grammar types should be considered: a descriptive (or plain) and an 'expressive' lexicon/grammar (Anttila 1977; Brow 1955; Dingemanse 2011; Nuckolls 1995b; Nuckolls 1999; Tufvesson 2011). The main difference between these two types lies in that the first is more objective while the expressive dimension implies some involvement and emotive response from the speaker (Foolen 1997). Along with propositional truth, an expressive word or grammatical construction conveys the speaker's stance on the narrated event (Nuckolls 1995b).

2.3 Plain vs. expressive grammar

Several linguistics features allow distinguishing plain from expressive words and grammar.

At the *phonological level*, expressive lexicon presents some specificity that differs from language to language but that are nonetheless identifiable against the typical or more regular word(s) form(s) (e.g. change in the place of articulation of initial or final consonants of syllables in English, see Fudge (1970)). In plain lexicon, the link between form and meaning is ideally opaque or arbitrary (Saussure 1995). Expressive lexicon, on the other hand, frequently makes a productive use of sound symbolic strategies and is said to be motivated (Hinton, Nichols, & Ohala 1994; Voeltz & Kilian-Hatz 2001b).

At the *grammatical level*, expressive morphology is generally orthogonal to plain grammar and close to language game (Zwicky & Pullum 1987). Expressive grammar is often more detached syntactically, less arbitrary and more iconic using lengthening (usually of vowels) and processes of reduplication. While plain grammar makes a full use of linearization (i.e. using series of words to express an idea), expressive grammar on the other hand is condensed, tending to package into a single word multiple semantic layers.

At the *semantic* level, expressive vocabulary often presents some analogy to visual modes of expression in being semiotically less symbolic and more iconic (Perniss, Thompson, & Vigliocco 2010). Very often, expressive words carry a multimodal semantics (Penelope Brown 2011; Dingemanse 2011; Tufvesson 2011). Plain lexicon is ideally more semantically context independent while expressive words' meaning is contingent upon the context of utterance.

At the *pragmatic* level, expressive grammar implies more involvement from the speaker. With expressive words or grammar, a speaker is able (or forced) to express his or her personal stance. Consequently, plain and expressive lexicon or grammar are not performed or used in the same interactional contexts. Various studies on ideophones (see Voeltz & Kilian-Hatz 2001a) point out that a private or more relaxed interactional context promotes the use of these words (rural vs. urban setting has also been proposed as a criterion).

2.4 Expressives in Yucatec Maya

Expressive words in Yucatec Maya are identified on the basis of:

- Their *morphology*: roots get suffixed or (partially) reduplicated, etc.
- Their *meaning*: the final derived word acquire two layers of meaning, the one of the root and the one of the derivation
- Their *use*: they are used to suggest or add more vividness to discourse (usually in personal narratives)

In Yucatec Maya, I consider two main categories of expressive stems: *non-onomatopoeic expressives*, which are adjectives and adverbs (Le Guen 2011) and *onomatopoeic expressives*, the ideophones that constitute their own word-class. Importantly, since derivation is productive in Yucatec Maya, expressives constitute an open class. Figure 1 summarized the various expressive derivations.

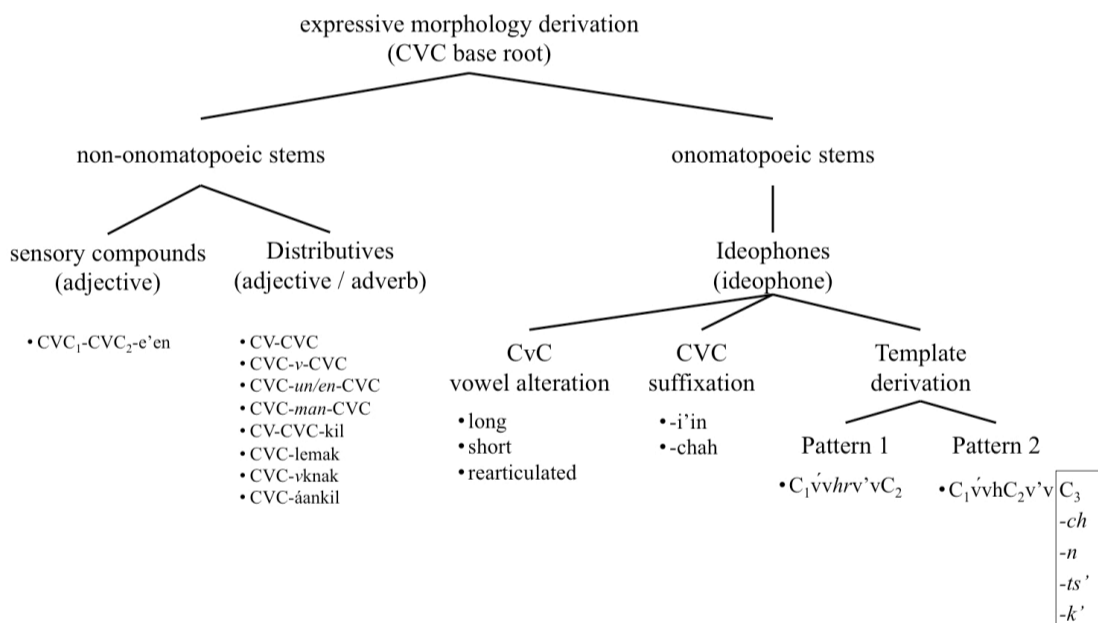


Figure 1. Expressive morphology in Yucatec Maya

Non-onomatopoeic expressives are primarily words that are used to describe (or recreate) color or sensory percepts or spatial or temporal distributive patterns. These words have no onomatopoeic character, that is, they do not show any specific onomatopoeic feature in their form and are not specifically meant to describe sound. Ideophones, on the other hand, are words expressly used to describe a sudden action or event according to three blended dimensions: (1) Visual description of the event (imagistic), (2) Sound description of the event (auditory) and (3) suddenness (pragmatically implied). Not only ideophones are used to describe sound but they also show specific phonetic features in their production that make them more salient in discourse (i.e. voice effects).

In order to present the range of productivity in expressive derivation, consider the following examples, all derivation of the root TAK' 'stick, adhere.' Examples (1) to (4) present non-onomatopoeic expressives while examples (5) to (7) are ideophones.

In (1), the root is compounded in a specific sensory adjectival compound with the root *chak* ‘red’ and the suffix *-e’en* and refers to the aspect of a percept that would be ‘dirty-red’ (i.e. sticky, hence dirty) (Le Guen 2011; Bricker 1999). In (2), the same root is derived as a distributive following the template CVC-*v*-CVC implying the meaning ‘several entities being stuck with small interval space.’ What the construction suggests is the image of various people seated on a doorstep so close to one another (because they were afraid), that there was few (or even no) space between the bodies. In (3), the root is partially reduplicated and used in special construction with the active root *xíimbal* ‘walking.’ Note that the root is not an adverbial root, but because of its position in this particular slot, it fills the function of an adverb in specifying the manner of walking (with sticky feet). In (4), the suffix *-áankil* derive the root into an adverb. Note that there is no aspect between the adverb and the verb with its person marker (in contrast with ideophone). Semantically, *-áankil* implies temporal recurrence of the event, in this case with the root *tak* ‘stick, adhere’, going in a sticky fashion over and over again.

- (1) *Le k'i'ik'-o' chak-tak'-e'en pa'at-ik* [adjective]
 DET blood-TD red-stick-SUFF rest-FOC
 ‘The blood turned to be red-dirty’
- (2) *tak'-a-tak' kul-ukbal-o'on t-u-hool in-naayl-o'on* [adjective]
 stick-DISTRB seat-POS-3Bpl FOC-3A-hole 1A-house.NOM-3Bpl
 ‘we were seated close to another on the doorstep of our house’ [A women is explaining that during the time strangers were said to steal children’s organs, they were so afraid that they would wake all night in the doorstep]
- (3) *ta-tak' xíimbal* [adverb]
 RED-stick walk
 ‘walking with sticky feet’
- (4) *tak'-(a)l-áankil u-bin (l)e máak-o'* [adverb]
 stick-DISTRB 3A-go DET people-TD
 ‘the man goes in a sticky fashion over and over again’

The following examples are all ideophones, i.e. have an onomatopoeic character. In example (5) the root is derived as an ideophone with short vowel. Since the root TAK’ has a short vowel, this reduction is not visible (but see section 4.1.1.1). It is the syntactic position of the words that determine its word-class, in this case an ideophone before the direct quotative *k-ih* ‘it says’ (see section 4.2.2). In (6), the form of the ideophone, the root TAK’ is derived according to the template 2ch (see section 4.1.3.2) as well as its syntactic position, before an Aspect-Mode infixed to the verb. In this example it describes the sound as well as suggests the image of someone going with lip-flop in a sticky fashion. In (7), the root TAK’ is derived according to the template 2n (see section 4.1.3.2) especially fitted for falling or strong impact events. In this example, the ideophone is used to describe the form of the impact of the slapping (adhering to the face, meaning provided by the root), its suddenness and the sound, also foregrounded with the use of the quotative *k-ih*.

- (5) *ts'u' ch'u'l-u yan in-k'ilka' tak bey-a'*
 TERM wet-PAS EXIST 1A-sweat even MAN-TD
t-inw-óo(l) t-in-mèet bey-a'
 FOC-1A-VE CP-1A-do MAN-TD
k-iw-ik-e' tak' kih in-dèedo bey-a'
 HAB-1A-see-TR.ICP-TD IDPH.stick QTV 1A-finger MAN-TD
 ‘I was all wet (because) I was sweating like that, I made it (touch it) without too much thinking and I saw *tak*’ said my finger like that’ [DCC talking about one of his first experience with electricity and got electrocuted]
- (6) *táahk'a'ach k-u-bin (l)e máak-o' yéetel u x'-tak'ach*
 IDPH.stick AM-3A-goDET people-TD with 3A IND-flip.flop
 ‘*táahk'a'ach* goes the man with his flip-flops’

- (7) *táahk'a'an kih ka' t-u-xik-lah-t(-ah) (l)e máak-o'*
 stick.P2n QTV CONJ CP-3A-split-slap-APPL-(CP.TR) DET people-TD
 'táahk'a'an it said when he violently slap the man'

3 Roots and stems in Yucatec Maya: theoretical implications

3.1 Root classification in Yucatec Maya

There are some discussions regarding the status of the roots and stems in Yucatec Maya (Bricker, Po'ot Yah, & Dzul de Po'ot 1998; Lucy 1994) (see Bohnemeyer 2009; Lois & Vapnarsky 2006 for a discussion). In this paper, we will follow Lois and Vapnarsky (2006)'s classification. One main interest of these authors' classification is to consider various processes in order to identify root classes: phonological and morphosyntactical as well as argument structure. Consequently, stems (i.e. word class) are better conceived as instantiated or derived roots. In Figure 2, adapted from Lois and Vapnarsky (2006:106), roots are divided in two main classes: undetermined roots and nominal roots, and each class can derive more or less productively a number of stems.

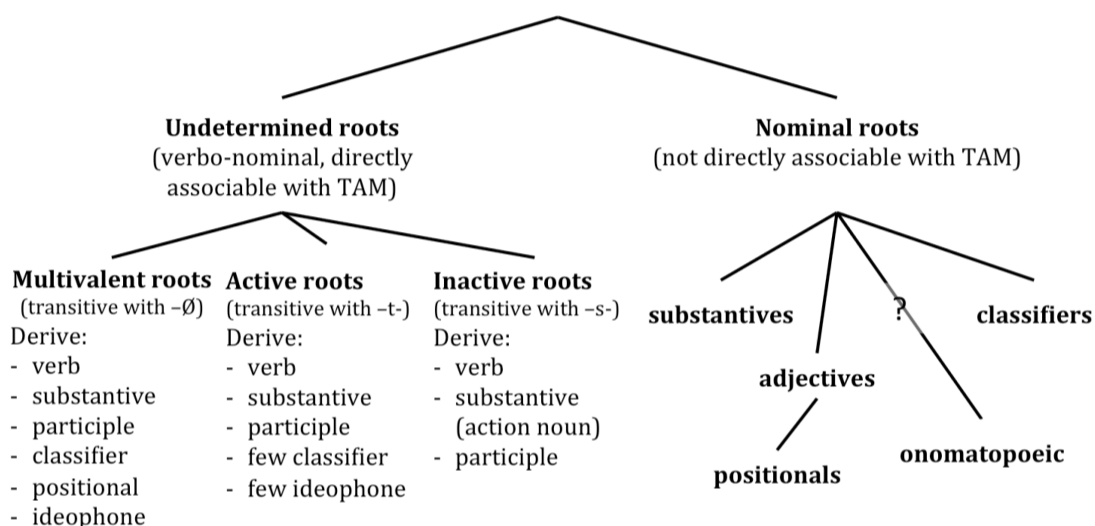


Figure 2: root classes in Yucatec Maya, adapted from Lois and Vapnarsky (2006, p. 106)

In what follows we identify root classes using the following conventions: (mv) for multivalent root, (act) for active root, (inc) for inactive root, (n) for substantive root, (adj) for adjective root and (cls) classifier root. In addition to Lois and Vapnarsky's categories, two other classes of roots are considered in this paper: positional roots (pos) that are (for the convenience of the argument) considered here a sub class of adjectives and onomatopoeic roots (onom), proper formed CVC roots, but that happen to be quite limited in term of what stems they can derive and in their meaning range (mainly relating to sound experience). Also because this paper does not directly address root classification in Yucatec Maya, onomatopoeic roots are considered for convenience as a subclass of nominal roots for they are not directly associable with an Aspect-Mode (AM). In order to distinguish lexical stems from uninstantiated roots, the latter will be presented in capital.

3.2 Identifying root-classes and word-classes

In Yucatec Maya, derivational processes are highly productive and roots should be differentiated from stems. It is often difficult in Yucatec Maya to assign roots with specific word classes or to assign a (more) basic category to a stem, i.e. to consider a conversion process. For instance, the root HUCH' means as basically 'dough' as 'to grind,' that is, at the same time the action and the resulting object of the action, a very common pattern in Mayan languages, (see Laughlin 1988; Haviland). Grammatically, it is the association of a root with an aspect and/or its syntactic context that instantiates it as a verb, as in (8) or a noun as in (9).

- (8) *táan in-huch'*
 PROG 3A-grind/dough
 'I'm grinding'

- (9) *in-huch'*
 3A-grind/dough
 'My dough' or 'my grinding'

Additionally, multiple tests are often necessary to determine word-class. For instance, consider the difference between a multivalent root CH'EB 'lean on one side' and a positional root KUL 'seat.' Once derived, both roots can accept the positional suffix *-vkbal* that make them positional words, as in (10) and (11). From this test only, it would be easy to consider both stems derived from positional roots. However, using a second test of transitivization, we notice that the multivalent root CH'EB 'incline' needs no suffix to be used as a transitive verb, as in (12), while the positional root KUL 'seat' requires the use of the factitive *kun/kin* and the causative *-s-*, as in (13).¹

- (10) *ch'eb-ekbal yan-ik (l)e che'-o'*
 lean.POS EXST-FOC DET tree-TD
 'The tree leans on one side'
- (11) *kul-ukbal yan-ik (l)e máak-o'*
 seat.POS EXST-FOC DET people-TD
 'The man is seated'
- (12) *k-u-ch'eb-ik*
 HAB-3A-lean-TR.IC
 'she inclines it'
- (13) *k-u-ku(l)-kin-s-ik*
 HAB-3A-seat-FACT-CAUS-TR.IC
 'she seats him'

Note that not only positional roots become transitive with the factitive *kun/kin* and the causative *-s-*. It is also the case for adjective roots, as in (14) with the root *chak* 'red'. However, adjective roots cannot accept the suffix *-vkbal*, so (15) is not acceptable.

- (14) *k-u-chah-kun-s-ik*²
 HAB-3A-seat-FACT-CAUS-TR.IC
 'she seats him'
- (15) **chak-akbal*
 red.POS
 Intended response: 'in a positional of being red'

For these reasons, root-class and word-class should be consider at two distinct levels of analysis. Positional roots are considered a special class of roots (probably a subclass of adjective roots), the one that can accept the *-vkbal* suffix and be transitived with the factitive *kun/kin* and the causative *-s-*. On the other hand, positionals, as a word-class, are root that accept the *-vkbal* suffix (multivalent and positional roots).

This discussion is particularly relevant for ideophones since they constitute a word-class that multiple classes of roots can derive.

4 Ideophone as a word class

Various criteria distinguish ideophone as a world-class: phonology, morphology, syntax, and semantic. Various types of roots derive ideophones: onomatopoeic, active, multivalent and positional roots; less productively, inactive, nominal and adjectival roots can also derive ideophones.

¹ The choice between the factitive *kun* or *kin* is determined by vocal disharmony. If the vocal of the root is /a/, /e/ and /i/ the disharmonic vocal will be -u-, while if the vocal of the root is /o/ or /u/ the disharmonic vocal will be -i-. Note that this rule applies for any case of vocal disharmony in Yucatec Maya.

² In Yucatec Maya, there exist a phonological rule: when two /k/ are juxtaposed the first is pronounced as a /h/.

Importantly, although ideophones have an onomatopoeic character they should be distinguished from mere sound imitation, onomatopoeia or interjection. *Sound imitation* does not involve existing morphemes in the language. In other words, it is very hard to write sound imitation (e.g. *pffffff* could be the closest way to write the sound of someone blowing a candle). Though *onomatopoeias* are close to sound imitation, they usually make use of the existing morphemes of the language, hence are more conventionalized. Good examples of onomatopoeia are imitation of animals' cry (e.g. *kikiriki* used to imitate the sound of the rooster) or ways of calling animals (e.g. *kus kus kus* to call little dogs in Yucatec Maya). Crucially onomatopoeia and sound imitation only describe sound while ideophones suggest also some imagistic representation. Finally, *interjections* (sometimes called *expletives*) are words that are fully integrated to the lexicon (i.e. making use of morphemes) and highly conventionalized. However, interjections are used to comply with a specific indexical function (see Ameka 2006; Kockelman 2003) which is not always present in ideophones.

Morphologically, roots derive ideophones according to three types of derivation: vowel alteration (section 4.1.1), suffixation (section 4.1.2) and derivation templates (section 4.1.3). Syntactically, ideophones precede either the verb with an aspect, a quotative or a pause (usually at the end of an utterance) (section 4.2).

4.1 Morphology

At the morphological level, roots get derived in three ways: vowel alteration, suffixation and derivation according to specific and complex templates. Crucially, the form of the derivation is adding a specific meaning to the root and the form of the derivation is iconically related to its meaning.

4.1.1 Vowel alteration

When roots derive ideophones with vowel alteration, to the meaning of the root is added the meaning of the modified vowel. The meaning is iconically mapped on the length of the vowel as follows:

- short vowel suggests a short or quick event or sound
- long vowel (sometimes additionally phonologically lengthened) suggests a long event or sound
- rearticulated vowel suggests an event in two parts or a staccato event or sound

Interestingly, although potentially available in Yucatec Maya, high tone vowel change has not been encountered in the database. The following examples are taken from the results of the OLG sound task run with 8 informants in Kopchen.³

4.1.1.1 C₁VC₂ (SHORT VOWEL) FOR SHORT SOUND/EVENT

Examples (16) to (18) present ideophones where the vowel of the root is reduced to a short vowel. This derivation process is particularly clear when the root is originally with a high tone, as in (18). As with any other expressive derivation, the two meanings (of the root and of the derivation) add up, blend or redefine each other. Ideophones with a short vowel imply a short event/sound (described by the meaning of the root).

(16) *p'uch* (mv) 'beat'
p'uch p'uch p'uch 'hits on wood (high and low pitch), hits on an iron pot'

(17) *t'in* (mv) 'tighten'
t'in t'in t'in 'hits on wood (high and low pitch), hits on an iron pot'

(18) *t'óoh* (mv) 'strike, hit'
t'oh t'oh t'oh 'hits on wood (high and low pitch), hits on an iron pot'

4.1.1.2 C₁VVC₂ (LONG LOW TONED) FOR LONG SOUND/EVENT

With ideophones with a long vowel, the meaning of the derivation implies an extended duration of the event described by the meaning of the root. In (19), (21) and (22) the roots TSAH (mv) 'fry,' CHE'EH (mv) 'stick out, exposed,' WOH (mv) 'to loose' and TS'EH (mv) 'chip, crack' are with short vowels and get lengthened when

³ The OLG sound task (a set of 35 sounds of object falling, rubbing events, etc.) was created by the author. Eight informants (4 women; 4 men) were presented with the sounds and asked to describe each sound (they were asked *bix ut'an?* 'what's its sounds/word')

derived into an ideophone. Typically, in addition to the long vowel, speakers also tend to iconically map the sound of the word on the duration of the event in lengthening of the vowel phonologically, as in (19) and (21). Obviously, the meaning of the root should be in principle compatible with an event that lasts in time.

- (19) *tsah* (mv) ‘fry’
tsaa:::h ‘sound of water on embers’
- (20) *cheeh* *kih* *úuch* *u-pul-ik* *lu’um* *ich* *kareetya*
 IDPH.stick.out⁴ QTV CONJ 3A-throw-TR.IC earth in wheelbarrow
 ‘*cheeh* it said when he throw some earth in the wheelbarrow’
 [note_DC_2008.08.10]
- (21) *ti’* *yaan-en* *t-u-chi’* *k’áak’* *bey-a’*
 FOC EXIST-2B FOC-3A-mouth fire MAN-TD

woo::h *k-u-lúub-l* *in-k’ilk’ab*
 IDPH.loose HAB-3A-fall-NOM 1A-sweat
 ‘(when) I’m near the fireplace like this, *woo::h* falls my sweat [i.e. heavy drops of sweat]’ [note_xS_06.08.08]
- (22) *ts’eeh* *ken* *líub-uk* *hum-p’ée* *ooya*
 IDPH.crack CONJ fall-SBJ one-CLAS.INAM pot
 ‘*ts’eeh* would do a pot when falling’ [i.e. breaking and making the sounds *ts’eeh*]
 [note_LPB_18.08.08]

4.1.1.3 C₁V’VC₂ (REARTICULATED) FOR SOUND/EVENT WITH AN INTERNAL DIVISION

When rearticulated, the division of the vowel in ideophone suggests an internal division of the event described by the meaning of the root. Examples (23) to (25) were produced by JCC, an expert hunter that described several ways/sounds of animals waking on dry leaves. The various roots used are from different classes: TSOH ‘crush’ (24) or SO’OH ‘hoarse, hollow’ (25) are onomatopoeic root while TSAH (mv) ‘fry’ (23) (also in 19 above) is a multivalent root. In the cases of TSOH and TSAH, the vowel is originally short and gets rearticulated in the derivation.

- (23) *tsa’ah* *bey* *u-máan* *haleeb wáa raton*
 IDPH.fry MAN 3A-pass paca or rat
 ‘*tsa’ah*, it’s how passes the paca or a rat’ [conv_JCC-DC_22.08.08]
- (24) *tso’oh* *bey* *u-máan* *kitam, haaleb, kéeh*
 IDPH.crush MAN 3A-pass jabali paca deer
 ‘*tso’oh*, is how passes jabali, paca or deer’ [conv_JCC-DC_22.08.08]
- (25) *so’oh* *bey* *u-máan* *weech*
 IDPH.hollow MAN 3A-pass armadillo

ma’ik *endas* *u-bin* *u-soh-chal-áankil*
 CONJ random 3A- 3A-crush
 go
 ‘*so’oh* is how goes the armadillo, because it goes (in a) random (fashion), it goes crushing again and again’ [conv_JCC-DC_22.08.08]

4.1.2 Suffixation

A second way in which roots can derive ideophone is suffixation. The most two common suffixes found in our database both imply the description of an event with internal repetitive features.

4.1.2.1 C₁VC₂-CHAH FOR AN EVENT WITH INTERNAL REPETITIVE FEATURES

The suffix –chah (homophone with the completive inchoative) suggests an internal repetition of an event. Examples (26) to (28) are answers to the OLG and MPI sounds

⁴ Glosses of roots that derive ideophone are only provided to give a broad meaning of the root.

tasks while (29) is taken from a discussion with hunter regarding sounds and ways of walking of animals in the forest.

The various roots used are from different classes: K'O' 'loop' is a nominal root, BOK' 'stir, mix, beat' and BOH 'knock hollow' and multivalent and SOP' 'pile up' is a positional root. In all examples, the suffix *-chah* add the idea of a movement with internal repetition. Speakers are also free to use a secondary iconic process to suggest the repetition of the event itself: iteration, as in (29).

- (26) *k'o'* (n) 'loop'
k'o'ochah sound or image of tipping lid on iron pot [OLG.ST_34]
- (27) *bok'* (mv) 'stir, mix, beat'
bok'chah sound of footsteps in the water/in the mud [MPI.ST_19]
- (28) *boh* (mv) 'knock hollow'
bohchah sound of someone walking with high-heel on a firm surface [OLG.ST_25]
- (29) *le noom-o' sop'chah sop'chah k-u-bin el-o'*
 DET partridge-TD IDPH.pile.up IDPH HAB-3A-go DEIC-TD
- mun-màas-t(al) u-k'a'am-t u-bin*
 NEG.3A.PROG-more-INCH 3A-loud-APPL 3A-go
- chen bey-o' ma'ik sáal*
 only MAN-TD CONJ light

'The partridge goes *sop'chah sop'chah* and it doesn't get any louder like this because it's (a) light (animal) [i.e. not heavy]' [conv_JCC-DC_22.08.08]

4.1.2.2 C₁VC₂-I'IN FOR EVENT WITH INTERNAL REPETITIVE FEATURES

The suffix *-i'in* seems to present the same meaning as *-chah*. However, it seems that the suffix *-i'in* suggests a more rapid repetition than in *-chah* and maybe something closer to a swinging event on the top of the internal repetition. Consider the following examples.

- (30) *ch'eb* (pos) 'lean on one side'
ch'ebi'in sound or image of tipping lid on iron pot [OLG.ST_34]
- (31) *k'uy-i'in k'uy-i'in u-máan le ch'upal-o'*
 IDPH.twist IDPH.twist 3A-pass DET girl-TD
 'k'uyi'in k'uyi'in passes the girl (i.e. twisting her butt)'

4.1.2.3 OTHER SUFFIXES NON-IDENTIFIED

Additionally, we collected other ideophones with the following suffixes: CvC-vl as in (32), CvC-la'an as in (33) with the root TOP' (mv) 'bloom, small explosion' and CvC-vrv'vx as in (34) with the root TIP' (mv) 'increase, exceed, augment.' However, we are currently unable to provide a good definition of their meaning (due to the small number of items).

In (33), the speaker is talking about the noise made by an old beetle, but the root he uses suggests also the image of small little explosion going out of the motor or the pipe of the car. In (34), the root used suggests the idea of increasing and the derivation probably something like random and intermittent contact of the electric cable moved by the wind. Note that the speaker uses the root PÉEK (inc) that means equally 'sound' and 'move' but that is probably more close to 'vibrate,' to allude to the idea of the moving cables producing noise.

- (32) *bok'* (mv) 'stir, mix, beat'
bok'ol bok'ol sound of boiling water [MPI.ST_07/09]
- (33) *top'la'an top'la'an kih le chan top bolcho-o'*
 IDPH.bloom IDPH QTV DET small damage vocho-TD
 'Top'la'an, top'la'an says the small broken beetle (car)' [note_DC_30.07.08]

- (34) *tip'irix tip'irix k-u-péek le kaable-o'*
 IDPH.increase IDPH HAB-3A-sound/move DET cable-TD
 'Tip'irix, tip'irix sounds/moves the (electric) cable' [note_xS_03.08.08]

4.1.3 Derivation according to templates

Finally, the last way in which roots can derive ideophones is according to specific and quite complex templates. Two main templates have been identified: template 1 $C_1\acute{v}hrv\acute{v}C_2$ and template 2 $C_1\acute{v}hC_2v\acute{v}C_3$. Although the former is fixed, the latter presents various sub-templates declined according to the change of the last consonant (C_3).

4.1.3.1 TEMPLATE 1 $C_1\acute{v}VHRV\acute{v}C_2$ FOR RAPID MOTION

In template 1, the root gets a /hr/ infix, a sound combination found nowhere else in Yucatec Maya. Additionally, as in other ideophonic templates, the first vowel gets a high tone while the second (in vocal harmony) becomes rearticulated.

The meaning implied by template 1, depending on the meaning of the root derived, is rapid motion. In (35), the movement of the mouse described with the positional root HUTS' 'a Figure moving toward, near, inside or behind a Ground' with the ideophone derivation reinforces the image of the haste of the mouse to hide being the jar. In (36), the speaker is describing (in a funny way) how his grandmother used to hit the children on the head if they were being too loud while they were eating. The speaker chooses to use two roots derived according to the same template (template 1). Both roots, NÓOT' (mv) 'hard contact (e.g. gnawing bones)' and WICH' (mv) 'whip,' refer to a beating/whipping event. The derivation in template 1 suggests the rapid unfolding of the event but also the suddenness or unexpected aspect of the hitting, in this case, from the perspective of the children. Finally, in (37), extracted from a narrative, the speaker imitates the sound of a character snoring. However, she does not only make a sound imitation but use instead an ideophone derived from the root HOTS' (mv) 'remove a large figure from a ground' to suggest the idea of a lot of air going out of the mouth of the character. Once again, in this example, ideophone is used strategically to convey at the same time an auditory and an imagistic impression. Paralinguistic tools were also used during the production of the utterance, namely voice effect and gestures (not recorded).

- (35) *húuhru'uts' ka'ah bin le ch'o'o' t-u-paach le p'uul-o'*
 IDPH.place.near CONJ go DET rat-TD LOC-3ERG-back DET jar-TD
 'húuhru'uts' went the rat behind the jar' [note_LPB_15.09.10]

- (36) *nóohro'ot' u-háats'-a'al u-ho'ol le paal-a' u-p'uch*
 IDPH.gnaw 3A-hit-PAS 3A-head DET child-TD 3A-beat

u-ho'ol yéetel che' wáa yéetel ak' wíihri'ich' kih
 3A-head with wood or with vine IDPH.whip QTV
 'nóohro'ot' she hit the head of the children, she beat their heir with (a piece of) wood or with a vine (it would) says: wíihri'ich'' [note_EI_03.09.08]

- (37) *hóohro'ots' hóohro'ots' hóohro'ots' k-u-nóok' bin*
 IDPH.remove IDPH IDPH HAB-3A-snore EVID
 'hóohro'ots', hóohro'ots', hóohro'ots' he snores, they say' [narr.
 molchi_DLUC_03:09]

4.1.3.2 TEMPLATE 2 $C_1\acute{v}VHC_2v\acute{v}C_3$ FOR CONTACT EVENTS

In this template, before the second consonant (the last consonant of the root) is infixed a /h/. Note that the last consonant is fixed and gives its specific meaning to the template. As in template 1, the first vowel is with high tone and the second (in vocal harmony) is rearticulated. Template 2 has a general meaning that broadly suggests 'contact event.' The change of the third consonant (C_3) gives a more specific meaning that goes as follow:

- *-ch* contact/interaction between objects
- *-n* ways/sounds of falling
- *-ts'* inserting interaction (figure is forced into the ground)

As an example of the productive aspect of this derivation, consider the three derivations with the same root TUK' (mv) 'twist, dislocate' (ex. 38 to 40) by the same speaker (ICM):

- | | <i>final stem</i> | <i>examples of event</i> |
|------|---------------------|---|
| (38) | <i>túuhk'u'uch</i> | 'tree creak, hairclip closing, etc.' |
| (39) | <i>túuhk'u'un</i> | 'stone falling on the ground' |
| (40) | <i>túuhk'u'uts'</i> | 'knife stabbing a pig, piston entering into a cylinder, male penis entering a female sex' |

Examples (41), (42) and (43) present example of the template 2ch derivation with the following roots: K'UB (mv) 'sink, disappear in water,' HAK (mv) 'lower, slip' and WAK' (mv) 'explode, set off loud sound.'

- (41) *k'ub* (mv) 'sink, disappear in water'
k'úuhbu'uch sound of footsteps in water
- (42) *háahka'ach ka'ah líubl (l)e taabla-o'*
 IDPH.slip CONJ fall DET plank-TD
 'háahka'ach felt the plank' [the plank felt sliding against the wall it was laying on]
- (43) *wáahk'a'ach kih u-wáak'-al (l)e saabrita-o'*
 IDPH.explode CONJ 3A-explode-NOM DET chips-TD
 'wáahk'a'ach says the explosion of the (package of) chips [when opened by pressure]'

As with any expressive derivation, the meaning of some derivations is has to be compatible with the meaning of specific roots. Positional root and roots that can be derived as position (i.e. take the -vkbal suffix) are particularly fitted with the template 2n that describes falling event. Note that template 2n implies a complete sound with no possible tail repetition

Tail repetition in ideophones is an extension of the last two consonant at the end of the ideophone: -CVCVCV.... Tail repetition may be used to convey the idea of a continuous or repetitive event. For instance, to express the image of an object dragged on the ground for a long distance, a speaker could use the root HIX 'bumpy, rough', derived as template 1 with a tail as in *híihri'ix-ixixixi*.... In the same way, the sound of a cracking door lasting in time can be communicated with the use of the root 'EP' 'crack' derived as template 2ch with a tail, as in *'éhp'ech-echeche*.... Note that tail repetition is not possible with template 2n, due to the meaning of the derivation that conveys the idea of a unique or non-repetitive event (like a fall for instance).

In (44) and (45) the idea is to suggest the sound of the child falling on the ground. However, the ideophone is not limited to sound imitation but also convey an image through the meaning of the root. Although (44) and (45) use the same template derivation and present a similar construction a Yucatec Maya listener understands that in (44) the child fell on his back, because of the use of the positional root *haw* 'facing upward.' In (45) however, a listener would picture the child falling on his face because of the presence of the positional root *noh* 'facing downward.'

- (44) *háahwa'an ka'ah líub le chan paal-o'*
 IDPH.face.up CONJ fall DET small child-TD
 'háahwa'an fell the small child' (BMY) [the child fell face up, on his back]
- (45) *nóohko'on ka'ah líub le chan paal-o'*
 IDPH.face.down CONJ fall DET small child-TD
 'nóohko'on fell the small child' [the child fell face down]

It is important to note that templates can be shortened as CVCVC (and still be used as ideophone, see below). The shorten form is iconic of a faster event.

4.2 Syntax

Syntactically, ideophones differ from adverbs or adjectives in that they do not predicate on any nominal or a verbal phrase. In being extremely expressive, they tend to semantically but also syntactically stand alone (as shown above). Ideophones always appear either before an aspect (the main difference with adverbs), a quotative or in final position in the sentence/utterance.

4.2.1 Before an Aspect-Mode

In contrast with adverbs that predicate on the verb, ideophone are syntactically detached or separated from the verb by the presence of an aspect. However, this difference with the adverbs is only visible with the habitual aspect, as in (46) taken from an actual utterance by a woman distributing cakes. With a completive aspect on the other hand, the difference between adverb, as in (47), and ideophone, as in (48), disappear.

- (46) *Teen-e'*, *k-in-máan* *in-t'ox-e* *le* *pastel-o'*,
 PP-TD AM-1A-pass 1A-distribute-SBJ DET cake-TD

kaada *k-in-ch'-ik* *hum-p'éel-e'* *chaas*,
 every.time AM-1A-take-TR one-CLAS.INAM-TD IDPH.hand.mvt

chohk'o'on *chok'o'o* *k-u-bin* *t-in-chi'*
 n

IDPH.insert IDPH HAB-3A-go LOC-3A-mouth

'As for me, I distribute the cakes, every time I take one *chaas*, *chaas*;
chohk'o'on, *chok'o'on* they go into my mouth' [note_SCC_24.07.08]

- (47) *túuhts'u'un* *ka'ah* *bin* *le kiib-o'* [ideophone]
 IDPH.strecht.out CONJ go.3B DET candle-TD
 'túuhts'u'un went the candle' [note_ICM_31.08.08]

- (48) *seeba'an* *ka'ah* *bin* *t-in-chi'* [adverb]
 fast CONJ go.3B LOC-3A-mouth
 'It went fast into my mouth'

4.2.2 Use of quotative

As in various languages of the world, ideophones are introduced or preceded by a quotative. In Yucatec Maya, the direct quotative is use mainly for direct quotation but also have the broader function of quoting a piece of reality, that is, it can be used to quote utterance (Lucy 1993) but also sounds and even (although more rarely) gestures or, precisely, body movement. In (49) for instance, an actual utterance recorded by the author, of a woman talking about her experience while she was sitting the city having her back hitching. She explained afterwards (when asked by the authors) that she used the root NICH' (mv) 'bite' because the sensation of hitching was as if a little ant was biting her back. In this example, the quotative introduce the event but not the sounds as hitching does not emit any sound. Other examples with quotative were presented above in (33) and (36).

- (49) *kul-ukbal-en* *Kaariyo*, *níich'i'in* *níich'i'in* *kih* *bey-a'*
 seat-POS-1B Carrillo IDPH.bite IDPH QTV MAN-TD

pero *m-in-la'ach-ik* *tumen* *su'ulak-en*
 but NEG-1A-scratch-TR because ashamed/shy-1B

'I was seated in Carrillo, "*níich'i'in níich'i'in*" it says like this, but I didn't
 scratched it because I was ashamed/shy' [note_SCC_01.09.08]

4.2.3 Final position in the sentence

The last slot where ideophone are found in Yucatec Maya is before a silence, most likely at the end of an utterance. In (50), extracted from a narrative, the ideophone derived from the root HOTS' (mv) 'remove', is before a silence of almost 1 second. Additionally, as contrastive feature, the next sentence is started at a higher frequency.

- (50) “*he’la’!* *hots’-eh*” *k-y-a’ala’* *bin* *ti’*
 PRES remove-IMP.TR AM-3A-say.PAS EVID PREP
- ka’ t-u-mach-ah* *ka’ t-u-kóol-ah* *hóohts’o’on!*
 CONJ AM-3E-grasp-CP.TR CONJ AM-3E-pull-CP.TR IDPH.draw.out
 “Here it is! Remove it [the claw]” it was said to him, so they say, so he grasped it
 and he pulled it, *hóohts’o’on!* [narr.baalche_DC_09:36]

4.3 Semantic and multimodality

Ideophones are primarily used in informal contexts and used to suggest vivid imagistic events recreated through language. In being expressive and having a multimodal meaning (sound + image + suddenness), ideophones are usually part of a multimodal production, that is, are often accompanied by a special prosody or voice effect and gestures. Far from being ‘paralinguistic’ or ‘superfluous,’ the gesture associated with ideophones should be taken as a co-production of the speech (Kendon 2004; McNeill 1992; Digemansé 2011). Furthermore, the gesture often gives some insight about the meaning of the derivation. The following examples show how gestures reflect the meaning of the derivation, and hence constitute a useful tool for linguists (although often too rapidly dismissed).

4.3.1 Multimodal production and adequacy with templates meaning

In the example (51), JCC is explaining to the author how the plastic tube installed in the author’s house will prove to be useful in case of heavy rains. The water will get through the tube and get expelled instead of flooding the whole room. In order to verbally recreate the way the water would go through the tube and get expelled out of it, JCC choose to use three roots: HUTS’ ‘a Figure moving toward, near, inside or behind a Ground’ (see also example (35) above), POTS’ (mv) ‘squeeze out’ and TS’IT (mv) ‘eject.’

- (51) *haa le ken k’ax-k e ha’o’ te’ chan ba’al he’el-a’*
 INTJ DET CONJ fall-SBJ DET water-TD DEIC little thing PRES-TD
- ken tak e ha’-o’ h́uuru’uts’ ken ook-ok te’el-a’*
 CONJ fall DET water-TD IDPH.displace CONJ go.out-SBJ DEIC-TD
- póohts’o’on ken hóok’-ok te’el-a’*
 IDPH.squeeze.out CONJ go.out-SBJ DEIC-TD
- h u-bey-tal inw-a’ak-e’ ts’ihti’in ken hóok’-ok*
 AM 3A-MAN-INCH 1A-say.TR-TD IDPH.eject CONJ go.out-SBJ
 ‘haa when the rain will fall [the water will go] in this little thing, when the water
 will come in, *h́uuhru’uts’* it will enter here, *póohts’o’on* it will get out here, I could
 also say *ts’ihti’in* it will get out’

Interestingly, not only the roots but the templates used fit the action described. In order to depict the first event, the water passing through the tube, the speaker used the root HUTS’ ‘figure moving’ derived according to the template 1 fitted for motion event. For the second event however, the roots POTS’ ‘squeeze out’ and TS’IT ‘eject’ are derived according to the template 2n fitted for falling event. The use of the template 2 suggests the image of the water suddenly falling out of the tube but the meaning of the root POTS’ implies that the water will come with force and ‘squeeze out’ of the tube. On the other hand, the second root, also used derived according to template, foreground the idea that the water is coming with forced and hence ‘ejected’ from the tube before falling.

The three ideophones produced by the speaker were all accompanied by a gesture. These gestures were not simple beats but iconic gestures (McNeill 1992). Their have a specific form differs according to templates, giving some cues to better understand the meaning of each derivation. The first gesture produced with *h́uuhru’uts’* is only a finger strait showing where the water is going (i.e. inside the tube), see Figure 3a. This gesture fits the meaning of the template 1 that is basically about motion. The two following gestures used to describe the water falling out of the tube are produced with *póohts’o’on* and then with *ts’ihti’in* and are both finger snaps, see Figure 3b. The finger snap directly glosses the meaning of the derivation (but not the root) suggesting the idea of suddenness

as well as non-repeatable event, a characteristic of template 2 (that can not accept tail repetition, as for instance **póohs'o'ononon* is not acceptable).



Figure 3: gestures accompanying the production of the ideophones and echoing the meaning of the templates: (a) with template 1 and (b) with template 2

4.3.2 Multimodal production and adequacy with vowel and suffix meaning

In example (52), two women are explaining to the author the difference between two ideophonic derivations of the same root CH'IK (mv) 'pin, fix in place.' The choice of the root is motivated by what the women are describing: a women walking with high heels on the earth. When walking, her heels would enter the ground. The choice of the derivation is driven by the image they want to convey, either a rapid motion of several steps, hence the use of the short vowel ideophone, or a focus on the swinging movement of the walking, hence the use of the suffix -i'in.

(52) *ch'ik ch'ik ch'ik k-u-bin e xana'te' lu'um-o'*
 IDPH.pin IDPH IDPH AM-3A-go DET shoe LOC earth-TD

pero he'ex e ch'iki'in-o' k-u-ch'ik-l-e'
 but like DET IDPH.pin-TD AM-3A-pin-NOM-TD

k-u-chan yúum-ba', ch'iki'in ch'iki'in
 AM-3A-little swing-PART IDPH.pin IDPH

'*ch'ik ch'ik ch'ik* goes the high-heel on the ground but with *ch'iki'in*, its (means that) it swings a bit, *ch'iki'in*, *ch'iki'in*'



Figure 4: gestures accompanying the production of the ideophones and echoing the meaning of the templates: (a) with short vowel and (b) with the suffix -i'in

The first derivation with a short vowel *ch'ik* suggests the idea of the heel rapidly and effortlessly entering the ground. The iteration of the ideophone implies that the event

goes again and again. The second derivation however, with the suffix *-i'in*, suggests the repetition of the internal event, i.e. that at each step the heel would swing a little (hence the use of the verb *yíun* ‘move from one side to the other’ by the speaker to explain the type of movement). This difference of meaning between the derivations is reflected in the gesture production of the speaker. Along with the ideophone *ch'ik* the speaker produces several repetitive movements of her index fingers toward the ground to imitate the movement of the high-heels entering the ground (the index finger represent iconically the heel of the shoe), as shown in Figure 4a. The rapid and unique movement fits the meaning of the short vowel derivation. In contrast, while uttering the ideophone *ch'iki'in*, the speaker produces a movement similar in its form (finger downward representing the heel) but this time, the speaker shakes her hand at each repetition, reflecting the internal movement implied by the suffix *-i'in*.

4.3.3 *On the importance of co-speech gesture for linguistic analysis*

Authors like McNeill or Kendon (among others) have suggested and demonstrated the importance of co-speech gestures in human communication (McNeill 1992; Kendon 2004; Enfield, Kita, & De Ruiter 2007; Enfield 2009 *inter alia*). Not only gestures reflect speakers' intentions and cognitive representation (Kita & Özyürek 2003; Özyürek et al. 2008; Kita et al. 2007; Sweetser 2004; Sweetser 2006 *inter alia*), but their form and meaning is designed in accordance with the speech production. Kendon (2004, chap 10) for instance propose six ways in which gestures can echo, narrow or elicit the semantic of the speech. The gesture that accompany examples (51) and (52) echo the meaning of the derivation and would fall in Kendon's “narrow gloss gesture with equivalent verbal expression” category. Noteworthy in this case, the gesture is not reflecting the overall meaning of the sentence but the morpheme (either the template or the suffix meaning). Such production is far from being anecdotal and shows how much gesture is part of language (i.e.: speech + gesture).

It is crucial to remember that the focus of linguists in general on speech only is an epiphenomenon of literacy, so pregnant in the western setting since the antiquity. In indigenous Mesoamerican cultures, communication has always been conducted face-to-face and speakers have maximally exploited the various semantic channels available to them (i.e. speech and gesture). Furthermore, in the Mesoamerican cultural setting there is no ideology that depreciates the importance gesture as in many western modern settings. As a result, in many Mesoamerican cultures we notice an important number of ‘quotable gestures’ (Kendon 1992) (also called ‘emblems’ by McNeill (1992), i.e. gesture that can replace or are equivalent to a word or a verbal expression) that bear a specific meaning (as the OKAY gesture in the US) and that are used to specify the meaning of the speech.

A closer attention to gesture, especially in the analysis of expressive words or morphology (but also time, see (Le Guen & Pool Balam)) is necessary to better understand the structure of the language at a morphosyntactic but also cognitive level.

5 **Origin and lexicalization of ideophones**

As mention throughout this paper, not all roots can derive ideophones and multivalent roots appear to be, as their name indicates, the more flexible class of roots in Yucatec Maya for they can derive a variety of stems. It is also the case that ideophones can be phonologically reduced and change class to become nouns or verbs.

5.1 **What roots can derive ideophone?**

Not all roots can derive ideophones and, according to classes, some root classes are much more flexible in terms of derivation. The database collected encompasses so far 215 roots and is composed a various types of roots (excepts adjective and classifier roots), see Figure 5,

Table 1 and Annex 1. Note that the number of types of ideophones collected is much higher since one root can derive several ideophones.

In the database, the main class that can derive ideophones is the multivalent root class (representing more than half of the roots collected with 115 items, i.e. 54% of the total of the roots). This finding comes to support Lois and Vapnarsky (2006)'s hypothesis that multivalent roots are more undetermined in terms of what stems they can derive. The second more important proportion of roots are the onomatopoeic roots. Although very limited in the range of stems they can derive (in contrast with multivalent), onomatopoeic roots present one central feature present in ideophone: an onomatopoeic character. This

could explain their important number in the database (60 items, i.e. 28%). We also notice a quite large number of positional roots (24 items, i.e. 11%). Their semantic, as mention earlier, make them good candidate for template 2n ideophonic derivation. Active, inactive and substantive roots, although they can derive ideophones are much less present in the database (see

Table 1). One reason has to do with their semantic (especially noun are less fitted to express actions, central in ideophones). Additionally, many active roots present a non-CVC profile (e.g. *ook'ot* 'dance'), excluding them *de facto* as candidate for ideophonic derivation.

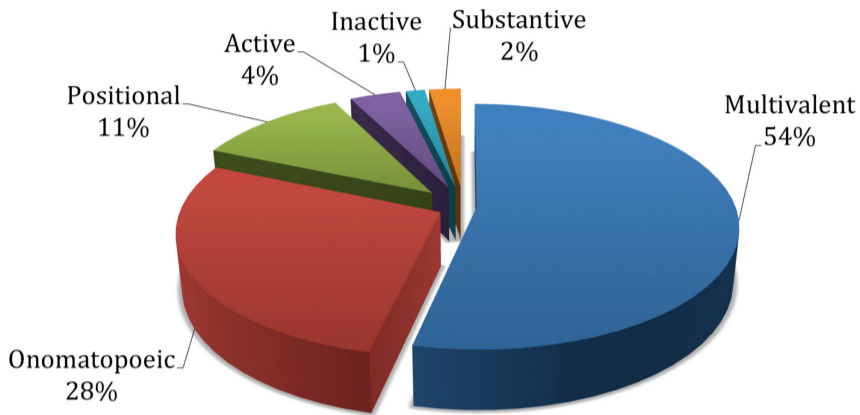


Figure 5: Proportion of roots that derive ideophones from the database

Table 1: proportion of roots that derive ideophone in the database (number and percentage)

Root class	Number	%
Multivalent	115	54
Onomatopoeic	60	28
Positional	24	11
Active	8	4
Inactive	3	1
Substantive	5	2
TOTAL	215	

5.2 Lexicalization of ideophones

Interestingly, ideophones are, as shown throughout the paper, syntactically isolated and cannot have morphology (once derived as stems). As such, ideophones are not easily transposable in other speech contexts. Nonetheless, it seems that speakers find these words attractive and/or practical to describe multilayers event. As a result, for some of these words at least, we notice a tendency towards lexicalization through a process of conversion.

Lexicalization of ideophone is done through phonological reduction (see Figure 6). In the case of templates (the more non-canonic forms for words in Yucatec Maya), the original profile is reduced to CVCVC. The new stems behave like an Active root (when verbalized) or a substantive (when used as noun). Note that in template that are phonologically reduced, the infix */h/* always fall and either the */r/* (for template 1) or the *C₂* (for templates 2) becomes the middle consonant of the new lexicalized stem (see examples 53a-d).

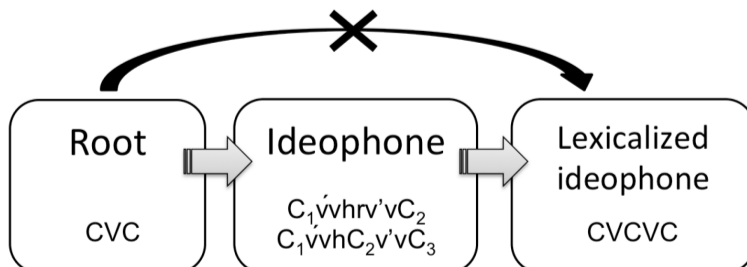


Figure 6: Lexicalization process of ideophones

In the Yucatec Maya lexicon, a significant number of stems are lexicalized ideophones, some of them very common in use. For instance, the verb *pak'ach* 'making tortilla' is the lexicalized form of the ideophone (template 2ch) *páahk'a'ach* itself derived from the root PAK' (mv) 'fold, flap, slap,' as in (53a). A similar process is accounted for *tak'ach* (substantive) 'flip-flop,' the lexicalized form of the ideophone *páahk'a'ach* (template 2ch) derived from the root TAK' 'stick, adhere,' as in (53b). Note that even more precise event description can also get lexicalized. For instance, *wak'ach* 'walking in mud with flip-flop' is the reduced form of *wáahk'a'ach* (template 2ch) derived from the root WAK' 'explode, set off loud sound,' as in (53c). Finally, some lexicalized ideophone have been borrowed as loan into Yucatec Spanish. Their expressive character make them interesting and useful words for speakers to describe or suggest complex event, especially in a language poor in expressives such as Spanish. For instance, the Yucatec Spanish expression *tirixta* is the hispanized form of *tirix ta'* 'strong diarrhea' itself constructed on the lexicalized form of the ideophone *tíhri'ix* derived from the root TIX 'rinse, wash out' and the noun *ta'* 'stool,' as in (53d).

(53) Examples of lexicalized of ideophones

	Root	Ideophone	Lexicalized form
(a)	<i>pak'</i> 'fold, flap, slap'	<i>páahk'a'ach</i>	<i>pak'ach</i> 'making tortilla by hand'
(b)	<i>tak'</i> 'stick, adhere'	<i>táak'a'ach</i>	<i>tak'ach</i> 'flip-flop'
(c)	<i>wak'</i> 'explode, set off loud sound'	<i>wáak'a'ach</i>	<i>wak'ach</i> 'walking in mud with flip-flop'
(d)	<i>tix</i> 'rinse, wash out'	<i>tíhri'ix</i>	<i>tirix ta'</i> 'strong diarrhea'

A more complete examination of CVCVC root is still needed in order to determine to which extant this process has been used to construct stems in Yucatec Maya.

6 Concluding remarks

Ideophone in Yucatec Maya although they share most of the features of ideophones in other languages of the words present a particularity of being derived stems from various classes of roots. However, ideophones as a derivation is not a phenomena only restricted to Yucatec Maya and Kunene (2001:188) for instance mentions that in Southern Bantu languages of Africa, ideophones can be created from monosyllabic verbs with the addition of suffixes. In Kammu, a Mom-Khmer language, Svantesson (1994) also indicates that particular templates are applied to roots to transform them into ideophones. From a typological perspective, such phenomenon points out that fact that ideophones (as expressive morphology in general) should be identified against the structure of the language.

Ideophones in Yucatec constitute a special class of words insofar they differs from other class of word phonologically (they show non conventional profile and are produced with voice effects), syntactically (they are more detached than adverbs they are closed to), morphologically (they have specific derivational templates) and semantically (they present two layers of meaning: root + derivation template).

The productive character of ideophones also allows a better understanding of the structure of the language, especially; it gives us insight about the status of roots and stems. If roots derivation into ideophones is better understood as instantiation (following Lois and Vapnarsky 2006), lexicalization of ideophone is a conversion process.

A multimodal analysis of the production of ideophone, and more precisely the examination of gesture turned out to be a crucial source of information to determine the meaning of the ideophonic derivation. Prosody and phonological analysis could reveal also a lot about the semantic and the use of expressive word.

Finally, in Yucatec Maya as well as in other languages, ideophones, if present in narrations, much more often occur in everyday language, a speech genre generally understudied by linguists. Such fact should only encourage a closer attention to other kinds of discourses and speech genre is needed in the field of linguistic descriptive.

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ANNEX 1: database of roots

	Root	class	definition (most of the definitions are taken from Bricker et al. 1998)	examples of ideophones
1)	<i>bak</i>	onom	[sound]	<i>bak</i>
2)	<i>bal</i>	mv	‘cover, roll over’	<i>balak'</i>
3)	<i>ban</i>	mv	‘fall’	<i>banach; banachachacha</i>
4)	<i>bits'</i>	mv	‘tighten’	<i>bits'</i>
5)	<i>boh</i>	mv	‘sound hollow, knock’	<i>boh; bohchah</i>
6)	<i>bok'</i>	mv	‘stir, mix, beat’	<i>bok'; bok'chah; bok'ochah;</i> <i>borok', bóohro'ok'; bok'ol</i>
7)	<i>bol</i>	onom	(close to <i>bul</i>)	<i>bolok'</i>
8)	<i>bom</i>	onom	[sound]	<i>bom</i>
9)	<i>bóoch</i>	mv	‘peck, strike’	<i>booch; boho'och</i>
10)	<i>bos</i>	pos	‘swollen up’	<i>boos</i>
11)	<i>buch</i>	onom	[sound of footsteps (loud steps but slow)]	<i>buch; búuhru'uch;</i> <i>buruchuchu</i>
12)	<i>buh</i>	mv	‘cut apart, split into two equal part’	<i>buh; buhu'um</i>
13)	<i>buk'</i>	onom	[sound of water]	<i>buk'; buk'uch;</i> <i>buruk'uk'uk'uk'u; buuk'</i>
14)	<i>bul</i>	onom	[sound]	<i>buluk'</i>
15)	<i>bum</i>	onom	[sound]	<i>buum</i>
16)	<i>bus?</i>	onom	[sound of a fall]	<i>bhusu'um; buus</i>
17)	<i>buts'</i>	onom	‘swallow through a tight channel (close to bits)’	<i>buts', buruts'</i>
18)	<i>ch'ah</i>	mv	‘drip’	<i>ch'aah; ch'ah</i>
19)	<i>ch'eb</i>	mv	‘lean on one side’	<i>ch'éehbe'en; ch'ebin</i>
20)	<i>ch'eh</i>	mv	‘extinguish’	<i>ch'ehe'en, ch'eh</i>
21)	<i>ch'ik</i>	mv	‘pin, fix in place’	<i>ch'ik ; ch'íihki'in</i>
22)	<i>ch'uk</i>	pos	‘loosen, slacken, warp, wrinkle’	<i>ch'uhku'um</i>
23)	<i>chaas</i>	onom	rapid event done at once, grabbed by the hand	<i>chaas</i>
24)	<i>chak</i>	onom	[sound]	<i>cháahra'ak</i>
25)	<i>chak'</i>	mv	‘wink, deflate’	<i>chahra'ak'; chak'; cha'ak'a</i>
26)	<i>cheh</i>	mv	‘stick out, exposed’	<i>che'eh, chéhe'em</i>
27)	<i>chel</i>	onom	[sound]	<i>chehlem</i>
28)	<i>chep</i>	mv	‘rub, strike’	<i>chep; chéehpe'en</i>
29)	<i>chi'</i>	onom	[sound]	<i>chi'</i>
30)	<i>chih</i>	onom	[sound]	<i>chiih</i>
31)	<i>chil</i>	pos	‘lie down’	<i>chihli'im</i>
32)	<i>choh</i>	pos	‘hang down’	<i>choh; cho'oh; chooh;</i> <i>chóohho'om; chorox,</i> <i>choroxoxoxo</i>
33)	<i>chok'</i>	pos	‘cram, stuff, shove in’	<i>chok'; chóohk'o'om; chok'ol</i>
34)	<i>chuk'</i>	mv	‘dip (in)’ (as in taking soup with a tortilla)	<i>chuhru'uk'; chúuhk'u'un</i>
35)	<i>chux</i>	onom	[sound]	<i>churux, chuuruxuxuxu</i>
36)	<i>e'?</i>	onom	[sound]	<i>eeeeeh</i>

37)	<i>ep'</i>	act	'cracking because of pressure'	<i>éehp'(é)ech, ehp'echecheche, e'p'eeech</i>
38)	<i>ha'ach</i>	act	'scratching a wide object'	<i>haahra'ach</i>
39)	<i>ha'at'</i>	n	'scratch several objects'	<i>haahra'at'(at'at'a)</i>
40)	<i>hach'</i>	mv	'chew'	<i>hach'</i>
41)	<i>hak</i>	mv	'lower, slip'	<i>háahka'ach</i>
42)	<i>háal</i>	mv	'dig out, spoon out, take out'	<i>halak'; háala'ach</i>
43)	<i>han</i>	onom	'sudden'	<i>haan</i>
44)	<i>han</i>	act	'eat' [sound of eating]	<i>ham</i>
45)	<i>haw</i>	pos	'facing upward'	<i>hahwa'an</i>
46)	<i>hax</i>	mv	'wipe, stroke, beat'	<i>háax; háahra'ax; hahra'axaxaxa</i>
47)	<i>heel-s-</i>	inc	'stay'	<i>he'esi'in</i>
48)	<i>heel</i>	inc	'stay'	<i>heéehle'em, héele'ech</i>
49)	<i>hen</i>	pos	'heavy object sprawling because without internal force'	<i>heen, héehre'en</i>
50)	<i>hep'</i>	mv	'tighten, squeeze, cinch'	<i>hep'ech; heehp'e'ech</i>
51)	<i>het'</i>	onom	[sound]	<i>héehret'e'te'te'</i>
52)	<i>hi'ich</i>	act	'brushing'	<i>hi'ich; hiihri'ich</i>
53)	<i>hi'ix</i>	act	scratch, bumpy, rough'	<i>hiix; hiihri'ix, hihri'ixixixixi</i>
54)	<i>hiin</i>	onom	rapid motion	<i>hii'hiin; hiin</i>
55)	<i>hoch</i>	mv	'rasp, grate, shave'	<i>hóohro'och</i>
56)	<i>ho'ot'</i>	mv	'scratch'	<i>hóohro'ot'</i>
57)	<i>ho'ox</i>	act	'scaly'	<i>hóoro'ox, hóohro'ox</i>
58)	<i>hoom (1)</i>	onom	'buzz, hubbub' (sound)	<i>hom</i>
59)	<i>hom (2)</i>	mv	'make hole, remove bottom'	<i>hohmo'om</i>
60)	<i>hop</i>	mv	'revive fire'	<i>hop, hóohpo'och, hóohpo'om</i>
61)	<i>hos</i>	onom	[sound]	<i>horos, hóohro'os</i>
62)	<i>hots'</i>	mv	'remove a large figure from a ground'	
63)	<i>huch</i>	onom	[sound?]	<i>hiuhru'uch</i>
64)	<i>huh?</i>	onom	[sound?]	<i>hiuhru'uh</i>
65)	<i>hul</i>	mv	'insert a figure into a loose ground'	<i>hiuhlu'uch; huul; huli'in; hiuhlu'uts'</i>
66)	<i>hup</i>	mv	'insert a figure in a tight ground'	<i>hupuch, hiupu'uch, hiupu'uts', hupi'in</i>
67)	<i>hup'</i>	mv	'prick, puncture; entering a Figure in a firm Ground'	<i>hiuhp'u'uch, hiuhpu'uts', hup'i'in</i>
68)	<i>huts'</i>	mv	'a Figure moving toward, near, inside or behind a Ground'	<i>huts'i'in; hiuhru'uts', hiuhts'u'uch; hiuts'u'un</i>
69)	<i>huk</i>	mv	'cover with body, bulge down'	<i>hiuhku'uch, hiuhku'uts'</i>
70)	<i>hux</i>	n	'rough stone (used to scrape skin or sharpen machete)	<i>huurux</i>
71)	<i>k'ach</i>	onom	'sound of a metallic object falling on the ground'	<i>k'áahra'ach</i>
72)	<i>k'al</i>	mv	'close, lock'	<i>k'ahlan k'ahla('a)n; k'áahla'an; k'áahla'ach</i>
73)	<i>k'ay</i>	mv	'sing'	<i>k'ay</i>
74)	<i>k'ech</i>	mv	'turn, deviate, tilt'	<i>k'ech; k'echi'in; k'ehche'en ; k'éerech</i>
75)	<i>k'i'i</i>	onom	[sound]	<i>k'i'i</i>
76)	<i>k'i'ix</i>	n	'thorn'	<i>k'i'irix, ki'hri'ix</i>

77)	<i>k'ob</i>	mv	'loop'	<i>k'ohbo'om; k'ohbo'och, k'obi'in</i>
78)	<i>k'och</i>	mv	'hit, to butt (e.g. with the horns)'	<i>k'óohro'och, k'oroch</i>
79)	<i>k'ol</i>	mv	'beat, strike, hit, tap lightly'	<i>k'óohlo'on; k'óohlo'och; k'oli'in</i>
80)	<i>k'op (1)</i>	onom	[sound]	<i>k'op</i>
81)	<i>k'op (2)</i>	mv	'thump (with closed fist), knock, bump'	<i>k'op; k'óohpo'och; k'óohpo'on</i>
82)	<i>k'oy</i>	mv	'dig inside a tighten ground (e.g. finger in ear)'	<i>k'oy; k'oy'i'in; k'óohyo'och</i>
83)	<i>k'ub</i>	mv	'sink, disappear in water'	<i>k'úuhbu'uch</i>
84)	<i>kech'</i>	n	'frog' [C.308]	<i>kerech'; kéehre'ech'</i>
85)	<i>kel</i>	onom	'sound of crush?'	<i>kéehle'en; kelelelelelen</i>
86)	<i>kíil</i>	onom	'tremble, shake, quake, vibration/sound of sthg falling on the ground'	<i>kihli'im; kilim; kililililil</i>
87)	<i>kip</i>	mv	'slip, slide'	<i>kip, kíihpi'ich, kipi'in</i>
88)	<i>kíts'</i>	mv	'frighten, trmeble'	<i>kíirits'</i>
89)	<i>kop</i>	mv	'roll, twist, screw'	<i>kóohpo'on</i>
90)	<i>koy</i>	act	'fold unevenly'	<i>kóohyo'ots'</i>
91)	<i>kul</i>	pos	'seat'	<i>kuhlu'um, kuli'in</i>
92)	<i>kup</i>	onom	[sound]	<i>kupcha</i>
93)	<i>lah</i>	mv	'slap'	<i>lah</i>
94)	<i>lek'</i>	mv	'open (eye)'	<i>lek'</i>
95)	<i>lem</i>	mv	'pain, sudden and strong'	<i>lem</i>
96)	<i>lets'</i>	mv	'lick'	<i>lets'</i>
97)	<i>look</i>	n	'boil'	<i>lok lok</i>
98)	<i>lox</i>	mv	'punch with the fist, fight, box'	<i>lox</i>
99)	<i>mach'</i>	mv	'flatten'	<i>mach'</i>
100)	<i>max</i>	mv	'bruise, mash'	<i>max; máahxa'an</i>
101)	<i>nat'</i>	mv	'mount, seize'	<i>nat'; náah't'a'ach; náah't'a'an; nat'i'in</i>
102)	<i>nich'</i>	mv	'bite'	<i>ni'ich'; niich'i'in</i>
103)	<i>noh</i>	pos	'facing downward.'	<i>nóohko'om; nohko'om; nóoko'och; noki'in</i>
104)	<i>nóot'</i>	mv	'hard contact (e.g. gnawing bones)'	<i>not'; no'ot'; nóohro'ot'; nóoht'o'och</i>
105)	<i>o'</i>	onom	'sound of throwing up'	<i>o'</i>
106)	<i>op'</i>	mv	'burst, break into pieces'	<i>óohp'o'och; op'ochoch; op'och; óohp'o'on; op'i'in</i>
107)	<i>p'ah</i>	onom	'sound of explosion, opening the mouth'	<i>p'a'ah, p'ah</i>
108)	<i>p'e'</i>	onom	'sound of farting'	<i>p'e'</i>
109)	<i>p'i'</i>	onom	'sound of small farting (high pitch)'	<i>p'i'</i>
110)	<i>p'ich</i>	pos	'pop out (eye)'	<i>p'ich</i>
111)	<i>p'ik</i>	mv	'break off'	<i>p'íhki'ich</i>
112)	<i>p'o'</i>	onom	'sound of fart (low pitch)'	<i>p'o'</i>
113)	<i>p'oh</i>	mv	'bend over'	<i>p'ohho'om</i>
114)	<i>p'u'</i>	onom	'sound of fart (low pitch)'	<i>p'u'</i>
115)	<i>p'uch</i>	mv	'beat, flail (grain, fruit, thresh)'	<i>p'uch; p'úuhchu'un; p'úurhu'uch</i>
116)	<i>p'us</i>	mv	'bend, hump up, swell'	<i>p'úurhu'us</i>
117)	<i>p'ux</i>	pos	'incline, weight down, bend out'	<i>p'uurux, p'uururururu(x); p'úurhu'ux</i>
118)	<i>pach'</i>	pos	'hang, dangle, swoon'	<i>pach', páahch'a'an</i>

119)	<i>pah</i>	onom	‘sound of an explosion’	<i>pah</i>
120)	<i>pak</i>	mv	‘fold, flap, slap’	<i>paki'in; páahka'an; páahka'ach</i>
121)	<i>pak'</i>	mv	‘slap, stick, join violently (e.g. throw mud on a wall)’	<i>pak'; páahk'a'ach; páahk'a'an</i>
122)	<i>pan</i>	onom	‘rapid action’	<i>pa'an; paam</i>
123)	<i>pech'</i>	mv	‘crush, smash, press	<i>pech'en; péech'e'en</i>
124)	<i>péek</i>	inc	‘move, sound, vibrate’	<i>pe'ek</i>
125)	<i>pek</i>	pos	‘stretch out at full length, lay out’	<i>péehke'en</i>
126)	<i>pek'</i>	pos	‘sit on the ground’	<i>pehk'e'em; pek'i'in; pek'chah</i>
127)	<i>pets'</i>	mv	‘pat, crush, smash, press, detain’	<i>péehts'e'ech, péehts'e'en</i>
128)	<i>pik</i>	mv	‘ventilating, moving air (with hand or fan)’	<i>piki; piki'in</i>
129)	<i>pik'</i>	mv	‘clear, lighten, brighten	<i>pi' pik'; pik'i'in</i>
130)	<i>poh</i>	onom	‘sound hollow	<i>poh poh poh</i>
131)	<i>pok'</i>	mv	‘jump, hit’	<i>pok'; póohro'ok'; póohk'o'on; póohk'o'och; póohk'o'ots'</i>
132)	<i>pom</i>	onom	‘sound of a fall’	<i>pom, po'on</i>
133)	<i>pok</i>	onom	‘sound of a hit, a fall’	<i>pok</i>
134)	<i>pos</i>	onom	‘sound of a hit’	<i>póohso'on</i>
135)	<i>pot</i>	mv	‘perforate’	<i>póoho'och; póoho'ots'</i>
136)	<i>pots'</i>	mv	‘squeeze out’	<i>póohs'o'on</i>
137)	<i>pox</i>	onom	‘sound of a fall (soft), small object’	<i>pox; pohxo'on; póorho'ox</i>
138)	<i>puch</i>	mv	‘beat’	<i>puruchuchuchu</i>
139)	<i>puk'</i>	mv	‘dilute, dissolve, mix’	<i>puk'</i>
140)	<i>pul</i>	mv	‘throw, hurl’	<i>puhlu'um</i>
141)	<i>pum</i>	onom	‘sound of a fall (heavy object)’	<i>pum; pu'um</i>
142)	<i>pus</i>	act	‘wipe, shake off (dust)’	<i>púuhsu'um</i>
143)	<i>rin</i>	onom	‘sound (high pitch)’	<i>rii:::n</i>
144)	<i>sit'</i>	mv	‘jump’	<i>sit'i'in; sit'la'an; sit'chah; síiht'i'in; síiht'i'ich</i>
145)	<i>soh (1)</i>	ONOM	‘sound hoarse, hollow’	<i>sóohho'on</i>
146)	<i>soh (2)</i>	pos	‘pile up (soft things without internal force (e.g. leaves)’	<i>sohcha; so'oh</i>
147)	<i>sop'</i>	pos	‘coil up, pile up’	<i>sohp'o'om; sop'; sóohp'o'och</i>
148)	<i>sut</i>	mv	‘return, revolve’	<i>súuhtu'un; súuhtu'uch</i>
149)	<i>t'ach</i>	onom	‘sound of footstep’	<i>t'arach; t'áhra'ach</i>
150)	<i>t'ah</i>	onom	‘sound of explosion. brake’	<i>t'ah; tarah; t'áhha'an</i>
151)	<i>t'al</i>	pos	‘stretch out’	<i>t'ahla'an</i>
152)	<i>t'eh</i>	mv	‘hit with the side of a large object’	<i>t'eh</i>
153)	<i>t'ich</i>	mv	‘hand over, extend towards’	<i>t'ich</i>
154)	<i>t'ik</i>	mv	‘unravel’, thin out	<i>t'ik</i>
155)	<i>t'in</i>	mv	‘tighten’	<i>t'in</i>
156)	<i>t'ob</i>	onom	‘splash in water’	<i>t'obon, t'óohbo'on</i>
157)	<i>t'och</i>	mv	‘peck, strike’	<i>t'och; t'oroch</i>
158)	<i>t'on</i>	mv	‘bend’	<i>t'óohno'on</i>
159)	<i>t'óoh</i>	mv	‘strike, hit’	<i>t'oh; t'óohho'on</i>
160)	<i>t'ub</i>	mv	‘submerge’	<i>t'ub; t'ubum; t'úuhbu'uch</i>
161)	<i>t'uch</i>	pos	‘perch, squat (on the	<i>t'uhchum; t'uchi'in</i>

			thinner part of the body)'	
162)	<i>t'un</i>	onom	[sound]	<i>t'um; t'un</i>
163)	<i>tah</i>	onom	[sound]	<i>tah</i>
164)	<i>tak</i>	mv	'position, stick under/among'	<i>tak; tahkan; t(a)rak; trak</i>
165)	<i>tak'</i>	mv	'stick, adhere'	<i>tak'; tak'ach; táahk'ach; t'áahk'a'an</i>
166)	<i>tan</i>	onom	[sound]	<i>tan; ta'an</i>
167)	<i>tap'</i>	mv	'hit between two objects'	<i>tap'; táahra'ap'; táahp'a'ach</i>
168)	<i>tas</i>	mv	'spread out, expend'	<i>taas; tas</i>
169)	<i>tats'</i>	mv	'plane, straighten'	<i>tats'</i>
170)	<i>teh</i>	mv	'crack'	<i>teh, tehchah ; téehhe'en</i>
171)	<i>tek</i>	onom	'immediately, suddenly'	<i>téehke'en</i>
172)	<i>tep'</i>	mv	'burst, break (rope)'	<i>téehp'e'em, tep'ech; tep'e'ex</i>
173)	<i>tip'</i>	mv	'increase, exceed, augment'	<i>tip'; tip'i'in; t'ip'irix; tíihp'i'in; tíihp'i'ich</i>
174)	<i>tis</i>	mv	'spurt'	<i>tis; tiris</i>
175)	<i>tix</i>	mv	'rinse, wash out'	<i>tíirix; tíihri'ix</i>
176)	<i>toox</i>	mv	'pour, scatter, rain'	<i>toorox; tóohxo'on</i>
177)	<i>top'</i>	mv	'bloom, small explosion'	<i>top'; top'la'an; tóohp'o'on</i>
178)	<i>ts'eh</i>	mv	'chip, crack'	<i>ts'eh; ts'eeh</i>
179)	<i>ts'i'</i>	onom	'sound of high pitch (e.g. a fart)'	<i>ts'i'; ts'i'i</i>
180)	<i>ts'it</i>	mv	'eject'	<i>ts'íiht'i'in; ts'íiht'i'ich</i>
181)	<i>ts'op</i>	mv	'pinch, bore puncture'	<i>ts'op; ts'ohpo'om; ts'óohpo'och; ts'opi'in</i>
182)	<i>ts'ot</i>	mv	'insert'	<i>ts'ot; ts'óohpo'och; ts'óohpo'och; ts'oti'in</i>
183)	<i>ts'us</i>	mv	'crouch, stoop'	<i>ts'urus; ts'úuhru'us</i>
184)	<i>tsah</i>	mv	'fry'	<i>tsaah</i>
185)	<i>tsak'</i>	onom	'sound of a cut'	<i>tsak'; tsáahk'a'ach; tsáahk'a'an; tsak'i'in</i>
186)	<i>tsan</i>	onom	'sound of a slamming door'	<i>tsam; tsáahra'an</i>
187)	<i>tsin</i>	onom	'high pitch sound, buzz'	<i>tsirin; tsiin tsiin</i>
188)	<i>tsoh</i>	pos	'crush'	<i>tso'oh; tsohi'in; tsóohho'on</i>
189)	<i>tuk (1)</i>	onom	'sound a small explosion'	<i>tuk</i>
190)	<i>tuk (2)</i>	pos	'pile up'	<i>túuhku'un; túuhku'uch</i>
191)	<i>tuk' (1)</i>	pos	'twist, dislocate'	<i>tuk'; tuhk'u'uts'</i>
192)	<i>tuk' (2)</i>	mv	'bulge, knot'	<i>túuhk'u'um</i>
193)	<i>tul</i>	mv	'make overflow, gush'	<i>tuhlu'uk'</i>
194)	<i>tup'</i>	mv	'smash, break'	<i>tup'; túuhp'u'uch; túuhp'u'un</i>
195)	<i>tuts'</i>	pos	'lie, stretch out'	<i>túuhts'u'un</i>
196)	<i>wach'</i>	mv	'untie, loosen'	<i>wach'; wáahra'ach'; wáahch'a'an</i>
197)	<i>wak</i>	mv	'swell up'	<i>wak</i>
198)	<i>wak'</i>	mv	'explode, set off loud sound'	<i>wak'; wáahk'a'ach; wáahk'a'an</i>
199)	<i>wan</i>	pos	'seated on the bottom?'	<i>waran; wani'in; wáahra'an</i>
200)	<i>was</i>	mv	'stretch, split'	<i>was</i>
201)	<i>wat</i>	mv	'break, divide in half'	<i>wáahta'ach; waahta'an; wati'in</i>
202)	<i>wax</i>	onom	[sound]	<i>wáahra'ax</i>
203)	<i>weh</i>	onom	'sound of the water. liquid'	<i>weeh; we'eh</i>

204)	<i>wek'</i>	mv	'lying smashed, dash to pieces'	<i>wéehre'ek'</i> ; <i>wek'</i>
205)	<i>wich'</i>	mv	'whip'	<i>wich'</i> ; <i>wíhri'ich'</i> ; <i>wíhch'i'in</i>
206)	<i>wits'</i>	mv	'sprinkle (liquid)'	<i>wíhts'i'in</i>
207)	<i>wix</i>	mv	'urinate, liquid gushing'	<i>wirix</i>
208)	<i>wooh</i>	mv	'to loose'	<i>wooh</i> ; <i>wóohho'och</i> ; <i>wóohho'on</i>
209)	<i>xaw</i>	pos	'positioned in the form of claw'	<i>xáahwa'an</i>
210)	<i>xik</i>	mv	'break apart, crack, split'	<i>xíhki'in</i>
211)	<i>xuk</i>	mv	'Figure standing on a Ground loosely rooted'	<i>xuhku'um</i>
212)	<i>yach'</i>	mv	'flatten, smash, crush'	<i>yach'</i> ; <i>yach'i'in</i>
213)	<i>yech'</i>	mv	'flatten, smash, crush with force' (close to <i>yach'</i>)	<i>yech'</i> ; <i>yéehch'e'en</i>
214)	<i>yin</i>	onom	'rapid motion'	<i>yiin</i>
215)	<i>yuch'</i>	mv	'crumple, fold, dent (metal)'	<i>yúuhch'u'um</i> ; <i>yuch'i'in</i>