

# The Orthographic Conventions of Maya Hieroglyphic Writing A Contribution to the Phonemic Reconstruction of Classic Mayan

## Research Proposal

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### 1. Specification

The PhD thesis shall investigate to what extent orthographic principles of Maya hieroglyphic writing can contribute to the reconstruction of the written language. Above all, the vocalisation of certain grammatical morphemes are taken as a showcase for this question.

### 2. Thesis Topic

As per the current state of research, the Maya were the only civilisation of the Americas to develop a writing system capable of phonemically denoting language and not just by mnemonic or rebus principles as e.g. in Nahuatl writing (Whittaker 2009). The logosyllabic nature of Maya writing hereby supports the morphosyntactic structures of the spoken language.

Like any phonemic writing system, Maya writing comes with orthographic rules that allow both the author and the recipient to establish a correlation between a phonemic string and a graphemic string. This is achieved by the usage of discrete graphemes and graphotactical rules. The underlying orthographic rules exhibit a number of ambiguities according to the current state of research. This led to a number of reconstructions in Maya epigraphy when a sign string is transferred into a phonemic string during transcription. The orthographic patterns, which are functionally explainable, have only recently moved into the focus of a phonemic research on an empirical data basis. This is similar to Egyptology which for a long time applied a conventionalised scholarly pronunciation, but focuses now on the vocalisation of the purely consonantal hieroglyphic script (Peust 1999).

The current thesis shall further focus on the phonemic reconstruction of the written language (Wichmann 2006: 284-288). Recent research has already delivered some results concerning the orthographic indication of phonemics within a lexical morpheme: vowel complexity, consonant deletion and underspellings. I will concentrate on the spellings of grammatical morphemes and their interdependency at morphemic boundaries (Lacadena and Wichmann 2005, Mora-Marín 2003, 2010).

#### 2.1 Morphosyntactic Premises

In Mayan roots of a /CVC/ pattern, the length of the central vowel (/V/, /VV/, /Vh/, /V'(V)/) may produce a different meaning (e.g. *chak*, “red, great” vs. *chahk*, “Rain God”). The vowel length is indicated by disharmonic spellings (/CV<sub>1</sub>-CV<sub>2</sub>/), but the current mechanisms are under debate (Houston, Stuart and Robertson 1998, Lacadena and Wichmann 2004, Robertson, Houston, Zender and Stuart 2007).

The majority of grammatical morphemes is realised by syllabograms of a /CV/ structure as suffixes attached to the root. This structure is specifically suited to reconstruct the vocalisation of suffixes, as most suffixes are of a -VC structure. A purely syllabic sign chain of a basic root and a suffix will have the structure /CV-CV-CV/, whereas a mixed logosyllabic morpheme string can graphotactically be analysed as /CVC-CV/. The first example would become CVC-VC in transcription, while in the second case the vowel needs to be reconstructed on the basis of linguistics premises as CVC-/V]C. Syllabic substitutions may thus provide an indication for the suffix vowel, either by the final sound of the spelling for the lexeme or by the initial sound of the grammatical morpheme.

It is the aim of the thesis to investigate these cases on a lexical and grammatical basis of the Classic language and related Mayan languages. It also shall consider the morphosyntactic conditions, as the suffix vowel in many cases produces a functional distinct suffix (e.g. -am, present participle vs. -om, future participle).

## 2.2 Graphotactical and Phonemic Premises

The basic graphotactical premises were already detailed some decades ago (Gates 1931: ix-x, Thompson 1950, 1962) as well the functional aspects. These are the structure of syllabograms and logograms, known from the first decipherments of the phonemic approach (Knorosov 1952, 1955, 1965).

After the general acceptance of the phonemic approach, first considerations of the phonology came in the early 1980ies with respect to orthography. Of particular importance is the work by Bricker (1986) who outlined the morphosyntax under aspects of comparative linguistics and detailed them with epigraphic data, but also by another set of studies (Justeson and Campbell 1984).

Only recently work has begun to process the phonemics of the Classic language on a lexical basis. An empirical research of the epigraphic data provided the necessary statistical relevance. Already Knorosov (1965: 174-175) described the principle of vowel harmony to produce phonemic strings by using syllabic signs. Hereby, the final vowel of the last syllabogram mirrors the root vowel of the lexeme. Deviating disharmonic spellings were not recognised by him. Houston, Stuart and Robertson (1998) demonstrated that vowel disharmony is an indicator for vowel length. The original hypothesis backs off with the analysis of the epigraphic data and just points out the indication. A revision by Lacadena and Wichmann (2004) concludes that there is a regular relationship between the disharmonic vowel and the complex root vowel, an approach heavily criticised by Robertson, Houston, Zender and Stuart (2007). Discussion continues, as the reply also operates on premises with the doubtful sign class of morphosyllables (Gronemeyer n.d.). Furthermore, the existence of complex vowel signs (Wichmann 2002b) has also been proposed.

During the Colonial period, some Mayan languages, like Yucatec, still marked the distinction between a velar /j/ and a glottal spirant /h/ which also functioned to separate between meanings. Grube (2004) was able to demonstrate by syllabic complementation patterns that this distinction was also present and orthographically marked in hieroglyphic writing (e.g. *hul*, “arrive” vs. *jul*, “pierce”). A revision of the syllabary was therefore possible.

Historical linguistics has contributed much to explain the system of phonemic underrepresentation in Maya writing. Weak consonants can be omitted in word-final position (Lacadena 2001, Zender 1999: 135-142) as well as in consonant groups. Some indicators can also orthographically be given (Wichmann 2004). Other phonemes underrepresented in writing can be reconstructed with comparative linguistics, as the passive voice derivation infix *-h-* from the languages of the Eastern Ch’olan branch (Bricker 1986: 128-129, Lacadena 2004: 168-171).

Some new approaches regarding grammatical suffixes have also been discussed in the past years (Houston, Robertson and Stuart 2001, Lacadena and Wichmann 2005, Mora-Marín 2003, 2010). They are, even to a higher degree than the studies dealing with the phonemics of lexemes, supported by an impressionistic approach in gathering the data to formulate a hypothesis. The application of a syllabogram to indicate a suffix can be different with the same grammatical function as well as there are variations with the final vowel of the syllabogram spelling the final consonant of the lexeme. These orthographic shifts, which are inherent to the syllabic nature of the writing system seem to be the key for an exact phonemic reconstruction.

Vowel length may be involved in the suffix domain as well (Lacadena and Wichmann 2005). The thesis thus shall also consider interdependencies of spellings at morphemic boundaries and generally clarify on the application feasibility of disharmony rules in the suffix domain. A reconstruction and transcription depends on whether the final vowel is considered as a reflex of the root vowel or integrated at boundaries into the spelling of the suffix. These questions have thus far not systematically been investigated and shall be treated as a centrepiece of the thesis.

Besides the two functional classes of the syllabograms and logograms, Houston, Robertson and Stuart (2001: 14) have introduced a new class which they describe as morphosyllabic signs. Under the principle of sound inversion (Bricker 1986: 128) they have created a class to not only indicate but really denote grammatical morphemes. Several critiques have been raised (Wichmann 2006). As the thesis pursues a syllabic approach with the reconstruction of the phonemics of grammatical morphemes, the morphosyllabic hypothesis has to be rejected (Gronemeyer n.d.). Even if it was proposed on an empirical basis, it remains a postulate on a misconception of the nature of syllables. Nevertheless, the functional differences worked out between different nominal inflections to demonstrate the morphosyllabic principle remain an important part in the thesis.

### 3. Desiderata and Aims

The phonemic reconstruction is thus far mainly subject to impressionistic deductions of the graphotactic and orthographic premises. It is combined with intuitive beliefs of epigraphers that have been presented with the application of certain hypotheses.

Despite the several thousand inscriptions and the much greater amount of lexemes, expressions and inflections, the research on the orthographic realisation and indication of certain phonemes in determined surroundings was only selective. Numerous linguistic research has produced lexicons of Mayan languages, and certain aspects of the verbal (Bricker 1986, Lacadena 2000, 2004, Wald 1994, 2007) and nominal (Bricker 1986, Houston, Robertson and Stuart 2001) inflection in the hieroglyphic writing were functionally determined.

For the first time, it is the aim of the thesis to gather all available examples of certain spellings and to analyse them on an empirical, lexical, grammatical, language geographical and diachronic basis. This will happen under the premises sketched above. Regarding the phonemics of bound morphemes, a morphosyntactic and functional designation will take place to classify homophonous affixes.

### 4. Methodology

The outline of the morphology will be separated into a general overview, a detailed explanation of the showcases to be examined and the analytical approach proper.

#### 4.1 Overview

All Mayan languages are quite productive with respect to derivation through grammatical morphemes. There is a number of morphemes thus for any root to modify it in terms of mode, lexical class or the syntactic function. To examine patterns of the orthographic realisation, it is necessary to gather epigraphic data for the spellings of an inflected lexeme, ideally in all possible derivations and syntactic functions. The bound morphemes to be found then need to functionally be determined by comparison with grammars and lexicons. In what way identical spellings can indicate morphemes of different functions and how divergences need to be isolated was recently pointed out by Beliaev (2004) with one showcase.

#### 4.2. Showcases

To retain the thesis in a manageable coverage, the morphemes to be investigated will quantitatively be cut to four showcases that will nevertheless produce qualitative results. Basically, the suffixes known from the writing system can be grouped into four major categories: (1) suffixes with an invariable vowel, (2) suffixes with an initial vowel mirroring the root vowel, (3) suffixes with a variable vowel and (4) suffixes of the structure *-CVC*. Current research may define a fifth group with a restricted function, but which grammatical nature is not fully clarified. The results from the first three groups may be able to explain these cases, but can also act as a control mechanism. The selection of a showcase from one of the groups allows to transpose the results to other instances from the same group. This can be cross-checked by control cases. The thesis will investigate the following showcases:

For Group 1: The suffix *-aj*, as it functions as the thematic suffix for the passive voice (Lacadena 2004), but also as a marker for unpossessed and absolute nouns (cf. Houston, Robertson and Stuart 2001: 46) and for the inchoative derivation of a noun (cf. Houston, Robertson and Stuart 2001: 39-42). A control case could be the suffix *-el* for partitive possession.

For Group 2: The suffix *-Vw* which is the modal marker for the indicative of transitive verbs (Bricker 1986), as it can also show a direct orthographic comparison to roots which have been turned into passive voice in Group 1. The control case can be *-Vy* for the so-called mediopassive (cf. Houston, Robertson and Stuart 2001: 16).

For Group 3: The suffix *-Vb* used to mark the instrumental (Wichmann 2002a) with verbal roots. It has a preference for the vowels [a] and [i], so it may follow phonological regularities. The control case may be *-Vl* for the possessive status which can also show the interdependencies when an absolute noun from Group 1 gets possessed.

For Group 4: This group will not be tangled in the thesis, as by their structure the morphemes have either a */CV-CV/* or */CVC/* spelling and show no interdependency with the root spelling.

For Group 5: The suffix *-Vj* to represent a “perfect” of (derived) transitive verbs (MacLeod 2004) or, in its alternative view, to be part of a temporal deictic clitic (Wald 2004) which replaces the

suffix  $-Vw$  from Group 2 in a relative anteriority (MacLeod 2004: 298, 304). No control case can be suggested.

### 4.3 Phonemic Integration at Morpheme Boundaries

As the vowel integration works only with  $-VC$  suffixes, there are two possibilities given. Firstly, the final vowel of the lexeme remains silent, thus no changes to the spelling of the root will occur. Secondly, if an integration takes place, the sign string shall undergo changes according to the suffixation to facilitate it. One or the other can of course only happen if no morphosyllabic signs indicate a bound morpheme. Is the lexeme in any spelling only represented by a logogram, spellings of the suffixed morpheme are to be compared with syllabic substitutions. Additionally, spellings for the mere root need to be isolated to identify patterns of synharmonic or disharmonic spellings for the indication of the vowel complexity. The analysis will follow a three-tire approach.

The spellings of a specific lexeme known from the epigraphic data firstly needs to be grouped according to the function of the suffixes. They need to be considered as a closed group in the analysis of the orthographic rendition. For the review of the hypothesis and the analysis, the spellings can then be grouped into four facultative groups: (1) affirmative, (2) ambivalent, (3) non-affirmative and (4) doubtful. Affirmative are those spellings that show variations for the spelling of the root lexeme with a syllabic sign that mirrors the vowel of the suffix. Ambivalent are mainly those spellings that have the root realised via a logogram, but also those of an uncertain function. The non-affirmative cases contradict the assumption of vowel integration. Finally, the doubtful cases are those that elude a proper analysis or can otherwise not be determined. Concerning the quantity of examples for each group, a first assessment can be given on the validity of the hypothesis.

In a following step, the groups formed for the whole of all lexemes can be compared among each other. If there is a statistically relevant overlapping with the groups of the other lexemes, more arguments on the validity are gained.

In the third step, the orthographic rendition of the sign string can now be compared to the functionally determined requirements of the lexicons and grammars in consideration of the vocalisation. If there is phonemic consistency as well, the hypothesis can be taken as granted with a high probability.

This three-tire approach needs to be taken for each of the four showcases. Of course, the result that any of the showcases proves the hypothesis to be true does not mean that automatically all other groups will not be false. It may be possible that less care was taken by the scribes to properly indicate congruency with fixed vowel suffixes than with those that exhibit a variable vowel, where special need may be given to unambiguously spell the vowel by integrating it.

The cases classified as ambivalent are also of interest when the lexeme is only realised by a logogram. As a considerable number of data suggests, the final sound of the syllabogram indicating the grammatical morpheme may provide a clue to the correct vocalisation of the suffix. This would also specifically need to be pursued in the thesis.

It is also important to consider morphemic vowel syncope (cf. Mora-Marín 2003: 27, 29), an aspect that has rarely been tracked down thus far by epigraphers. As writing denotes language, it is reasonable to assume that phenomena of the spoken language also occur in writing. When vowels get deleted in this process, how does that affect spellings in contrast where it may not happen? This again will help to trim the hypothesis by means of special cases.

Other comparisons for the hypothesis of vowel integration at morphemic boundaries are orthographically secured cases of prevocalic prefixes. Here, the final sound of the syllabogram mirrors the initial sound of the lexeme. Besides being a control instance, this would also contradict the morphosyllabic approach (Gronemeyer n.d.).

### 4.4 Linguistics Affiliation

Additional to this methodological scheme, more precise data of the written language can be obtained when these general patterns are scrutinised under a geographical and diachronic perspective.

As several investigations and considerations on the genetic affiliation of Classic Mayan and influences by vernacular languages have shown (Grube 1990: 14, Houston, Robertson and Stuart 2000, Kaufman and Norman 1984, Lacadena 2009, Lacadena and Wichmann 2000, 2002, Riese 1971: 213, Wichmann 2002a, 2006), the written language is closest to the ones of the Eastern Ch'olan branch. Comparisons with other Ch'olan languages, Yucatecan and Tzeltalan regarding the phonemic structure

of their morphemes shall also place strengthening arguments for the affiliation of Classic Mayan. Vernacular influences in the periphery of Maya writing can also be traced more precisely.

As the investigation of Houston, Robertson and Stuart (2000) regarding the transitive verbal system has proven, epigraphic data for specific language stages of the Ch'olan branch can be found in the inscriptions. This helps to reconstruct the vocalisation of morphemes for different stages of Classic Mayan and to cross-check with the results of historical linguistics, also in terms of dating. This basically covers the development between Proto-Ch'olan (Kaufman and Norman 1984) to the Colonial (e.g. Smailus 1973) and current Ch'olan languages in particular.

## **5. Outlook**

The precise elaboration of the phonemics of Classic Mayan can delineate the function of certain affixes. The lexicon and grammar can better be classified in terms of historical linguistics and the affiliation to other Mayan languages. A constant improvement and harmonisation of the phonemics and phonology of Classic Mayan was achieved since the breakthrough of the phonemic approach (Knorosov 1952, 1955, 1965). The epigrapher is increasingly able to pronounce the language of the hieroglyphic inscriptions. There will always be certain ambiguities, but the present thesis will be able to close certain gaps in understanding and also calibrate readings. This will hopefully lead to a concise treatise of the lexicon and grammar of Classic Mayan and a uniform guideline for the epigraphic analysis, as Egyptology has it for long (Gardiner 1957, Schenkel 1997).

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