A Review of Recent Work on the Decipherment of Epi-Olmec Hieroglyphic Writing

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Introduction

Comment: Overall, the mistakes are these two: The syllable wʉ shows up as wʔ instead, and the sound ʉ appears as ʔ (glottal stop), regardless of context. Also, question marks were converted to glottal stops <ʔ> that shouldn't have.

This paper aims to review key assumptions and methodological strategies applied by Justeson and Kaufman (1993, 1996, 1997) and Kaufman and Justeson (2001, 2004) in their recent work on Epi-Olmec decipherment. The goal is not to assess whether the long list of requirements for a decipherment provided by Houston and Coe (2003) has been met, to propose an analysis of the Teotihuacan-style mask, or to critique the alleged immodesty of the works in question, but simply to determine whether one specific requirement, which this author judges to be crucial of any scientific endeavor, is met: Is the methodology applied with the goal of testing hypotheses, or the goal of imposing a hypothesis on a set of data regardless of the patterning described by such data? In other words, a trial and error learning process should be in evidence: a successful result in one environment is multiplied by its continued testing in varied environments, or rejected if it is not shown to be fruitful elsewhere. If the proposed decipherment is to be taken seriously, separate hypotheses for separate signs (i.e. not assuming allography from the beginning), and separate contexts for the same signs should lead to a cumulative and cohesive result. The paper also discusses, consequently, the notion of "coherence," focusing on the claim by Justeson and Kaufman that their results are grammatically coherent only in terms of Mixe-Zoquean grammar, at least when considering the languages that are or have been spoken in the area of Epi-Olmec writing. Lastly, I have utilized, in the present discussion, only what is available to any scholar from published sources.

Preliminaries

Before proceeding it is necessary to provide illustrations of the Epi-Olmec signs that are discussed below (**Figure 1**), along with their "MS" catalog numbers by Macri and Stark (1993), and their proposed values by Justeson and Kaufman (1993, 1997) and Kaufman and Justeson (2001, 2004).

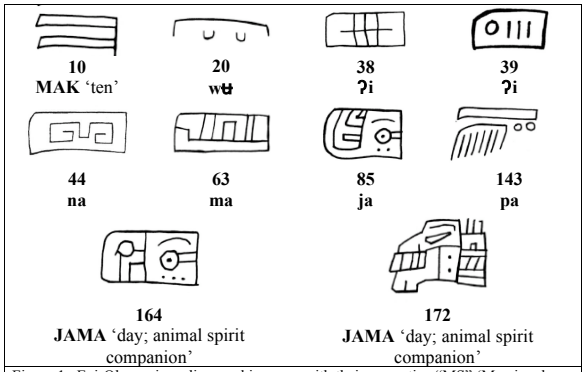

Figure 1. Epi-Olmec signs discussed in paper with their respective "MS" (Macri and Stark 1993) sign catalog numbers and proposed syllabographic values (bold, smallcase letters) and logographic values (bold, capital letters) by Justeson and Kaufman (1993). All drawings by the present author.

Review of Methods

Under the heading "Inference Methods" in their 1993 *Science* article, Justeson and Kaufman (1993:1707) state:

> With the use of [the aforementioned orthographic assumptions of a logosyllabic script with minimally CV syllabograms], reconstructed Mixe-Zoquean patterns of grammatical affixation provided us with a systematic framework for phonetic decipherment. Such patterns provide clues to the pronunciation because grammatical affixes are almost always spelled by phonetic signs; we first read several epi-Olmec signs by means of their roles as grammatical affixes. The other major sources of evidence are the reconstructed vocabularies of proto-Mixean, proto-Zoquean, and proto-Mixe-Zoquean. We could exploit them because clues to the meanings of some written words can be inferred from patterns of dates, from similar logograms and symbols in the writing and iconography of other early cultures in southern Mesoamerica, and from correspondences between certain syntactic patterns and semantic properties.

Houston and Coe (2003) do not make reference to the above paragraph directly, but only vaguely, and omitting mention of the most specific methodological assumptions

and procedures presented in it: namely, that, if spelled at all, "… grammatical affixes are almost always spelled by phonetic signs," when many writing systems are taken into account, and that assuming this, the authors "first read several epi-Olmec signs by means of their roles as grammatical affixes." Indeed, it was the use of a Mixe-Zoquean grammatical framework that allowed Justeson and Kaufman to begin their work in general, and it was their specific assumption that frequently occurring and rigidly patterned signs were likely to be, first, syllabograms, and second, phonetic spellings of grammatical affixes. For example, Justeson and Kaufman (1993:1708) explain that "Pre-proto-Zoquean verbs are required to take one of six tense-aspect-mood suffixes." Of the six, they continue, "The independent completive suffix *-*wʉ́* is easily the most common in Mixe-Zoquean, and it occurs frequently in narrative texts," adding that[1]:

> The syllable ***-wʉ́*** would be spelled by a CV syllabogram, which would be very frequent at the ends of words and rare elsewhere in any epi-Olmec text. MS20, the most common sign in our texts, is always or almost always word-final—it ends repeating sign sequences and many columns—and its word-final frequency far exceeds that of any other sign. It can hardly be other than a syllabogram for ***wʉ́***...

The authors note too that Proto-Mixe-Zoquean had a relativizing enclitic *+wʉ́?* (transliterated as *+wʉ́* in Justeson and Kaufman [1993:1703], but as *+wʉ́?* in Kaufman and Justeson [2001:98], with <+> indicating that a morpheme functions as a clitic, not an affix). This enclitic would be used after nouns and adjectives in order to form words meaning 'the one(s) who [VERB](s)' or 'the one(s) who is/are a [NOUN]'. Those authors note that the same sign that they identified, in terms of grammatical context and frequency, as a syllabogram **wʉ́**, also occurs after what they identified as titles, based on their iconic motivation and similarity to titles in other scripts in Mesoamerica. This "twin usage" of sign MS20, they propose, "not only confirms the reading but is also a signature of Mixe-Zoquean grammar, confirming the hypothesized language identification" (Justeson and Kaufman 1993:1708). In other words, the dual function of the syllabogram **wʉ́** to spell two phonetically very similar morphemes, 'independent completive (of verbs)' and 'relativizer (of nouns and adjectives)', entails a pattern that would not be found in Mayan: first, because the 'completive/plain' status in Mayan writing shows two distinct forms, one for transitive roots, and another for intransitive roots, a distinction not present in Mixe-Zoquean or the Epi-Olmec texts; and second, because neither of the 'completive/plain' status markers in Mayan, be it the transitive or intransitive, is near-homophonous with a marker that functions as a relativizer. Thus, an initial hypothesis of MS20 as a syllabogram **wʉ́**, used to represent the 'independent completive' suffix *-wʉ́*, is supported and strengthened by its apparent use as a relativizer of nouns and adjectives, *-wʉ́?*, given that both could be represented by the same syllabogram.[2] An example that

[1] Here it is important to note that the phonetic sequence *wʉ́* would be expected to be "rare elsewhere" in Epi-Olmec texts, that is, other than at the end of words, because it is in fact rare elsewhere in the spoken languages (Justeson, personal communication 2005).

[2] Additionally, Kaufman and Justeson (2001:28) note that the sign for the numeral TWO depicting two dots was on occasion used as an allogram of **wʉ́**, a pattern they explain on the basis of the Zoquean term for 'two', **wʉ́stʉ́k*, which begins with the phonetic sequence *wʉ́*, and therefore could have served as an

illustrates this dual use of is seen in **Figures 2a-b.** First, the spelling IX-**ja-ma** for '9 days' shows that the sequence MS85:63 functions as a noun. Second, the spelling **ja-ma-wʉ́** shows that a noun such as that spelled by MS85:63 can take **wʉ́**. Also, an example that illustrates the verbal suffix use of **wʉ́** is seen in **Figures 2c-d**. First one finds the use of MS31 STAR in a spelling **ma-MATZA?-?tza**, followed by a spelling showing STAR-**wʉ́**, as a possible verb given the use of **wʉ́**. The expected constituent word order in an intransitive clause would be Subject-Verb. Here one finds **ma-MATZA?-?tza** STAR-**wʉ́**, where **ma-MATZA?-?tza** 'star' could be the subject and STAR-**wʉ́** verb—presumably a verb referring to the (apparent) behavior of a star or of stars in general. Justeson and Kaufman (1993) gloss this possible verb as 'shone' precisely because of the grammatical and semantic constraints just mentioned. The same clause is repeated at R5-R8 on La Mojarra Stela 1.

Comment: The question mark before **tza** is supposed to be a question mark.

Comment: Ditto

Comment: Ditto

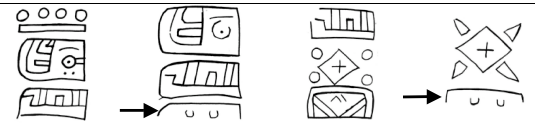

Figure 2. a) Count of days: IX-**ja-ma** '9 days', from R12-R13 on La Mojarra Stela 1. b) Proposed relativized form of 'day/nagual': **ja-ma-wʉ́** for *jama+wʉ́* 'who/which is a day/nagual', from Q31-Q33 on La Mojarra Stela 1. c) **ma-MATZA?-?tza** for *matza?* 'star', from C1-C2b on La Mojarra Stela 1. d) STAR- **wʉ́** for 'STAR-ed', a completive form of an independent verb spelled by the STAR sign, proposed by Justeson and Kaufman (1993) to be 'shone', from C3 on La Mojarra Stela 1. All drawings by the present author.

Justeson and Kaufman (1993:1708) also note that MS143 appears in contexts that are structurally equivalent to the use of MS20, their proposed syllabogram **wʉ́**, used to represent the 'independent completive status marker'. Based on this pattern they suggest that MS143 represents ***-pa*** 'independent incompletive status marker'. The authors assume here that MS143 is not an allogram with the value **wʉ́**, but instead a syllabogram with a different value altogether. Thus, they are assuming that for each Mixe-Zoquean syllable only one syllabogram is used, revising this assumption only when other evidence requires them to do so. As way of comparison, in Mayan writing, some syllables can be represented by multiple signs (allograms). But it is a worthwhile assumption for the purpose of initial decipherment work—an assumption of simplicity—to assume that each syllable is represented by one syllabogram, and resort to proposing multiple allograms when the evidence demands it. The authors continue:

acrophonic source for a syllabogram **wʉ́**. Ayala (1983:197) and Méluzin (1987:69) had previously suggested, based on the evidence from the Tuxtla Statuette alone, that MS20 was a clause-ending sign, an analysis tested, supported, and accounted for by Justeson and Kaufman (1993) in their work.

A ***pa*** reading for MS143 is confirmed by the spelling SKY-***pa*** […]; the only Mixe-Zoquean word for 'sky' (proto-Mixe-Zoquean/proto-Zoquean **tzap*) ends in *p* and has the root vowel *a*.

There are more assumptions that need to be explained here. First, they assume that the sign that precedes MS143 is a sign for SKY; this is based on what the authors suggest are iconic similarities between MS143 and the Mayan sign T561 **CHAN** 'sky', particularly in the SKY.OVER.EARTH collocation (Kaufman and Justeson 2001:27), as already noted by Stross (1990:51, Fig. 10b), and shown in **Figure 3**. Second, they assume that there is only one plausible lexeme that could mean 'sky', an assumption that can be readily confirmed by the cognate sets in Wichmann (1995:284-285), which lead one to Proto-Mixe-Zoquean **tzap* 'sky'. And third, they noted that MS143 appeared to have the vocalic value *a*, given its possible use as *–pa* 'independent incompletive', so that the syllabogram that was chosen as a phonetic complement to MS 144 SKY, would therefore provide for a synharmonic spelling **TZAP-pa**, which provided support for their assumption of a principle of synharmony already detected in other spellings prior to the **TZAP-pa** spelling. On its own, each of these assumptions might seem insufficient, but put together, and given the paradigmatic relationship between -*wɨ* 'independent completive' and -*pa* 'independent incompletive', the later marker having a vocalic value *a*, the syllabographic value for MS 143 as **pa** is certainly plausible. Of course, Mayan does not have a word for 'sky' that ends in *p*.

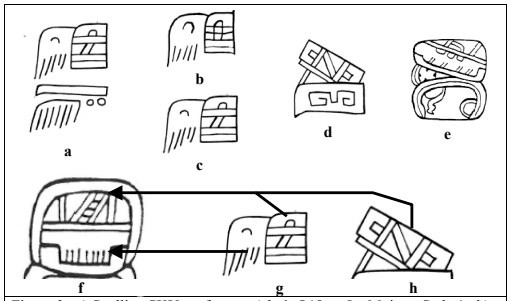

Figure 3. a) Spelling SKY-**pa** for *tzap* 'sky', O18 on La Mojarra Stela 1. b)-c) Two collocations of proposed SKY logogram, the first from P22 on La Mojarra Stela 1, the second from O18 on La Mojarra Stela 1. d) The SKY.OVER.EARTH logogram in Epi-Olmec, from S15 on La Mojarra Stela 1. e) The SKY.OVER.EARTH or SUN.AT.HORIZON logogram in Mayan. f)-h) Comparison of iconographic elements and motifs relating the Mayan SKY sign at f) to the Epi-Olmec SKY sign at g) and to the SKY motif of the SKY.OVER.EARTH collocation in Epi-Olmec. All drawings by the present author.

And last, for now, is the case of MS38. This sign had previously been defined as a clause-initial sign by Ayala (1983:197) based on its presence in the Tuxtla Statuette. Justeson and Kaufman (1993:1708) found this sign to be very common at the beginning of words, "usually as the first sign in a word," whether a verb or a noun. Based on the frequency expectation that a narrative text in a Mixe-Zoquean language should have a high incidence of third person ergative markers, and the fact that MS38 was very frequent, especially at the beginning of words, they concluded that "Its only feasible Mixe-Zoquean interpretation is as the third person ergative pronominal prefix *ʔ*-, both as the subject (he/she/it/they) of a transitive verb or dependent intransitive verb and as possessr (his/her/its/their) of nouns […]" (Justeson and Kaufman 1993:1708). For this reason they proposed the syllabographic value **ʔi** for MS38. In Mayan writing something similar could be said of T1: it appears often as the first part of a verb in order to represent the subject of a transitive verb, or as the first part of a noun, if the noun is possessed. However, the authors note that the **ʔi** value for MS38 is supported by its apparent use in a phonetic spelling for a temporal adverb in calendrical contexts as **ʔi-si** for *ʔis* 'lo!'. This use of a sign to spell part or all of a third person ergative singular marker and a temporal marker beginning with the same phonetic sequence, *ʔu...*, is not a Mayan trait, but instead a trait of Mixe-Zoquean that supports the **ʔi** value of MS38. In addition, MS38 and MS44, the authors note, appeared to exhibit a substitution pattern: either could appear in the same position at the beginning of a word, presumably as a person agreement marker. As they did for the relationship between MS20 and MS143, they assumed in this case a paradigmatic relationship, where MS38 and MS44 substitute for one another not because they have the same phonetic value (and are therefore allograms), but because they serve an equivalent function (person agreement marker). Under such assumption, MS44 would represent a syllabogram that corresponded in phonetic shape to the shape of a person agreement marker other than *ʔ*-. The authors suggest the value **na** for MS44, for 'first person exclusive ergative', though they do not provide the full rationale for it being 'first person exclusive' and not another person. Nor do they provide the rationale why MS44 could not simply be also a syllabogram **ʔi**, and therefore an allogram together with MS38. They do observe that MS44 iconically depicts the basal, earth motif of Izapan-style sculpture, an iconographic function already noted by Stross (1990), who suggests, on such basis, that MS44, and what he regards as the Mayan borrowing of MS44, namely T23 **na**, are based on Mixe-Zoquean **na:s* 'earth' (cf. Mora-Marín 2003). Thus, the proposed value is supported by a plausible hypothesis for its acrophonic origin and iconographic source.

Houston and Coe (2003) also contend that the cultural context that serves as a background to the study of the Epi-Olmec script is insufficient to allow for testing hypotheses pertaining to the content of the texts. There is one key source of contextual inferences: calendrical patterns. In fact, on La Mojarra Stela 1, there are two long count dates, spaced thirteen years, six months, and two days apart. As it turns out, there are two glyphs associated with the earlier long count date that bear numerical coefficients THIRTEEN and SIX, which provide for the possibility that the glyphs associated with such coefficients could refer to 'year' and 'month', respectively. One of these, the one

associated with the numeral THIRTEEN, closely resembles Mayan T548, a sign depicting a drum and used to represent both **HAB'** 'anniversary' (also **TUN** 'year' by the Postclassic period) in Mayan script. Assuming that the sign sequence associated with SIX is in fact a spelling of 'month', it would seem as though the two long counts are connected by distance numbers including the eight years and six months that separate them, but not the two days. However, Justeson and Kaufman (1993:1708) write:

> Similarly, MS165-63 is a noun that occurs twice in a passage that fails to mention just 2 out of the 4802 days elapsed between successive state dates, and it has a numeral prefixed in a separate calendrical context. The sequence apparently refers to a period of 1 day. The normal Zoquean word for 'day' is ***jama***, which suggests a **ja-ma** reading for the sequence […].

The key assumptions are two. First, it is assumed that MS165-63 is a spelling for the word 'day' (cf. Justeson and Kaufman 1992[1996]). And second, that the spelling is purely phonetic, not logosyllabic, like the very frequent Mayan spelling **K'IN-ni** for 'day, sun'. This is an assumption of simplicity: it is feasible to assume that the two signs that make up the spelling for 'day' are syllabograms; that way their corresponding phonetic values could be tested in other contexts in a straightforward way based on their phonetic value alone. Part of the reason why it was feasible to assume this is that, as Justeson (personal communication, 2005) has noted, since there were at first two obviously different types of spellings that corresponded to day counts, one involving MS165-63 in a spelling IX-MS165-MS63 (**Figure 4a**), and another involving MS172 in a spelling XIII-MS172 (**Figure 4b**), it was possible to assume that one was logographic (MS172), the one involving a single sign, and the other phonetic (MS165-63), the one involving two signs, since the two did not have any signs in common. Such assumption is one of economy, pure and simple, and as such it could have proven to be incorrect. Given this pattern, of one sign used to refer to 'day' in one context, and of two signs used to refer to 'day' in another context, with no common sign between the two contexts, Justeson and Kaufman supposed that the second spelling might be the phonetic spelling for 'day'. Given the typical CVCV(C) root shape of Mixe-Zoquean, the authors sought a CVCV(C) root for 'day'; the only available form to fit the shape was pre-proto-Zoquean ***jama*** 'day, shapeshifter'. The authors thus suggested the values **ja** and **ma** for MS165 and MS63, yielding IX-**ja-ma** '9 days' (**Figure 4a**), respectively, and a logographic reading **JAMA** 'day, shapeshifter' for MS172, yielding XIII-**JAMA** '13 days'. Iconographically, MS172 seems to correspond to the profile view of a bird-impersonator (Justeson and Kaufman 1992:20, Fig. 9), such as that depicted on the Tuxtla Statuette (**Figure 4c**); the term ***jama*** 'day' also means 'nagual (shapeshifter)' in Zoquean (cf. Wichmann 1995:312). Indeed, on the Tuxtla Statuette itself, a sculpture that appears to depict a shapeshifter, the spelling MS164-63 appears: by itself an occurrence of MS164-63, proposed to spell **JAMA$_2$-ma** 'day' and possibly 'shapeshifter', provides for an iconographic contextualization of the type that Houston and Coe (2003) claim is lacking for the Epi-Olmec script, and supports (i.e. is consistent with) the proposal that MS165 is read **ja**, and consequently, that MS172 is a logogram **JAMA**.

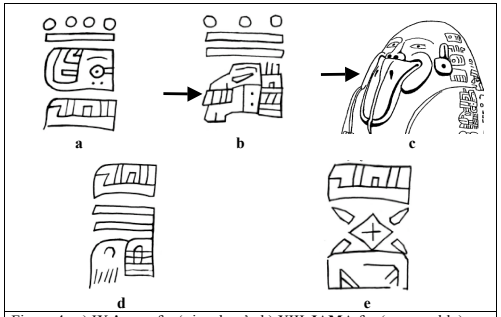

Figure 4. a) IX-**ja-ma** for 'nine days'. b) XIII-**JAMA** for (presumably) *mak=tukʉ* 'thirteen days', from T19-T20 on La Mojarra Stela 1. c) Detail of the Tuxtla Statuette. d) **ma-**X SKY for *mak tzap* 'ten sky', from P20-P22 on La Mojarra Stela 1. e) **ma-MATZAʔ-ʔtza** for *matzaʔ* 'star', from R5-R6 on La Mojarra Stela 1. Drawings a)-b) and d)-e) by the present author.

Comment: This question mark is supposed to remain as such.

The authors did not stop there. They tested such values in additional contexts, contexts that they argue "confirm" their proposals. The authors note that MS63, proposed to be **ma** based on the presumed spelling for 'day', also occurs preposed to the numeral ten in one instance, yielding MS63-X (**Figure 4d**), and to the STAR sign in two instances (**Figure 4e**), adding that the Proto-Mixe-Zoquean word for 'ten' is *mak*, on the one hand, and that "the only native words for 'star' in Mixe-Zoquean languages descend from proto-Mixe-Zoquean ***ma:tzaʔ*** (proto-Zoquean ***matzaʔ***)," on the other hand. Consequently, MS63, inferred by Justeson and Kaufman (1993) as a likely **ma** syllabogram based on the context of the day counts, can be supported with such value in other contexts where the same value yields productive results. But what about the proposed **ja** sign? Kaufman and Justeson (2004:1087) note that the **ja** value of MS165 is also supported by its presence within the confines of a verb as a possible spelling of the –*jaʔy* 'indirective' suffix, and in the position expected for such a suffix: after the absolute and ergative person agreement markers and the verb stem, and before the plural person agreement marker and the independent completive marker. To this author's knowledge, the strongest support for MS63 as **ja** remain the 'day' count contexts.

Discussion

Houston and Coe (2003:153) apparently misunderstand the assumptions by Justeson and Kaufman (1993) already cited, stating that

> The identification of the [wʉ] syllable, for example, was based on the supposition that it must be both a "relativizer" and, in other phrase-final contexts, an "independent completive" suffix of the same form; the two exceptions, syllabic spellings of [ma + wʉ] > /maw.ʉ7/ and [pu-wʉ] > /puw-wʉ/, involve different rules and the ad hoc insertion of an extra /w/ in the second spelling [...].

First, Justeson and Kaufman (1993) did not suppose that both the relativizer *-wʉʔ* (not *-wʉ* as Houston and Coe write) and the independent completive suffix "must" be present. The conclusion that they were both present was based entirely on their grammatical analysis: after arriving at the hypothesis that MS20 was a syllabogram **wʉ** used to represent the *-wʉ* 'independent completive status' marker, a marker of verbs, they noted that it was also used with nouns and adjectives, suggesting that MS20 was also used as a common suffix on such parts of speech; given that the only such suffix in Mixe-Zoquean grammar that could be represented with a syllabogram **wʉ** was *+wʉʔ* 'relativizer', they proposed that MS20 was also used to represent such relativizer, a hypothesis that could be, and was, tested syntactically, and thus increasing the range of contexts where MS20 as **wʉ** proved productive. Second, what Houston and Coe regard as an inconsistency, in other words, as two apparent exceptions explained away in an "ad hoc" manner, are not regarded as exceptions by Justeson and Kaufman (1993). Those authors proposed **wʉ** to be a syllabogram, and as such, it can be used phonetically to spell a *wʉ* sequence. And more importantly, what Houston and Coe (2003:153) label an "ad hoc insertion of an extra /w/" in the spelling **pu-wʉ** for /puw-wʉ/ is not ad hoc at all, for two reasons: the authors claim to have found a pattern exhibited consistently by a number of spellings in which the consonants /ʔ j w y/ were simply not spelled pre-consonantally or syllable- or word-finally, which happens to be the case in /puw-wʉ/, as well as in other of their proposed spellings, such as **ʔi-sa** /ʔi-saj/ 'his wing', **PAK-ku** /pak-kuyʔ/, **je-tzʉ** /jeʔ-tzʉ/ 'thus, like that', **su-su** /suʔk=suʔ/ 'hummingbird', **po-ʔa** /poyʔa/ 'moon', **ʔo-tu-pa** /7otuw-pa/ 'he speaks', among others (Kaufman and Justeson 2001:12-15). In other words, rather than being "ad hoc," this is an exceptionless and coherent pattern that has a clear phono-graphemic basis in the widespread cross-script practice of un(der)representing certain "weak" fricative or glide consonants.

Houston and Coe (2003:154) imply that the use of a sign to represent grammatical morphemes and phonetic sequences, depending on context, is questionable; they imply this with regard to the proposed **wʉ** syllabogram, and later with regard to three other syllabograms:

> [...] thus [ʔi] is the reading for both a syllable and second-person ergative pronoun; as mentioned before, the [wʉ] stands for both a syllable, a "relativizer," and marker of "completive aspect" [...].

As already noted, Justeson and Kaufman (1993) regard MS20 and the other signs to be syllabograms: as such, they can be used to represent *any* CV phonetic sequences of

Comment: A lot of the **wʉ** syllables in these paragraphs, perhaps all of them, are INCORRECTLY shown as **wʔ** instead.

the corresponding shape, the normal strategy in syllabographic and logosyllabic scripts. In other words, that MS20 could be used, allegedly, to spell *-wʉ* 'independent completive' and *-wʉʔ* 'relativizer', as well as any *wʉ* phonetic sequence is not a contradiction or complication. Similarly, in Mayan, T1 **ʔu** can be used to spell *u-* 'third person ergative prefix' and any *ʔu* phonetic sequence, as in T1.77:501 **ʔu-k'i-b'a** for *uk'-ib'(-al)* 'cup', or T1.T563:74 **ʔu-to-ma** for *u[-h-]t-om-Ø* 'it will/would happen'.

Also, Houston and Coe's (2003) claim that the proposed reference to a two-day sequence by means of two repeated spellings of **ja-ma** /jama/ 'day' is unusual for Mesoamerica is, to put it plainly, linguistically unproblematic. This amounts to a simple case of indefinite reference: 'a day [...] a day', adding to, essentially, 'two days', where the unknown, intervening glyph is presumably an adverb ('then'), conjunction ('and'), adverbial conjunction ('and then'), or noun ('a night'). Kaufman and Justeson (2001:71) interpret this passage thus: 'Earlier a day, a night, and a day had passed' (**Figure 5**). Interestingly, after having consistently critiqued Justeson and Kaufman for allegedly imposing Mayan interpretations on Epi-Olmec signs and spelling practices, Houston and Coe (2003:154) add: "Yet, it is counter-intuitive that such basic signs should only be spelled syllabically rather than as logographs, as they are in Mayan writing." Justeson and Kaufman (1993, 1992[1996], 1997) and Kaufman and Justeson (2001, 2004) do in fact propose a logogram to spell *jama* 'day', in the form of MS172, a fact missed by Houston and Coe (2003). And in any case, why did the Mayans ever spell as basic a lexeme as *k'uʔk'* 'quetzal' with a syllabic spelling **k'u-k'u**, instead of only a logogram? But conceding to Houston and Coe (2003) that maybe MS165 could be a logogram for DAY instead of phonetic **ja**, and that MS63 could therefore be a phonetic complement **ma** (**JAMA-ma**, by analogy, of course, with Mayan **K'IN-ni**), the authors claim, for one, that the evidence for MS63 being **ma** comes from the proposed two-day sequence, when in fact the value is supported by two other contexts at least: the two cases already mentioned, in which MS63 precedes the STAR sign, where it could function as a phonetic complement **ma** to a logogram **MATZAʔ** 'star', on the one hand, and one case where it precedes the numeral TEN, where it could function as a phonetic complement **ma** to a logogram **MAK** 'ten'. The **ma** value for MS63 was tested and supported in additional contexts, spelling, variously (Kaufman and Justeson 2004:1101): **ma** for *ma* 'earlier', **ma-sa** for *masa(n)* 'holy (thing), god', and **ta-ma** for *+taʔm* 'animate pluralizer'.

ma	*ma* 'earlier'	
ja **ma**	*jama* 'a day'	

?NIGHT	*?tzuʔ* 'a night(?)'	
ja **ma**	*jama* 'a day'	

Figure 5. Glyphs G1-G6 on La Mojarra Stela 1. All drawings by the present author.

Houston and Coe explain too that MS165, the proposed **ja**, appears not to need the presence of MS63 **ma** in other contexts, suggesting that MS165 is a logogram and MS63 presumably a phonetic complement, i.e. **JAMA-ma**, which can be done without, i.e. **JAMA**. They note the presence of MS165 at S11 on La Mojarra Stela 1 where it is not followed by MS63. As a matter of fact, it is not followed by MS63 in other contexts as well, as in N28, also on La Mojarra Stela 1. This alone does not mean MS165 *must* be a logogram. If it is a purely phonetic sign **ja**, then it should function to spell a phonetic sequence *ja*, even when the proposed **ma** sign is not present, simply because there are likely to be plenty of other phonetic sequences where *ja* is not followed by *ma*. Houston and Coe's argument that MS165 could be logographic based on the optionality of the postposed MS63 would only be reasonable if MS165-63 and MS165 were used interchangeably in otherwise identical contexts. This is not the case. MS165-63 occurs in contexts where a time count (for 'day') is expected, while MS165 by itself occurs in different contexts, most of which are not calendrically constrained (e.g. verbal spellings, etc.).

Assumptions of Orthographic Naturalness

Houston and Coe (2003:154) claim that the existence of "fully syllabic spellings accompanied by logographs is no longer thought to characterize Maya writing, and there is little reason to think that such redundancy would occur in Isthmian." First, fully syllabic spellings immediately following or preceding or surrounding logograms do occur in Mayan writing, not very commonly, but they exist (Mora-Marín 2004), as in **ʔIX-ʔi-xi** for *ʔix+* 'female proclitic', **wa-ya-WAY ~ wa-WAY-ya ~ WAY-wa-ya** for *way* 'shapeshifter', **ʔEM-ʔe-mi** for *ehm-i* 's/he/it descended', and **ʔu-ʔUNIW-ni-wa** for *uniw* 'fourteenth month', among others. And second, the behavior of Mayan writing should not be held to be a strong determinant of the behavior of Epi-Olmec writing. Many logosyllabic scripts do in fact exhibit, and some of them quite commonly, the presence of fully syllabic spellings immediately preceding or following—or both preceding and following—logograms. Hieroglyphic Luvian and Egyptian Hieroglyphic are two well known examples. The fact that this is a very common cross-script phenomenon should lead one to expect its presence in other logosyllabic scripts; doing so would be the null hypothesis. Mayan writing, with only relatively few examples of such spellings, is

probably exceptional from a cross-script perspective, and should not be the standard by which Epi-Olmec writing is measured in this regard.

Houston and Coe (2003:154) state that "phonetic complements for numbers or star signs, which would seem to be inherently obvious in their value" seem to be "inexplicable" consequences of the proposed decipherment. Interestingly, Mayan scribes felt the need, on occasion, to place phonetic complements on numerals (e.g. X-**na** for **LAJUN(-na)** 'ten'). For that matter, the Mayan sign for 'sky', T561 **CHAN** 'sky', is very often spelled with T23 **na** as a phonetic complement, and the Mayan sign for 'day, sun', T544 **K'IN** 'day, sun', is most often spelled with T116 **ni** as a phonetic complement. To a Mayan scribe the values of these two signs, among the most frequent in the script, should have been quite obvious too.

Coherence

As for the standard of coherence, there are several domains that are relevant. One is the orthographic domain. In this domain Kaufman and Justeson (2001, 2004) define a coherent orthographic system, with clear, systematic principles: weak consonants /7 j w y/ are unrepresented everywhere except before vowels, strong consonants /p t tz k s m n/ were represented everywhere except /k p/ before /s/. These authors claim that all spellings in the texts abide by this principle. Another domain is grammatical. Nouns are possessed with a pronominal prefix that coincides in form with the ergative pronominal prefix coreferencing the same grammatical person. The same suffix used to mark independent completive transitives is used to mark independent completive intransitives; Mayan texts differ in this regard, since the suffix of indicative or completive transitives, *-V1w*, differs markedly from the suffix of indicative or completive intransitives, *-i(y)*. The same suffix used to mark independent completive is used to relativize nouns and adjectives. Mayan texts also differ in this regard, since the indicative or completive markers, whether of transitives or intransitives, differ from the relativizer marker, *-aj*, the latter recently identified by Houston et al. (2001). Absolutive markers on nominal predicates appear as prefixes to the noun, whereas in Mayan texts, the few examples of absolutive markers so far identified appear as suffixes to the noun, in agreement with the pattern of Lowland Mayan languages. Also, Justeson and Kaufman (1993), as well as Kaufman and Justeson (2004) report that Epi-Olmec texts exhibit a basic SOV sentence word order. This is very different from, and in fact, the exact opposite of, Mayan texts, with their basic VOS sentence word order (Schele 1986; Bricker 1986). Finally, Justeson and Kaufman (1997) use the term "coherence" to refer to how the content of the side text on La Mojarra Stela 1 refers to that of the front of the monument. In arguing against "coherence," Houston and Coe (2003) failed to notice these proposals by Justeson and Kaufman, and in fact, misinterpreted their usage, since Houston and Coe use it to refer to "sense" (of individual words, sentences, paragraphs), not to whether one portion of a text (consisting of more than one sentence) relates to another in a coherent manner. Moreover, and despite their criticism of those authors for letting their understanding of Mayan writing influence their view of Epi-Olmec, Houston and Coe (2003:154) themselves readily judge the discourse-pragmatic structure derived from Kaufman and

Justeson's (2001) proposed parsings and translations on the basis of what they know of Mayan texts:

> Maya writing in the Late Classic begins to record some of these nuances, but not such a full set and never in such a limited corpus of texts (e.g. Houston and Stuart 1993). The suggestion that these phrasings abound on La Mojarra Stela 1 would necessitate an entirely different conception of public inscriptions in Mesoamerica.

Houston and Coe (2003:155) instead have relied on the translations of the texts provided by Kaufman and Justeson (2001), which they have claimed were essentially nonsensical and contributed little or nothing to cultural knowledge about the Epi-Olmecs. For one, such assessment ignores the fact that Kaufman and Justeson (2001) included in their parsings and translations guesses or iconically descriptive labels of what certain signs might mean or depict, which do sound odd when read as if they were the term intended by the scribe. Mayan epigraphers do this quite regularly too—substitute nicknames for signs in their parsings and translations when the signs in question are undeciphered. Also, in this author's opinion, the interpretation of the content of La Mojarra Stela 1 and the Tuxtla Statuette has revealed clues to the meaning of the iconographic content of these works of art, as well as to the content of other works of art conveying similar depictions at Izapa, Kaminaljuyu, and elsewhere (e.g. Kappelman 1997), and is therefore consistent with a contemporaneous cultural context implied by such art. In fact, given the cumulative nature of supported, interlocking hypotheses, from the orthographic to the grammatical to the contextual, it seems clear that the decipherment work on Epi-Olmec by John Justeson and Terrence Kaufman is proceeding with high scientific standards.

Conclusions

This has been a limited response to Houston and Coe's (2004) criticism of Justeson and Kaufman (1993, 1996, 1997) and Kaufman and Justeson (2001, 2004). It focused on some key methodological and theoretical points that in my opinion Houston and Coe (2003) did not address adequately. My goal has not been to "prove" that Epi-Olmec writing has been deciphered. David Kelley (1993:29) stated, in such regard: "I, for one, will be much surprised if the number of correct readings is not substantially higher than is usual in primary decipherments." My impression is that however correct the most precise and narrow readings and interpretations of passages of Epi-Olmec texts may turn out to be, John Justeson and Terrence Kaufman have succeeded in demonstrating that the script can be regarded as a Mixe-Zoquean language, i.e. the orthographic and grammatical patterns that account for the use of the most frequent and contextually constrained sings clearly point to Mixe-Zoquean as the grammar of the texts. Future publications by these authors will likely succeed in clarifying the details of their proposal.

References

Ayala, Maricela
1983 Origen de la escritura jeroglífica maya. In: *Antropología e historia de los mixe-zoques y mayas (Homenaje a Frans Blom)*, edited by Lorenzo Ochoa and Thomas A. Lee Jr., pp. 175-221. Coyoacán, México: Centro de Estudios Mayas, UNAM.

Houston, Stephen D., and Michael D. Coe
2003 Has Isthmian Writing Been Deciphered? *Mexicon* XXV: 151-161.

Guernsey Kappelman, Julia
1997 Of Macaws and Men: Late Preclassic Cosmology and Political Ideology in Izapan-Style Monuments. Ph.D. dissertation, University of Texas at Austin.

Justeson, John S., and Terrence Kaufman. (1993, 1996, 1997)
1992[1996] Un descriframiento de la escritura jeroglifica epi-olmeca. *Arqueología* 8: 15-26.
1993 A Decipherment of Epi-Olmec Hieroglyphic Writing. *Science* 259: 1703-1711.
1997 A Newly Discovered Column in the Hieroglyphic Text on La Mojarra Stela 1: A Test of the Epi-Olmec Decipherment. *Science* 277: 207-210.

Kaufman, Terrence, and John S. Justeson
2001 Epi-Olmec Hieroglyphic Writing and Texts. Austin: Texas Workshop Foundation.
2004 Epi-Olmec. In: *The Cambridge Encyclopedia of the World's Ancient Languages*, edited by Roger D. Woodard, pp. 1071-1108. Cambridge: Cambridge University Press.

Kelley, David H.
1993 Epigraphy: The Decipherment of the Epi-Olmec Script as Zoquean by Justeson and Kaufman. *The Review of Anthropology* 14: 29-32.

Méluzin, Sylvia
1987 The Tuxtla Statuette: An Internal Analysis of Its Writing System. In: *The Periphery of the Southeastern Classic Maya Realm*, edited by Gareth W. Pahl, pp. 67-113. UCLA Latin American Studies Series Vol. 61. Los Angeles: UCLA Latin American Center.

Mora-Marín, David F.
2003 The Origin of Mayan Syllabograms and Orthographic Conventions. *Written Language and Literacy* 6: 193-237.
2004 Full Phonetic Complements and Semantic Classifiers in Classic Lowland Mayan Texts. Unpublished manuscript.

Stross, Brian
1990 Mesoamerican Writing at the Crossroads: The Late Formative. *Visible Language* 29: 38-62.

Wichmann, Søren
1995 *The Relationship Among the Mixe-Zoquean Languages of Mexico*. Salt Lake City: University of Utah Press.