Towards a Complex Theory of Writing: The Case of Aztec and Mixtec Codices

Alonso Rodrigo Zamora Corona

## AUTHOR'S NOTE

1. Introduction

1   Since the publication of the work of Ignace J. Gelb, *A Study of Writing* (1963), the classification of non-Maya Mesoamerican pictorial documents (Figure 1) as writing has been the subject of a long-standing and still unsolved controversy.[1] In Gelb's evolutionist theory, the status of such systems was somewhat ambiguous: considered among the 'forerunners of writing', Mesoamerican pictorials were classified by him as "limited systems", pertaining to the 'semasiographic stage' of writing (1963, pp. 51-69). Gelb's views arguably shaped the study of such documents during decades; however, after the decipherment of Maya writing[2] and the adoption of a narrow definition of writing by grammatologists (Coulmas 1989; Daniels, 1996), it became evident that a review of Gelb's assumptions on Mesoamerican pictorials was in order. This revision partly came with the proposal of Alfonso Lacadena for Nahuatl writing (2008), which defined it as a limited logo-syllabic writing system present within an 'iconographic' framework (2008a). However, as we will see, instead of producing an agreement in regards to the status of non-Maya Mesoamerican pictorials, Lacadena's positions produced even a greater rift among Mesoamerican scholars: thus, for an important part

of those working with these documents, these documents cannot be described by the term 'writing' (Offner and Mikulska, 2019a).

Figure 1a. Mesoamerican pictorial
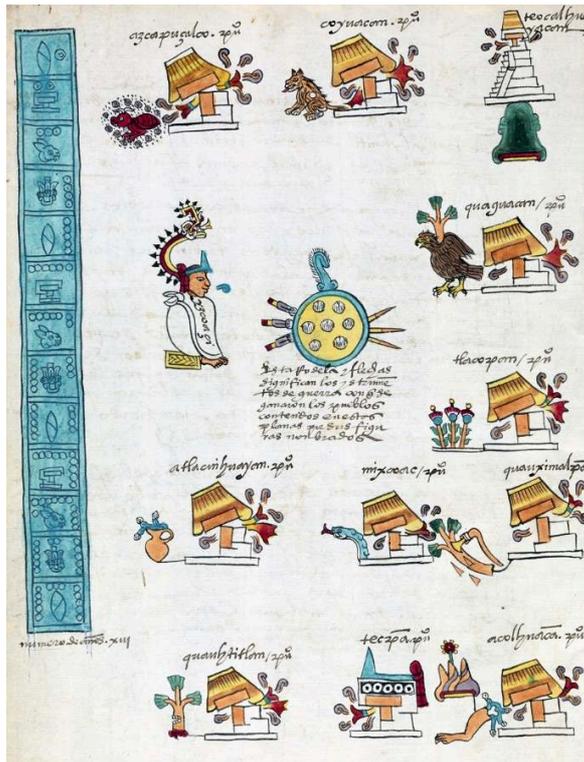
Nahuatl writing (*Codex Mendoza* 5v). This early colonial pictorial account displays the conquests of Aztec rulers; calendric glyphs, numbers, personal names and toponyms can be read in a logo-syllabic fashion; however, the figure of the seated ruler, the 'shield, arrows and atlatl' glyph, and the 'burning house' glyphs associated to each conquest cannot be read in that way (Frances and Berdan 1997, 4: 16).

Figure 1b. Mesoamerican pictorial

Mixtec writing (*Codex Zouche-Nutall* 43). This pre-Hispanic codex displays the conquests of the ruler 8-Deer Jaguar Claw; here he is piercing a toponym associated with a mountain and an eagle (cf. Lloyd Williams 2013: 154-155).

2   Curiously, while founded in opposite theoretical positions, the hesitation of the aforementioned Mesoamerican scholars before Lacadena's proposal is somewhat comparable to that which informed the refusal of mainline grammatologists to incorporate Nahuatl writing in their respective catalogues of writing systems (Coulmas, 1996; Daniels & Bright, 1996). For these authors, non-Maya Mesoamerican codices did not convey verbal utterances by phonetic means *alone*, given the undeniably dominant role of pictorial elements in them; therefore, these documents, taken as a whole, are to be *interpreted*, rather than *only* deciphered (Macri, 1996, p. 180). Thus, the point of view of both mainline grammatologists and semasiography-inclined Mesoamerican scholars coincide: these documents are not writing, either because they do not fit the narrow definition of writing sponsored by grammatology, or because they "do not fit into any of the categories set out in the context of the Old World" (Mikulska, 2019, p. 13).

3   In order to propose a solution to this conundrum, this paper advances a new theory of writing and writing systems in general, which subscribes many of the points raised by Klinkenberg and Polis scripturological proposal (2018). Concretely, I propose that, instead of trying to save a narrow phoneticist definition of writing that displays elements of ethnocentrism (Battestini 1997, pp. 24-25; Yan, 2002), historical writing systems can be divided between those that favour a bottom-up or 'low-level' depiction of language, specifically the phonological and morphological levels, and systems that favour a top-down or 'high-level' depiction of language, showing a preference for the level of semantics and pragmatics, without necessarily discarding phonetic representations, as is the case of Nahuatl writing. Furthermore, I argue that top-down systems of writing tend to be complex, favouring a non-linear, productive approach to language representation, rather than just a linear, decoding-centred representation. By presenting examples of hieroglyphic sequences in which all of these levels are interconnected in Aztec and Mixtec writing, I aim to show how it is impossible to excise

top-down representations of verbal utterances (or 'pictography') from bottom-up strategies of language representation (logograms or syllabograms) by merely labelling them away as 'iconography'. Finally, I propose that this approach of high- and low-level representations of language can be extended to other systems that have been relegated to the category of non-writing, recovering the idea of writing as a broad set of techniques for the representation of language.

2. Grammatology and Mesoamerican Pictorial Systems

4   As mentioned in my introduction, according to one of the foremost current grammatological definitions, writing is "a system of more or less permanent marks used to represent an utterance in such a way that it can be recovered more or less exactly without the intervention of the utterer" (Daniels, 1996, p. 3). This definition and all of its counterparts (which I will from now on characterize as the narrow definition of writing) naturally excludes all systems of representation that, relying on iconographic means or otherwise, are useful to transmit verbal utterances but whose message cannot be accurately retrieved without a degree of intervention from the utterer, in particular those communication systems considered as 'pictographic'. Thus, the current grammatological definition of writing is carefully crafted to preclude the inclusion of systems that could be used to codify or convey verbal utterances without registering the sounds of a language in a specific way, and even more, it excludes those systems that *partially* choose not to do so, such as Nahuatl writing, which certainly has phonetic elements but which uses pictography to convey crucial parts of its messages (Daniels 1996a, p. 3; Coulmas 2002, pp. 21-23). Hence, the encyclopaedic work *The World's Writing Systems*, edited by Peter T. Daniels (1996), does not consider Aztec and other non-Mesoamerican pictographic systems as writing; it only considers Maya writing as such. This work was published more than a decade before the grammatology-inspired proposal of Alfonso Lacadena for Nahuatl writing (2008a), so one could assume that the issue is merely one related to updating. But if one reads Daniels' proposal carefully, it is necessary to realise that his definition explicitly excludes Nahuatl writing, even considering it from Lacadena's perspective:

> Writing is defined as a system of more or less permanent marks used to represent an utterance in such a way that it can be recovered more or less exactly without the intervention of the utterer. By this definition, writing is bound with language; consequently, the widespread practice of recording by means of pictures (pictograms) or ideas that are not coached in a specific linguistic form is excluded [...] Pictography is not writing, because languages include many things that cannot be represented by pictures: not only obvious things like abstract notions and many verbs, but also grammatical inflections and particles, and names. Even if the drawing skill of communicators were such that identifiable portraits of individual people could be created whenever the individual was mentioned, the significance of such drawings would soon be lost. It is thus necessary for a writing system to represent the sounds of a language. (Daniels 1996, p. 3)

5   Daniel's proposal is perhaps the narrowest definition of writing ever created, for it even excludes systems with phonetic features if they use phoneticism in tandem with pictographic strategies, or if they are incapable of reflecting some particles or features of the language that are abstract. In fact, it could be said that Daniel's definition has no real content besides opposing writing to pictography; however, at the same time, it

somewhat crucially informs those of Mesoamerican grammatologists, as we will see. Regarding the contrast of Maya writing versus the mostly pictorial systems of other Mesoamerican peoples, Martha Macri states in the same volume: "These manuscripts, containing more logographic than phonetic signs, relied heavily on context -on learned cultural conventions- from resolving ambiguities; this limits the ability of modern scholars to reconstruct precise word-for-word transcriptions. Thus, we speak of the *interpretation* of these texts rather than of their decipherment" (Macri, 1996, p. 180). Both passages are complementary: Daniels asserts that writing should systematically reflect all the features of a language while depicting it: not only words or names, as Nahuatl writing does, but also particles, inflections, verbal conjugations, something which Nahuatl writing (mostly) chooses not to do.[3] Otherwise, a system as such "collapses" into pictography ('non writing'), despite the presence of phoneticism, because the global message would be "lost" unless we need the clarification of the utterer. While this paper does not uphold this point of view, it is important to realise the position of grammatologists *vis-à-vis* Lacadena's own position to wholly understand the scope of the problem.[4]

6   A recent milestone in our understanding of Nahuatl writing was brought about by the late Alfonso Lacadena (1964-2018), a Maya epigraphist.[5] Lacadena's vision was to contest the semasiographic perspective on Aztec codices, dominant during decades, which considered them to be "writing without words" (Boone, 1994), by reasserting the presence of syllabograms and logograms in them[6], and systematizing the study of these categories of signs. Lacadena considered Aztec codices to contain 'true writing' in the form of a logo-syllabic system, however, for him, this system was only specialized in the register of personal names, theonyms, toponyms, and calendric and arithmetical expressions (Lacadena 2008, 8); the rest of the information within these documents was conveyed through "iconography" (Velásquez García, 2010, p. 77). As mentioned, despite its undeniable importance, Lacadena's perspective was not fully embraced by Mesoamerican scholars working with non-Maya codices and inscriptions.[7] The main criticism that could be levelled against his interpretation, which vaguely labelled away the non-logo-syllabic part of Aztec codices as 'iconography', is that it did not make any effort to analyse the communicative dimension of it, despite the admission that it is not only crucial but even *dominant*, therefore reproducing the split of non-writing versus "true writing" *within these documents themselves*, a highly problematic position that obviously fails to produce a coherent vision of the system, merely applying the principles of Maya writing to Nahuatl without change.[8]

7   Finally, a third solution, that of 'embedded texts', originally proposed by Janeth Catherine Berlo (1983) has been recently reconsidered by prominent epigraphists Albert Davletshin (2003, p. 62) and Dmitri Beliaev (2016, p. 205), both followers of Lacadena, although not to its full potential. According to Berlo, in Mesoamerican art, sometimes images were "vehicles carrying text-like information"; therefore, the "study of images as embedded texts is not simply the study of iconography, as it may seem at first. For in most pre-Columbian cultures, art intersects with "writing" and linguistic information to such an extent that a knowledge of the associated written, oral, or linguistic traditions provides insight into the art on a richer level." (1983, p. 11). Partly following Berlo, both Davletshin and Beliaev propose that, in systems like Nahuatl writing, logo-syllabic spellings "do not have to form an independent communication system. They can function, for example, along with iconography, explaining precisely

those parts of the message that the iconographic system is not able to convey, in particular, personal names and exact dates" (Davletshin, 2013, pp. 62-63)[9]. However, it is important to notice that both authors still consider images in such contexts as *iconographic*, following Lacadena's proposal, while Berlo explicitly states that they are to be considered as something else, or rather *something more.* Furthermore, this interpretation does not really address the main objection of Daniels: if most of the message cannot be retrieved from the logo-syllabic parts of the system alone, the system cannot be considered as writing in the narrow phoneticist sense *taken as a whole*, and in order to consider it as writing, we would effectively need to stop considering in its integrity, and only concentrate in a partial aspect of it, again failing to reach any integral understanding of it.

8   A further element of distress for Lacadena's followers is added by the close historical and formal relationship between Aztec and Mixtec writing. While Nahuatl writing is safely considered now to have both syllabograms and logograms, the status of Mixtec writing is still undecided in their works. This is not because Mixtec lacks the conditions of decipherment[10]: digraph texts,[11] an extensive corpus, and a reasonable knowledge of the historical context,[12] as well as the language and functions of these texts,[13] currently exist. However, in seven decades of careful research undertook by specialists such as Alfonso Caso (1948, 1977), Mary Elizabeth Smith (1973a, 1973b), Maarten Jansen and Gabina Aurora Pérez Jiménez (2011), and Laura Rodríguez Cano (2016), just to name some, no single syllabic sign has ever been found in the system, something which clearly conflicts with the phoneticist vision of writing of Mesoamerican grammatologists. Contemporary specialists nowadays working with it consider it still to be fully logographic, with limited tonal determinants operating at the level of the whole word (Rodríguez Cano, 2016, p. 6), which makes it difficult to classify the latter as truly independent from logography. In a similar way, we are missing dedicated syllabaries for Zapotec, Cuicatec, or Otomi,[14] just to name a few, naturally making scholars working with these systems reserved on adopting Lacadena's proposals. While Davletshin has contemplated the existence of purely logographic systems, quoting the example of the earliest forms of Chinese writing and that of proto-cuneiform writing (2003, p. 62), an important question to which we will return later, in the end it is impossible to propose a decipherment for a purely logographic systems in the current consensus, thus reaching a conceptual dead end that actually implies that Macri was partially right: *decipherment* is clearly not enough here.

9   In the rest of this article, I will try to propose a solution to this conundrum that satisfies both of the conditions that have arisen from this exposition, namely, to consider these documents in their integrity rather than partially, and to considers them as writing, full stop. This proposal, incidentally, can also help us to conceive phenomena such as indigenous pictographies of the Americas, Africa and Australia, Inca *khipus*, and other 'record systems' that depict language in a 'loose sense' as actual writing without losing the possibilities of making the kind of dedicated and detailed formal analyses that grammatological perspectives do, when applicable. As mentioned, this proposal is inspired in the modalities of language processing operations (Celce-Murcia and Olshtain 2001), and the theory of complex systems (Holland 2004); it also considers writing to be a predominantly semiotic phenomenon (Klinkenberg and Polis 2018), rather than a mere surrogate of language (cf. Harris 2000: xi-xii).

3. Language Processing and Writing

10   The first step towards understanding that another vision of writing is possible is to state the possibility, for a representation system, to depict language not only from a bottom-up perspective, that is, concentrating on the levels of phonology and morphology, but also from a top-down perspective, that is, starting from the upper levels related to contextual and literal meaning (pragmatics and semantics). This is possible because our own processing of language does it, especially during language production (Moskovsky, Jiang, Libert, and Fagan 2014, p. 18). According to Christo Moskovsky, Guowu Jiang, Alan Libert, and Seamus Fagan, bottom-up and top-down processing are:

> [...] two essentially different ways of processing and/or organising information. Broadly speaking, bottom-up is a form of inductive (or data-driven) processing starting with smaller and/or lower-ranked units and moving upwards through larger and/or higher-ranked units. Top-down is a form of deductive (or schemata-driven) processing working in the opposite direction: from higher-to lower-ranked units [...] bottom-up and top-down have also been used with reference to language processing. Bottom-up language processing works from phonemes and morphemes through lexemes and phrases to clauses and larger chunks of text. Top-down language processing works in the opposite direction, from the overall message and text structure to lower-ranked units (2014, pp. 1-2).

11   Thus, a correlation can be established between phonetics and morphology as the *low-level* elements in language processing, and pragmatics and semantics as the high-level elements: this also allows us to correlate the kind of symbols we are dealing with in writing systems: syllabograms (which present an approximation to phonology), logograms (approximation to morphology / the lexical level), both which are more linear data units; and 'pictography' (which is read according to pragmatics and semiotics), which is more of a 'schema'-like[15] semiotic unit. Following the proposal of Celce-Murcia and Olshtain (2001), Moskovsky, Jiang, Libert, and Fagan further clarify: "The two types of language processing seem closely aligned with the two principal forms of language use, perception and production. Language perception by its nature seems to be essentially bottom-up: Phonological, morphological, and lexical aspects of the sentence/utterance must be processed before it is linked to conceptual-semantic content. Production seems to generally operate in the opposite way: starting with conceptual-semantic content and only then assigning grammatical structure to it." (2014, p. 2). Thus, speech production is processed (mainly) from top to bottom, its approach being dominated by the levels of meaning, using the bottom-up elements just as a means of self-monitoring, while the decoding or perception of language proceeds (again, mainly) in a bottom-up fashion, starting with the phonemic and morphemic elements and then going up towards the levels denoting meaning.

12   With this in mind, it is possible to say that, for centuries, our vision of writing has exclusively concentrated on systems which are centred in speech perception or the decoding of language, neglecting those systems that represent language from the perspective of speech production: thus, our vision of writing has concentrated in bottom-up depictions, and what we are lacking at the moment is the recognition of top-down depictions as true writing. A further observation can be made: since words are the smallest meaningful units in language, the domain of meaning can be said to start "at the outskirts of phonology" (Pavey, 2010, p. 5). Thus, according to the current,

narrow definition of writing, *proper writing actually ends when meaning begins*, for systems that are only logographic are generally considered to be non-writing. But from this new perspective it is possible to sustain the opposite point of view: while in (spoken) language production we absolutely need to touch the level of phonetics to generate an utterance, writing is different because this is not necessary in order to *represent* an utterance: one can stop the representation at the level of meaning (semasiography) or morphology (logography), and still be able to successfully codify a verbal message, because the user can supply the missing elements of the system through the aid of spoken language. In fact, the *possibility* of omitting the level of phonetics from the representation could be said to be *the real essence of writing*, its defining characteristic *vis-à-vis* spoken language. This explains the fact that systems that didn't reach down into phonetics were the necessary starting point of systems with phonetic features, as it is the case of proto-cuneiform (Damerow 2006) and early Chinese writing (Bottero 1996, p. 575).

13   Therefore, it can be asserted that grammatology is currently based in an extremely low-level-oriented vision of language, which precludes us from having a proper understanding of the widespread phenomenon of human communication through markings, or writing. In this sense, the vision of Gelb was always right in a way, and what we only needed to get rid of its evolutionist prejudices, expressed in the contrast between 'predecessors' (top-down systems or 'semasiography') and 'true writing' (bottom-up, phonetic or logosyllabic systems), to reach a proper understanding of writing itself. In a sense, this is all related to Gelb's original argument: if we discard the so-called 'predecessors', we cease to understand writing itself, because we don't even have a basis for the emergence of the representation of phoneticism. This is the reason why narrow phoneticism ultimately undermines our understanding of writing in general, and is also the reason why contemporary accounts on the history of writing still need to deal with the topic of 'proto-writing' (or the exclusively logographic stages of cuneiform and Chinese) in terms that differ little from those of Gelb (cf. Robinson 2009, pp. 1-16).

4. Complexity Theory: High-level and Low-level Depictions

14   I have mentioned in the introduction the idea of complex systems, which are defined as those that manifest the property of *emergence*, that is, when the whole is more than the sum of the parts (Holland 2014: 4). For now, let's refer to a dichotomy that complex systems often exhibit, which, again, can be clearly correlated to the notions of bottom-up and top-down processing: that of low-level and high-level properties. Low-level properties can be considered as those pertaining to the 'building blocks' on which subsequent organization levels are based; high-level properties, in contrast, "arise from specific ways of organizing low-level properties" (Rouw, Kossyln & Hamel 1997, p. 211), and are to be considered as being detected in a superior level of organization: for example, high level visual properties are referred to the level of a picture, rather than to the level of its individual components (Rouw, Kosslyn & Hamel, 1997); in programming, a high-level language has a high degree of abstraction and is close to natural languages, allowing the use of symbolic operators, syntax and semantics, while a low-level language contains microprocessor commands closer to the level of

hardware, thus being called also *machine language* (Chu 1975, pp. 1, 3). It is therefore possible to analyse complex systems at both high- and low-level and produce different depictions of them, low-level depictions being referred to the description and interactions of the 'building blocks' in the basic level, and high-level depictions being referred to the patterns of interactions beyond the level of the 'building blocks': features which emerge at a high-level of description are to be considered epiphenomenal.

15   If we consider Aztec or Mixtec codices as complex systems, we could state that two tiers of descriptions are possible for them: those pertaining to individual elements within them (logograms, syllabograms and the iconographic units that conform pictography), and those related to the actual message conveyed by all of them: high- and low-level. Semasiographic theories are therefore 'high-level' oriented theories of Nahuatl writing, while Lacadena's theory is a 'low-level' oriented theory. Former semasiographic theories were concerned with properties pertaining to the whole system; Lacadena's theory, with properties pertaining to some of the building blocks, the low level. However, none of them seemed to be able to recognize the full importance of the level with which the other deals with. This is because both follow a different logic: the logic of Lacadena's followers is bottom-up (logograms+syllabograms become glyphic spellings) while the logic of semasiography is top-down (the recognition of iconographic patterns generates a reading). Thus, since all the frameworks developed until now have been reductionistic (by trying to reduce each level to the point of view of the other), the result was a theoretical impasse. The only way forward, then, is to *unify both perspectives.* But this unification can only happen thanks to a theory where complexity in the framework of language processing and representation is explicitly recognized, as it is proposed here.

16   Now, if we assume this hypothesis, Nahuatl writing (and other Mesoamerican pictorial systems) can thus be considered as a complex system integrated by both low-level and high-level phenomena. It is formed by pictorial scenes working in tandem with glyphs that indicate in a precise manner the names of characters, places, and dates. This is the low-level. The low-level can be accurately related to language in regards to those glyphs that are considered unequivocally as either logograms or syllabograms; it can also be analysed in an iconographic fashion in full, by making a painstaking analytic description of each graphic sign. These are 'data'-like semiotic units. However, this analytical description remains incomplete, because it does not correspond to the reading likely produced by a native interpreter. As we will see, native interpreters were able to produce a reading or gloss which was not direct derivation from an aggregate of the low-level, but the integration of these low-level elements within a more complex framework. This complex interaction of systems produced a verbal text which was an *emergent* property of the system: a high-level reading, oriented by pictographs, which can be considered as semiotic schemata with 'embedded texts' in them, containers or blue-prints for the organization of simpler information units of both logosyllabic writing and iconographic patterns.[16] Now that the theoretical aspects of the vision of writing proposed in this article have been introduced, I will proceed to show that, in Nahuatl writing, it is impossible to separate both kinds of representations if we are to finally understand what is being said; after showing this, I will proceed to propose how these readings could be likely conformed, and finally I will show how Mixtec writing worked in a similar fashion.

5. Iconography or Pictography? Embedded texts in Nahuatl writing

17   As mentioned, the first task that this article has ahead is not only to show that 'iconographic' representations were expected to have verbal readings in Aztec art (a point that Janet Berlo and others have made clear), but that, in many cases, these readings were impossible to excised from the accompanying logosyllabic elements, unless the whole sense of the message is lost or misconstrued, unlike what Lacadena proposed. Let's see an (until now) misunderstood example to make this clear. This fragmentary example of writing, found on the Tetzcocan document *Codex en Cruz*, has been analysed in a preliminary way by Charles Dibble (1981). It shows a date (11 House, or 1529), a 'blanket' sign, a 'warrior' sign, a 'footsteps' sign and a 'curved mountain' sign (Figure 2).
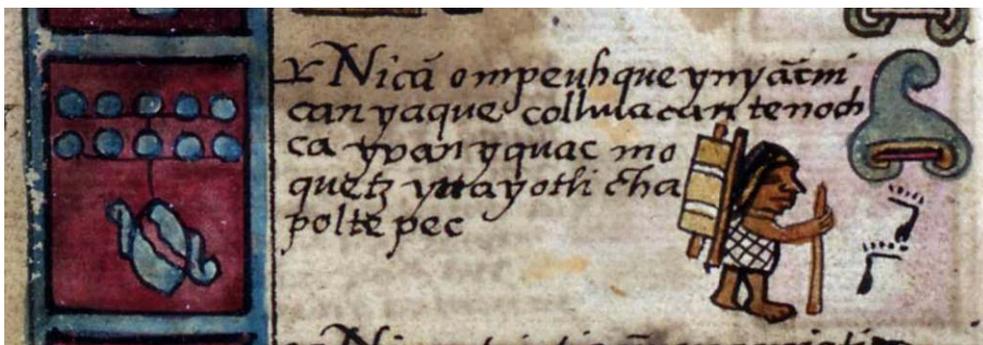
Figure 2
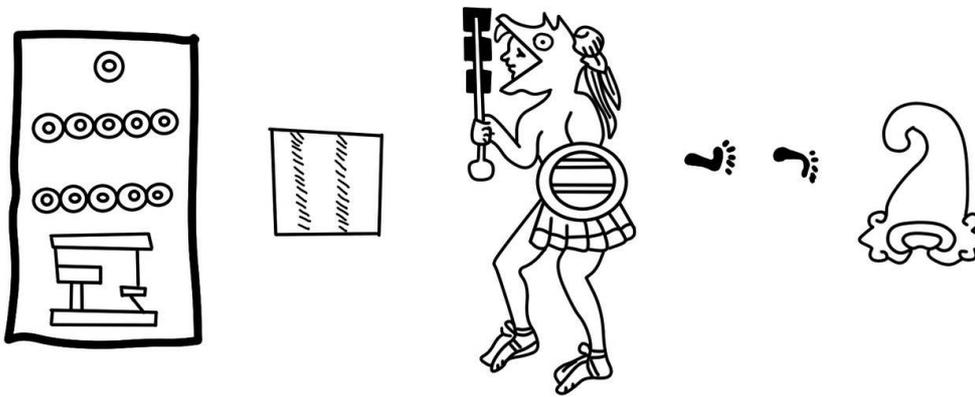
A glyphic sentence in *Codex en Cruz* 10. The glyphs, originally vertical, have been rearranged in a horizontal manner (cf. Dibble 1981, vol. II, p. 22).

Drawing by the author.

18   How to read it? Dibble interpreted this sequence correctly as alluding to the expedition of the Spanish conquistador Nuño de Guzmán to Colhuacan, a location in the North of Mexico, against the Chichimec. However, he couldn't figure out why the 'blanket' glyph or **YANCUI**, whose usual reading value is *yancuic*, 'new', was there. He supposed that the sign was a toponym, but the problem is that the only possible town, Yancuitlan, lies in the opposite direction to that of the Northbound expedition (1981: 49). Dibble's assumption was natural: it essentially agrees with the later position of Lacadena that only names and dates are represented in Nahuatl writing, which created the illusion that Nahuatl writing was basically a system of labelling. However, this is not the case here. The 'blanket' sign actually stands for an adverb. How can we know this? Because this sequence has an equivalent in *Codex Aubin,* where the same event is depicted, the chronology being divergent in one year because of the discrepancy between the calendars of Tetzcoco and Tenochtitlan, were the *Aubin* was painted (Figure 3):
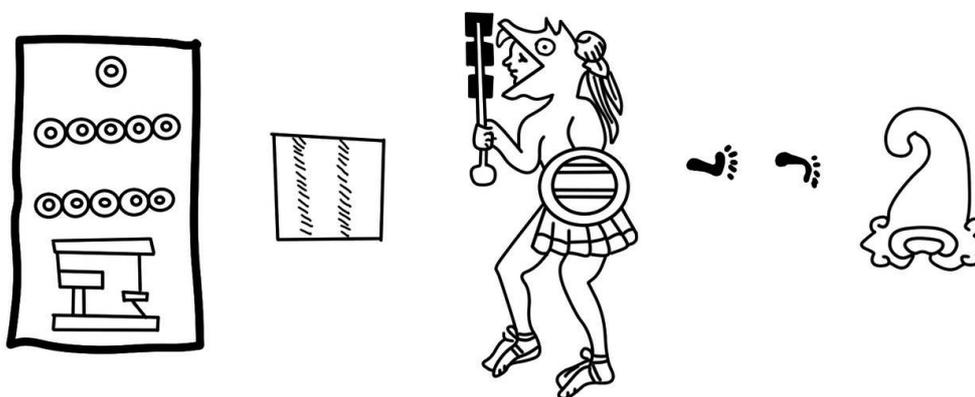
Figure 3a

Expedition to Colhuacan in the *Codex Aubin* 45v. <Gloss: *Nicā ompeuhque in yācuican yaque colhuacan tenochca*>, "[Year 10 Flint], Here departed the Tenochca who went to Colhuacan for the first time" (cf. Tena, 2017: 71).

Figure 3b

Expedition to Colhuacan in the *Codex en Cruz* 10. **11-CAL-XIUH YANCUI** WARRIOR-TRAVEL **COL**, *11 Calli Xihuitl. Nican yancuican ompeuhque in Tenochca yahqueh Colhuacan,* "Year 11 House, here for the first time departed the Tenochca who went to Culhuacan".

19   By comparing this sequence with its equivalent in the *Aubin*, we find that the **YANCUI** glyph doesn't stand for a name here, but for an adverb: *yancui(can)*, 'for the first time' (it can also mean 'again', depending on the context). But of course, the adverb modifies a verb (*pehua*, 'to depart'), and the verb an explicit subject (*tenochca*), both which are not depicted in a logosyllabic fashion. Surprisingly, the 'footsteps' sign does not really stand for **YA**, *ya*, 'to go', its usual logosyllabic reading: a comparison with other instances of similar sequences in the *Aubin* (46v, 48r, 48v) indicates that the 'porter plus footsteps' sign stands (mainly) for the verb *pehua*, 'to depart'. Both subject and verb are the 'embedded text' of the 'warrior and footsteps' compound, which is an equivalent of the 'porter and footsteps' version of the *Aubin*. The warrior sign is a 'semantic' rather than phonetic or lexic representation for the word *tenochca,* for if this word was represented in the usual logosyllabic fashion, it would have been written by the signs of a stone and a prickly pear (**te-NOCH**), it also seems to comprise the main verb, *pehua*, as its 'porter' counterpart in the Aubin implies more clearly, as well as the word *yahqueh*, plural of *yahqui*, 'he who goes', an agent noun formed with a preterite. It is also clear that the sign that contains this 'embedded text' is variable in is graphic realization: we can see that the figure of the warrior has been changed to the porter in the *Aubin*, but

the reading is most certainly the same, since it was a warrior expedition, which used such porters.[17] Its variability notwithstanding, this sign is a *crucial* part of the statement: the passage does not make any real sense without it nor without its 'embedded text', and the logo-syllabic part doesn't make sense either if we extricate it from the other part, because the adverb would refer to nothing, for the verb is to be found 'embedded' within the 'warrior plus footsteps' sign. These signs, which are not logosyllabic in nature, encoded a verbal sequence with no systematic relationship to either the lexical or the phonetic level, nor with any fixed amount of information, and yet, they were expected to be read in the same language as the rest of the signs (again, as the adverb *yancuican* makes clear). They were not merely iconography, because iconography is not expected to encode any concrete verbal sequence. They are *pictography*.[18]

20   As this example shows, pictograms encode variable amounts of verbal information in a non-phonetic fashion, but were an inextricable part of Nahuatl writing that worked in tandem with logo-syllabic representations. The variability of this class of signs was already recognized by the Spaniards themselves, as the testimony of the XVIth century friar Torquemada shows:

> It is true that they used a way of writing, which were paintings, with which they understood each other, since each one of them signified one thing, and sometimes it happened that one figure alone contained most of what happened or even all; and since this kind of history was not common to all, only to the 'rabbis' or masters of it which dominated it, and this was the cause that most of the characters and paintings were not concordant nor of the same type for each of them (the readers), so the story was easy to vary… (Torquemada 1975, p. 47).

21   In accordance to this passage, I propose that pictography corresponds precisely to those 'figures' or signs in Nahuatl writing which had embedded within them a variable amount of information, and which were the cause of the lack of 'concordance' that Torquemada alluded to, which could only be surmounted by the explanation of original producer, the *tlacuilo* or "master of the art". However, unlike logograms and syllabograms, pictograms are not merely signs in the aforementioned sense of 'data' that is to be linearly decoded; their contents are to be seen as instances of a semiotic *schema*. Hence, the pictograph is a class of sign which prompted a reader to produce a sentence in accordance to a depicted meaning, rather than encoding a fixed reading.

22   The aforementioned example shows how the concept of 'pictography' cannot really be discarded if we are to understand the system, how it was meant to relay verbal sequences, and why it is ultimately incorrect to merely call it 'iconography' and cast it aside as unworthy of the scholar's attention, as the followers of Lacadena do. Pictography was not unrelated to the language which the syllabograms and logograms transmitted, either: here, it encoded a Nahuatl verbal sequence, rather than an sequence in any other language; furthermore, it is wrong to say that Aztec glyphs only encoded names and dates, as Lacadena (and others before him) thought: it is precisely because Dibble proceeded from similar assumptions that he didn't realise that the logogram **YANCUI** didn't refer to any place-name, but was instead an adverb in a concrete Nahuatl sentence.

23   It is also obvious that Aztec readers didn't read only the logo-syllabic signs; for them, doing this would be like when a child in a culture which uses alphabetic writing is learning how to read and still does not know how to combine the letters; instead, Aztec readers produced a coherent narrative, integrating bottom-up depictions of language

(syllabograms and logograms) within a decidedly top-down perspective, dominated by pictography. The result was a high-level verbal description which respected both levels, not a low-level gloss of each glyph, nor a loose account that ignored phonetic and morphologic depictions. Thus, the glosses that are to be found in documents like the *Tlotzin Map*, the *Quinatzin Map* (Aubin, 2000; Mohar Betancourt, 2004), in *Codex Xolotl* (Dibble, 1951), the *Boban Calendar Wheel* (Dibble, 1990), the *Codex Mexicanus* (Boornazian Diel, 2018), the *Codex Azcatitlan* (Graulich, 1995), or the *Tira de Tepechpan* (Bornazian Diel, 2008), to name a few, clearly go beyond the level of what logograms and syllabograms represent, reflecting the vision of the *tlacuilos* in regards to written communication. Finally, it must be said that pictorials are potentially non-linear in their reading, a feature that has been recognized and analysed by Luciano Perondi and Antonio Perry on their work on the *Codex Mendoza* (2018).

6. Reading Aztec pictorials

24 I have defined pictographies as 'schemata' for variable, yet semantically related verbal contents. This variability is a problem for their study, nonetheless, these readings are not to be improvised by a modern-day reader: they need to be reconstructed from similar pictographic units when they have been glossed in other documents. A clear example of this sort of reconstruction has already been undertook by the philologist Patrick Johansson in his book on Aztec pictorials (2004), where he analysed three versions of the narrative of the Aztec migration, those at *Codex Aubin*, *Ms. 85* and *Ms. 40*, comparing them to the earlier and mostly non-glossed *Codex Boturini* (2004). Let us consider, for example, folio 16v in *Codex Aubin*:

Figure 4

A stage of the migration of the Aztec in *Codex Aubin* 14v. <Upper gloss: *Auh niman yc ommiquanique in Tecpanyocan yn Mexica.* "Then the Mexica moved on to Tecpayocan." Lower gloss: *Ipan nauxiuhtique yn oncan Tecpayocan. Oncan ympan mochiuh in yaoyaualoloque; oncan micque yn itoca Tecpatzin yuan Uitziliuitzin no yehuatl in Tetepantzin. Oncan ympan molpi in xiuitl; ypcac uetz tlequahuitl in Tecpayo>,* Trans: "Then the Mexica remained 4 years in Tecpayocan. And it happened to them that they were besieged in war; there they died, Tecpatzin, Huitzilihuitzin and Tetepantzin. Then on them the years were tied; the fire stick fell on Tecpayo" (Tena, 2017, p. 43).

Photo: © The Trustees of the British Museum. Terms of use: CC BY-NC-SA 4.0.

25 We can see that there is an obvious relationship between the pictorial and the alphabetic account, but also clear differences. The logograms only transmit dates and places; the rest is 'pictography': the fire stick sign or *mamalhuaztli*, the mountain, the shield and wooden obsidian sword sign (*macuahuitl*), and the little feet around them. It is clear that each of these signs stand for some parts of the alphabetic account, which could be (partially) considered a verbal reading of this scene: the fire sticks meant the Aztec 'binding of the years' ceremony, which was celebrated by the ritual kindling of fire, the 'shield, *macuahuitl* and feet' sign stands for the siege. Furthermore, some parts of the alphabetic account are deduced from the relationship of the signs, rather than from the signs alone: four years, the total spend at Tecpayocan, are deduced from the total of years present in that folio, rather than from a sign that explicitly says "four years". However, some important parts of the account are totally absent, either in pictorial or in logo-syllabic form: the names of the three dead leaders appear nowhere here.

26 It could be said that some properties of this document are a result of it being produced almost a century after the Spanish conquest, but it is important to realise that the alphabetic reading presented in the *Aubin Codex* is not only dependant on its accompanying pictorial, but also on a prior, purely pictographic model. This can be asserted because a mostly non-glossed version of this very same episode exists, realised

in a style much closer to the pre-Hispanic one, called *Codex Boturini*: this version of the same episode helps us understand better some features present in the alphabetic glosses of the *Aubin* (Figure 5).

Figure 5

Codex Boturini 14 and 15 (fragment).
Photo: © Instituto Nacional de Antropología e Historia, Mexico. Terms of use: CC BY-NC-ND 4.0.

27   Now, things are clearer, thanks to this codex being closer to Aztec visual conventions due to having been produced in the very early colonial period.[19] We see the Aztec represented while leaving a place (actually, Huixachtitlan, something we know from the prior scene, not depicted here) in the year 11 Reed, arriving then to reside at Tecpayo in the year 12 Flint. In the year 2 Reed, we see the war/siege sign, and the dead bodies and names of the dead leaders. We can see that the colonial pictorial omitted elements that were visible and readable in the (mostly non-glossed) earlier account. The years of residence are clearly grouped. Of course, since this codex was made or glossed just after the Conquest, we see a faint alphabetic gloss for Tecpayo, but nothing more. We can state that, despite their differences, the two pictorials, that of the *Aubin* and that of the *Boturini*, are clearly correlated. We could hypothesize, also, that the account at the *Aubin* can work as an alphabetic version of this part of the *Boturini;* in fact, this pictorial in the *Boturini* corresponds more closely to its alphabetic version in the *Aubin* than the pictorial version in the *Aubin* does in regards to its own alphabetic text, as the example of the dead leaders clearly shows: thus, the Nahuatl reading of this glyphic sequence in the *Boturini* was, with all probability, practically identical to the alphabetic one in the *Aubin*.[20]

28   Now that I have presented a simple example of correlation, let's try to figure out a reading for a third, non-glossed example, to propose a preliminary way of working with

'embedded texts' within pictographs (Figure 6). The example is a simple and very repeated pictographic sequence: that which depicts the idea of conquest with a warrior facing another which stands on a mountain, representative of a polity. The two cases to be compared are, again one which is glossed in Nahuatl (*Codex Aubin* 47r), versus one that is glossed in Spanish, but not in Nahuatl (*Codex Telleriano Remensis* 39v).

Figure 6a

Conquest pictography in *Codex Aubin* 47r. <Gloss: *Nican qnpeuhque yn xochipilteca*> "Here the Xochipilteca were defeated".

Photo: © The Trustees of the British Museum. Terms of use: CC BY-NC-SA 4.0

Figure 6b

Conquest in *Códice Telleriano Remensis* 39v. <Gloss: Ano d nueve navanjas y de mill y quatrocientos y ochenta y ocho. Sujeptaron los mexicanos al pueblo dChiapa ques cabe Jilotepec yal pueblo d cuscaquatenango>, Translation: "Year of 9 Flint and 1488, the Mexica subjected the town of Chiapa near Jilotepec and the town of Cozcacuauhtenango". Glyphic reading: **9-TECPA-XIUH** CONQUEST **CHIYAUH-pa COZ-COZCACUAUH-TENAN**, *Chiucnahui Tecpatl Xihuitl. Nican quinpeuhque in Chiyauhpaneca ihuan in Cozcacuauhtenanca*, "Year 9 Flint. Here were defeated the people of Chiyauhpan and of Cozcacuauhtenanco".

Photo: Bibliothèque nationale de France. Public domain.

29   In the past, scholars tried to create verbal readings for pictographies, but they were criticized as being fanciful in some aspects.[21] The important thing to avoid the same problems is not to confuse the study of the embedded text with that of iconography, something which Janet Berlo had already noted (1983), and to exercise some measure of textual critique in the reconstructions, as Batalla Rosado suggested regarding the interpretation of Mesoamerican codices itself (2008: 55). Hence, working with 'embedded texts' is actually something more than either iconographic interpretation, or mere logosyllabic decipherment, and it can be said to be somewhat akin to the philological reconstruction of lost texts that, for example, a scholar like Gabriel Kenrick Kruell has attempted in regards to the lost alphabetic document *Crónica X* (2013), the work material being glossed pictorials and chronicles that have a strong relationship to lost pictorials, like the *Codex Chimalpopoca* (Bierhorst 1992). Thus, what I assert here is that the study of 'embedded texts' cannot be based in mere fanciful improvisation, but on plausible reconstruction through the comparison with similar, glossed pictographic accounts, and examples of Aztec alphabetic writing that display similar characteristics to them, grounded on a rigorous analysis of the logo-syllabic level; however, this undertaking cannot be *a priori* discarded as impossible, for the very purpose of these documents was to be the vehicle for the transmission of textual genres which sometimes survive in alphabetic form.

7. Mixtec writing: A reappraisal

30   Within Mesoamerican writing systems, the Aztec and the Mixtec systems have been recognized as belonging to the same tradition of scripts (Davletshin, 2002); a closeness attested by the legend that it was Toltec painters from the Mixtec region, called the Tlailotlaques and Chimalpanecas, who taught writing to the Mexica (see Robertson, 1959, p. 13). However, one of the main differences between Aztec and Mixtec writing is that no syllabograms have been recognized in the latter, creating a problem for Lacadena's followers, given the fact that they adhere to a definition of writing which only recognizes systems with a syllabic grid as 'true' writing. As mentioned, nobody has found any traces of a syllabary in Mixtec writing; the most probable reason as to why lies in the tonal nature of the language, which makes a syllabary cumbersome; furthermore, since Mixtec words and roots were not generally monosyllabic (see Arana de Swadesh, 1965, pp. 63-138), the strategy used by Chinese writing (that of combining monosyllabic logograms using their phonetic values to create spellings) does not appear in the extant corpus. In fact, the opposite of what happens in Chinese happened in Mixtec: a word could be represented by a glyph denoting a word that differed only in tone![22] In this sense, the system defies current grammatological categorizations: decipherment is unlikely, and the system has to be recognized as being fully logographic and yet, much to the chagrin of Lacadena's followers, it was as functional and as equally valid as a writing system as Nahuatl, despite having no syllabic grid. However, in the end, Mixtec writing as a whole worked in a rather similar way to Nahuatl writing, and we know it did because of the glossed colonial manuscripts that still exist. Let's see an example in *Codex Muro* (Figure 7)[23]:

Figure 7
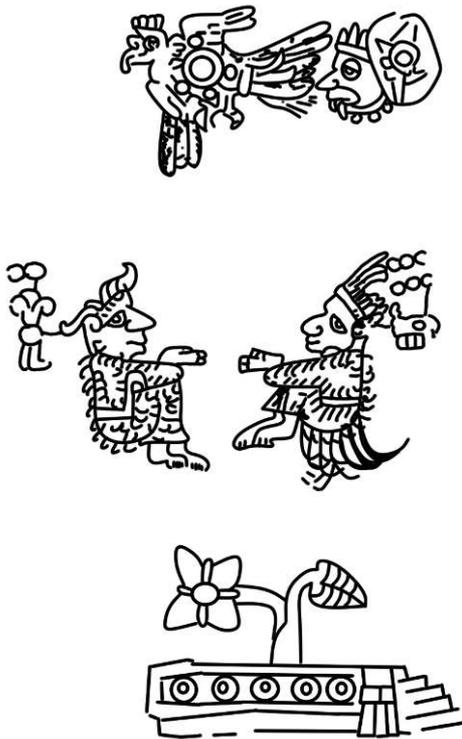
Marriage pictography in *Codex Muro* 6. **6-MAHU DZAVI-JICAJI** MARRIAGE **2-HUACO YUSI-TEDZADODZO** PROVENANCE **CHIYO-YUHU**, <gloss: Ñuñumahu Dzavi Jicaji niduvi sihi Ñucavaco Yusi Tedzadodzo niday Chiyo Yuhu>, "The late 6 Death, Rain-Sun, married the late 2 Flower, Jewel-Quetzal, which came from the altar of the white flower".[24]

31   We can see the similarity with Aztec pictographies. While names and dates are written in logograms, the marriage verb (*duvi*), conjugated in the past through the particle *ni-*, as well as the element *sihi*, 'with', are 'embedded' within the pictographic convention of a sitting male and a female opposed to each other (Smith, 1973b, p. 29), the arrival verb conjugated in the past (*niday*), is only suggested by the visual nearness of the toponym; meanwhile, the prefix to denote dead people, *ñu-*, not really represented, is used because of the contextual situation of the interpreter, who writes many generations after this marriage and has chosen this expression; for example, in other similar contexts, as in the glosses to *Codex Egerton*, the terms *iya*, "lord", and *iya ciy*, "lady", are used instead (Jansen, 1994, p. 156), denoting the variable and pragmatics-dependant nature of this aspect of Mixtec writing. And yet, in the end it worked all the same: the reader of this document was aware of these conventions and created the reading contained in the gloss, rather than just reading the logograms; furthermore, he had a degree of freedom in denoting certain aspects that he wanted to state explicitly, as the election of *ñu-* or *iya/iya ciy* makes clear. We can thus assert that, in this sequence, the names, toponyms and dates are logograms, while the 'sitting female and male facing each other' and the nearness of the figures to a toponym are effectively pictographic conventions, schemata for the content that is to be produced in the semantic (literal meaning) and pragmatic (contextual meaning) levels.

32   Now, let's see a suggested reading for Figure 1b, a pictograph from *Codex Zouche-Nuttall* 43. It shows the famed Mixtec ruler, 8 Deer Jaguar Claw, in the act of conquering a location denoted by an eagle affixed into a mountain sign, at the date 10 Vulture in the

year 7 Reed (Figure 7). The concrete Mixtec idiom that corresponds to the pictographic aspect of this sequence has been already deciphered by Mary Elizabeth Smith in her pioneering study on Mixtec writing: it is *chihi nduvua ñuhu ñaha*, or 'to put an arrow/ dart on the land of another people's, sometimes shortened to *chihi nduvua ñuhu*, 'put an arrow/dart on the land" (Smith 1973b, p. 33); as the colonial dictionary of Fray Francisco de Alvarado states, the idiom means 'to battle, to fight, to win conquering' (Jansen and Pérez Jiménez 2009, p. 207). Similarly, the location has been identified as *Toto Yaha* or 'Crag of the Eagle' (Anders, Jansen and Pérez Jiménez 1992, p. 182; Rodríguez Cano 2002, p. 412), a site in the lower Mixtec region (Perezmurphy Mejía 2015, pp. 182-182). Given that the pictography has a clear equivalence to the idiom it depicts, and that the location has been identified, it is possible to propose a tentative reading:

Figure 8

Conquest pictography in *Codex Zouche-Nuttall* 43: **CUIYA 7-HUIYO 10-CUII 8-CUAA TEYUSI-CUIÑE(?)** CONQUEST **TOTO-YAHA**, *Cuiya Sahuiyo, quevui Sicuii, iya Nacuaa Teyusi Cuiñe (?) nichihi nduvua Toto Yaha,* "Year 7 Reed, day 10 Vulture, the lord 8 Deer, Jaguar Claw put an arrow on (conquered) the Crag of the Eagle".

Photo: © The Trustees of the British Museum. Terms of use: CC BY-NC-SA 4.0.

33   Of course, the main difficulties in the attempted reading of Mixtec pictorials are two: first, the lack of syllabic signs to confirm readings for characters and toponyms, which are to be instead confirmed through ethnohistorical research. The second one is the scarcity of glossed codices and of Mixtec historical and mythological texts which could confirm us how certain pictographic sequences were read. It is not completely impossible to correlate certain iconographic sequences to verbal formulas, as Smith showed (1973b, p. 35); however, as she did, we need to recognize that our possibilities are limited: thus, plausible readings for sequences are not to be 'improvised' by filling the gaps in a fanciful way, but must be shown either to correspond to extant verbal expressions or verified through glossed pictographs when possible.[25]

8. Conclusions

34   To conclude, it can be stated that the reading of Aztec or Mixtec pictorials was a high-level description that integrated both logo-syllabic and pictographic units into a coherent verbal account produced in a top-down fashion, but respectful of the elements of the bottom-up level. Pictography can be defined as a semiotic *schema* which represented language at its higher levels, while logography and all forms of phoneticism could be defined as different kinds of semiotic *data* (lexical, syllabic, phonematic, phonetic, etc) which were intended to represent it in its lower levels. In the case of Aztec or Mixtec writing, a first step is the study of low-level representations, such as that undertook by Lacadena (1998) or Whittaker (2021); however, the real aim is the study of 'embedded texts' or high-level representations; furthermore, the study of these texts, which are contained within pictographic units, is not a matter of improvisation: their readings need to be confirmed through comparison with similar, glossed versions, or be shown to correspond with concrete verbal expressions clearly depicted. This systematization and study needs be retaken along the lines of the pioneering work of Janet Berlo (1983): I hope to have shown that this study is possible.

35   In regards to writing theory as a whole, what I propose is this: the true dilemma was never writing versus non-writing, nor 'full writing' versus 'forerunners', as in Gelb's original proposal (1963), nor the representation of thoughts versus the representation of language, as in some semasiographic theories (Sampson 1985, p. 28), but a matter of levels, strategies and modes of depiction. Unlike alphabetic or purely logosyllabic writing systems, which are linear systems based on a clear equivalence of the levels of register and utterance obtained by additive principles, Nahuatl writing was a complex system, based on a confluence of high and low-level components which yielded a more flexible reading driven by semiotic *schemata*, rather than *only* a 'data-driven' reading that can only be deducted from low-level components. Nahuatl writing can be *deciphered* at the low level and from a bottom-up perspective, but it needed to be properly *interpreted* (in the sense of *actual* language production within rhetorical conventions) at a high level. The contrast with Mixtec is that the latter cannot be conclusively deciphered at the level of phonetics, but, nonetheless, many of readings for logograms exist thanks to glossed colonial pictorials, and thus it is not impossible to work with the system to a certain extent, and to consider it as writing despite the absence of a syllabic grid.

36   Thus, if we divest the original definition of writing by Ignace Gelb (cf. [1952] 1963, p. 12) of its problematic evolutionist aspects, we could arrive at a very reasonable definition: writing is a system of human intercommunication by the means of conventional marks which can store and transmit both verbal and conceptual information. Systems that could be considered "ideographic" or specialized in certain conceptual categories outside language (musical or mathematical notations, pasigraphies, etc) are to be considered as writing, although, given the dominant nature of language in regards to human communication, they are always dedicated and limited; thus, in general, historical systems were geared towards the depiction of verbal utterances. Thus, in a more restricted, historical sense, writing could be defined a set of conventional markings which represent language both through 'low-level' or bottom-up depictions (phonological and morphological) and through high-level or top-down (semantic) depictions, the latter dominated by *schemata*. In that sense, historical writing systems

are "glottography": this term, which has been used to denote only phonetical representations in contrast to semasiographic ones, can be now used to characterize historical writing systems versus the array of dedicated, limited ideographic systems that we use in other communicative contexts even today (like emojis, or musical notation). This working definition essentially agrees with the more complex, pluralist proposal of Klinkenberg and Polis (2018: 57), and with the critical appraisal of Roy Harris in regards to the problematic aspects of the traditional definition of writing (2000), and concurs with their idea that writing is a pluralistic and *semiotic* phenomenon, rather than a narrow surrogate of phonology, as current grammatology considers.

37   Some clarifications regarding possible objections to this model must be made. The first objection is that, obviously, from this perspective it is hard to distinguish all kinds of spatial semiotic representations (architecture, design, iconography) from writing. A first reply is that, as the quote from Torquemada made explicit, it was the intervention and criteria of the producer, the *tlacuilo*, which determined which images had 'embedded texts' and hence could be considered pictography, and which didn't. Since the system was thus dominated by the producer or the 'masters of the art', which disappeared at the end of the colonial period, this may leave us in a situation of obscurity of criteria. Luckily for us, in the case of Aztec and Mixtec cultures, one of the most important cues towards the presence of 'embedded texts' or pictography is precisely the presence of dates and names written in a logosyllabic manner, working in tandem with pictography, in contexts in which we have clear verbal parallels in written alphabetic sources. In the end, cross-cultural comparisons or *reductio ad absurdum* strategies (why is not a Western painting 'writing', for example?) don't really work here; it suffices to merely ponder on the fact that Western Culture in its current form is *more recent* than phoneticism in writing to realise the cultural distance that separates us from other visions of writing: in our culture, by the sheer force of cultural convention, painting can never be writing, but in the conventions of Aztec culture, iconography could potentially encode verbal sequences, thus becoming pictography; this is the reason why the Aztec word to denote both what we call painting and what we call writing, *tlacuilolli*, makes no distinction between both aspects.[26] In this respect, one of the most important aspects of this proposal is to privilege the perspective and usages of the native user (both historical and current-day, in the case of other contemporary American indigenous pictographic systems) above that of the European scholar and would-be decipherer as the key to ascertaining what is and what is not writing.

38   Another clarification must be made in regard to multilingual representation in pictographic writing. Recently, the Maya and Nahuatl epigrapher Albert Davletshin has proposed a definition of writing, perhaps to surmount the evident contradictions and overall lack of content of Daniel's definition; thus, he has proposed that "writing is a system of visually perceived signs developed to transmit messages in a particular language in order to control the reader's behaviour" (2021a). If we ponder the difference with Daniel's definition, we see that this definition actually fails to exclude pictography or purely logographic systems; for example, in the example presented in Figure 2 we can see that the warrior pictogram was expected to be read in a particular language (Nahuatl), and is an essential part of the message, simply in virtue of its articulation with other classes of signs that only make sense in that language. Hence, in that case, 'pictography' was intended to be read in Nahuatl, just as Mixtec logograms

were expected to be read in Mixtec, as their tonal determinatives show in some cases. However, it is also true that multilingual representation existed in Mesoamerican systems, but what I would suggest is that, instead of restricting the definition of writing to the depiction of a particular language, we must instead embrace the potential of multi-lingual communication in Mesoamerican writing systems. This communication didn't only take place at the pictographic level: it seems that the Aztec actually intended logograms codices to be read in a bilingual manner in some situations. An example is to be found in *Codex Xicotepec* or *Codex Cuaxicala*, a colonial copy of a chronicle produced by the Tetzcocans (members of the Aztec alliance) after conquering the Totonac-speaking region of Xicotepec (Stresser-Pean, 1995). In this document, an explicitly bilingual glyphic sequence appears, stating the name of the region, Xicotepec, in both Aztec and Totonac (Figure 9).

Figure 9

Bilingual glyph in *Codex Xicotepec,* section 9. Nahuatl: **XICO-TEPE,** *Xicotepec,* 'Place of Wasps'; Totonac: PLACE-**KOLUN,** *Kakolun,* 'Place of Old Men' (cf. Stresser-Pean, 1995, 85).
Drawing by the author.

39   This glyphic sequence renders the place-name of a town in two languages, Nahuatl (Xicotepec, 'hill of wasps') and Totonac (Kakolun, 'place of old men'). Most curiously, the mountain sign, which in Aztec could be either a semantic indicator denoting a toponym (without a reading), or the logogram **TEPE**, Tepetl, 'mountain', is working differently in the two languages: in Nahuatl as a logogram, in Totonac as a semantic indicator denoting a toponym, being read as *ka*, 'at a place, place of', rather than being read as *sipih*, 'mountain', which would be its expected logographic value, given its iconography and the equivalent Nahuatl reading.[27] The aforementioned example means that *Codex Xicotepec* was potentially bilingual (Nahuatl-Totonac), and even the category of the signs in it could shift depending on the language in which the decoder would like to render it; furthermore, by adding a minimum set of signs (here, where crucial information differed), you could 'translate' it to other languages. If we were to accept a clear-cut definition of writing as based on necessarily reflecting a concrete language, we would need to agree that Aztec logograms were not writing or at least that they were not writing in this case, something which would be self-defeating. So, instead of saying that these signs are not writing because they could be read in other languages, we should embrace their multivocal communication capacity and attempt to explain its richness. In this sense, we must assert that these documents transcend the clear-cut

definitions intended by Mesoamerican grammatologists: they had a concrete language of production, but could be rendered for non-native speakers with ease.

40   It must be added that the aforementioned multilingual and 'equivocal' potential of non-Maya Mesoamerican systems was not a hindrance, but an advantage, since the top-down elements of them were clearly understood by people who didn't speak the original language of such documents nor were even particularly familiarized with how the system worked, as numerous Mixtec and Aztec colonial pictorials glossed in Spanish, used as legal documents before colonial authorities, show (Lockhart, 1992, pp. 326-373, Terraciano, 2002, pp. 15-64). In contrast, strictly logo-syllabic documents written in the Maya script were generally burned by Spanish priests, and did not achieve any legal recognition in the colonial period (Chuchiak, 2005). Thus, these writing systems are not "primitive", nor non-optimal, nor 'steps' towards writing: they are actually very well suited towards multicultural communicative situations (as the Aztec-Totonac example shows), as well as contexts of survival (as in the example of colonial Mixtec and Aztec cultures), due to their semiotic richness and by cleverly bypassing the limitations of strict phoneticism.

41   Finally, I have mentioned the potential for this new vision of writing to incorporate systems that are traditionally excluded from the idea of writing, following the work and suggestions of the many scholars that have work with them. To quote some examples: Lakota censuses, which have logograms depicting names, can be considered as writing despite not having syllabic signs: their resemblance to Aztec pictorial censes is rather astounding.[28] The Dongba script of the Naxi, which seems to be logographic and pictorial (Poupard, 2018), and which has been considered a crucial but under-used system to understand the history of writing itself (Ramsey 1987: 268) could be considered fully as writing, despite displaying elements of non-linearity in its depiction of utterances; the Nsibidi script of Southeastern Nigeria, considered as pictographic when originally described, seems to have dedicated signs for words and definitely has characters for personal names, as well as displaying complex pictographic scenes (McGregor, 1909), while the Bamum script of Cameroon, which underwent a process of change from picto-logography to becoming fully syllabic (Dougast & Jeffreys, 1950; Schmitt, 1963), could become one of the models of the study of the complexity of writing and its evolution, rather that standing in a theoretical limbo: along with Nahuatl, none of these rich writing systems are to be found on Daniel's manual (2006). Another case is that of Inca *khipus*, the status of which is still under discussion.[29] A controversy similar to that regarding Nahuatl writing has developed, worsened by the fact that only the numeric part of the system has been deciphered conclusively. However, significative milestones in their understanding have been reached by recent scholarship: for example, thanks to the so-called '*khipu* texts', which are colonial Spanish transcriptions of *khipus*, we know that these devices were capable of codifying item categories and individual names, although we don't yet know how they worked in that regard; more importantly, they were actually capable of transmitting verbal narratives, although admittedly formulaic (Pärsinnen & Khivijarju, 2004). Similarly, Manuel Medrano and Gary Urton have convincingly demonstrated the usage of color codings to name tributaries in archaeological *khipus* from the Santa Valley by comparing them with administrative ethnohistorical data from the XVIIth century (2018), while Sabine Hyland has shown a correlation of 100 percent accuracy between the knotting of the so-called *khipu* board of Mangas and the belonging of individuals

associated with them to specific halves of Aiyu moieties (2014). We are still unsure about the rest of the system: in contrast to Pärsinnen and Khivijarju, which consider it probably mnemonic and very akin to Aztec narratives in its rhetorical strategies, Hyland suggests that it was actually fully logosyllabic, given the number of possible items, considering knots, plying, texture and colour (2017). But even if it was not: what can stop us to consider a knot in a *khipu* in a specific context as a textile logogram, and Medrano's, Urton's and Hyland's contributions as actual decipherments? *Khipus* colours, knotting, textures and plying are not different from the markings or lines of ink that conform the alphabet or Aztec glyphs, except that they are realised through the possibilities of a textile-based system. If *khipus* are eventually shown to have integrated a logosyllabic system, like Hyland suggests, or conveyed words or categories via colour codes in tandem with knot types and taxonomical ordering, as Pärsinnen and Khivijarju suggest, and as the findings of Medrano and Urton seem to confirm, it is not a matter of writing versus non-writing anymore.

42   In conclusion, this paper tries to advance a notion of writing that is grounded in a more ample vision of language which recognizes the existence of bottom-up and top-down processing and representations, considering language as a complex phenomenon that can be depicted through equally complex strategies (data-driven and schemata-driven); it also agrees with the idea of plurality within written codes, rather than falling back into the restrictive dichotomies of the past. Admittedly, the potential of these ideas still await further realization, but for now, it can be suggested that our future understanding of writing will be something that will potentially take place among scholars working on the five continents rather than on a select group of "high civilizations" alone; that writing is a generalized rather than a "civilized" phenomenon, and that its understanding is something to come, rather than something already achieved.

BIBLIOGRAPHY

ANDERS, Ferdinand, JANSEN, Maarten & PÉREZ JIMÉNEZ, Gabina Aurora (1992), *Crónica mixteca. El Rey 8 Venado, Garra de Jaguar, y la dinastía de Teozacualco, Zaachila. Libro explicativo del llamado códice Zouche-Nuttall*, Mexico: Fondo de Cultura Económica.

ANDREWS, Richard J. (2004), *Introduction to Classical Nahuatl*. Revised Edition. Norman, Oklahoma, University of Oklahoma Press.

ARANA DE SWADESH, Evangelina & SWADESH, Mauricio (1965), *Los Elementos del Mixteco Antiguo*, Mexico, Instituto Nacional Indigenista & Instituto Nacional de Antropología e Historia.

AUBIN, Joseph Marius Alexis (2002), *Memorias sobre la pintura didáctica y la escritura figurativa de los antiguos mexicanos*, Mexico, Instituto de Investigaciones Históricas.

BATALLA ROSADO, Juan José (2008), "Los códices mesoamericanos: métodos de estudio", *Itinerarios* 8: 43-67.

BATTESTINI, Simon (1997), *Écriture et texte : Contribution Africaine*, Québec: Les Presses de l'Université Laval.

BERDAN, Frances F. & RIEFF ANAWALT, Patricia (1997), *The Essential Codex Mendoza*, Berkeley, Los Angeles & London: University of California Press.

BERLO, Janet Catherine (1983), "Conceptual categories for the study of text and image in Mesoamerica", *in* BERLO (ed.), *Text and image in Pre-Columbian art. Essays on the interrelationship of the verbal and visual arts. Proceedings, 44th International Congress of Americanists*, Manchester, 1982, Oxford, BAR Publishing, pp. 79-118.

BELIAEV, Dmitri (2013), "Genesis of History Writing in Ancient Mesoamerica", *in* BELIAEV & GUIMON (eds.), *The Earliest States of Eastern Europe*, Moscow, Dmitriy Pozharskiy University, pp. 203-241 (in Russian).

BIERHORST, John (1992a), *History and mythology of the Aztecs: The Codex Chimalpopoca*, Tucson, Arizona: The University of Arizona Press.

BIERHORST, John (1992b), *Codex Chimalpopoca: The Text in Nahuatl with a Glossary and Grammatical Notes*, Tucson, Arizona: The University of Arizona Press.

BOONE, Elizabeth Hill (1994), "Introduction: Writing and Recording Knowledge", *in* BOONE & MIGNOLO (eds.), *Writing without Words: Alternative Literacies in Mesoamerica and the Andes*, Durham, Duke University Press, pp. 3-26.

BOTTERO, Françoise (1996), "Review of *The Origin and Early Development of the Chinese Writing System*, by William G. Boltz", *Journal of the American Oriental Society*, 116, 3, pp. 574-577.

BYLAND, Bruce & POLL, John D. (1994), *In the Realm of 8 Deer: The Archaeology of the Mixtec Codices*, Oklahoma, University of Oklahoma Press.

CALNEK, Eduard (1978), "The analysis of Prehispanic Central Mexican Historical Texts", *Estudios de cultura Náhuatl*, 13, pp. 239-266.

CASO, Alfonso (1949), "El mapa de Teozacoalco", *Cuadernos Americanos*, 8, pp. 145-181

CASO, Alfonso (1977), *Reyes y reinos de la mixteca*, Mexico, Fondo de Cultura Económica,

CELCE-MURCIA, Marian & OLSHTAIN, Elite (2001), *Discourse and context in language teaching: A guide for language teachers*, Cambridge, Cambridge University Press.

CHU, Yaohan (1975), "Concepts of High-Level Language Computer Architecture", *in* CHU (ed.), *High-Level Language Computer Architecture*, New York, San Francisco & London, Academic Press, pp. 1-14.

CHUCHIAK, John F. (2005), "El regreso de los autos de fe: Fray Diego de Landa y la extirpación de idolatrías en Yucatán", *Península* 1, pp. 29-47.

COULMAS, Florian (1989), *The Writing Systems of the World*, Oxford, Blackwell.

COULMAS, Florian (2002), *Writing Systems: An Introduction to Their Linguistic* Analysis, Cambridge, Cambridge University Press.

CORCORAN, John & SAMAWI Hamid Idris (2016), "Schema", *in* ZALTA, Edward N. (ed.) *The Stanford Encyclopedia of Philosophy*, https://plato.stanford.edu/archives/fall2016/entries/schema/.

CRYSTAL, David (2008), *A Dictionary of Linguistics and Phonetics*, London, Blackwell.

DAMEROW, Peter (2006), "The Origins of Writing as a Problem of Historical Epistemology", *Cuneiform Digital Library Journal* 2006, 1, http://cdli.ucla.edu/pubs/cdlj/2006/cdlj2006_001.html.

DANIELS, Peter T. (2006), "The Study of Writing Systems", *in* DANIELS & BRIGHT (eds.), *The World's Writing Systems*, New York & Oxford, Oxford University Press, pp. 3-18.

DAVLETSHIN, Albert (2002), "The Variety of Writing Traditions in Mesoamerica. Questions of typology of writing", *in Proceedings of the I Interuniversity Conference of Young Scientists in Memory of Professor V.F. Semenov. April 13, 2002 (History of the Ancient world)*, Moscow, Moscow State Pedagogical University, pp. 30-35.

DAVLETSHIN, Albert (2003), *Paleography of the Ancient Maya Hieroglyphic Writing*, Ph.D. dissertation, Moscow: Russian State University for the Humanities, Knorozov Center of Mesoamerican Studies (in Russian).

DAVLETSHIN, Albert (2021a), "Descripción funcional de la escritura jeroglífica náhuatl y una lista de términos técnicos para el análisis de sus deletreos", *Estudios De Cultura Náhuatl*, 62, pp. 43-93.

DAVLETSHIN, Albert (2021b), "Olmecs and the Origin of Writing in Mesoamerica: What can we see?", *SCRIBO: Seminars on Scripts in Bologna, Department of Classical Philology and Italian Studies (FICLIT) at the University of Bologna, 9 June*, https://www.youtube.com/watch?v=TcBi3xmTHqM.

DEFRANCIS, John (1989), *Visible Speech: The Diverse Oneness of Writing Systems*, Honolulu, University of Hawaii Press.

DIBBLE, Charles, (1951), *Codex Xolotl*, Mexico: Universidad Nacional Autónoma de Mexico & University of Utah.

DIBBLE, Charles, (1981), *Codex en Cruz*, Utah: University of Utah Press.

DIBBLE, Charles (1990), "The Boban Calendar Wheel", *Estudios de Cultura Náhuatl*, 20, pp. 173-182.

DIEL, Lori Boornazian (2008), *The Tira de Tepechpan: Negotiating Place under Aztec and Spanish Rule,* Austin, University of Texas Press.

DIEL, Lori Boornazian (2018), *The Codex Mexicanus: A Guide to Life in Late Sixteenth-Century New Spain,* Austin, University of Texas Press.

DOUGAST, Immelette & WALDEGRAVE JEFFREYS, Mervyn David (1950), *L'Écriture des Bamum : sa naissance, son évolution, sa valeur phonétique, son utilisation*, Paris, Le Charles Louis.

GELB, Ignace Jay (1963), *A Study of Writing*, 2nd edition, Chicago & London, University of Chicago Press.

GRAULICH, Michel, ed. (1995), *Codex Azcatitlan*, Paris, Bibliothèque Nationale de France-Société des Américanistes.

HAAS, William (1976), "Writing: The Basic Options", *in* HAAS (ed.), *Writing without Letters*, Manchester University Press, Manchester, pp. 131-208.

HARRIS, Roy (2000), *Rethinking Writing*, London: The Athlone Press.

HOLLAND, John Henry (2014), *Complexity: A Very Short Introduction*, Oxford, Oxford University Press.

HYLAND, Sabine & WARE, Gene A. & CLARK, Madison (2014), "Knot Direction in a Khipu/Alphabetic Text from the Central Andes", *Latin American Antiquity* 25, 2, pp. 189-197.

HYLAND, Sabine (2017), "Writing with Twisted Cords: The Inscriptive Capacity of Andean *Khipus*", *Current Anthropology* 58, 3, pp. 412-419.

JANSEN, Maarten (1992), "Mixtec pictography: Conventions and Contents", *in* BRICKER (ed.), *Handbook of Middle American Indians.* Supplement 5: *Epigraphy.* Austin, University of Texas Press, pp. 20-33.

JANSEN, Maarten (1994), *Códices Egerton Sánchez Solís -Becker, II. La gran familia de los reyes mixtecos*, Mexico, Fondo de Cultura Económica.

JANSEN, Maarten & Gabina Aurora PÉREZ JIMÉNEZ (2009), *Voces del Dzaha Dzavui (mixteco clásico). Análisis y Conversión del Vocabulario de fray Francisco de Alvarado (1593)*, Mexico, CSEIIO.

JANSEN, Maarten & Gabina Aurora PÉREZ JIMÉNEZ (2011), *The Mixtec Pictorial Manuscripts: Time, Agency and Memory in Ancient Mexico*, Leyden, Brill.

JOHANSSON, Patrick K. (2004), *La palabra, la imagen y el manuscrito: lecturas indígenas de un texto pictórico en el siglo XVI*, Mexico, UNAM.

KLINKENBERG, Jean-Marie & POLIS, Stéphane (2018), "On Scripturology", Signata, 9, pp. 57-102, DOI: 10.4000/signata.1885.

KENRICK KRUELL, Gabriel (2013), "Resucitando la Crónica X reconstrucción filológica de un fragmento inicial de la crónica mexicáyotl de Hernando de Alvarado Tezozómoc", *Tlalocan* 19, pp. 301-461.

LACADENA, Alfonso (2008a), "Regional Scribal Traditions: Methodological Implications for the Decipherment of Nahuatl Writing", *The PARI Journal*, 8, 4, pp. 1-22.

LACADENA, Alfonso (2008b), "A Nahuatl Syllabary", *The PARI Journal*, 8, 4, p. 23.

LOCKHARDT, James (1992), *The Nahuas After the Conquest: A Social and Cultural History of the Indians of Central Mexico, Sixteenth Through Eighteenth Centuries*, Stanford, Stanford University Press.

LLOYD Williams, Robert (2013), *The Complete Codex Zouche-Nuttall*, Austin, University of Texas Press.

LURIE, David B. (2006), "Language, writing, and disciplinarity in the Critique of the 'Ideographic Myth': Some proleptical remarks", *Language & Communication* 26, pp. 250-269.

MACRI, Martha (1996), "Maya and other Mesoamerican Scripts", *in* DANIELS & BRIGHT (eds.), *The World's Writing Systems*, New York & Oxford, Oxford University Press, pp. 172-182.

MALLERY, Garrick (1894), *Picture-writing of the American Indians: Extract from the tenth annual report of the Bureau of Ethnology*, Washington DC, Government Print Office.

MASSIP-BONET, Àngels (2012), "Language as a Complex Adaptive System: Towards an Integrative Linguistics", *in* MASSIP-BONET & BASTARDAS-BOADA (eds.), *Complexity Perspectives on Language, Communication and Society*, Berlin & Heidelberg, Springer, pp. 35-60.

MIKULSKA, Katarzyna (2015), *Tejiendo destinos. Un acercamiento al sistema de comunicación gráfica en los códices adivinatorios*, Zinacantepec, Mexico, El Colegio Mexiquense A.C.

MIKULSKA, Katarzyna & OFFNER, Jerome A. (2019a), *Indigenous Graphic Communication Systems: A Theoretical Approach*, Boulder, Colorado University Press.

MIKULSKA, Katarzyna (2019b), "Introduction", *in* MIKULSKA & OFFNER (eds.), *Indigenous Graphic Communication Systems: A Theoretical Approach*, Boulder, Colorado University Press, pp. 3-24.

MOSKOVSKY, Christo & JIANG, Guowu & LIBERT, Alan & FAGAN, Seamus (2014), "Bottom-Up or Top-Down: English as a Foreign Language Vocabulary Instruction for Chinese University Students", *TESOL Quarterly*, 49, DOI: 10.1002/tesq.170.

OUDIJK, Michel R. (2008), "De tradiciones y métodos: investigaciones pictográficas", *Desacatos*, 27, pp. 123-138.

PÄRSINNEN, Martti & KIVIHARJU, Jukka (2004), *Textos Andinos. Corpus de textos quipu incaicos y coloniales*, Madrid, Universidad Complutense de Madrid.

PAVEY, Emma (2010), *The Structure of Language: An Introduction to Grammatical Analysis*, Cambridge, Cambridge University Press.

PERONDI, Luciano & PERRI, Antonio (2018), "Framing space in Aztec writing: The *Codex Mendoza* as a model of transposition and beyond", *XY Digitale* 5, pp. 40-53.

PEREZMURPHY Mejía, Carlos (2015), "¿Arte rupestre colonial en la Peña del Águila, Oaxaca?", in BERROJALBIZ, Fernando (ed.), *La vitalidad de las voces indígenas: arte rupestre del contacto y en sociedades coloniales*, Mexico, Instituto de Investigaciones Estéticas, p. 181-212.

POHL, John & BYLAND, Bruce (1994), *In the Realm of 8 Deer: The Archaeology of the Mixtec Codices*, Norman, University of Oklahoma Press.

POPE, Maurice (1999), *The Story of Decipherment: From Egyptian Hieroglyphs to Maya Script*, London, Thames and Hudson.

POUPARD, Duncan (2018), "Between the Oral and the Literary: The Case of the Naxi Dongba Texts", *Oral Tradition*, 32, 1, pp. 27-52.

RAMSEY, Robert S. (1987), *The Languages of China*, Princeton, New Jersey: Princeton University Press.

RADICATI DI PRIMEGLIO, Carlos (2006), *Estudios sobre los quipus*, Lima, Corporación Financiera de Desarrollo.

ROBERTSON, Donald (1959), *Mexican Manuscript Painting of the Early Colonial Period: The Metropolitan Schools*, Norman, OK: Oklahoma University Press.

ROBINSON, Andrew (2009) *Writing and Script: A Very Short Introduction*, Oxford, Oxford University Press.

RODRÍGUEZ Cano, Laura (2008), "Los signos y el lenguaje sagrado de los 20 días en el calendario ritual de la Mixteca y los códices del noroeste de Oaxaca", *Desacatos. Revista De Ciencias Sociales*, 27, pp. 33-74.

RODRÍGUEZ Cano, Laura (2016), *Los topónimos de la Mixteca Baja: Corpus y Análisis epigráfico y cartográfico*, PhD diss., National Autonomous University of Mexico.

ROUW, Romke & KOSSYLN, Stephen M. & HAMEL, Ronald (1997), "Detecting high-level and low-level properties in visual images and visual percepts", Cognition, 63, 2, pp. 209-226. DOI: 10.1016/s0010-0277(97)00006-1.

SAMPSON, Geoffrey (1985), *Writing Systems: A Linguistic Introduction*, London, Hutchinson.

SCHMITT, Alfred (1963), *Die Bamum-Schrift*, Wiesbaden, Harrassowitz.

SMITH, Mary Elizabeth (1973a), "The Relationship between Mixtec Manuscript painting and Mixtec language: A Study of some Personal Names in Codices Muro and Sánchez Solis", *in* BENSON (ed.), *Mesoamerican Writing Systems*, Dumbarton Oaks, Washington, D.C., pp. 47-98.

SMITH, Mary Elizabeth (1973b), *Picture Writing from Ancient Southern Mexico: Mixtec Place Signs and Maps*, Norman, Oklahoma, University of Oklahoma Press.

STUART, David, & CHINCHILLA MAZARIEGOS, Oswaldo (2001), *The Decipherment of Ancient Maya Writing*, Norman, Oklahoma, University of Oklahoma Press.

TERRACIANO, Kevin (2002), *The Mixtecs of Colonial Oaxaca: Ñudzahui History, Sixteenth Through Eighteenth Centuries*, Stanford, Stanford University Press.

TENA, Rafael (2017), *Códice Aubin. Edición facsimilar*, Mexico, Secretaría de Cultura & Instituto Nacional de Antropología e Historia.

THOUVENOT, Marc (2010), "Imágenes y escritura entre los nahuas del inicio del XVI", *Estudios de Cultura Náhuatl* 41, pp. 167-191.

TORQUEMADA, Fray Juan de (1975), *Monarquía Indiana*, volume I. Mexico: Instituto de Investigaciones Históricas.

UNGER, James Marshall (1990), "The very idea: the notion of ideogram in China and Japan", *Monumenta Nipponica* 45, 4, pp. 391-411.

UNGER, James Marshall (2004), *Ideogram: Chinese Characters and the Myth of Disembodied Meaning*, University of Hawaii Press, Honolulu.

UNGER, James Marshall & DEFRANCIS, John (1995), "Logographic and semasiographic writing systems: a critique of Sampson's classification", in TAYLOR & OLSON (eds.), *Scripts and Literacy: Reading and Learning to Read Alphabets, Syllabaries and Characters*, Kluwer Academic Publishers, Dordrecht, pp.45-58.

URCID Serrano, Javier (2001), *Zapotec Hieroglyphic Writing*, Washington DC, Dumbarton Oaks.

URTON, Gary (2003), *Signs of the Inka Khipu: Binary Coding in the Andean Knotted-String Records*, Austin, TX: University of Texas Press.

MEDRANO, Manuel & URTON, Gary (2018), "Toward the Decipherment of a Set of Mid-Colonial Khipus from the Santa Valley, Coastal Peru", *Ethnohistory* 65, 1, pp. 1-23.

VAN DOESBURG, Sebastián (2001), *Códices cuicatecos: Porfirio Diaz y Fernández Leal*, Mexico, Porrúa.

VELÁSQUEZ GARCÍA, Erik (2018), "*In memoriam* Alfonso Lacadena", *Estudios de cultura maya*, 52, pp. 301-312.

VELÁSQUEZ GARCÍA, Erik (2012), "Silabogramas nahuas en tiempos de la Conquista", *Estudios de Cultura Náhuatl* 58, pp. 59-116.

VEGA SOSA, Constanza (1991), *Códice Azoyú 1: El reino de Tlachinollan*, Mexico, Fondo de Cultura Económica.

VEGA SOSA, Constanza & Michel R. OUDIJK (2012), *Codice Azoyú 2: El señorío de Tlapa-Tlachinollan*, Mexico, Fondo de Cultura Económica.

WHITTAKER, Gordon (2018), "Aztec hieroglyphics: a name-based writing system", *Language & History* 61, 1-2, pp. 60-76.

WHITTAKER, Gordon (2021), *Deciphering Aztec Hieroglyphs: A Guide to Nahuatl Writing*, Berkeley, CA: University of California Press.

WRIGHT CARR, David (2005), *Los otomíes: cultura, lengua y escritura*, PhD diss., El Colegio de Michoacán.

YAN, Zhenjiang (2002), "Der geheime Phono- und Eurozentrismus des Redens von Schrift", in GREBER & EHLICH & MÜLLER (eds.), *Materialität und Medialität von Schrift*, Bielefeld, Aisthesis, pp. 151-164.

ZENDER, Marc (2013), "An Introduction to Nahuatl Hieroglyphic Writing", *Maya Meetings and Workshops, University of Texas, Austin (Jan 15th-17th)*.

NOTES

1. See Mikulska (2019) for an overview of this debate in the Mesoamerican context.

2. See Stuart and Chinchilla Mazariegos (2001) for an extensive overview of the history of Maya decipherment.

3. Indeed, the inventory of Nahuatl syllabic signs lacks crucial syllables. For example, perhaps the most used syllable in the language, *in*, corresponding to the ubiquitous 'adjunctor' particle (cf. Andrews 2003, p. 39), lacks any way of being represented in the system ; similarly, entire rows of the syllabic grid are still missing (cf. Kettunen and Lacadena 2014 : 11-12).

4. It must be mentioned that the mainline grammatologists position reflected in Daniel's book was a consequence of the work of John DeFrancis (1984, 1989) and James Marshall Unger (1990, 2004) on sinograms, which developed the so-called "critique of the ideographic myth" (Lurie, 2006, p. 251). As it is well known, the central premise of DeFrancis' and Unger's critique is that Chinese writing is not actually logographic since, depending on the context, *hànzì* can also operate as syllabograms ; thus, as a consequence of their Sinocentric argument, it was concluded (without real guarantee) that writing at a *global* level necessarily includes phonetic elements, and purely logographic systems were deemed as impossible or non-functional. However, this extreme phoneticist position has not been adopted by sinologists as a whole, especially regarding early Chinese writing (cf. Bottero, 1996), thus, the field remains effectively divided ; as David Prager Branner explains, in the case of egyptology and cuneiform writing, it is widely accepted that "some graphs are composites of semantic elements only" (2011, 91-92). Thus, the scope of the development which lead to the adoption of a strict phoneticist definition of writing by Mesoamerican grammatologists needs a serious re-evaluation.

5. See Velázquez 2018 for an overview of Lacadena's contributions to the study of Maya and Nahuatl writing systems.

6. Of course, this was already known at least since Joseph Marius Alexis Aubin's 1885 work, *Mémoires sur la peinture didactique et l'écriture figurative des anciens Mexicains* (2002).

7. See Mikulska & Offner 2019 for examples.

8. Recently, Gordon Whittaker has published an important volume which revisits some of the conventions and assumptions of Lacadena regarding the analysis of Aztec logograms and syllabograms. While this work is of a considerable importance and its proposals are suggestive and valuable, it still reproduces Lacadena's division of iconography and writing (cf. 2021, pp. 24-25).

9. See Beliaev (2016, p. 205) for a nearly identical passage.

10. See Pope (1999, pp. 186-191).

11. Such as *Codex Muro* (Smith, 1973a), and *Codex Egerton* (Jansen 1994).

12. See Pohl and Byland (1994).

13. See Terraciano (2002).

14. For Zapotec writing, see Urcid (2001) ; for Tlapanec, see Vega Sosa (1991), and Vega Sosa & Oudijk (2015) ; for Otomi, see Wright Carr (2005) ; for Cuicatec, see Van Doesburg (2001).

15. In linguistics, a schema is defined as either a mental model which readers use to make sense of a text (Crystal 2008, p. 424) ; in philosophy, it is considered as "a linguistic 'template', 'frame',

or 'pattern' together with a rule for using it to specify a potentially infinite multitude of phrases, sentences, or arguments, which are called instances of the schema" (Corcoran and Hamid 2016).

16. Eduard Calnek (1978) had already noted the 'formulaic' nature of many Aztec chronicles derived from pictorials and its derivation from the properties of a 'pictorial glyphic' system.

17. We could also assume that the verb *pehua*, 'to depart' is actually represented by the *tlameme* in the *Aubin*, since such characters were symbols of travel, and since the porter is a Tenochca, he also represents this word.

18. The reader perhaps has noticed that in the transcription present in Figure 3 (the part in italics), I have abandoned the usual practice of rendering the parts of a statement that are not depicted in logosyllabic fashion between parentheses, a practice that is still uphold by Gordon Whittaker in his grammatological proposal (2021 : 119). When we understand the real nature of Nahuatl writing, this kind of representation, while still useful, becomes cumbersome : all the statement *is there*. This is why the system that Lacadena devised has been in need of many periodical corrections (Whittaker 2018, Velásquez García 2019, Davletshin 2021a), and the reason why Nahuatl writing seems to anomalous in comparison with other logosyllabic systems, as Gordon Whittaker has conclusively proved (2021) : however, unlike Whittaker, I think it is the picto-logosyllabic nature of the script which makes it so different from Old World systems, rather than its mere originality within a phoneticist paradigm. In the end, Nahuatl writing was not about mere de-codification, nor its contemporary study should be *only* about making transcriptions and transliterations : it was about *producing* readings, and its study should be concerned with all the signs within it, not only a part.

19. See Robertson (1959, pp. 71-93).

20. Of course, this doesn't work with all the parts of the *Boturini* vis-à-vis the *Aubin*, but sometimes it does.

21. See Oudijk 2008, p. 135 ; and Batalla Rosado 2008 for some assessments.

22. See Caso, 1949, pp. 143-145 for the most famous example of this phenomenon, the toponym Chiyo Cahnu.

23. The system of transcription proposed here, as well as the formulas for names, are based on those proposed by Laura Rodríguez Cano (2008, 2016).

24. See Jansen, 1994, p. 66 ; Smith, 1973a, p. 62. Sadly, the botanical identification of the flower element denoted by the word *yuhu* has not survived in extant colonial Mixtec dictionaries (cf. Smith, 1973b, p. 81).

25. Of course, this sort of exercise is not new. For example, Maarten Jansen has offered a similar reconstruction of the Mixtec reading of a marriage scene in *Codex Bodley* 17 along the lines of the aforementioned conventions of *Codex Muro* (1992, p. 23).

26. For a detailed study on the notion of *tlacuilolli* and its proper semantic delimitation, see Thouvenot 2010.

27. The same ambiguity is present in many 'mountain' signs in Nahuatl writing, which could be both read as the logogram **TEPE**, or merely as semantic indicators of a toponym, without any concrete verbal realization.

28. See Mallery (1894 : 442-460) for examples.

29. Relevant studies include those of Urton (2003), Radicati di Primeglio (2006) and Hyland (2017).

ABSTRACTS

The aim of this paper is to propose the elements of a new theory of writing and writing systems. It concentrates on the decades-long controversy about whether to consider the highly pictorial communication system present in Aztec, Mixtec and other non-Maya Mesoamerican pictorial codices as writing. After exposing the history of this controversy and the problematic elements in contemporary grammatological and semasiographic visions, I propose to treat Aztec and Mixtec writing as complex systems which depict language through bottom-up strategies (logograms and/or syllabograms, which are signs that try to represent the morphological and phonological levels of language), and top-down strategies (pictography, which is a semantic depiction aided by contextual inferences grounded in pragmatics), strategies that roughly correspond to the bottom-up and top-down language processing operations. Based on this idea, I propose that semiotic writing strategies are possible, and that writing should not be seen as a mere surrogate of phonetics: this vision could solve the long-standing question of why writing systems that developed phoneticism seem to start in a non-phonetic stage that is still treated, in an unclear way, as 'proto-writing'.

Dans cet article on voudrait proposer les fondements d'une nouvelle théorie des systèmes d'écriture et de l'écriture en général. En particulier, on étudiera la polémique concernant la possibilité de considérer les systèmes de communication hiéroglyphiques présents dans les codex aztèques, mixtèques et mésoaméricaines (à l'exception des mayas) comme écriture. Après une présentation historique de cette controverse et des éléments qui font problème dans les interpretations grammatologiques et sémasiographiques prévalents, on propose de considérer les hiéroglyphes des aztèques et des mixtèques comme des systèmes complexes qui représentent le langage à travers des stratégies de haut en bas (*top-down*), telles que les logogrammes et les syllabogrammes, qui sont des approximations de la niveaux morphologique et phonologique, et de bas en haut (*bottom-up*), comme la pictographie, qui est constituée de représentations sémantiques parfois interprétées à travers des inférences contextuelles ou pragmatiques. Les stratégies évoquées correspondent à des opérations de "haut en bas" et "de bas en haut" dans le traitement du langage. Sur la base de cette idée, je propose que des stratégies d'écriture sémiotiques soient possibles, et que l'écriture ne doit pas être considérée comme un simple système de représentations phonétiques : ce point de vue pourrait résoudre la question de longue date de savoir pourquoi les systèmes d'écriture qui ont développé le phonétisme semblent commencer à un stade non phonétique qui est encore appelé de façon ambiguë comme de la "proto-écriture".

INDEX

AUTHOR

ALONSO RODRIGO ZAMORA CORONA

Alonso Zamora Corona holds a PhD in Social Anthropology from University College London. The topic of his thesis was the relationship between cosmology and social life among the K'iche' Maya of Momostenango. He has published articles on Aztec iconography (2019), K'iche ideas about souls (2019) and ontology (2020), and is currently preparing an article on glyphs in the XVIth century document, the *Florentine Codex.* He also runs a blog centred on Aztec Writing, *Tlacuilolli* (https://tlacuilolli.com/).
Email: alonso.corona.16[at]ucl.ac.uk