Mayan

VICTORIA R. BRICKER

1. HISTORICAL AND CULTURAL CONTEXTS

1.1 Linguistic prehistory and history

The language described herein as *Mayan* is known from a hieroglyphic script that was employed in a large region in Mesoamerica, encompassing much of what is today southeastern Mexico, northern and eastern Guatemala, all of Belize, and the western part of Honduras. The earliest securely dated and geographically provenanced hieroglyphic text from this region is Stela 29 from Tikal in northeastern Guatemala, which bears a date of 6 July AD 292. The script was in continuous use in this region until the second half of the sixteenth century, when it was replaced by the Latin-based alphabet introduced by the Spaniards.

Lyle Campbell and Terrence Kaufman (1985) have classified the thirty or so Mayan languages in terms of five branches, each of which is further divided into groups and subgroups (Fig. 9.1). At the time of the Spanish Conquest, the inhabitants of the region where hieroglyphic texts have been found spoke languages representing the Yucatecan and Greater Tzeltalan groups (Fig. 9.2). The Yucatecan languages were confined to the Yucatan peninsula in the north. South of them was a broad band of Cholan languages, running from Chontal and Chol in the west to Cholti and Chorti in the east. Tzeltal was the only language in Tzeltalan Proper that was spoken in the region under consideration.

Kaufman’s (1976) glottochronological estimates suggest that by AD 292 Yucatecan had already separated from Huastecan, and that Cholan and Tzeltalan Proper had already differentiated from each other. This means that the language which is herein called “Mayan” may have represented three quite distinct languages – Yucatecan, Cholan, and Tzeltalan – not dialects of a single language. By AD 600, the Cholan languages had differentiated into Chorti, Chol, and Chontal, and Tzeltal had separated from Tzotzil. The Yucatecan languages, Yucatec, Lacandon, Itza, and Mopan, probably did not emerge as separate languages until after AD 950 (Justeson *et al.* 1985:14–16), and so are outside the scope of this study.

The region inhabited by speakers of “Mayan” can, for the most part, be classified as lowland (which I have defined as land lying below 600 meters; see Bricker 1977). The exceptions include the adjacent highlands of eastern Chiapas and western Honduras, which were inhabited by speakers of Tzeltal and Chorti, respectively, when the Spaniards arrived (Fig. 9.2). The remaining Cholan languages and all the Yucatecan languages were limited to the lowlands at that time (Bricker 1977).
1.2 The people and their culture

The ancestors of the people who spoke the languages encoded in the script did not appear in the region until about 1000 BC, which marks the beginning of the period archeologists call the Middle Preclassic (see Sharer 1994:Table 2.1). Historical linguists believe that they came out of the highlands of Guatemala in the south (e.g., Kaufman 1976:106–109). These first Maya settlers in the lowlands were maize farmers who lived in villages and larger, nucleated settlements dominated by terraced platforms and public buildings arranged in clusters connected by causeways (Sharer 1994:80–83). The Late Preclassic that followed (400 BC–250 AD) was characterized by “a rapid growth in population and in the development of stratified organizations, as demonstrated by elaborate funerary remains, massive ceremonial structures housing the artifacts of a variety of ritual activities, and the crystallization of a sophisticated art style, all recognized as typically Maya” (Sharer 1994:85). However, these defining traits of lowland Maya civilization did not yet include writing, which seems
to have been invented by speakers of non-Mayan languages outside the region in question during the Late Preclassic period (Ch. 10, §2.2) and was not adapted for use with Mayan languages until the very end of this period.

The Late Preclassic period was followed by the Early Classic (AD 250–600), a period characterized by Sharer (1994:138) as “the era when state-level political organizations developed and expanded in the Maya area, especially in the southern and central lowlands.” The settlements were larger, with a well-defined central core surrounded by residential areas. The centers contained various specialized structures faced with stone, such as palatial residences for the rulers and their families, ballcourts, and temples on stepped platforms (Sharer 1994:475). Stone was gradually replaced by perishable pole and thatch as building materials for residences, moving out from the center to the periphery of these cities.

1.3 The documents and their content

A strikingly new feature of Early Classic cities was the number of public monuments with inscribed hieroglyphic texts. Texts could be found carved on the walls and in the doorways
The Ancient Languages of Asia and the Americas

of buildings, including the lintels, jambs, and steps. They also appeared on the stone rings of ballcourts, through which the rubber ball had to pass in order for a team to score, and on free-standing slabs of stone, called stelae, scattered around the center of a site (Fig. 9.3).

Ceramic vessels had bands of hieroglyphs around their rims, designating the ritual substances for which they served as containers (e.g., chocolate [Stuart 1988]), describing them as plates, cups, or bowls (Houston and Taube 1987), and naming the owners of the vessels and the artists who had painted or carved the texts on them (Stuart 1987:1–11). Pendants and earspools and flares of jade, shell trumpets, animal bones, and even sting-ray spines used in bloodletting often contained short hieroglyphic texts. Elaborate painted murals composed of both text and pictures covered the walls of rooms and tombs. Everything we know about the Early Classic form of the language of Mayan hieroglyphs comes from these sources. There may also have been, as there were in later centuries, screenfold books, or codices, made of animal hide and fig-bark paper (Sharer 1994:272); if so, the humid, tropical climate of the lowlands did not favor their survival into modern times.

The hieroglyphic texts carved on stelae and on the surfaces of buildings were primarily historical in content, containing the biographies of the rulers of the cities, which highlighted the dates of their birth, marriage, accession to office, raids on other cities, and death or burial. They also record genealogical information about the rulers and the rituals they performed at the end of major time periods and on anniversaries of the dates when they took office. Some of the longer texts refer to a succession of rulers, resembling, in this respect, the king lists of the ancient Near East.

The texts relating to a single ruler are often distributed rather widely over a site, with different “chapters” inscribed on separate buildings and stelae in several locations. For this reason, much of the research carried out by epigraphers has involved determining how the texts are related to each other historically and piecing together the biographies of the individual rulers (e.g., Proskouriakoff 1960; Jones and Satterthwaite 1982:124–131). Fortunately, the ancient Maya had a sophisticated calendar that permitted them to specify the chronological position of events in a cycle of more than five thousand years, and they were rather compulsive about dating their texts. Therefore, the histories of the major Early Classic cities are known in considerable detail (see, inter alios, Jones and Satterthwaite 1982).

The calendar employed by the lowland Maya was probably borrowed from the people who invented the Epi-Olmec script during the Late Preclassic period. The base of this calendar was a period of 360 days known as the tun. The tun was divided into eighteen smaller periods called winals, each containing 20 days (k’ins). Twenty tuns formed a larger unit called a k’atun, and 20 k’atuns were grouped into a pik. The complete cycle consisted of 13 (not 20) piks, which was known as the Long Count. The beginning of the Long Count was arbitrarily set to coincide with 11 August 3114 (Gregorian) BC, according to the correlation of the Maya and Western calendars that agrees best with ethnohistorical sources from the sixteenth century, and it will end on AD 21 December 2012. Obviously all of Maya history recorded in hieroglyphs falls within this period.

In addition to the Long Count, the Maya calendar contains two other cycles which also have their roots in the earlier Epi-Olmec culture. One is a ritual, or divinatory, cycle of 260 days, composed of two subsidiary cycles based on a sequence of 20 named days (ʔimiš, ʔık’, ʔak’b’al, k’an, čıkčan, kimi, manik’, lamat, muluk, ʔok, ʔuwen, ʔeb’, b’en, hiš, men, kib’, kab’an, ʔets’ nab’, kwak, and ʔahaw) and the numbers from 1 to 13, which serve as coefficients of the days. The other represents the vague year of 365 days, which is divided into 18 named months of 20 days each (k’an-halab’, ʔik’-k’at, čak-k’at, sots’, katsew, tsikin, yaš-k’in, mol, ʔen, yaš, sak, keh, mak, ʔuniw, muwan, paš, k’anasiy, and kumk’u) and a five-day intercalary “month,” wayeb’, that ended the year. The least common multiple of these two cycles is the
Figure 9.3 Tikal, stela 31, back. After Jones and Satterthwaite (1982:fig. 52b)
so-called Calendar Round of 18,980 days or fifty-two years, which was the Maya counterpart of the European century.

With a firm grasp on the passage of time, the Maya had the tools for recording, and later predicting, astronomical events. By the end of the fourth century AD, they were relating Long Count dates to a lunar calendar, recording several kinds of information: (i) the age of the Moon on the date in question; (ii) the position of the current lunar month in a six-month semester; and (iii) the length of the month as either twenty-nine or thirty days. Eventually, they produced books of tables for predicting dates of solar and lunar eclipses, equinoxes and solstices, heliacal risings of Venus as morning star, and retrograde periods of Mars, examples of which have survived only from much later times (Bricker and Bricker 1983; Bricker and Bricker 1986, 1988).

Both the content of the texts and the media on which they were written suggest that their principal function was to glorify the elite. The focus is on dynastic history, ritual, and on designating the owners and makers of highly valued objects, such as elaborately painted and carved vases and jade and shell ornaments. And although tribute items seem to be mentioned in some Late Classic texts (Stuart 1993), no records of mundane commercial transactions have been preserved in Mayan script.

### 2. WRITING SYSTEM

#### 2.1 Principles of Mayan writing

The Maya had a mixed writing system, consisting of both logographic and syllabic signs. The total number of different signs that have been identified ranges between 650 and 700 for the corpus as a whole, but the number of signs used at any one time apparently never exceeded 400 (Grube 1994:177). These figures are consistent with the logosyllabic nature of Mayan writing.

The reading order of a Mayan text is from top to bottom and from left to right in paired columns. The columns are labeled by scholars with capital letters and the rows with numbers. A glyph block is normally designated by a combination of a letter and a number, for example A5. In Figure 9.3, for example, after a large introductory glyph that accounts for four rows, the text begins at A5 and moves on to B5, then A6 and B6, A7 and B7, until the end of the first two columns. The reader then moves on to C5 and D5, C6 and D6, and so on through the inscription. The individual glyph blocks are also read from left to right and from top to bottom: prefixes and superfixes appear before the main sign, which in turn is read before postfixes and subfixes. The following transcription conventions are used in this chapter: phonetic transcriptions of the glyphs appear in boldface type, whereas morphemic transcriptions are italicized.

Phoneticism appears quite early in the history of Mayan writing. By AD 320, there is already evidence of the use of phonetic complementation, in which a word is represented by a logogram, but another sign is added to it as a prefix or a suffix to indicate how part of it is pronounced (Justeson and Mathews 1990:117). The first evidence of its use is in a text on a jade plaque bearing a Long Count date and Calendar Round corresponding to 15 September AD 320 in the Gregorian calendar (Fig. 9.4 left). The text records the accession of the ruler who is pictured on the other side of the plaque (Fig. 9.4 right). The collocation in question (at B9 in Fig. 9.4 left; see Fig. 9.5a) consists of the logogram for a verb meaning “sit” (čum in Cholan and kum in Yucatecan) and the sign for mu, which indicates that the final consonant of the word represented by the logogram is /m/ (Ringle 1985:153–154). Note that the vowel in mu also echoes the vowel /u/ in čum/kum.
The Early Classic inscriptions contain a number of other examples of phonetic complementation, including the words for “day” (k’i’n, spelled as k’in[ni] in Fig. 9.5d), “20-day month” (winal, spelled as wina[l]a in Fig. 9.5f), “sky” (čan in Cholan and kaʔan in Yucatecan, labeled as čan[na] in Fig. 9.5h), and “yellow” (k’an, spelled as k’an[na] in Fig. 9.5j). Examples of the same logograms without phonetic complements (Fig. 9.5c, e, and g) suggest that complementation was optional in Mayan writing.

The original function of phonetic complementation was probably to disambiguate logograms that had several possible readings, but over time it was extended to logograms which had pronunciations that were never in doubt. Justeson and Mathews (1990:118–119) have found evidence that “extensions of orthographic practices are often promoted by similar practices in similar contexts.” For example, neither the winal nor the k’in logograms are polyvalent, so they can be read unambiguously without phonetic complements. These logograms frequently appear side by side in Long Count expressions (e.g., Fig. 9.6a). By AD 425, the winal logogram had acquired a phonetic complement (Fig. 9.6b), and less than a century later, in AD 514, the word k’in was also being spelled with a logogram plus phonetic complement in contexts where the winal logogram employed the same convention (Fig. 9.6c).

The first examples of syllabic writing can also be found in texts dating to the Early Classic period. Two kinds of syllables have been recognized in the script. One consists of a single vowel (V), the other of a consonant followed by a vowel (CV). Mayan words have two basic

Figure 9.6  Phonetization (a, Tikal, Stela 31, G12–H12. b, Balakbal, Stela 5. c, Caracol, Stela 1, A3–B3). After Justeson and Mathews (1990:fig. 12)
shapes: CVC and CVCVC. All words end in consonants, but only syllables ending in vowels have been attested in the script. This means that, in order to adapt such syllables to Mayan words, it was necessary to insert an extra vowel, which was never pronounced, at the end of the word. For example, the word kakaw “chocolate” was usually spelled syllabically as ka-ka-wa (Fig. 9.7a; the second ka sign is a variant of the first). This extra vowel is written in parentheses in transcriptions of syllabic spellings of Mayan words: ka-ka-w(a). Another early example of the principle of vowel-insertion is the syllabic spelling of u-yum “his father” as u-yu-m(u) (Fig. 9.7c). The verb-stem, muk-ah “be buried,” is spelled as mu-ka-h(a) in Figure 9.7i. Note that the syllabic spelling overrides the morphemic boundary between muk and -ah. The same is true of the syllabic spelling of y-al “her child” as ya-l(a) in Figure 9.7e and f.

Occasionally a different spelling principle, consonant-deletion, was invoked, as in the rendition of y-unen “his, her child” as yu-ne (Fig. 9.7d). In words containing more than one instance of the same syllable, one of them might be omitted; in such cases, the scribe sometimes added two small dots beside the upper left corner of the sign, indicating that the syllable should be repeated when the word was pronounced (Stuart and Houston 1994:46 and Fig. 57; compare Fig. 9.7a and b).
The Ancient Languages of Asia and the Americas

Figure 9.8 Early Classic syllables

The syllabic signs that are known to have been in use during the Early Classic period (AD 250–534) are arranged in the grid shown in Figure 9.8.

For spelling words containing grammatical affixes, a mixture of logographic and syllabic principles was often employed. In Figure 9.7g, the word y-ahaw “his ruler” is spelled by prefixing the syllable ya to the logogram for ahaw. The possessive pronoun, y-, is represented by the consonant in ya, and the vowel complements the first /a/ in ahaw. A similar strategy was later adopted for the representation of grammatical suffixes. Figure 9.7m illustrates the logosyllabic spelling of u-k’in-il “on the day.” It contains one logogram (k’in) and three syllabic signs (u, ni, and le). The first syllabic sign (u) represents the clitic pronoun u-. The second syllabic sign (ni) has two functions: it complements the final consonant of k’in and also provides the vowel in the -il suffix. The third syllabic sign completes the spelling of the -il suffix by adding an /l/ and inserting an unpronounced /e/.

In addition to the phonetic complements that were used for clarifying which of several alternative readings for a logogram were intended, there were also semantic determinatives that served a similar purpose. The sign most commonly used as a determinative was a frame or cartouche that enclosed the glyphs for the days of the Maya week. An example of such a cartouche appears in Figure 9.9a, where it signals that the main sign enclosed by it refers to kawak, the nineteenth day of the twenty-day week.

In many cases, the cartouche rested on a pedestal, which served as a second semantic determinative for identifying day signs (Fig. 9.9b). When the main sign appeared without either the cartouche or the pedestal, it could be read in two different ways: as the syllable ku or the logogram tun. The logographic reading was usually signaled by the phonetic complement, ni, which was either prefixed or suffixed to the main sign (Fig. 9.9c, d, and g). During the Late Classic period, the tun reading was sometimes indicated by prefixing tu to the main sign (Fig. 9.9e), and occasionally both tu and ni served as complements for this sign (Fig. 9.9f). Finally, Figure 9.9h illustrates the syllabic use of this sign in the personal
name, ?ah-ʔuk (spelled as a-u-k[u]). These examples illustrate the polyvalent nature of many signs (cf. Fox and Justeson 1984). In this case, a single sign had three potential readings — kawak, tun, and ku — that were disambiguated by the presence or absence of two semantic determinatives and two phonetic complements. Other possible semantic determinatives include the hands shown supporting the glyphs for y-al “her child” and tun “stone, 360-day year” in Figures 9.7e and 9.9c, g, respectively. These examples contrast with other spellings of the same words that appear without the hand in Figures 9.7f and 9.9d.

The economy achieved by using one sign for several words and a syllable was outweighed by the great number of homophonous signs in the script. For example, the word ?ahaw “lord, ruler” can be represented by a number of signs that differ markedly from one another. When it refers to the twentieth day of the Maya week, it can appear in a cartouche, with or without a pedestal (Fig. 9.10a and b). In that context, it is often shown as a simian face in frontal view, with two eyes, a nose, and a mouth (Fig. 9.10a and b). It can also be represented by the profile head of a young man, who is often depicted with a black dot in his cheek (Fig. 9.10c). In some cases, the head and the shoulders, or even the entire body of the young man, are shown (Fig. 9.10d and e). There is also a zoomorphic variant of this day sign as the profile head of a vulture (Fig. 9.10l). Still another variant, sometimes called “symbolic” or “geometric,” is never enclosed in a cartouche and therefore refers to a human ruler, not a day (Fig. 9.10f). The profile head variant without the cartouche and pedestal sometimes appears with phonetic complements (Fig. 9.10g and h), and there is a syllabic spelling of the same word that also lacks calendrical associations (Fig. 9.10i). The highly pictorial nature of the script has encouraged a multiplicity of sign forms, encompassing geometric, human, and zoomorphic head variants, and, occasionally, even full-figure depictions, that have greatly complicated the task of decipherment and the development of a usable font.

### 2.2 Evolution of Mayan writing

As the writing system developed, the inventory of syllabic signs shown in Figure 9.8 expanded in two ways: (i) the total number of syllables represented in the grid increased by
The Ancient Languages of Asia and the Americas

Figure 9.10 Alternative spellings of 

\[ \ddot{q} \text{ahaw} \]

(a, Uaxactun, fresco, glyph 60.

b, Tikal, Stela 31, D14 (Jones and Satterthwaite 1982:fig. 52b).

c, Copan, Stela C, A2b.

d, Quirigua, Stela D, D14.

e, Copan, Stela D, A4b.

f, geometric variant.

g, Yaxchilan, Lintel 23, O5b (Graham 1982:136).
h, Yaxchilan, Hieroglyphic Stairway 3, step IV, B3a (Graham 1982:170).
i, Yaxchilan, Lintel 3, J1 (Graham and von Euw 1977:17).
j, Piedras Negras, Stela 3, F5a (Marcus 1976:fig.12).
k, Piedras Negras, Throne 1, H'3 (Morley 1937--1938:fig.111).
l, Piedras Negras, Lintel 3, V4).


one-third from 49 to 66; (ii) the average number of signs per syllable doubled. Not all of this homophony was universal. Many signs were limited to a single site or region. But the general pattern was one of increasing variation and artistic elaboration, rather than simplification (Grube 1994:179–184).

Another trend that can be seen over time is an intensification in the use of phonetic complements with logograms to spell polysyllabic words. Whereas during the Early Classic period, it was usually sufficient to spell such words with a single phonetic complement, over time some logograms came to be accompanied by two and even three phonetic complements until the word was written both logographically and syllabically. This can be seen in the different spellings of the word \( \dddot{u}n\text{iw} \), the name for the fourteenth month of the solar year. Figure 9.11a shows the original spelling as \( \text{uniw} (\text{wa}) \) (Fig. 9.11b). By AD 713, it had acquired a third complement and was spelled as \( \text{uniw} (\text{n}i-\text{wa}) \) (Fig. 9.11c). Finally, there is a slightly earlier example of the complete replacement of the logogram by the syllabic spelling, \( \text{u-ni-w} (\text{a}) \) (Fig. 9.11d).

Nikolai Grube (1994:185) has pointed out that, even though phoneticism increased during the Late Classic period, it did not involve the replacement of logographic with syllabic writing. Both types of writing continued to exist side by side, increasing the possibilities for scribal virtuosity. He attributes the slow development of Mayan writing to the conservatism of a small scribal elite that had little interest in making writing more accessible to the masses.
2.3 Origins of Mayan writing

The Maya were not the first people in Mesoamerica to use writing, and their script contains evidence of borrowing from earlier scripts that were invented in the region that lies to the west of their highland homeland. Two scripts emerged during the Late Preclassic period, one for an early form of Zapotecan (Whittaker 1992) and the other for an early form of Zoquean (see Ch. 10, §2). The former, and earlier, of the scripts was used in what is today the state of Oaxaca from c. 500 BC until c. AD 950 (Whittaker 1992:6). The Epi-Olmec script of the Isthmus of Tehuantepec first appeared in c. 150 BC and lasted only until c. AD 450 (Justeson and Kaufman 1993:1703). Thus, both scripts were contemporaneous with Mayan writing during some portion of their existence.

One feature shared by the Zapotecan and Epi-Olmec scripts was the use of a quinary notation for numbers, with 1 represented by a dot and 5 by a bar. The number 2 was written as two dots, 3 by three dots, and 4 by four dots. For numbers between 5 and 10, a single bar was combined with one to four dots. Two bars were used for 10, two bars and one dot for 11, three bars for 15, and so on. In the Zapotecan writing system, the bar-and-dot numbers were suffixed to main signs, following the order of nouns and their quantifiers in the spoken language (Fig. 9.12a). The reverse was true in Epi-Olmec writing, where numbers were prefixed to main signs (Fig. 9.12b). The Maya used the Epi-Olmec convention for bar-and-dot numbers (Fig. 9.12c), because their languages placed numbers before, not after, the nouns that they quantified, with one exception: in the lunar notations that follow Long Count dates, the bar-and-dot number representing 9 or 10 is postfixed or suffixed to the main sign in the collocation that refers to the length of the lunar month (the main sign is the glyph for 20; Fig. 9.12d). This convention must have been borrowed from the Zapotecan script.

The Long Count and the positional notation for recording it seems to have been invented by the Epi-Olmec people, and it diffused from there into Mayan writing. None of the other peoples of Mesoamerica had the Long Count.

2.4 Decipherment of Mayan writing

A gap of more than three hundred years separates the last practitioners of Mayan writing from the first serious efforts to decipher the script in the late nineteenth century. The closest

2.3 Origins of Mayan writing

The Maya were not the first people in Mesoamerica to use writing, and their script contains evidence of borrowing from earlier scripts that were invented in the region that lies to the west of their highland homeland. Two scripts emerged during the Late Preclassic period, one for an early form of Zapotecan (Whittaker 1992) and the other for an early form of Zoquean (see Ch. 10, §2). The former, and earlier, of the scripts was used in what is today the state of Oaxaca from c. 500 BC until c. AD 950 (Whittaker 1992:6). The Epi-Olmec script of the Isthmus of Tehuantepec first appeared in c. 150 BC and lasted only until c. AD 450 (Justeson and Kaufman 1993:1703). Thus, both scripts were contemporaneous with Mayan writing during some portion of their existence.

One feature shared by the Zapotecan and Epi-Olmec scripts was the use of a quinary notation for numbers, with 1 represented by a dot and 5 by a bar. The number 2 was written as two dots, 3 by three dots, and 4 by four dots. For numbers between 5 and 10, a single bar was combined with one to four dots. Two bars were used for 10, two bars and one dot for 11, three bars for 15, and so on. In the Zapotecan writing system, the bar-and-dot numbers were suffixed to main signs, following the order of nouns and their quantifiers in the spoken language (Fig. 9.12a). The reverse was true in Epi-Olmec writing, where numbers were prefixed to main signs (Fig. 9.12b). The Maya used the Epi-Olmec convention for bar-and-dot numbers (Fig. 9.12c), because their languages placed numbers before, not after, the nouns that they quantified, with one exception: in the lunar notations that follow Long Count dates, the bar-and-dot number representing 9 or 10 is postfixed or suffixed to the main sign in the collocation that refers to the length of the lunar month (the main sign is the glyph for 20; Fig. 9.12d). This convention must have been borrowed from the Zapotecan script.

The Long Count and the positional notation for recording it seems to have been invented by the Epi-Olmec people, and it diffused from there into Mayan writing. None of the other peoples of Mesoamerica had the Long Count.

2.4 Decipherment of Mayan writing

A gap of more than three hundred years separates the last practitioners of Mayan writing from the first serious efforts to decipher the script in the late nineteenth century. The closest
thing to a Rosetta stone Mayan epigraphers have had to work with is the putative alphabet recorded by the Franciscan priest, Diego de Landa, in the middle of the sixteenth century (see Fig. 9.13).

For the most part, the signs elicited by Landa represented the closest pronunciation equivalents of the names of the letters of the Spanish alphabet (a, be, ce, etc.), which, of course, have a syllabic structure. However, Landa did not include signs for the Spanish letters, d, f, and g, which were not part of the Mayan phonemic inventory, and he included signs for the glottalized consonants, k’ (written as k) and p’ (written as pp), which do not
occur in Spanish. Therefore, it seems that he was not simply matching Mayan glyphs to Spanish letters (Durbin 1969). In eliciting different signs for \(ca\) \((=\ ka)\) and \(cu\) \((=\ ku)\) (and for \(k\) \((=\ k'a)\) and \(ku\) \((=\ k'u)\)), Landa intended only to mark the distinction between \(c\) and \(q\) in the Spanish alphabet, but in so doing he was providing a clue to the syllabic nature of a significant portion of the Mayan script. Limited as it was, Landa's “alphabet,” together with his hieroglyphic spellings of the names of the twenty days and the nineteen months and a few other Mayan words, have been the key to hieroglyphic decipherment. The brilliant insights of Yuri Knorosov (1963) in the 1950s and the discoveries of more recent scholars (e.g., Lounsbury 1973; Fox and Justeson 1984; Bricker 1986; Stuart 1987) have all taken as their point of departure Landa’s efforts to relate Mayan hieroglyphs to Spanish letters.

### 3. PHONOLOGY

#### 3.1 Consonants

Nineteen consonant phonemes can be distinguished in Mayan:

<table>
<thead>
<tr>
<th>Manner of articulation</th>
<th>Place of articulation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bilabial</td>
</tr>
<tr>
<td>Stop</td>
<td></td>
</tr>
<tr>
<td>Voiceless</td>
<td></td>
</tr>
<tr>
<td>Glottalized</td>
<td></td>
</tr>
<tr>
<td>Voiced</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Affricate</td>
<td></td>
</tr>
<tr>
<td>Voiceless</td>
<td></td>
</tr>
<tr>
<td>Glottalized</td>
<td></td>
</tr>
<tr>
<td>Fricative</td>
<td></td>
</tr>
<tr>
<td>Voiceless</td>
<td></td>
</tr>
<tr>
<td>Nasal</td>
<td></td>
</tr>
<tr>
<td>Liquid</td>
<td></td>
</tr>
<tr>
<td>Glide</td>
<td></td>
</tr>
</tbody>
</table>

One of them, \(/p'/\), is attested only in Landa’s “alphabet” (as \(pp\) in Fig. 9.13), which is a very late source. However, the contrast between \(/b'/\) and \(/p'/\) is an innovation shared by Greater Tzeltalan and Yucatecan (Kaufman and Norman 1984:85), suggesting that the absence of \(/p'/\) in hieroglyphic texts is probably accidental. The glottal stop is not overtly represented in the script, but the epenthetic \(/y/\) that usually replaces it in \(ʔ\)-initial noun and verb roots when they are inflected with third-person pronominal clitics (see \(§3.4.1\) and Fig. 9.7g and h) is demonstration that it was part of the phonemic inventory of the language, even though the script does not record it.

It is likely that Mayan also distinguished between \(/t/\) and \(/t'/\), as Greater Tzeltalan and Yucatecan have this contrast (Kaufman and Norman 1984:Table 4), but there is no evidence of \(/t'/\) in the script – apparently another accidental gap.
3.2 Vowels

Five vowel phonemes can be distinguished in the hieroglyphic script:

<table>
<thead>
<tr>
<th></th>
<th>Front</th>
<th>Central</th>
<th>Back</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>i</td>
<td>e</td>
<td>u</td>
</tr>
<tr>
<td>Mid</td>
<td>e</td>
<td>o</td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>a</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Greater Tzeltalan also had only five vowel qualities, but distinguished between long and short vowels. On the other hand, the contrast between long and short vowels was not retained in Proto-Cholan, except for "á" and "a". The long vowel "á" became "a" while short "a" became "ə". Thus, there are six vowels, not five, in Proto-Cholan (see Kaufman and Norman 1984:85). Proto-Yucatecan had only five vowel qualities and distinguished between long and short vowels.

The hieroglyphic script contains no evidence of more than five vowels. In fact, it used graphemes representing Ca syllables indiscriminately for spelling both "a"-medial and "ə"-medial roots. For example, a grapheme representing a gopher (Greater Tzeltalan b'ah) was used in spelling both Cholan u-b'ə "himself" (Fig. 9.14a) and Tzeltalan u-b'ah "he was going" (Fig. 9.16a). Similarly, the ta grapheme in Figure 9.8 was used as a syllable for spelling both tol "come" (Fig. 9.12l) and tah "torch" (Fig. 9.14i) in Proto-Cholan. The lack of a sixth vowel in the script suggests that Mayan distinguished between long and short vowels, but there is no direct evidence for such a contrast in the script.

Houston, Stuart, and Robertson (1998) have argued that roots containing short vowels, CVC or CVCVC, are usually represented by synharmonic spellings, in which the inserted (but silent, i.e., purely orthographic) vowel in the last syllable or the phonetic complement echoes the vowel in the root (e.g., la-k[a] = lak "plate"; k'u-k'[u] = k'uk' "quetzal"; k'an[na] = k'an "yellow"), whereas roots with more complex vowels, either CV:C, CVCV:C, CV?C, or CVhC, are usually represented by disharmonic spellings, where the inserted vowel does not echo the vowel in the root (e.g., b'a-k[i] = b'ak "bone"; otot[i] = otot "home"; a-k[u] = ṣalh "turtle"). Their data set does not show a statistically significant pattern of synharmonic spellings for roots with short vowels nor of disharmonic spellings for roots with complex vowels, except for the neutral vowel /a/. Therefore, at present, there is not even indirect evidence for a general contrast between long and short vowels in the hieroglyphic script.

3.3 Syllable structure and phonotactic constraints

Mayan morphemes can have the following syllabic shapes: CVC, CV, VC, and V. Of these, CVC is by far the most common type in terms of either lexical or textual frequency. Many noun roots and all verb roots have this shape, as do a few inflectional suffixes. Examples of CVC roots include k'in "day," ṣal "woman's child," k'an "yellow," and tun "stone, 360-day year." CVC suffixes are represented by -lah (positional) and -lel (abstractive). Most suffixes, such as -ah (thematic), -Vw (transitive), and -il (nominal), have a VC shape. CV is documented by the reflexive base -b'a and the preposition ti (or ta) and V by the third-person bound pronoun u-.

The language does not permit sequences of vowels or sequences of consonants within words, so that when such representations occur, phonological processes are applied to eliminate them. This is the cause of the allomorphic variation in the form of third-person
pronoun, appearing as u-, uy-, or y-, depending on whether the following noun or verb begins with a glottal stop or some other consonant. However, because the hieroglyphic script does not record glottal stops, vowel sequences appear in constructions involving vowel-final followed by glottal-stop-initial morphemes (e.g., Fig. 9.10j and k).

All the documented consonants in Mayan can begin and end syllables. In CVC syllables, however, there are few restrictions on which consonants can co-occur in initial and final position. If the first consonant in such a syllable is a glottalized stop or affricate, its plain counterpart cannot appear at the end of that syllable, and vice versa (e.g., *k’k, *k’k’). Affricates also exemplify a principle of consonant harmony, a syllable-conditioned process that prevents them from co-occurring in the same syllable if they do not share the same point of articulation (*ts’č, *ts’č’, *ts’č, *ts’č’, *č’ts, *č’ts, *č’ts, *č’ts’).

3.4 Morphophonemic processes

The following morphophonemic processes can be documented in Mayan: external sandhi, contraction, and cluster reduction.

3.4.1 External sandhi

In Yucatecan and Greater Tzeltalan, most ʔ-initial roots have sandhi forms in which /ʔ/ is replaced by /γ/ after the third-person pronoun ʔ-. This process is reflected in the syllabic
spelling of *y-unen “his, her child,” *y-al “her child,” and *y-ahaw “his lord, ruler” (Fig. 9.7d–h). The contracted form, *y-, is much more common than uy- in Mayan texts.

3.4.2 Contraction

Contraction also occurs when the bound pronoun *u- follows a preposition (either *ta or *ti). In Figure 9.14a, the dative reflexive construction *t-u-b’a represents a contraction of *ti (or *ta) *u-b’a “by himself.” This type of contraction is limited to contexts with the *u- or uy-allomorphs of the bound pronoun. When the preposition precedes *y-, it is spelled as *ta or *ti (e.g., Fig. 9.14b).

3.4.3 Consonant cluster reduction (sandhi)

Mayan sometimes eliminates consonant clusters across word boundaries (on the prohibition of word-internal clusters, see §3.3). Figure 9.14c contains an example of the personal name, *k’uk’-moʔ “quetzal-macaw,” in which the logogram for moʔ (Fig. 9.14e) is infixed in the logogram for *k’uk’ (Fig. 9.14d), and the phonetic complement refers to the vowel in moʔ. Note that the zoomorphic head in Figure 9.14c has both the distinctive feathers on the head of the quetzal in Figure 9.14d and the characteristic eye of the macaw in Figure 9.14e. The consonant cluster /-k’m-/ is eliminated in Figure 9.14g, where the name is spelled k’u-mo(o) (using the symbolic variant of mo; Fig. 9.14f). In Figure 9.14i, the name Torch-Macaw (*tahal-moʔ) is written in full; in 14h it is abbreviated to *taha-moʔ or, perhaps, *tah-moʔ, thereby eliminating the consonant cluster /-lm-/ (cf. Fig. 9.14i). Finally, yaś-haʔ “green water,” the name of a large lake in northern Guatemala, has been reduced to yaś-aʔ in Figure 9.14j (Stuart 1985). The motivation for this abbreviated spelling may have been to eliminate the consonant cluster /-ˇsh-/.

3.5 Diachronic developments

The contribution of highland languages can be ruled out by the absence of a distinction between *k and *q (and *k’ and *q’) in the script. This distinction was a characteristic of Proto-Mayan that has been preserved in Eastern Mayan and Kanjobalan, but was lost in Yucatecan and Greater Tzeltalan (Kaufman and Norman 1984:83). In this merger, *q shifted to *k and *q’ to *k’. This change is reflected in the Mayan script, where ka, ki, and ku serve as complements and syllables in spellings that are cognate with highland Mayan words containing either *k or *q. For example, ka complements /k/ in the logogram for kan “snake” (Fig. 9.5i), which is cognate with Proto-Mayan *kān; it also provides the /k/ in the syllabic spelling of muk-ah (Fig. 9.7i), which has a root that is cognate with Proto-Mayan *muq “bury” (Fox and Justeson n.d.:20).

The shift of Proto-Mayan back velars to front velars in Greater Tzeltalan apparently triggered a concomitant forward shift of front velars to the affricates ˇc and ˇc’. “In Greater Tzeltalan, all instances of Proto-Mayan *k and *k’ undergo this shift, except where the shift is blocked by particular phonological environments” (Kaufman and Norman 1984:83–84). The best evidence for this change in Mayan is the grapheme for the syllable ˇci (Fig. 9.8). When enclosed by a cartouche it represents the seventh day of the Maya week, which corresponds to days named Deer in other Mesoamerican calendars: *cīh was the word for “deer” in Proto-Cholan, compare Proto-Mayan *kehx (Kaufman and Norman 1984:118).
Yucatecan did not undergo the shift of front velars to affricates. Therefore, it is sometimes possible to identify Yucatecan spellings containing /k, k'/ instead of /c, ˇc/. A case in point is the use of the phonetic complement ka in the collocation shown in Figure 9.5i, which indicates that the main sign refers to the Yucatecan spelling of kàn “snake,” not its Cholan cognate, ˇcan.

A phonological change that affected Yucatecan, but not Greater Tzeltalan, was the shift of *t to *ˇc in a number of words (Fox and Justeson n.d.). As a result of this change, the Yucatecan word for “house” became *ʔotoˇc, whereas the Proto-Cholan word with this meaning remained *ʔotot (Kaufman and Norman 1984:127). Although there are numerous examples of the otot spelling in hieroglyphic texts, the change to otoˇc cannot be documented before AD 950, so it cannot be used for distinguishing among languages using the script during the Early Classic period.

4. MORPHOLOGY

4.1 Word structure

The core of the Mayan word is the root, which is usually monosyllabic and composed of a consonant, a vowel, and a second consonant. Polysyllabic roots have a CVCVC structure and are limited to nouns. Inflectional and derivational processes are signaled by prefixing or suffixing grammatical morphemes with the following shapes to the root: V, VC, CV, and CVC. The language can be characterized as belonging to the agglutinating type because morpheme boundaries in word stems are clear, and words are easily segmented into their constituent morphemes.

Seven root classes have been identified in Mayan: nouns, adjectives, transitive verbs, intransitive verbs, positionals, numerals, and particles. The classification of transitives, intransitives, and positionals as separate form-classes is a characteristic that Mayan shares with Greater Tzeltalan and Yucatecan.

4.2 Nominal morphology

4.2.1 Noun uses

Nouns occur in four morphological environments in Mayan, though the language, like Greater Tzeltalan and Yucatecan, does not inflect nouns for case. There does occur, however, a distinct, but limited, marking of possession; see §4.2.2.

1. In some contexts, they appear without affixes, indicating that they are neither possessed, nor quantified, nor marked for gender: for example, kakaw “chocolate”; tun “360-day year”; ṭahaw “lord, ruler” (see Figs. 9.7a, 9.9d, and 9.10).
2. In others, they are marked for possession, with the possessive pronominal prefixes u-, uy-, or y- (see §4.2.3): thus, u-kan “his captor”; uy-ahaw “his lord, ruler”; y- al “her child” (see Figs. 9.7e, f, h, and 9.17e). For the possessive “declension” see §4.2.2.
3. Nouns can also be quantified in compound expressions with prefixed numerals: for example, waklahun-k’in “16 days”; ho-tun “five 360-day years”; and wuklahun-winal “seventeen 20-day periods” (see Figs. 9.6b and 9.12c, i).
4. The agentive prefixes, ah- (male) and naʔ- (female) mark some nouns for gender. In Figure 9.9h, the a(h)- prefix derives an agentive noun, ah-ʔuk “Mr. Uk,” from a
personal name. Figure 9.7k illustrates a syllabic spelling of b’akab’ “sky bearer,” a title often used by male rulers. When this title appears in the name phrases of women, it is usually written as naʔ-b’akab’ “lady sky bearer” (Fig. 9.7l). The absence of ah- with b’akab’ for men and the presence of naʔ- with b’akab’ for women implies that females represented the marked category in Mayan.

A few words should be said concerning plural marking. In Greater Tzeltalan and Yucatecan, number can be marked by plural suffixes, but they are frequently not present. In Cholan and Yucatecan, the third-person plural suffix is -ob’, used on both nouns and verbs, though there appear to be no examples of that suffix in Mayan hieroglyphic texts.

4.2.2 Possessive morphology

There is one “declension” in Mayan, for possession, which is represented only by the third-person singular forms in the script. Mayan nouns take either -Ø or -il when they are inflected for possession. Kinship terms comprise a semantic class that is marked by -Ø in possessive constructions: for example, u-yum-Ø “his father”; y-unen-Ø “his child,” and y-al-Ø “her child” (see Fig. 9.7c–f). The form u-kin-il “the day” represents the inflection of kin “day” with suffix -il (see Fig. 9.7m).

4.2.3 Pronouns

No examples of independent pronouns have been identified in Mayan writing. The only pronouns observable in the Early Classic script are the clitics and suffixes that refer to third-person subjects, objects, and possessors in their singular forms. As in both Greater Tzeltalan and Yucatecan, the marking of plural number was not obligatory in the third person (though it is for first and second) because it could be inferred from references to more than one individual or from other contextual clues.

The third-person transitive subject is usually represented by (u)y- before ?-initial roots and by u- before roots beginning with other consonants.

Direct objects are marked by suffixes, of which only that for the third person, which is a zero form (-Ø) in Greater Tzeltalan and Yucatecan, can be inferred in the Mayan script. The subject of intransitive verbs was identified with the direct object of transitive verbs during the Early Classic period (Houston 1997) and was therefore also -Ø. This ergative pattern of pronominal inflection began to change during the Late Classic, resulting in a split-ergative type of system based on aspect (see §4.3.3.2).

The third-person possessive pronoun also appears as (u)y- and u-, as in Proto-Cholan and Yucatecan. On the possessive construction, see also §4.2.1, 2 and §4.2.2.

4.3 Verbal morphology

4.3.1 Tense-aspect and mood

Most of the verbs that appear in Mayan hieroglyphic texts refer to events that are located in the past. Mayan used Calendar Round dates instead of tense or aspectual particles for placing events in time (cf. Bricker 1981:91–95) and two clitic particles for marking them as earlier (-iy) or later (i-) in a sequence (e.g., Fig. 9.15i and j; see Wald 2000). On a perfective versus imperfective aspectual distinction, see §4.3.3.2.

Greater Tzeltalan and Yucatecan clearly have a grammatical category mood that includes the imperative and optative and is marked by suffixes. Transitive and intransitive verbs have
different mood suffixes. Such suffixes, however, are not represented in Mayan hieroglyphic texts.

Later, there is some evidence of a future participial suffix (-om) in association with intransitive stems (e.g., Fig. 9.7n).

4.3.2 Voice

The script contains some information on active versus passive voice distinctions in Mayan during Early Classic times. On passivization see §§4.3.3.1 and 4.3.3.2.

4.3.3 Verb classes

Mayan has three verbal form classes: root transitives, root intransitives, and positionals.
4.3.3.1 Transitive verbs

Active root transitives are marked by the suffix -Vw. Derived transitives take a suffix -ah, which resembles the thematic suffix that is obligatory with derived transitives in the Eastern Cholan languages (Cholti and Chorti; see Kaufman and Norman 1984:98). The third-person clitic pronouns, u-, uy-, and y-, mark agreement with the subjects of transitive verbs, and their objects are cross-referenced on the verb with the third-person suffix, -Ø, which, of course, has no graphemic representation.

Mayan examples of root transitives with third-person subjects and objects include u-čuk-uw-Ø “he seized it” (Fig. 9.15c) and y-ak-aw-Ø “he offered it” (Fig. 9.15d). Derived transitives with third-person subjects and objects are illustrated by y-il-ah-Ø “he saw it” (Fig. 9.15a and b) and y-al-ah-Ø “he said it” (Fig. 9.15c).

Passive stems were derived from root transitives by suffixing -ah to the root (see, e.g., the syllabic spelling of čuk-ah in Fig. 9.15f). The rules for inflection are described in §4.3.3.2.

4.3.3.2 Intransitive verbs

During the Early Classic period, Mayan had an ergative verb system, in which the intransitive subject had the same form as the transitive object. The only examples in the glyphs are third-person intransitive subjects and third-person transitive objects, both zero (Ø) forms. The root took no stem suffix, and, because the subject pronoun was always -Ø in hieroglyphic examples, the inflected intransitive stem was identical to its root form, as in ʔut “happen” and ʔut-Ø “it happened” (see Fig. 9.15h).

Derived intransitives formed by passivizing root transitives were marked by the thematic suffix, -ah, a pattern that is found only in the Eastern Cholan languages (Cholti and Chorti; see Lacadena, forthcoming). Common examples of passives derived from root transitives occurring in hieroglyphic texts are provided by muk-ah-Ø “he was buried” and čuk-ah-Ø “he was captured” (see Figs. 9.7i, 9.15f).

Passives derived from nouns are also exemplified in Mayan. The passivizing suffix -n and the thematic suffix -ah follow the nominal root, as in ts’ib’ “writing,” ts’ib’-n-ah-Ø “it was written” (see Fig. 9.15k). This pattern is also restricted to the Eastern Cholan languages (Lacadena, n.d.).

The above-described system of pronominal inflection underwent certain changes during the Late Classic period. By the middle of the eighth century AD, there were complement constructions such as u-b’ah ti ʔak’ot “he was going to dance” (see §5.2) in the inscriptions of three cities in the region, two in the west (Yaxchilan and Bonampak) and one in the east (Copan), in which the subject of the main verb, the root intransitive b’ah “go,” was marked by the ergative clitic u-, not the absolutive suffix -Ø, indicating a shift to a split-ergative pattern of pronominal inflection (see, e.g., Fig. 9.16a).

The form u-b’ah also contrasts with b’ah-iy-Ø (in identical contexts) during the same period at Copan (compare Fig. 9.16b and c; on the function of -iy see §5.3). There are also examples of u-ts’ib’-n-ah-al “it was being written” (Fig. 9.15l) contrasting in aspect and pronominal inflection with ts’ib’-n-ah-Ø “it was written” (Fig. 9.15k), suggesting that the ergative split corresponded to a distinction between imperfective and perfective aspects, with the former represented by -al and the latter by no suffix (i.e., -Ø). Clearly the pattern of split ergativity that has characterized the Cholan and Yucatecan languages since the sixteenth century must have had its roots in the Late Classic period. A third aspectual stem-suffix, -om “future,” occurs with the root intransitive, ʔut “happen,” as ʔut-om-Ø “it will happen” (Fig. 9.7n; Houston 1989) and with the absolutive form of the subject pronoun.
4.3.3.3 Positional verbs

Positional verbs can be distinguished from other verbs in terms of both formal and semantic criteria. They refer to physical states or positions, such as standing, sitting, kneeling, hanging, lying down, leaning, bending, and bowing, that human beings, animals, and inanimate objects can assume. Only one positional verb is known from the Early Classic period, ēcum (Cholan) or kum (Yucatecan), with the meaning “sit” (Fig. 9.5a–b), and it occurred with what are today the Yucatecan positional suffixes -l-ah (Fig. 9.5b). A new positional suffix, -wan, replaced -l-ah at many sites during the Late Classic period (Fig. 9.15o and p). Stems with these suffixes take the absolutive subject pronoun (-Ø) in Mayan.

4.4 Derivational processes

Mayan derivational processes included not only the formation of agentive nouns described in §4.2.1, 4, but also the conversion of common nouns into abstract nouns and of transitive roots into instrumental nouns. The abstract ŋahaw-lel “rulership, reign” was derived from ŋahaw “lord, ruler” by suffixing -lel (frequently abbreviated as -le) to the noun root (Fig. 9.10j and k). The instrumental suffix -ib’ was attached to the transitive root ŋuc’ “drink,” and the resulting noun was inflected for possession as ŋ-uč’-ib’ “his cup” (in Fig. 9.7j; see MacLeod and Stross 1990). Gender-neutral agentive nouns were sometimes derived from nominal or verbal roots by suffixing -om, as in č’ah-om “caster of incense” (< č’ah “drop; incense”; Fig. 9.7o; Schele 1989). These are the only documented types of nominal derivation in Mayan writing.
4.5 Compounds

Evidence for compounding in Mayan is limited to a few examples of noun incorporation involving the verb čok “throw, cast” and the noun č’ah “incense.” The verb can be represented by the syllables čo and ko (Fig. 9.17a) or by a logogram depicting a hand casting droplets or granules (Fig. 9.17b and c).

In syllabic spellings of čok-ow, the transitive suffix is produced by combining ko with wa (Fig. 9.17a). The same syllables are often suffixed to the čok logogram in logosyllabic spellings (Fig. 9.17c), or the logogram may appear only with wa. In Figure 9.17b, the čok logogram is followed by the syllable č’a, which is an abbreviation for č’ah “incense,” and there is neither a ko nor a wa suffix. This collocation cannot represent a transitive verb because there is no -Vw suffix. It may, however, be an example of a compound verb-stem with an incorporated direct object. If so, the verb is formally intransitive, and the use of the ergative pronoun u- makes it another example of ergative splitting.

4.6 Numerals

Although the bar-and-dot numbers used in writing Mayan had a quinary structure (see §2.3), the number words themselves did not. This can be seen in the head variants of the numbers, which used separate forms for the numbers from 1 through 12 (occasionally 13), but formed the numbers from 13 through 19 by combining the glyphs for 3 through 9
with the glyph for 10 (e.g., Fig. 9.12f–h). There was a separate glyph for 20, and numbers between 20 and 40 were constructed by prefixing the bar-and-dot numbers for 1 through 19 to this sign (e.g., Fig. 9.12e), except for the last collocation in lunar notations, which suffixed the bar-and-dot number to the sign for 20 (Fig. 9.12d). This means that, although the Mayan number system was fundamentally vigesimal in structure, the numbers below 20 had a decimal component. The numbers between 20 and 40 exemplify a principle of “overcounting” based on the previous score. Numbers above 39 usually had calendrical referents and were written in the positional notation employed for Long Count dates and Distance Numbers. For that purpose, there was also a sign for zero that served as a place holder (e.g., Fig. 9.6a and c).

The compounds formed by simply prefixing numbers to nouns are cardinal expressions. Ordinal numbers were formed by prefixing one of the allomorphs of the third-person pronoun to the compound (e.g., u-ho-tun “the fifth 360-day year”; Fig. 9.12). However, there seem to have been three different ways of referring to “the first” in the script: (i) with a u- possessive clitic and a single dot for 1 (Fig. 9.12k); (ii) with yax replacing the dot (Fig. 9.9g); and (iii) with na also replacing the dot (Fig. 9.12l). Alternative words for “first” in the Cholan and Yucatecan languages are yaš and nah (Schele 1990).

5. SYNTAX

5.1 Word order

The basic word orders in Mayan are Verb–Object–Subject (VOS) in transitive clauses and Verb–Subject (VS) in intransitive and positional clauses. An example of VOS order appears in Figure 9.17a, in which the verb, u-čok-ow-Ø “he was casting [it],” is followed by the direct object, ˇčah “incense,” and two collocations that refer to the subject, a ruler of Dos Pilas. The VS order is exemplified by the passive clause, ˇčuk-ah-Ø ah-k’an “Mr. Kan was captured,” in Figure 9.17d.

Mayan also has verbless, or equational, clauses composed of two nouns, the second of which is inflected for possession with one of the clitic pronouns, u-, uy-, or y-. A case in point is the epithet, k’ak’ u-pakal “fire [is] his shield,” shown in Figure 9.7p, where the possessed noun, u-pakal “his shield,” functions as a stative verb. There is no verb having the meaning “to be” in Mayan.

At the phrase level, nouns follow their modifying adjectives, and the possessor noun follows the noun that refers to the thing possessed. Phrases such as ʔik’-k’at “black cross” and ˇčak-k’at “red cross” (< ʔik’ “black,” ˇčak “red,” and k’at “cross”), which referred to the second and third months of the 365-day year, illustrate the syntax of nouns qualified by adjectives (Fig. 9.5k and l). The form u-kan tah-mo “Torch-Macaw’s captor” (lit., “his captor Torch-Macaw”) provides an example of a possessor phrase, in which the noun representing the thing possessed (kan “captor”) is marked by the clitic pronoun u- and precedes the noun for the possessor (tah-mo “Torch-Macaw”; Fig. 9.17e). This word order for possessor phrases is common to most Mayan languages.

5.2 Coordinate and subordinate clauses

Mayan clauses typically begin with a Calendar Round date such as 3 ik’ 15 yax-k’in, which is followed by the verb, the direct object (if there is one), and the subject. The clauses are often linked by Distance Numbers, which express the interval separating the first date from the second in terms of the number of days, 20-day “months,” 360-day “years,” and so forth, that
The Ancient Languages of Asia and the Americas

lie between them. A Calendar Round date may have several clauses associated with it. If the subjects of both clauses are identical, one of them may be deleted, either the one referring to the first verb or the one referring to the second.

Another kind of subject deletion occurs with respect to clauses associated with different Calendar Round dates, but sharing the same subject. In such cases, neither event is introduced by a Calendar Round date; rather, the Distance Number that refers to the interval between them directly precedes the verbs for both events, and the date for the later of the two events appears after the subject at the end of the second clause (Lounsbury 1980):

(2) Distance Number–Verb₁–Verb₂–Subject–Date

The function of this word order is to focus on the events, rather than the dates that anchor them in time (Josserand 1991). In such cases, the verb that refers to the later of the two events is marked with the clitic particle i- (Lounsbury 1980).

Evidence of subordination can be found in complement constructions, in which only the main verb is inflected for subject. The root intransitive, b’ah “go,” serves as the main verb in such contexts. It is inflected with the ergative pronoun u- and is followed by the complementizer ti “to” and a verbal noun such as ʔak’ot “dance” (Josserand et al. 1985). An example of u-b’ah ti ʔak’ot “he was going to dance” (Grube 1992) appears in Figure 9.16a.

5.3 Clitics

Mayan employs three clitic particles – u, i, and iy – each with referential functions. The clitic u serves as the third-person ergative subject pronoun in transitive stems (and occasionally as the nominative subject pronoun in intransitive stems; e.g., Figs. 9.15e, 9.16a and b) and as the possessive pronoun in nominal stems (e.g., Figs. 9.7c and p and 9.17e). The particle i is a focus marker, highlighting or drawing attention to the event in the narrative that follows (Josserand 1991:14). And iy is a temporal deictic enclitic that refers to previously reported events (Wald 2000). Thus, ˇcuk-ah-iy in Figure 9.15g can be translated as “after he was captured,” whereas ˇcuk-ah in Figure 9.15f means only “he was captured.” Similarly, ʔut-iy in Figure 9.15i can be glossed as “after it happened,” whereas ʔut in Figure 9.15h can only mean “it happened.” The forms kum-lah-iy and ˇcum-wan-iy (in Fig. 9.15m and o) and kum-lah and ˇcum-wan (in Fig. 9.15n and p) express the same contrast between already reported and not previously mentioned accession events. On the other hand, i-ʔut (in Fig. 9.15j) highlights the event that follows – “and then it happened” – contrasting with both ʔut “it happened” (in Fig. 9.15h) and ʔut-iy “after it happened” (in Fig. 9.15j; see Wald 2000).

6. LEXICON

6.1 The inherited element

Mayan lexemes represent a number of semantic domains that can be grouped into three broad categories: (i) the natural world, including terms for animals, plants, colors and directions, astronomical bodies, and meteorological phenomena; (ii) the supernatural world, with terms for gods and spirits and the rituals used in propitiating them; and (iii) the human world, including terms for social and political relationships.

There is no general term for animal, but the names for eight mammals are known: armadillo (ʔib’aˇc), bat (sots’), deer (ˇcih), dog (tsul and ts’iʔ), gopher (b’ah), jaguar (b’alam),
Mayan documents preserve only a few terms for flora. The words for tree (teʔ and ětεʔ), leaf (leʔ), seed (hinah), and flower (nik) are known. The blossom of the maize plant is hanab' and of Pseudobombax ellipticum (HBK) Dugan is k'uy-nik. There are also terms for the gumbo-limbo tree (Bursera simaruba [L.] Sargent; ěłikah), the kapok tree (Ceiba pentandra [L.] Gaertn.; yaš-teʔ), and Pithecellobium dulce (Roxb.) Benth. (ts'iw-teʔ).

Five primary colors are recognized in Mayan: red (čak), black (ʔčik'), white (sak), yellow (k'αn), and blue/green (jaš). The first four colors are associated with the four cardinal directions, the names of only three of which have been deciphered: east (lak'ın), west (oč-k'ın and čik'ın), and north (saman). There are also terms for earth (kab'), sky (čan or kan), day (k'in), night (ʔak'ab'), sun (k'ın), and Venus (k'αn). Among words for natural features of the landscape and meteorological phenomena are the following: water (haʔ), stone (tun or tunic), mountain (wits), flint (tok'), obsidian (tah), rain (čak), cloud (muyl), rainbow (čel), smoke (b'uts'), and fire (k'ak').

Words associated with the supernatural world and religious concepts are god (ć'uh or k'uh), demon (kisin), hell (sib'ah), and alter ego (way). The names of several gods and one goddess are known: čak (the rain god), k'awil (the god of lightning), ʔitsamna (the creator god), ʔahaw k'ín (the sun god), and čak čel (the goddess of childbirth).

Rituals involve the casting (čok) of incense (ć'ah) into censers, dancing (ʔak'ot), and autosacrifice by perforating (b'ah) the tongue (ʔak') or penis (ʔat or ton) with a pointed object. The gods are offered (ʔak') pieces of paper (hun) spattered with blood. Some offerings are made in elaborated painted or carved cylindrical vessels (ʔuc'ib'), others on plates (lak). There is also a ritual ballgame (pits'). Hieroglyphic texts refer to two kinds of musical instruments that were used in rituals: the upright drum (paš) and the horizontal drum (tunk'uy or tunk'ul).

Some kinship terms have been identified in Mayan writing: woman's child (ʔal), wife (ʔatan), father (yum), maternal grandfather (mam), maternal grandmother (mim), older brother (sukun), and younger sibling (pits'in). The head of a lineage is known as the hol pop “head of the mat.” A number of lineage names that have been attested in Mayan are still in use today in the Maya area (e.g., b'alum, b'atun, kokom, kupul, haw, k'awil, nik, and ʔuk).

The ruler of a city or polity is called ʔahaw. His immediate subordinate, who governed a smaller community, is known as sahal. These men are frequently involved in warfare, and there are accordingly words for warrior (b'ateʔ), shield (pakal), capture (čuk), captor (kan), captive (b'ak), and die (kim). Other significant roles in Maya society include priest (ʔah-k'ın or čak), scribe (ʔah-ts'ib'), sculptor (ʔah-pol), and wise man (miyats or ʔits'at). There are also words for writing and painting (ts'ib'), hieroglyph (woh), and paper or book (hun). Other intellectual achievements are related to mathematics and calendrics, the terms of which are listed in §1.3 and §4.6.

Finally, there are terms for buildings and their components: house (ʔotot or ʔototć and na), lintel (pakab'), and sweat bath (pib'-na). There are also words for body parts: bone (b'ak), tooth (koh), hand (k'ab'), foot (ʔok), fingernail or claw (nić'ak), and penis (ʔat or ton). The many other words that were part of the inherited lexicon are shown in Figures 9.5–7, 9.9–12, and 9.14–17 and in the Plates in Davoust (1995).
6.2 Influence of other languages

Only a few loans from other languages have been documented in Mayan. Of these, Mixe-Zoquean has made the largest contribution, including words for chocolate (kakaw), child (ʔunen), dog (ʔok), jaguar (hiˇs), incense (pom), and monkey (ˇcowen or ˇcuwen). Loans from Zapotecan seem to be limited to the day names, b’en, lamat, and manik’. There is one loan each from Totonac (pak’ “plant”) and Nahuatl (kot “eagle”; Justeson et al. 1985:21–28).

7. READING LIST

The most comprehensive and authoritative single work on ancient Maya cultural history is The Ancient Maya by Robert J. Sharer (1994). Breaking the Maya Code by Michael D. Coe (1992) is an engaging account of the history of decipherment. The methodology of decipherment is clearly presented in two influential publications, Ten Phonetic Syllables by David Stuart (1987) and Classic Maya Place Names by David Stuart and Stephen Houston (1994). L’écriture maya et son déchiffrement by Michel Davoust (1995) is the best single volume source on Maya epigraphy – encyclopedic, up to date, and profusely illustrated.

Bibliography

Fox, J. and J. Justeson. n.d. “Hieroglyphic evidence for the languages of the lowland Maya.” Stanford University (ms).
Mayan

191

Knorosov, Y. 1963. Pismennos Indeitsev Maiia. Moscow: Academy of Sciences of the USSR.
Publication 437. Washington, DC.
Proskouriakoff, T. and J. Thompson. 1947. “Maya calendar round dates such as 9 Ahau 17 Mol.” In
Notes on Middle American Archaeology and Ethnology No. 79, pp. 143–150. Carnegie Institution
of Washington. Washington, DC.
Ringle, W. 1985. “Notes on two tablets of unknown provenance.” In M. Robertson and V. Fields
Art Research Institute.
Princeton University Press.
Sáenz, C. 1956. Exploraciones en la pirámide de la Cruz Foliada. Instituto Nacional de Antropología e
Historia, Informe 5. Mexico City.
Instituto Hondureño de Antropología e Historia. Copán, Honduras.
———. 1990. “Ba as ‘first’ in Classic period titles.” Texas Notes on Precolombian Art, Writing, and
Culture 5. Austin: University of Texas.
Schele, L. and M. Miller. 1986. The Blood of Kings: Dynasty and Ritual in Maya Art. Fort Worth:
Kimbell Art Museum.
Washington, DC: Center for Maya Research.
———. 1990. “The decipherment of ‘directional count glyphs’ in Maya inscriptions.” Ancient
Mesoamerica 1:213–224.
———. 1993. “Breaking the code: Rabbit story.” In G. Stuart and G. Stuart (eds.), Lost Kingdoms of
Pre-Columbian Art and Archaeology, 33. Washington DC.
Press.
University of Oklahoma Press.
Tozer, A. 1941. Landa’s Relación de las cosas de Yucatan. Papers of the Peabody Museum of
Archaeology and Ethnology, Harvard University, 18. Cambridge, MA.
Whittaker, G. 1992. “The Zapotec writing system.” In V. Bricker (ed.), Supplement to the Handbook of