

The Forms of Glyph X of the Lunar Series

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The Lunar Series of Classic Maya hieroglyphic inscriptions still presents intriguing mysteries to the scholar. Although the significance of many of its elements has been discovered thanks to hundred years of research, there are still significant lacks of understanding. One of the most mysterious components of the Lunar series is Glyph X, whose existence and placement within the sequence was pointed out by Sylvanus Morley a hundred years ago (Morley 1916). Morley was able to show that Glyph X follows Glyph C and precedes Glyph B, and that Glyph B never occurs without the presence of Glyph X. A few years later, John Teeple noticed that the forms of Glyph X co-varied with the coefficient of Glyph C (1930). The different forms of Glyph X were first compared and numbered by Lawrence Roys. Roys' chart of the forms Glyph X1 to X6 was published by Wyllys Andrews (1934), who tried to show that each form of Glyph X accompanies two consecutive coefficients of Glyph C (Figure 1).



Figure 1: Roys' chart of the Glyph X variants, as reproduced by Kelley (1976: Fig. 8).

Eric Thompson noted that there are several disagreements to this pattern (1950: 242) and that there are forms of Glyph X which were not noted by Roys and Andrews. He also was the first to point out that the choice of the form of Glyph X is not only determined by the number, but also by the head accompanying Glyph C (1950: 242). David Kelley, in his comprehensive book “Deciphering the Maya Script” reproduces Roys’ table of the forms of Glyph X (1976: Fig. 8) and notes that, although certain typical forms recur, a clear pattern of their distribution has not been determined (1976: 35).

Many years later, John Linden was the first to notice that different Glyph X variants occur with the same coefficient of Glyph C. Based on the distribution of the Glyph X variants in relation to the coefficients of Glyph C, he came to the conclusion that Glyph X variants designate positions in a larger eighteen-month lunar synodic calendar (Linden 1986). He also proposes a new typology of Glyph X variants, which is based on the ones published by Andrews (1934) and Kelley (1976), correcting some of the errors in their tables.

The correctness of Linden’s identification of an 18 month lunar synodic was confirmed in 1992 by Linda Schele, Nikolai Grube and Federico Fahsen, when they discovered that the variants of Glyph X are determined not only by the coefficient of Glyph C, but also by the three distinct deity heads that appear above the hand of Glyph C. These were identified as the heads of the Tonsured Maize God (*Juun Ixiim*)¹, the old Jaguar God of the Underworld, and the Death God. It became clear that there were 18 possible combinations (coefficients one to six and three deity heads), and that each combination was associated with a specific Glyph X. It also became apparent that there were less forms of Glyph X than 18, so that several variants of Glyph X were linked to two (or three) lunations, but there were never two forms of Glyph X with the same coefficient-deity head combination within Glyph C (Schele, Grube and Fahsen 1992). Unaware of our informal publication, John Linden published a paper in the 1993 Palenque Mesa Redonda Volume where he came to the same conclusion in regard to the correlation between forms of Glyph X, and the coefficients and deity heads of Glyph C (Linden 1996). Linden points out that the 18 month lunar calendar could be integrated with a double Tzolkin period, which could have been used to track nodal positions in order to warn of possible lunar or solar eclipses. A confirmation for the existence of an eighteen-month cycle was discovered in 2012 in the lunar table painted on the walls of Structure 10K-2 at Xultun, Guatemala (Saturno et al. 2012; Zender and Skidmore 2012; Bricker et al. 2014).

In a more recent analysis of the lunar series, Jens Rohark claims that there were indeed 18 forms of Glyph X that would correspond to the 18 month lunar calendar. The table which he published in his article (Rohark 1996: Abb. 9) shows that this assumption is wrong, because several X forms appear with two different positions of the 18 month lunar cycle. Clearly there are less forms of Glyph X than eighteen.

In the published literature there is no agreement about the numbering and identification of the forms of Glyph X. Some introductory publications on Maya writing only list six forms of Glyph X (Johnson 2013, Fig. 3.10), while others recognize a larger number, without identifying their particular traits (Mickler 1981, Cases Martín 2001, 2013).

I have compiled this publication in order to identify the variants of Glyph X and their relationship to Glyph C. I will describe the nine glyphs and their variants which I have been able to identify. For better identification, the nine variants of Glyph X will be numbered with Roman Numerals. I use these

¹ In the original publication, Schele et al. still believed that the head which we now know to be the Maize God in fact was that of the very similar looking young moon goddess. However, there are several examples of this glyph where the head shows attributes of the Tonsured Maize God, such as a maize curl instead of hair and a forehead jewel. Good examples for this Maize God Glyph C are from the Tikal Marcador, Piedras Negras Stelae 8 and 11, Quirigua Stela E, east, Copan Stela 6 and the Hieroglyphic Stairway from Seibal).

numerals in order to avoid confusion with the already existing labels which have been given to the glyphs by various previous authors. The Glyph X variants will be described in the sequence in which they appear, which is dependent in first place on the deity heads (Jaguar God of the Underworld – Death God – Tonsured Maize God), and within the three deity heads on the prefixed coefficients one to six. The distribution of the X variants is illustrated in Figure 2.

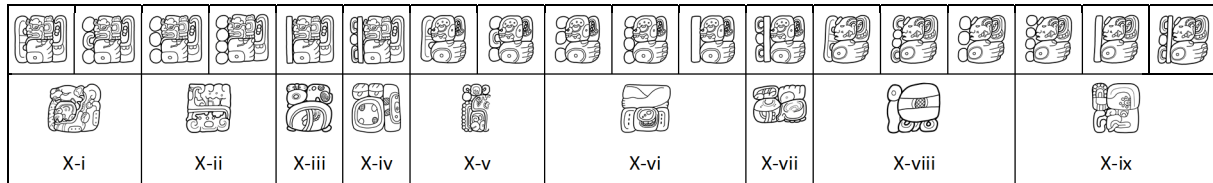


Figure 2: The nine forms of Glyph X in relationship to Glyph C and its variants.

X Variants with the Jaguar God of the Underworld

Glyph X-i

Glyph X-i (Figure 3) appears only with the Jaguar God of The Underworld and the coefficients one and two. A single exception is found with the Jaguar God of the Underworld and the coefficient four on the Kansas City Panel from the Usumacinta region, a monument from the Early Classic period (Mayer 1980, Cat No. 17). I suggest that this exception is based on the fact that the Glyph X series was still not consolidated at this time. The most common form shows the open maw of an alligator, which either swallows or vomits another sign or pair of signs (ACH in Macri and Loooper 2003). That this head is indeed that of an alligator is supported by occasional oval alligator marks (such as on the Palace Tablet, Palenque) or a **ni** phonetic complement (such as on Palenque, Tablet from Temple XIX), indicating a reading **AHIN** or **AHIIN** for the head.

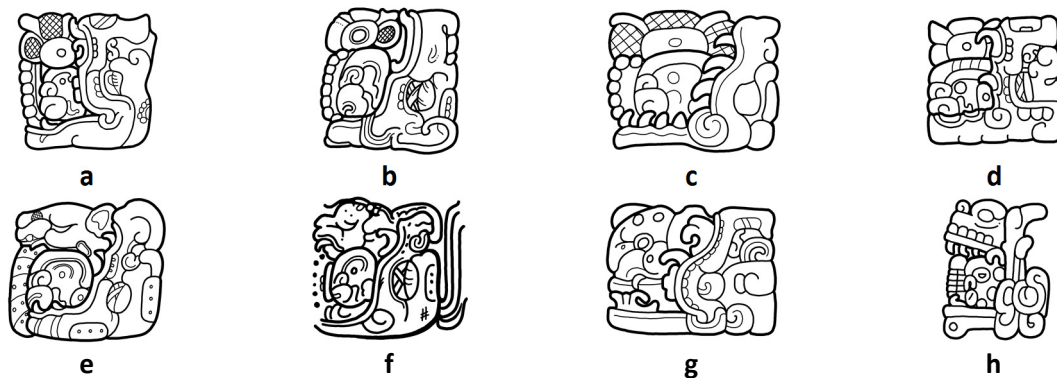


Figure 3: Glyph X-i. a) Copan, Stela N; b) La Corona, Panel 1; c) Piedras Negras, Panel 3; d) Quirigua, Stela A; e) Palenque, Palace Tablet; f) Palenque, Temple XIX Panel; g) Copan, Hieroglyphic Stairway, Date 24; h) Xcalumkin, Initial Series Building (drawings by Nikolai Grube).

The elements inside the maw are usually composed of the signs **mi** and **K'UH**. The **mi** syllable can be substituted by a jawless jaguar head. However, there is also an example of Glyph X-i on the Hieroglyphic Stairway from Copan where there is only a single and complete jaguar head. The substitution pattern suggests that **K'UH** is a logogram for “sacred” or “god”, and that it refers to the

being swallowed as something divine². In that case, the jaguar head and the **mi** sign must be equivalent, which would imply a logographic use of the **mi** sign. It is also possible that the **K'UH** sign is part of a complex logogram composed of **mi** + **K'UH** or jaguar head + **K'UH**, and that the form without the **K'UH** sign from Copan is a short version of this complex sign.

Glyph X-ii

Glyph X-ii (Figure 4) is restricted to the Jaguar God of the Underworld Glyph C and the coefficients three and four. Glyph X-ii shows very little variation. It always is composed of two signs. The principal sign is a square nosed skeletal serpent (T225 in Thompson 1962, ACE in Macri and Loooper 2003). It swallows the logogram **CH'ICH'** "blood". On Quirigua, Stela D there seems to be a **CHAN** "sky" sign in the mouth of the serpent (Figure 4d), but this could be a misinterpretation based on the similarity of both signs. Although we do not know much about this serpent and its iconography, it is very likely that the concept of "blood drinking skeletal serpent" is expressed here.

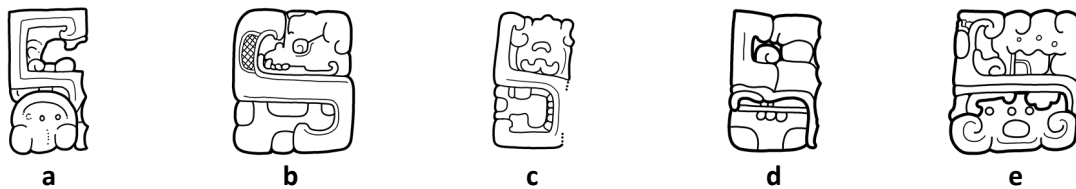


Figure 4: Glyph X-ii. a) Copan Stela 5; b) Piedras Negras Stela 36; c) Quirigua Stela D, west; d) Quirigua Stela E, east; e) Palenque Palace Tablet (drawings by Nikolai Grube).

A seemingly different form of Glyph X appears with the Jaguar God of the Underworld and the coefficient four on Yaxchilan, Lintel 26, which at first glance seems to be the syllabic sign **ma** (Figure 5). On closer inspection, however, it could also be a compressed form of X-ii, where the lower half represents a strongly stylized **CH'ICH'** -logogram and the upper part represents a part of the snout of the skeletal serpent.



Figure 5: A rare substitution for Glyph X-ii from Yaxchilan, Lintel 26. The right half is Glyph B (drawing by Nikolai Grube).

Glyph X-iii

Glyph X-iii (Figures 6, 7) is restricted to the Jaguar God of the Underworld and the coefficient five. It is composed of three signs (Figure 6). The largest sign looks like the lower part of the full **AJAW** sign. However, since it is never written with an **AJAW** superfix or a **wa** suffix, it is more likely to be a totally different sign. Early variants of this sign (for example, on Copan, Stela 9) show further infixes and dots which make this sign different from T518, the **AJAW** main sign in the Thompson catalogue. In Glyph X-

² Christian Prager (pers. communication, February 2018) has pointed out to me that on pages 18a-20a in the Madrid Codex there are images of deities emerging from different kind of serpents. The accompanying captions contain the verb **u-LOK'**, "he/she emerges".

iii, two further signs are attached to it. The sign to the left is uncatalogued and goes unregistered in previous sign catalogues such as Thompson (1962) and Macri and Looper (2003). In later examples of Glyph X-iii, the sign at a first glance seems to be T58 **SAK** “white”. However, early examples leave no doubt that it is a distinct and as yet unclassified sign. The other sign is Thompson’s T155, a sign which also appears in other contexts, such as in the glyph for the month *Cumku* and Glyph 8 of the Lords of the Night (Thompson 1950: Fig. 34). Based on complementations and substitutions, Biró, MacLeod and Grofe have suggested a reading as a logogram **BIX** (2014: 168-169). The fact that the other two signs have not been found in other contexts yet makes it likely that they are logograms, too. Glyph X-iii, therefore, is the combination of three morphemes.

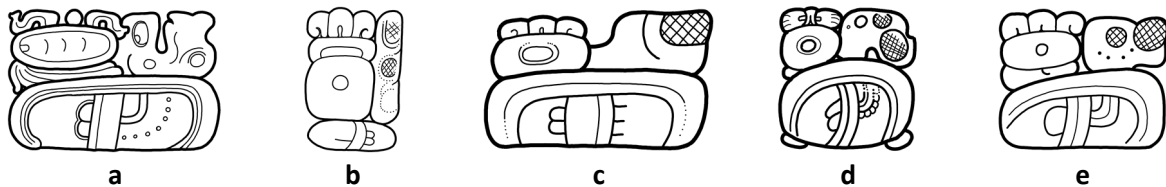


Figure 6: Glyph X-iii. a) Copan, Stela 9; b) Copan, Stela M; c) Dos Pilas, Hieroglyphic Stairway 2; d) La Corona, Hieroglyphic Stairway 2, Block IX; e) Naranjo, Stela 46 (drawings by Nikolai Grube).

There is also a rare head variant of Glyph X-iii (Figure 7). It appears with the Jaguar God of the Underworld and a coefficient of five on Tonina, Monument 167, on Copan, Temple 11 and the stuccoes from Palenque, Temple 18, but with a coefficient of six on Copan, Monument 170 (Figure 7a). The glyph consists of a head as a main sign and a rare and unique prefix, which is listed as ZQF (“stars with disc”) in the Macri and Looper Glyph Catalogue. This sign seems to be related to the pseudo-**SAK**-signs discussed before. The head is that of an anthropomorphic bird. The example from Palenque Temple 18 is very similar to the principal bird deity heads often found in the context of directional glyphs and celestial signs, which is also identical with the bird head in the sign used for the fifteenth day, *Men* or *Tz’ikin* (Taube et al. 2010: 53-55). If this is true, the combination of T155 and T518, somehow would have to be a substitution or an alternative word for the *Tz’ikin* bird.



Figure 7: The head variants of Glyph X-iii. a) Copan, Monument 170; b) Palenque, Temple 18 Jamb (drawings by Nikolai Grube).

A word of caution needs to be added, because one example of the head variants occurs with the C coefficient of six instead of five. While this could be an error, it is also possible that the head variants in fact constitute a different Glyph X. However, since two of them appear with the JGU and the number five like the other X-iii form, I think this is less likely.

Glyph X-iv

Glyph X-iv (Figure 8) only appears with the Jaguar God of the Underworld and the coefficient six. The main sign at first glance appears to be a **K’AN** cross (T281), but better preserved examples show that two of the indentations in the cross are marked with crosshatchings. The sign always has a superfix,

which sometimes looks like a T168 **AJAW** sign. Other examples show the two circular elements can be identical, repeating the T584 “*Ben*” sign. This sign is classified as T170 in the Thompson catalogue. Glyph X-iv almost always has a suffix attached to it, which could be a **yi** syllable, although some variants also look closer to a form of **ji**. There is only one single case (Piedras Negras, Panel 2; Figure 8e) where the suffix is absent. This is also the only occurrence of the Glyph X-iv with a Jaguar God of the Underworld and the coefficient of five. The black markings on the main sign as well as the occasional presence of a **ji** or **yi** syllable suggest that the main sign is not the **K’AN** sign, but that it is a sign with a different logographic reading.

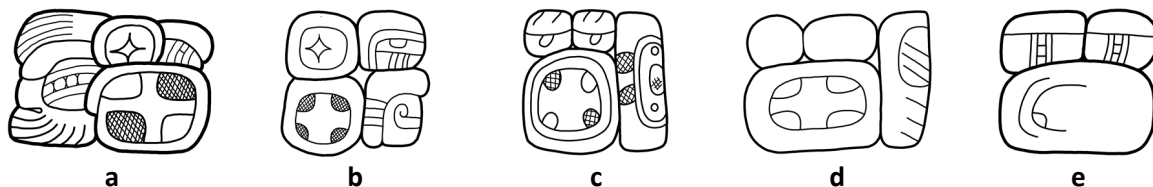


Figure 8: Glyph X-iv. a) Tikal, Stela 31; b) Pusilha, Stela O; c) Palenque, stucco glyph from Temple 16; d) Oxkintok, Lintel 13; e) Piedras Negras, Panel 2 (drawings by Nikolai Grube).

On Tikal, Stela 31, the numerical coefficient six of Glyph C is not written (Figure 9). The glyphs which precede Glyph X-iv include the eye of the Jaguar God of the Underworld and an attached moon sign. The numerical coefficient is replaced by the expression **1-K’IN-?-AK’AB u-WI’IL-HUL**, “one day and night of the last arrival of”, suggesting that the moon age records the last day (“arrival”) within the Jaguar God of the Underworld lunation, or a lunar age of 28 or 29 D within 6 JGU C. The glyph for **u-WI’IL-HUL** is of particular interest, because it shows the **WI’IL** logogram superimposed over the same **HUL** main sign which also appears with the 8.17.1.4.12 arrival event on the same monument (C21).

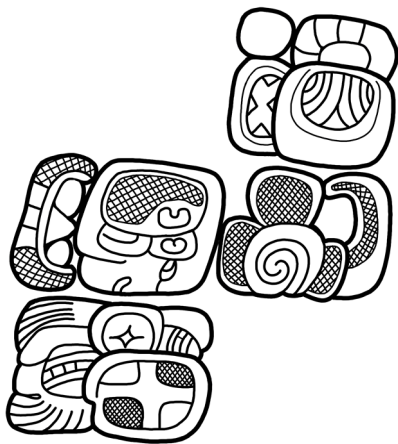


Figure 9: The lunar series on Tikal Stela 31, B9-A11 (drawing by Nikolai Grube).

X Variants with the Skull Head C Glyph

Glyph X-v

Glyph X-v displays some variation (Figure 10). This is the form of Glyph X which accompanies the skull variant of Glyph C with the coefficients of one and two. The core of the glyph is the **K’UH** “god” logogram under a bent “*kawak*” sign (T316, Thompson 1962; ZE4, Macri and Loooper 2003). There is some variation in regard to the prefixes. Often there seems to be a number prefix (one, two or three). Furthermore, all examples of Glyph X-v have a superfix, which shows significant variation. In one case it is a *Kawak* sign with two loops attached to it (Figure 10a). In another case the superfix is T278, which

sometimes functions as the syllable **sa**, and in other contexts more likely is the syllable **hu** (Figure 10b). On Yaxchilan, Lintel 47 the glyph appears with yet another mysterious sign on top (Figure 10c).



Figure 10: Glyph X-v. a) Quirigua, Stela D; b) Vase of the 88 Glyphs (Kerr 1440); c) Yaxchilan, Lintel 47 (drawings by Nikolai Grube).

Glyph X-vi

This form of Glyph X appears with three successive lunations under the auspices of the skull Glyph C. It is found with the numbers three, four and five. Glyph X-vi (Figure 13) always includes a sign showing a lower body and crossed legs (T701, Thompson 1962: 296; HT9, Macri and Loooper 2003: 114). It is always paired with a second sign, which usually is written below, but sometimes can appear above the crossed legs (Copan, Stela 63; El Peru, Stela 27; El Resbalon, HS 1; Coba Stela 20). The fact that the reading order is not stable implies that both signs are logograms rather than syllables. The second sign shows a large degree of variability. Often, the second sign is simply the moon sign T683. The moon sign can be framed on both sides by little affixes. Alternatively, there can be a **K'IN** Sign framed with small affixes or foliage. The foliated **K'IN** sign in the example from Piedras Negras, Stela 10 looks very similar to the glyph for solar eclipse on Poco Uinic, Stela 1 (Figure 11), for which Christian Prager (2006) has suggested a reading **NAAM** “hide, go out of sight”.

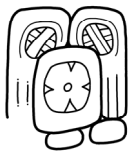


Figure 11: The eclipse glyph from Poco Uinic, Stela 3 (drawing by Nikolai Grube).

Another sign which can appear in this context is a skull. On the Hieroglyphic Stairway 1 from El Resbalon, Glyph X-vi also has a **u** prefix, while the superfix, although badly preserved, seems to be the skull. This suggests that this particular skull is the **UH**-skull. The function of this skull sign becomes clear when we turn to the eclipse tables of the Dresden Codex. Here, a skull, which most likely is the post-classic form of the **UH**-skull is used to write the word for moon, *uh* (Figure 12).



Figure 12: The UH skull in the context of the eclipse tables in the Dresden Codex. a) Dresden 55b; b) Dresden 55a (drawings by Nikolai Grube).

All elements under or above the crossed leg signs in this particular variant of Glyph X are related to the moon or eclipses. The meaning of Glyph X-vi therefore must be something similar to “sitting” or “resting of the moon” or “seating of the eclipse”.

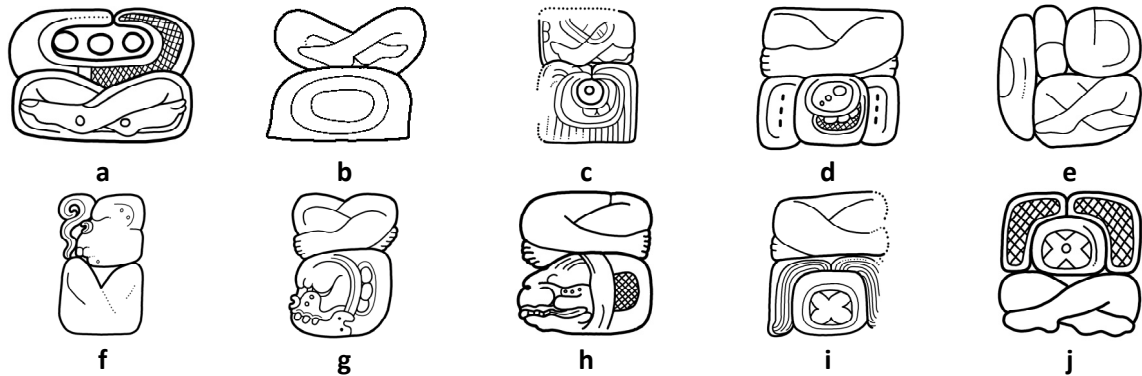


Figure 13: Glyph X-vi. a) Copan, Stela 63; b) Tikal, Stela 3; c) Copan, Stela 7; d) Piedras Negras, Stela 1; e) El Resbalon, Hieroglyphic Stairway 1; f) Copan, Stela I; g) Yaxchilan, Lintel 46; h) Palenque, Foliated Cross Sanctuary Tablet; i) Piedras Negras, Stela 10; j) Coba, Stela 20 (drawings by Nikolai Grube).

Glyph X-vii

Glyph X-vii is extremely rare and appears only twice in the entire corpus. This is the X glyph which is required when Glyph C has a skull prefix and the coefficient of six. The two examples are from Quirigua, Stela J and on Piedras Negras, Stela 12 (Figure 14). Both examples share two signs, the logogram for **ABAK** “soot” and the sign **CH’AB** “fast”. The glyph on Piedras Negras, Stela 12 has two more signs, the syllables **ta** and **k’o** (Fig. 14a).



Figure 14: Glyph X-vii. a) Piedras Negras, Stela 12; b) Quirigua, Stela J (drawings by Nikolai Grube).

X Variants with the Tonsured Maize God Head C Glyph

Glyph X-viii

Glyph X-viii appears with the numbers one, two and three of the Maize God head variant of the C Glyph. The glyph has one element which is almost always present, which is a prefix in form of a jade jewel, or a bead with a flower, listed in Thompson’s catalogue as T165 (Figures 16, a-h). In the Macri and Loper catalogue, this sign corresponds to 2M4. This jade jewel is attached either to the main sign T681, which corresponds to ZUM in the Macri and Loper catalogue (“mirrors with arc”) (Figures 16 g-k), or to a combination of two signs, which include a possible **po** syllable as a main sign and a suffix, which can be either **ya** or the T77 **k’i?** wing. If this is a true substitution, it would mean that the “mirrors with arc” sign would be a logogram with a reading of **POOY** or **POOK’**. The “mirrors with arc” sign perhaps is related to a small sign of unknown value, for which Yuriy Polyukhovych (2009) has suggested a tentative value of **ch’u** (Figure 15). Visually, the mirrors with arc sign appear to be reduplication or the main sign variant of this syllable.

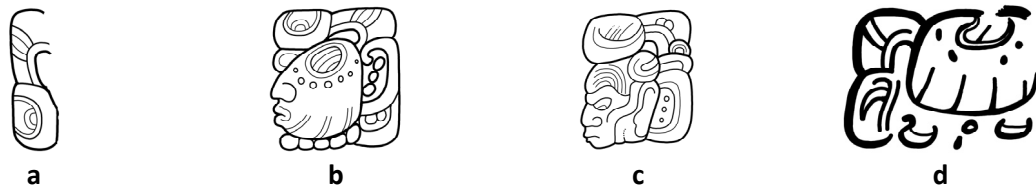


Figure 15: A small sign with no identification in the glyph catalogues and no secure reading. a) The sign under discussion; b) ?-ba-ja on La Corona, Panel 11; c) ?-lu-si on Copan, Stela P; d) ?-ba-ya on Naj Tunich, Drawing 65 (drawings by Nikolai Grube).

A particularly complex form of X-viii appears on Pusilha, Stela K (Figure 16k). The lower part of the left half is the mirrors with arc sign. The two signs above probably include a stylized necklace and the syllable **tu** or **si**. If the upper left sign indeed is a necklace, it could indicate that the mirror with arc sign probably represent jade belts or beads. The right half of the glyph includes the syllable **ko** and probably other syllabic signs on top. The fact that X-viii in its original form perhaps goes back to a jade pectoral can be seen in a comparison with the pectoral of the Maize God on the North Wall of San Bartolo, Pinturas Sub-1 (Individual 9). This Pectoral has exactly the same trilobed shape as Glyph X-viii on Dos Pilas Hieroglyphic Stairway 2 and Pomona Panel 1 (Figures 16, i-j) (Elisabeth Wagner, pers. communication, February 2018).

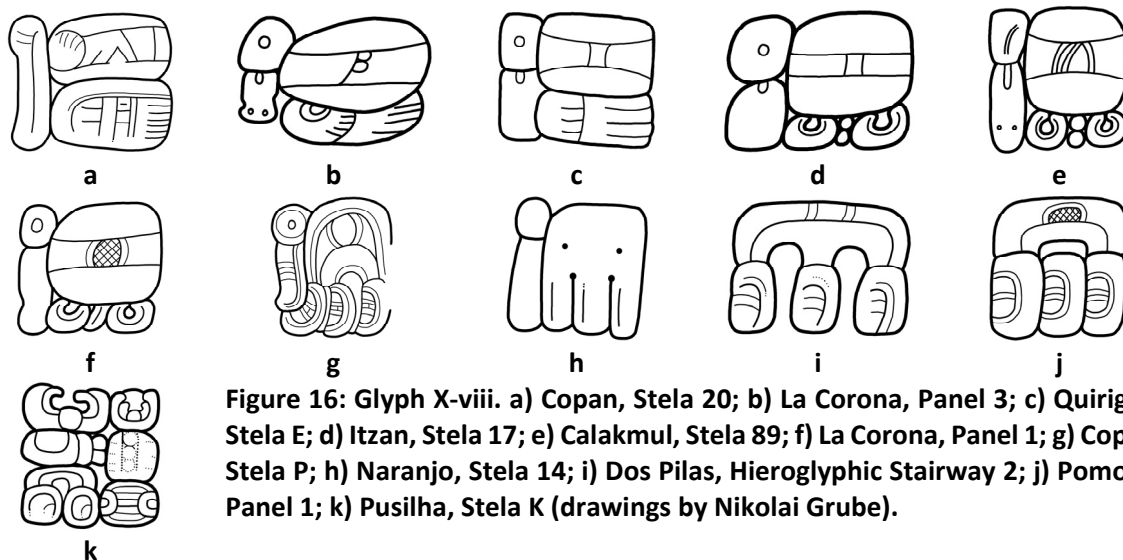


Figure 16: Glyph X-viii. a) Copan, Stela 20; b) La Corona, Panel 3; c) Quirigua, Stela E; d) Itzan, Stela 17; e) Calakmul, Stela 89; f) La Corona, Panel 1; g) Copan, Stela P; h) Naranjo, Stela 14; i) Dos Pilas, Hieroglyphic Stairway 2; j) Pomona, Panel 1; k) Pusilha, Stela K (drawings by Nikolai Grube).

Glyph X-ix

This variant of Glyph X appears with the Tonsured Maize God head variant of Glyph C and the coefficients of four, five and six. The main sign is a head with *Kawak* markings (Figure 17). Attached to this head often is a **mi** sign. The **mi** sign does not seem to be obligatory, since there are examples of Glyph X-ix from Chichen Itza and Piedras Negras which lack the **mi** prefix (Figures 17, c-e, g-l). In addition to the **mi** prefix, there can be another small sign attached to the *Kawak* head. It looks like a **pu** sign with other elements attached to its bottom (Figures 17, b-e). This sign can be replaced by another small prefix which resembles the “exhalation scroll” sign found in some variants of the dedication verb of the PSS (Grube and Gaida 2006: 66), and which has not been recognized in any of the extant glyph catalogues (Figures 17, c, g-i). Another variant of Glyph X-ix has the same *Kawak* head main sign, but the sky and earth signs attached to it as a prefix (Figures 17, k-l). On Quirigua, Stela F (Figure 18k) and Yaxchilan, Hieroglyphic Stairway 3 Step 3 there is a **si** suffix, suggesting that the hieroglyph refers to an inalienable body part. An unusually long spelling of what may be Glyph X-ix

appears on Pusilha, Stela U (Figure 17m). Although the head on Glyph C cannot be recognized any more, the coefficient six, as well as the presence of the *mi* and *Kawak* signs makes it likely that this is another form of Glyph X-ix, probably including an explicit syllabic spelling of what otherwise is represented by head variants.

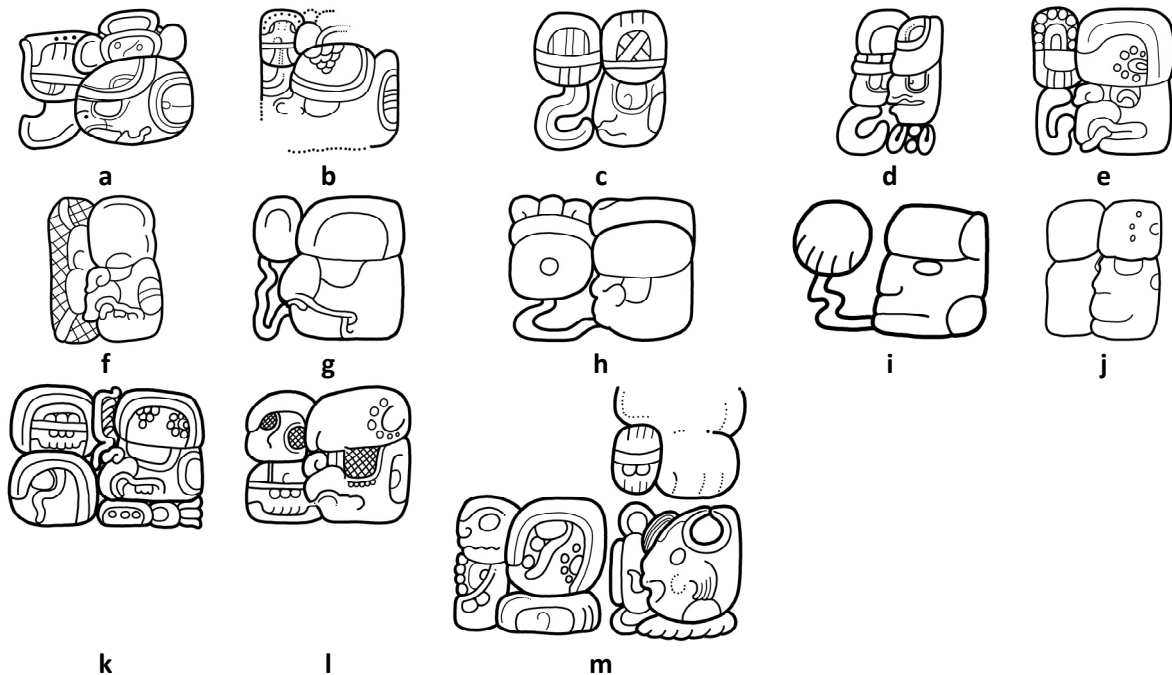


Figure 17: Glyph X-ix. a) COL, Brussels Panel (Mayer 1978, Cat. No. 1); b) Copan, Stela 1; c) Pusilha, Stela H; d) Yaxchilan, Stela 11; e) Quirigua, Altar O; f) Quirigua, Altar of Zoomorph P; g) Piedras Negras, Stela 8; h) Tonina, Monument 167; i) Chichen Itza, Initial Series Lintel; j) La Corona, Altar 1; k) Quirigua, Stela F, west; l) Seibal, Hieroglyphic Stairway, m) Pusilha, Stela U (drawings by Nikolai Grube).

The same glyph as Glyph X-ix, but outside of the Lunar Series, appears on La Corona Element 56 as part of the extended name phrase of *Chak Ak Paat Kuy* in the context of his accession as king (Figure 18; Stuart et al. 2015).



Figure 18: The same glyph as X-ix on La Corona, Element 56 (drawing by Nikolai Grube).

The Development of Glyph X and its Relation to Glyph B in Maya Inscriptions

Glyph X for the first time appears in the Lunar Series on Copan, Stela 63 (9.0.0.0.0) and on Tikal Stela 31 (9.0.10.0.0). The corresponding cycle of eighteen lunations as expressed in the three C Glyphs with coefficients between one and six, however, is already present much earlier. The first C Glyphs appear on Uaxactun, Stela 9 (8.14.10.3.15, Sep. 23, 327) and on Bejucal, Stela 2 (8.17.17.0.0, July 23, 393). Obviously, Glyph X provides additional information to Glyph C, therefore, the presence of Glyph C does not need the presence of Glyph X, while Glyph X always requires the presence of Glyph C. Once Glyph

X was introduced, it quickly spread north, where it appears at Oxkintok (9.2.11.16.17) and also in the Usumacinta region (9.3.0.0.0, Kansas City Panel).

It has long been established that Glyph X in the Lunar Series is followed by Glyph B (Figure 19). Glyph B is only present when Glyph X is present. There are no cases of the use of Glyph B without a preceding Glyph X. In the early Classic period, such as in the early Lunar Series from Tikal and Uaxactun, there are inscriptions with Glyph X, but without Glyph B. The first examples of Glyph B appear at about 9.8.0.0.0 (Brussels Stela, Mayer 1978, Cat. No. 1) and 9.8.10.6.16 (Piedras Negras, Stela 25). The elbow sign T187 on Glyph B has been deciphered by David Stuart as the logogram **K'ABA'** "name". The "rodent bone" signs inside the **K'ABA'** elbow have been deciphered as the syllables **ch'o** (Houston 1988: 132-134; Grube 1990) and **ko** (Grube and Stuart 1987). Together, both syllables spell the word *ch'ok* "youth, young, sprout" (Ringle 1988: 14). The syllables **ch'o-ko** can be replaced by a logogram showing a pair of goggle eyes (T287, HE5) and a **ko** syllable attached.

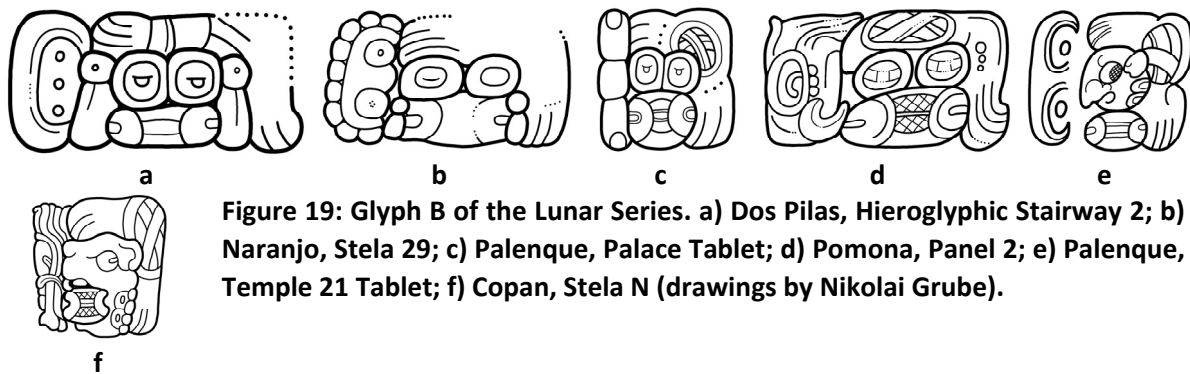


Figure 19: Glyph B of the Lunar Series. a) Dos Pilas, Hieroglyphic Stairway 2; b) Naranjo, Stela 29; c) Palenque, Palace Tablet; d) Pomona, Panel 2; e) Palenque, Temple 21 Tablet; f) Copan, Stela N (drawings by Nikolai Grube).

Outside of Glyph B, the *ch'ok* glyph often is spelled with a sign showing goggle eyes and an open mouth showing teeth with dental inlays (Figures 20, a-c). The teeth sign is not registered in the Thompson catalogue but is listed as HJ3 in the Macri and Looer sign catalogue (2003: 111). Since the teeth sign never occurs independently from the goggle eyes, it must form part of a complex sign together with the eyes. Most probably, the entire compound represents the logogram **CH'OK** and therefore it can replace the rodent bone glyph (Figure 20e). In Late Classic inscriptions and in the codices, the teeth element are usually replaced (or probably covered) by a **ko** syllable (Figure 20d). David Stuart and I have interpreted this fact on the basis that *ko* is a word for "teeth" in Cholan and Yucatecan (Grube and Stuart 1987). However, as stated above, the teeth sign never is used as a **ko** syllable on its own. Sometimes the **ko** sign is conflated with the teeth sign, as can be seen by the lateral adornments attached to both the teeth and the **ko** signs.

In the Corpus of Maya inscriptions, the rodent bone glyph for the word *ch'ok* appears relatively late. There is a single Early Classic occurrence of the rodent bone form for **ch'o-ko** on Yaxchilan, Lintel 18 (Figure 19e). However, apart from this unique example, the rodent bone glyph is absent in the Early Classic period and does not show up before 9.10.0.0.0 in the Usumacinta region (early examples on the Dumbarton Oaks Panel from El Cayo at 9.10.16.8.14). During the Early Classic period, *ch'ok* was always written with the goggle eyes variant. The same holds true for *ch'ok* spellings within Glyph B. All Early Classic examples of Glyph B use the goggle eyes variant for the word *ch'ok*.

The goggle eyes variant of the *ch'ok* glyph deserves particular attention. It is widely used as a word for "youth", such as in contemporary Cholan languages, where it means "young, immature thing" (Houston 2009). The icon of the sign is very reminiscent of Maya images of the Teotihuacan war god known from later Aztec sources as *Tlaloc* (Schele 1995:117). In fact, the goggles seem to be part of a mask, very often hiding behind them a pair of human eyes. The goggled eyes, curled upper lip and prominent fangs were the most characteristic features of the Teotihuacan Storm God, who is often

regarded as a predecessor to *Tlaalok* (*Tlaloc*), as this rain deity was known in Nawatl (Nahuatl), the language of the postclassic Aztec, who in numerous ways were the cultural inheritors of the people of Teotihuacan. The original name of *Tlaalok* amongst the people of Teotihuacan remains unknown to us, although it is not impossible that the Aztec name *Tlaalok*, for which no good etymology can be presented yet, was inherited from Teotihuacan. Whatever the original name for *Tlaalok* might have been, it is very likely that the Maya referred to the Teotihuacan *Tlaalok* as *ch'ok*, “young person sprout”, perhaps in allusion to the god’s youth or the fact that he was providing fertility for the new vegetation.

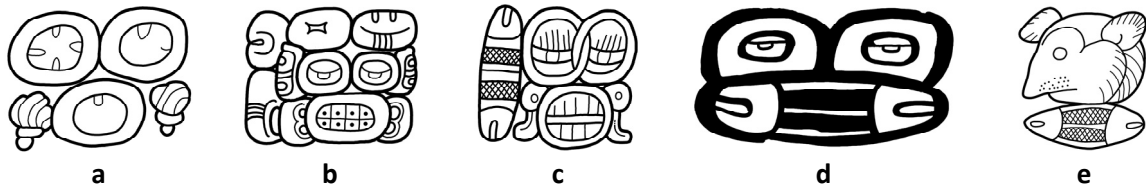


Figure 20: The *ch'ok* “youth” glyph in both its logographic (a-d) and syllabic spellings (e) outside of the Lunar Series. a) Caracol, Stela 5; b) Palenque, House C West Court; c) Stone club of unknown provenance, Kerr 6631; d) Dresden 57b; e) Yaxchilan, Lintel 18 (drawings by Nikolai Grube).

The goggle eyes of *Tlaalok* therefore were used as a logogram for **CH'OK** in the early classic period. The syllabic spelling for the word *ch'ok* was added at the beginning of the late classic. The goggle eyes version for *ch'ok* continued to be in use until the Postclassic period, where it is still found in the codices (Figure 20d).

Within Glyph B, the word *ch'ok* has been interpreted as a noun for “young person, child” and as a reference to the crescent or newly visible moon. In connection with the preceding Glyph X, the entire collocation has been translated as “[Glyph X] is the name of child/moon”. A study of all Glyph B examples by Nikolai Kiel (2017) has marshalled evidence, however, that the word *ch'ok* within Glyph B is not a noun, but an adjective, because it precedes the noun *k'aba'* (Figure 21). The correct reading order is provided in a few explicit spellings and has to be *u ch'ok k'aba'*, where *ch'ok* is an adjective that modifies the possessed noun *k'aba'*.

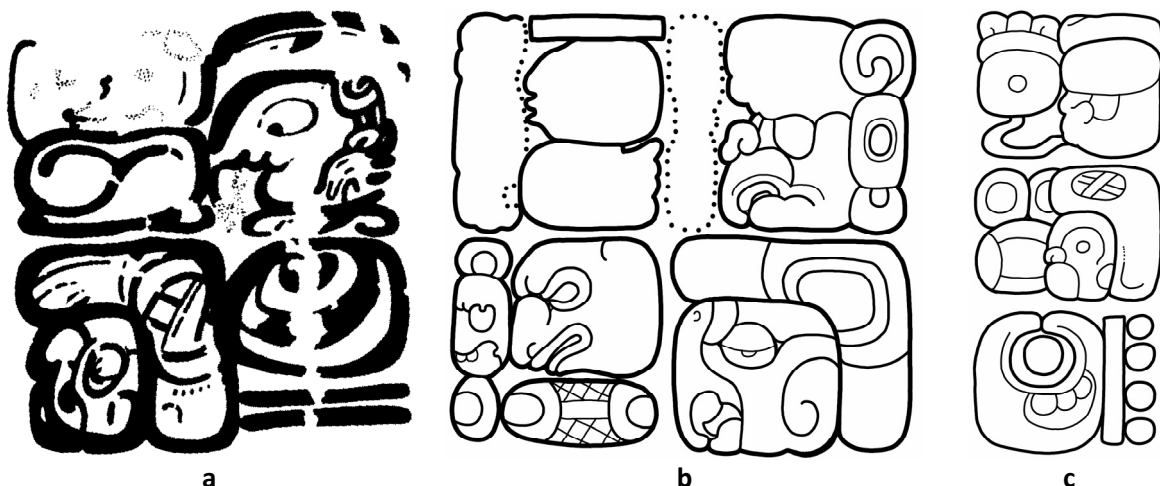


Figure 21: Texts where *u-ch'ok* precedes the *k'aba'* glyph. a) Bonampak, Room 1 (drawing by Stephen Houston in Miller and Brittenham 2013, Fig. 121); b) Quirigua, Zoomorph G; c) Tonina, Monument 167 (drawings b and c by Nikolai Grube).

This construction is identical to the expression **u-K'AL-HU'UN-li K'ABA'** “it is the headband-tying name” found on the Palace Tablet at Palenque, where the noun *k'aba'* “name” is modified by the word

k'alhu'unil, which is an adjective derived from the noun *hu'un* "headband" (Grube 2002: 325) (Figure 21). The collocation *u ch'ok k'aba'* therefore is a possessed modified noun, the possessor is found in the following glyph of the lunar series, Glyph A. Glyph A spells the number 29 or 30 and informs us about the length of the current moon. Glyph X therefore is the *ch'ok* name of "the twenty-nine" or "the thirty" day old moon. The word *u ch'ok k'aba'* must function in analogy to *u k'alhu'unil k'aba'* in Palenque. While the Palenque expression explicitly refers to "accession names", Glyph B identifies the preceding Glyph X as the "childhood name" of the moon, a suggestion that was also made previously by Ignacio Cases (2013). With Glyph D of the lunar series counting the days of the lunation since its first visibility, it is very likely that the last part of the Lunar Series provides information about the moon during its childhood.



Figure 22: Two examples for the expression u-K'AL-HU'UN-li K'ABA' "it is the headband-tying name" from the Palace Tablet, Palenque. a) K10-L10; b) O10-P10 (drawings by Nikolai Grube).

In conclusion, Glyph X has to be interpreted as a series of names which were given to the moon when it appeared as a small crescent in the sky. The fact that most forms of Glyph X are based on logograms which include many idiosyncratic signs confirms the interpretation of Glyph X as a sequence of nominals. Although we have come a little bit closer to understand the forms and functions of Glyph X, there are still important issues to be resolved. The most important question of course is: why are there only nine different childhood names for 18 lunations? Why do two or even three sequential lunations share the same Glyph X?

An explanation for the fact that several lunations have the same name might be based on the fact that the young crescent moon in these cases became visible at the same point on the horizon or in the sky. Perhaps certain lunations were also considered related, or it was assumed that they had the same characteristics. Ultimately, however, an explanation for Glyph X can only be found in the mythological narratives of the classic period, which were much more complex and varied than commonly assumed.

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