Mesoamerican Lexical Calques in Ancient Maya Writing and Imagery

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Introduction

The process of calquing is a fascinating aspect of linguistics since it attests to contacts between differing languages and manifests itself in a variety of guises. Calquing involves loaning or transferring items of vocabulary and even phonetic and syntactic traits from one language to another.1 Here I would like to explore lexical calques, which is to say the loaning of vocabulary items, not as loanwords, but by means of translating their meaning from one language to another. In this sense calques can be thought of as “loan translations,” in which only the semantic dimension is borrowed. Calques, unlike loanwords, are not liable to direct phonological assessment, which would otherwise help to fix the donor culture and the time when the initial semantic borrowing took place. Mesoamerican calques are represented in the textual record of the ancient Maya, and since many such examples can be dated with some accuracy on the basis of associated calendrical statements, these greatly expand the time-depth of attestations and assist in the identification of ancient cultural interactions which might otherwise go undetected.

What follows is a preliminary treatment of a small sample of Mesoamerican lexical calques as attested in the glyphic corpus of the ancient Maya. The present treatment is not intended to be exhaustive; instead it provides an insight into the types, antiquity, and longevity of Mesoamerican calques in the hopes that this foray may stimulate additional and more in-depth treatment in the future.

Calques in Mesoamerica

Lexical calques have occupied a privileged place in the definition of Mesoamerica as a linguistic area (Campbell et al. 1986:553-555; Smith-Stark 1994; Campbell 1997:344, 2004:81-82, 333-335). Calques form a specific subset of linguistic borrowing in which reliance is placed on literal translations of a foreign expression, phrase, or juxtaposition of words, rather than the direct phonetic adoption of a single foreign lexical item as a loanword. It is in this respect that calques can be thought of as “loan translations.” The term calque is itself a loanword from the French verb calquer “to trace, reproduce, or copy” especially in reference to the reproduction of illustrations on translucent tracing paper (known as papier-calque).

An oft-cited example is worth repeating here to illustrate the notion further: the Americanism skyscraper was calqued into French as gratte-ciel “sky-scraper,” German as wolken-kreuzer, “cloud-scraper,” Spanish as rasca-cielos “skies-scraper” (Campbell 2004:81), and Danish as sky-skraer “cloud-scraper.” Another noteworthy calque attested in...

1 Thus, for example, the distinctive Nawatl phoneme tl [ɬ] may have originated due to influence from Totonakan (Kaufman 2001:9, 12). In much the same way, the basic word order of Classical Nawatl—which is predominantly VOS (verb-object-subject)—contrasts with other Yuto-Nawan languages, which tend to be SOV (Haspelmath et al. 2005:330-333), and consequently it is clear that the dominant word order of Nawatl is a result of its Mesoamerican acculturation (Kaufman 2001:24-28). Likewise, the dialects of Nawatl that exhibit SVO appear to be recent and can be said to have developed under influence from Spanish (see Campbell 1985:103; Hill and Hill 1986:237).
European languages is the term for “exhibit,” which is found in French as exposition (i.e., ex-position), in German as aus-stellung, in Danish as ud-stilling, in Swedish as ut-stilling, and in Polish as wy-stawa (Una Canger, personal communication 2009). In all of these examples the terms are multi-morphemic and are structured in the same fashion with an initial element for “out” followed by corresponding items for “placement” or “position” to constitute calques for “exhibit.” In one of the earlier treatments of such calques in Mesoamerica, Terrence Kaufman (1973:477) referred to such constructions as types of specific metaphors employed in lexeme formation (see also Smith-Stark 1994:17-18; Montes de Oca Vega 2004:226-227). What is clear from these examples is that whereas calques appear to be careful and literal word-for-word translations, this is a function of the bilingualism of the context as well as the aptitude of the donor or recipient language to translate the original lexeme, prior to incorporation. Therefore calques for the most part are not direct and perfectly matching translations as the ideal definition would have it, but only nearly so.

Another good example of a calque that I have encountered as part of my fieldwork in Belize concerns the name of a particularly venomous snake, known formally as the fer-de-lance, or terciopelo (Bothrops asper) (Beletsky 1999:262; Schlesinger 2001:223-225; see also Krempel and Matteo 2009:6). The snake is more commonly known as the barba amarilla, “yellow beard,” in Spanish, or as the yellow-jaw tommygoff in Belizean Kriol.2 The notion of “yellow buccal area” is essentially descriptive since it refers to the yellowish mandibular scales, which contrast greatly to the rest of the snake’s dark colouration. This observation also constitutes the basis for the compound k’an-ti’, literally “yellow-mouth,” the original name of the snake in the area, as indicated by a Yukatek informant from the village of Soccutz (Oscar Chi, personal communication 2001). Interestingly, k’an-ti’ appears to be a loanword from Ch’olan, as the expected Yukatekan form “k’an-chi’” is un attested. What is clear is that the modern Spanish and Kriol attestations are direct word-for-word translations, or calques, of the widespread Ch’olan term.

The most in-depth and detailed treatment of Mesoamerican calques to date is the study conducted by Thomas Smith-Stark, who compared 52 different calques throughout 34 Mesoamerican languages and a series of 21 adjoining and distant Amerindian languages as control sets (Campbell et al. 1986:553-555; Smith-Stark 1994). As stated above, calques have been investigated for their potential as diagnostic areal delineators in the definition of Mesoamerica as a linguistic area (see also Campbell 1997:344-346, 2004:81-82, 333-335). Calques, in their role as semantic vehicles between linguistically-disparate cultures, should also be highly revealing with regard to identifying the donors of the underlying and culturally-laden concepts (and often the corresponding tangible referent). Calques, however, are not liable to direct phonological assessment, which would otherwise help to fix the donor culture and the time when the concept was initially borrowed, as is otherwise the case with loanwords. How then can one determine the period when the borrowing or cultural influence took place and the time-depth of particular calques? The glyphic texts of the ancient Maya provide us with a tantalizing opportunity, since Mesoamerican calques are attested in the written record of the Classic period (AD 250 – 950) and their temporal incidence can be assessed on the basis of associated calendrical statements. This contrasts sharply with previous treatments where full reliance was placed on modern or colonial vernaculars in Mesoamerica. In fact, upon first reading Smith-Stark’s (1994:19-21) list of Mesoamerican calques, I was immediately struck by the pervasiveness of concepts that form an integral part of the ancient Ch’olan language and culture recorded in glyphs (see Houston et al. 2000; Lacadena and Wichmann 2002; Wichmann 2006:280-284). What follows is a preliminary treatment of some representative examples of Mesoamerican lexical calques as attested in the glyphic corpus of the ancient Maya.

The Present Study

In the present study I have reanalysed the list of calques provided by Smith-Stark (1994:19-21) and defined three sub-classes (see Table 1). I have maintained the numeric designations that Smith-Stark attributed to each calque for the sake of consistency and ease of cross-referencing. The first sub-class encompasses all items that are in fact targeted by a single-morpheme term or two close cognates. Included in this sub-class are items such as (19) “day” = “sun,” where we have k’in3 with the meanings of both “sun” and by extension “day” as attested in the Maya languages pertinent to the study of Classic Maya glyphic inscriptions. The Maya languages that are here deemed most significant to the study of Classic Maya glyphic texts are: Yukatek, Itza’, Mopan, Lakantun, Ch’orti’, ‘Ch’olti’, Ch’ol, Chontal, Tzeltal, and Tzotzil (see Lacadena and Wichmann 2002;

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2 In Kriol tommygoff refers to large vipers as seen in tommygoff (Porthidium nasutum), jumping tommygoff (Atropoides nummifer), and green tommygoff (Bothriechis schlegeli) (Beletsky 1999:262-263).

3 In this paper, all dictionary entries are provided as in the original sources unless there is sufficient consensus to present a form in an updated modern orthography, especially for Mayan languages. Otherwise all entries are presented as they are in the original source. Angled brackets < … > are used to render either colonial spellings of terms, or more recent items whose spelling or orthography is deemed inadequate. Names of culture groups are left in their original spellings as for example Mixtec, Aztec, and Otomi, but the language names are updated as with the case of Mixtek, Nawatl, and Hñähñu, respectively.
### Sub-class 1

<table>
<thead>
<tr>
<th>Number</th>
<th>English</th>
<th>Maya</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>bark = back (of tree)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>eye = fruit / seed (of face)</td>
<td>paat</td>
<td>attested</td>
</tr>
<tr>
<td>8</td>
<td>witch(craft) = (related to) sleep / dream</td>
<td>way ~ wahy</td>
<td>attested</td>
</tr>
<tr>
<td>10</td>
<td>fiesta = (big) day</td>
<td>k’in</td>
<td>attested</td>
</tr>
<tr>
<td>12</td>
<td>twenty = man / person</td>
<td>winik ~ winaak</td>
<td>attested</td>
</tr>
<tr>
<td>13</td>
<td>lime(stone) = (stone) ashes</td>
<td>tan</td>
<td>possibly attested</td>
</tr>
<tr>
<td>19</td>
<td>day = sun</td>
<td>k’in</td>
<td>attested</td>
</tr>
<tr>
<td>20</td>
<td>month = moon</td>
<td>uh</td>
<td>attested</td>
</tr>
<tr>
<td>23</td>
<td>read = count</td>
<td>xok</td>
<td>attested</td>
</tr>
<tr>
<td>24</td>
<td>write = paint</td>
<td>tz’ihb</td>
<td>attested</td>
</tr>
<tr>
<td>25</td>
<td>suck = kiss / smoke (cigar(ette))</td>
<td>tz’utz’</td>
<td>attested</td>
</tr>
<tr>
<td>34</td>
<td>mouth = edge</td>
<td>ti’</td>
<td>attested</td>
</tr>
<tr>
<td>38</td>
<td>blue = green</td>
<td>yax ~ ya’ax</td>
<td>attested</td>
</tr>
</tbody>
</table>

### Sub-class 2

<table>
<thead>
<tr>
<th>Number</th>
<th>English</th>
<th>Maya</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>door = mouth (of house)</td>
<td>ti’-il ... y-ootot</td>
<td>attested</td>
</tr>
<tr>
<td>2</td>
<td>bark = skin / pelt (of tree)</td>
<td>(u-nuhkul-te’)</td>
<td>partly attested</td>
</tr>
<tr>
<td>5</td>
<td>boa / large snake = deer-snake</td>
<td>chij-kan ~ chan</td>
<td>attested</td>
</tr>
<tr>
<td>9</td>
<td>cramp = (related to) deer</td>
<td>X chij ~ chij X</td>
<td>attested</td>
</tr>
<tr>
<td>14</td>
<td>wrist = neck (of hand)</td>
<td>(u-“nuk’-k’ab)</td>
<td>not attested</td>
</tr>
<tr>
<td>16</td>
<td>river = (big) water</td>
<td>lakam-ha’</td>
<td>attested</td>
</tr>
<tr>
<td>21</td>
<td>branch = arm (of tree)</td>
<td>u-k’ab-te’</td>
<td>attested</td>
</tr>
<tr>
<td>26</td>
<td>eclipse = (moon / sun) is hidden</td>
<td>k’ab-al xook</td>
<td>attested</td>
</tr>
<tr>
<td>28</td>
<td>vein = road of blood</td>
<td>uh / k’in nam ~ na’m</td>
<td>attested</td>
</tr>
<tr>
<td>35 a)</td>
<td>thumb = mother (of hand)</td>
<td>(u-bih-k’ik’)</td>
<td>partly attested</td>
</tr>
<tr>
<td>35 b)</td>
<td>finger = child (of hand)</td>
<td>(u-na’-k’ab)</td>
<td>partly attested</td>
</tr>
<tr>
<td>36</td>
<td>mano / pestle = hand / child (of metate / mortar)</td>
<td>(u-k’ab / y-al *ka’ ~ *cha’)</td>
<td>not attested</td>
</tr>
<tr>
<td>43</td>
<td>feline = red predatory animal</td>
<td>(chak-bola’y)</td>
<td>partly attested</td>
</tr>
<tr>
<td>44</td>
<td>gold / silver = excrement of the sun</td>
<td>ta’-k’in</td>
<td>attested</td>
</tr>
<tr>
<td>45</td>
<td>otter = water-dog</td>
<td>ha’-tz’i’</td>
<td>attested</td>
</tr>
<tr>
<td>46</td>
<td>anteater = (related to) honey</td>
<td>chaab ~ kab</td>
<td>attested</td>
</tr>
<tr>
<td>47</td>
<td>cedar = god-tree</td>
<td>k’uh-te’el</td>
<td>attested</td>
</tr>
<tr>
<td>50</td>
<td>pataxe = feline-cacao (Theobroma bicolor)</td>
<td>bahlam-kakaw</td>
<td>possibly attested</td>
</tr>
</tbody>
</table>

### Sub-class 3

<table>
<thead>
<tr>
<th>Number</th>
<th>English</th>
<th>Maya</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>knee = head (of leg)</td>
<td>(*pix ~ *pi’x) = (u-jo’l-ook)</td>
<td>not attested</td>
</tr>
<tr>
<td>6</td>
<td>moon = respected woman</td>
<td>uh = ix-uh</td>
<td>attested</td>
</tr>
<tr>
<td>18</td>
<td>wife = (inalienably possessed) woman</td>
<td>y-atan = ixik-is</td>
<td>attested</td>
</tr>
<tr>
<td>52</td>
<td>soot = nose of (fire)wood</td>
<td>sabaak / sibik = (u-*ni’-te’)</td>
<td>partly attested</td>
</tr>
</tbody>
</table>

Table 1. Mesoamerican calques attested in ancient Maya glyphic texts. Classic Maya items in parentheses are reconstructions where individual lexical items are documented but the compound form is not attested. Items marked with an asterisk are expected glyphic forms that have not been documented in the glyphic corpus as yet. The plus sign indicates items that are discussed in the present paper. Data presented in this table are based in part on: Kaufman and Norman 1984; Lacadena 2001; Boot 2002; Kaufman 2003; Lacadena and Wichmann 2004, as well as Kaufman and Justeson 2007:201-202. Erik Boot (personal communication 2009) corroborated the existence of the calque ta’ k’in “gold/silver” based on a glyphic example at Chichen Itza.
Kaufman 2003; Wichmann 2006:280-284). This sub-class of calques therefore refers to single-morpheme lexical items which by metonymy or semantic widening have come to encompass the gamut of notions listed (see Smith-Stark 1994:17; Campbell 2004:254-255, 257-260). Strictly speaking this first sub-class does not adequately fall under the rubric of calques, since by definition calques are viewed as multi-morpheme constructions (Una Canger, personal communication 2009; see also Campbell and Mixco 2007:26-27). However, the repeated association of a discrete group of comparable concepts with single-morpheme lexical items, across language groups and cultures of Mesoamerica, is what appears to have prompted this revision to the definition, as applied by Terrence Kaufman (1973), Thomas Smith-Stark (1994), and Lyle Campbell (1997, 2004).

The second sub-class corresponds squarely to the definition of calques, since it exhibits a greater degree of morphological complexity where a particular notion—for which no native term inherently exists—is expressed by means of a paired compound or metaphorical construction relating two seemingly disparate lexemes. This practice of lexeme formation is known for several Mesoamerican languages and is more properly referred to as a diferisismo, a Spanish term first introduced by Mexican friar Ángel María Garibay Kintana (León-Portilla 1969:77, 1992:54-55; Montes de Oca Vega 1997, 2004, 2008; Máñez 2009). Attesting to the antiquity of diferisismos as literary devices and poetic expressions in Mesoamerican languages are the many examples found in Classic Maya glyphic texts, preceding the well-known Nawatl examples by several centuries (Knowlton 2002; Hull 2003:135-142, 301; Stuart 2003; Kettunen 2005). However, it is important to remark that a diferisismo in a particular language is just that, unless it is semantically borrowed into another language, at which point it can also be treated as a calque. Examples of Mesoamerican diferisismos that are not included in Smith-Stark’s list of calques include Nawatl <mitl chimalli> – mitl chimalli “arrow shield” for “guerra, batalla” (Karttunen 1992:52, 149; Molina 2001:57r), which must also be a calque since a paired construction with comparable martial connotations exists in the Classic period texts of the ancient Maya as took’ pakal “flint shield,” wherein took’ refers to flint-tipped spears (Houston 1983; Stuart 1995:301-304, 339; Martin 2001:178-179; Knowlton 2002:10; see also Genet 2001:283-298) (Figure 1a-c). Another important diferisismo is petlatl ikpalli “mat throne” for “regal authority” (Léon Portilla 1969, 1992; Knowlton 2002:9), attested in the Dresden Codex as polp tz’am “mat throne” (Schele and Grube 1997:123; Knowlton 2002:10) reaching back to the earliest digraphic examples of the logogram AJAW “king,” which are composed of iconographic elements representing a cushion and a throne (see Boot 2000). Similarly (28) “vein” = “road (of blood)” is attested in Yukatek as beel k’i’ik’ “road-blood” (Bastarrachea et al. 1992:71) and in Tzotzil as be ch’ich’ “road blood” (Delgaty and Ruiz Sánchez 1986:19), which also occurs in Nawatl as <eztli ioui> literally “de la sangre su camino” (Siméon 1977:153), a calque that can be traced back to the Early Classic murals of Teotihuacan (Figure 1e). Another diferisismo that is known from Nawatl and Tzotzil is an expression of humility, employed in formal discourse, in which “dirtiness” and “muddiness” function as constructs for “person” or one’s “body” (Laughlin 2004:56; Montes de Oca Vega 2004:237-238). Thus in Nawatl <in tlalli, in zoquitl> “the earth, the mud” (Dibble and Anderson 1976:154) and in Tzotzil yo jhumal, yo kach’elal “my earth, my mud” (Haviland 1988:399, 400; Montes

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4 The earliest attested example of the took’-pakal diferisismo dates to 9.10.15.0.0 – AD 647 (Pusilha, Stela D) (Stuart 1995:304), whereas the earliest central Mexican iconographic counterparts date to the Early Classic (c. AD 300-500) as seen on the textual imagery of Teotihuacan (Figure 1a). These datings suggest that this calque may have its origins in central Mexico, spreading subsequently to the Maya area at some point after the late fourth-century AD.
de Oca Vega 2004:237) are both metaphorical constructions for “human body.” This difrasismo is all the more remarkable since it appears in a deprecatory caption to a Late Classic Maya gladiatorial scene in which the vessel is said to be a yuk’ib luumil pitziil … kabal pitziil “drinking-implement of the dirty ballplayer … the earthy ballplayer” (see Zender 2001; Taube and Zender 2009:175-177) (Figure 1d). Also included in this sub-class are notable calques such as (35a) “thumb” = “mother of hand.” In this sub-class no word for “thumb” exists in isolation of the metaphorical constructions na’ k’ab, as attested in Yukatek (Barrera Vásquez et al. 1980:556), Ch’olti’ (Morán 1695:107), and Ch’ol (Attinasi 1973:284, 297), or me’ k’ob-ol in Tzotzil (Laughlin 1975:232, 524) and <zme cab-tic> in Tzotzil (Ara 1986:445), in which me’ is a reverential term of address to elder women, while k’ob and <cab> are cognates of k’ab.

The third sub-class is comparable to the second where a metaphorical pairing or difrasismo targets a particular lexeme, but in addition another term also exists to complete the equation. Items included under particular lexeme, but in addition another term also exists under the rubric of “conceptual calque,” is the Classic Maya term for “face, eye” as well as “fruit.” The phonology of the lexeme is somewhat turbulent, with many attested reflexes: ut, jut, hut, and wut in the four Ch’olan languages (Morán 1695:17; Wisdom 1950:474, 749; Aulie and Aulie 1978:132; Keller and Luciano 1997:144; Kaufman 2003:324, 325; Sattler 2004:399; Zender 2004a:203). In contrast, several lines of epigraphic evidence indicate that the term and its alteration can be documented as hut > ut in the Classic period.

In dedicatory phrases adorning ceramic vessels of the Classic period (known as Primary Standard Sequences) the intended contents were frequently marked as a type of cacao-based beverage. One such variety is recorded in a compound that includes ut as its stem (see MacLeod 1990:391-395). In its simplest form this compound is rendered as:

(1) ti-yu-ta-la
  pre: prep 3SG.A-fruit-REL cacao
  ti y-ut-al kakaw
  “For the fruit of cacao”
  (K3230, E1-F1; c. AD 670 – 800) (Figure 2a)

Alternate and rarer spellings of the same compound exist including yu-ta-li (K1335) and examples where, by the rebus principle, the phonetic value of a logogram replaces that of the typical syllabic signs. Thus on vessel K0791 we see the compound spelled as ta-yu-TAL, whereas on K1004 it is written as ti-yu-TAL. These examples can be analysed and understood in exactly the same manner as (1). This compound and its variants testify that ut denotes the “fruit,” or in this case the pulp of cacao beans, which was used in the elaboration of rich and fragrant beverages.

However, there is a distinct HUT UT logogram in the script, which represents a stylised eyeball. In most contexts the logogram refers specifically to “eye, face” and is used in opaque constructions referring to supernatural entities and gods. Examples involving this logogram include:

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5 The following abbreviations are used in this paper: 3SG: third person singular; A: Set A (ergative); ABS: absolutive Set B; ABSR: abstractionsizer; AG: agentive; EXIST: existential particle; INST: instrumental; IP: inalienable possession; IV: intransitive verb; M: male; NC: numeral classifier; NOM: nominalizer; PASS: passive; POSS: possessive; PREP: preposition; REL: relational; SPEc: specifier; THEM: thematic suffix; TO: toponymic suffix; TV: transitive verb.
"Obsidian is the face, flint is the face of Eighteen-Images-of-the-Snake"

(Palenque, Temple XIX, Stucco Panel, D5-D6; AD 714 – 9.14.2.9.0) (Figure 2c)

"Four-Eyes-Skull is the god of Ajpakal Tahn"

(Comalcalco, Urn 26, Pendant 1b, B1-B4; AD 765 – 9.16.14.1.7) (Figure 2d)

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6 I take the u signs that precede the Eyeball logogram on Copan Stela 11, to simply function as initial vocalic phonetic complements as u-UT > ut, and not as possessive prefixes. If this is the case then initial phonetic complements to body parts may mark the absence of possessive prefixes thereby implying that absolutive suffixes are meant to be rendered or reconstructed by the reader if these are not explicitly written (see Grube 2010). Similar patterns of phonetic complementation render the initial vowel when it is not marked for possession: “heart” o-OL > o[hi]-[is], and “foot, leg,” o-ke > ok-ell]. This is supported by what may be the archaic absolutive suffix for body parts –al, for which see examples in (2) and (5), and “hand” k’ab-al (see Zender 2004a:207).

7 If the examples in (2) all record initial phonetic complements u to ut, then it seems likely that this particular sign which precedes UT should function similarly and would thus be yet another variant of u. Nevertheless, the possibility remains that the initial sign provides a rare hu syllabogram as a phonetic complement to HUT.
In these examples we see the same logogram used to refer to either “face” or “eye” to denote particular supernaturals or to function as qualifiers thereof. Thus in (2) we have a couplet where obsidian and flint are the “faces” of the supernatural Waxaklajuun Ubaah Chan, an entity known to originate in the lore of Early Classic Teotihuacan (see Taube 2000a:270-289; Nielsen 2003:93-94, 106, 208, 245). In (3) the infant aspect of the supernatural K’awii—here in the guise of the patron deity GII of the Palenque Triad—is designated as “the face of the gods” (see Stuart 2005a:42 and K1440). With (4) we see the logogram HUT used in the proper name of the god Kan Hut Jo’ol, an entity that is said to belong to a priestly personage named Ajpu Nak Tahn (see Zender 2004b:254, 259, 544). This same supernatural is depicted as an animated skeletal figure on an unprovenanced ceramic dish, originally from a central Peten site (Figure 2e; see Grube and Nahm 1994:706).

In another example (5), represented on a ceramic skeuomorph of a pumpkin, the logogram UT forms part of the proper name of the original owner of the vessel, one said to be the sovereign of Ak’akaneej, modern-day Acanceh in Yucatan (Schele and Grube 2002:20-21).

(5) **u’K’AK’**  **hu?-HUT-la**  **EK’**
    - **u’K’AK’**  (Museo Regional de Yucatan:10-426169, pA5; c. AD 550 – 650) (Figure 2f)
    - **hu?-HUT-la**
    - **EK’**
    - “Fire is the Stars’ Eye”

Bridging the notions of “fruit” and “face” is another set of examples involving a special class of signs known as “relational pairs” (Zender 1999:70-83; Stuart 2003). Relational pairs stem from the scribal practice in which two signs are juxtaposed to form a third, which carries phonetic and semantic values that are dissociated from those of the two initial signs. As such the underlying structure of relational pairs is functionally quite similarly to disprasismos, but in some cases it remains unclear if the individual graphemic elements were meant to be read or whether the initial part of the reading occurred only at the semantic level and remained unvoiced. Of note are the two relational pairs that function as the syllabic sign sa (Figure 2g, h). These relational pairs freely substitute for the typical syllabogram sa as part of the title sajal as well as the words jasaw “banner” and pasaj “dawn” seen in the regnal and posthumous names of kings at Tikal and Copan (see Colas 2009:199-203). These relational pairs represent a human profile that in isolation carries the logographic value XIJB “person.” In the first case the logogram CHAB “earth, honey, bee” covers the mouth, as though the whole construction was meant to depict someone eating honey (Figure 2g). Possibly explaining the phonetic value of this relational pair are the entries <ca> “dulce” and <callez> and <calweel> “endulzar” in Ch’olti’i (Morán 1695:105, 111; and Marc Zender, personal communication 2001). With this interpretation in mind, the second relational pair (Figure 2h), which depicts the same construction but with the UT eyeball logogram substituting for CHAB, is readily understood. Here too, then, the human profile is seen eating something sweet, though in this case the person’s mouth is filled with fruit, rather than honey.

Sub-class 2: (5) boa / large snake = deer-snake

In 1989, Stephen Houston, David Stuart, and Nikolai Grube independently deciphered the logogram WAY based on syllabic complementation and substitution sets (Figure 3a) (Houston and Stuart 1989; Grube and Nahm 1994). Matching reflexes in modern and colonial Maya languages indicate that way is the widespread intransitive verbal root “sleep, dream” (see Kaufman 2003:1257-1259) and terms building on this stem refer to “witchcraft” and “animal companion spirits,” which are otherwise known as nawal in Yukatek, a loanword from Nawatl náwal-li “witch, sorcerer” (Barrera Vásquez et al. 1980:563; Houston and Stuart 1989:1-2, 5-6; Miller and Taube 1993:122-123, 176; Molina 2001:fol. 63v; Kaufman 2003:1368; Helmke and Nielsen 2009). This interrela-
tion is clear in Ch'olti' where way is “sleep” (Laughlin 1975:365, 504), whereas way-i-hel is “animal companion spirit of witch” (Laughlin 1975:365), and in Ch’ol where way is “sleeping” and way-ba: is “art of a sorcerer, divination” (Attinasi 1973:332). In Yukatek way is “ver visiones entre sueños,” “transfigurar por encantamiento,” and significantly ah way is “brujo, nigromántico, encanta-
dor” (Barrera Vásquez et al. 1980:916), as is aj way in Itza’ (Kaufman 2003:1260). Thus the presence of the calque (8) “witchcraft” = (related to) sleep / dream” is attested in languages of the Tzeltalan, Ch’olan, and Yukatekan Maya language groups.

To these entries should be added the Classic Maya terms, which are the source of many of these reflexes. The verb way “to sleep, dream” is attested in the script in its passive inflection, as wahy-aj “slept, dreamt,” as is

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8 This godly qualifier of GII calls to mind the stucco frieze of the Late Preclassic Structure 2-c1 at Calakmul, Mexico. This 20-m wide frieze depicts a celestial scene, in which the skies are framed—as would be a human face—by two gigantic and quadrangular ear-
flares (Rodriguez Campero 2000:15, Fig. 3). An archaic form of the thunder and rain deity Chaahk descends from the heavens across “the face of the sky.” Comparable iconographic programs present-
ing simplified sky bands framed between two giant earflares are found on monuments at Takalik Abaj, Kaminaljuyu, and even in the Proto-Classic murals of San Bartolo, suggesting that this “face of the heavens” notion formed a relatively commonplace iconographic program in the centuries leading up the Classic period (see Helmke 2012).
the noun derived from this verb, which is nominalized as \textit{wahy} (Kaufman 2003:1260; Zender 2006; Helmke and Nielsen 2009:50-54). In its nominalized form, the term is marked for possession as \textit{u-wahy}, for “his/her wahy,” or in its unpossessed form as \textit{wahy-is} (Zender 2004a:200-202, 2006).\footnote{The examples listed can be analysed as follows: \textit{wa[h]y-aj} sleep\textunderscore{pass}[-Them]; \textit{wa[h]y} sleep\textunderscore{Nom}; \textit{u-wa[h]y} \textunderscore{3sg.a-sleep}[Nom]; \textit{wa[h]y-is} sleep\textunderscore{Nom}-\textunderscore{Abs_IP}. Yukatek Maya preserves evidence of “Vh nuclei, which produce long vowel, high tone vocalic nuclei in Yukatek (Brown and Wichmann 2004:152; Houston et al. 2004:85; Lacadena and Wichmann 2004:124). Examples of this are Yukatek \textit{k’áak’} < Proto-Maya \textit{*q’ahq’} “fire,” \textit{kéej} < \textit{*kehj} “deer,” \textit{óol} < \textit{*ohl} “heart,” and \textit{k’úum} < \textit{*k’uhm} “squash.” Consequently, the Yukatek lexeme \textit{wáay} (Bastarrachea et al. 1992:129) and its colonial attestation <\textit{uaay}> can be seen to stem from *\textit{wahy}, which accords with the epigraphic evidence. Consequently both the Yukatekan and the Classic period Ch’olan etyma can be traced back to an ancestral form with a *Vh nucleus (see Kaufmann 2003:1260), attesting to the great antiquity and cultural significance of this term and the corresponding ritual practices. The Ch’ol and Chontal data are equally suggestive since \textit{a} in these languages is the reflex of proto-Maya *a, in all contexts, except preceding \textit{h} and ‘, where it remained \textit{a} (Campbell 1979-934). Thus *\textit{wahy} should produce \textit{way} in western Ch’olan instead of the documented \textit{way}, ultimately calling into question whether the Late Classic western Ch’olan term still preserved the \textit{h} (Marc Zender, personal communication 2009).} In the Classic period the predominant constructions involving the \textit{WAY} glyph are of the following structure: (1) name of supernatural entity (2) \textit{u-wahy} (3) name of human agent, Emblem Glyph, or toponym (Figure 3b). These constructions serve as captions to supernatural creatures that are the melding of different animals, partly decomposed human figures, and other grizzly entities such as monstrous skeletal centipedes (see Grube and Nahm 1994). While the preferred interpretation for the \textit{WAY} glyph in the 1990s was as a reference to supernatural animal companion spirits, in 2005 David Stuart suggested that these horrific entities should be viewed as incarnations or personifications of particular ailments and diseases (Miller and Taube 1993:72, 78; Stuart 2005b, see also Zender 2006; Helmke and Nielsen 2009). Stuart based his interpretation on glosses for “brujería” and “sorcery,” such as Itza’ \textit{waayil} (Hofling and Tesucún 1997:661) and Tojolabal \textit{wayjel} (cognate of Tzotzil \textit{vayihel}): “nagual, animal compañero.” “Se dice que el \textit{wayjel} es mandado por el brujo para enfermar a la gente” (Lenkersdorf 2004:141, cited in Stuart 2005b:161). This is all the more suggestive when we consider the following entry for \textit{wáay} in Yukatek: “familiar que tienen los nigrománticos brujos o hechiceros, que es algún animal, que por pacto que hacen con el demonio se convierten fantásticamente; y el mal que sucede a tal animal, sucede también al brujo cuyo familiar el animal es” (Barrera Vásquez et al. 1980:916; see also Bastarrachea et al. 1992:129). To this should also be added the following gloss for \textit{way} in Yukatek: “contagio; infección; saharmamiento; contagiar” (Barrera

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure3.png}
\caption{(a) \textit{u-WAY-ya} collocation (K0771; drawing by David Stuart); (b) example of a \textit{wahy} entity and its associated caption: \textit{Nupu’l Bahlam u-wahy k’uhul Mutu’l ajaw}, “Counterpart Jaguar is the \textit{wahy} of the godly Mutu’l (Tikal) king” (K3120; drawing by Mark Van Stone); (c) depiction of a deer-snake in Maya imagery (K0531; adapted from a photograph by Kerr); (d) glyphic caption referring to deer-snake (K0531); (e) example of a deer-snake at Teotihuacan (Teotihuacan, La Ventilla, Plaza de los Gifos, Glyph 11); (f-g) horned serpents rendered on Mississippian artefacts from Spiro, Oklahoma (f adapted from Reilly 2007:Fig. 3.2; g adapted from Brown 2007:Fig. 4.6).}
\end{figure}
Vásquez et al. 1980:915), which conclusively reveals the overlap between sleep, dreams, witchcraft, animal companions, animal transformation, and by extension curses, spells, and diseases. Consequently the possessive constructions involving the term wothy in the Classic should be seen as references to the supernatural entities, spiritual counterparts that one could access in one’s sleep, and embodiments of particularly malign ailments, wielded as curses.

One such wothy is an entity that combines snake and deer attributes. Most frequently this creature is rendered as a large partly-coiled snake with the antlers and the large bulbous ears of a deer (Schele 1989:146; Grube and Nahm 1994:693-694). The glyphic captions that accompany such depictions include the following:

\[
\begin{array}{cccc}
\text{chiij} & \text{kanu} & \text{u-wayya} & \text{k'uh-ajaw} \\
\text{deer} & \text{snake} & \text{3sg.a-sleep[nom]} & \text{god-ABSTR snake-TOP king}
\end{array}
\]

“The deer-snake is the ‘curse’ of the godly Kanu’l king”

(K0531, H1-K1; c. AD 670 – 800) (Figure 3d)

Here we are left in little doubt that the pan-Mesoamerican deer-snake, also known as the <maçacoatl> (~ masā-kōwātl in Nawatl (Sahagún 1979, Book 11, fol. 82v; Korttunen 1992:142; Molina 2001:fol. 50r) was, at least for the Classic Maya, viewed as one of the terrible wothy creatures. Interestingly, today the reflexes of the Classic chiij-chan refer to “boas” (Boa constrictor) or other notoriously large snakes, as attested in Ch’orti’ by the entries chicchan and chihchan (Wisdom 1950:694, 721, 771), which are supernatural horned serpents that are related to earthquakes, landslides, storms, and other phenomena (see Schele 1989:147; Hull n.d.:8-9, 1999). Undoubtedly these stem from chiij-chan and chij-chan, respectively. In Chontal boas are known as masacu’, masacin, or masacub all obvious loans from Nawatl (Keller and Luciano 1997:18, 321, 361, 371, 502). In Tzotzil we have chitchen “striped snake” (Pitvorphis lineaticolis) (Laughlin 1975:118, 123, 124, 506), where chi is “deer” (Laughlin 1975:117, 426) and chich is a broad term for “animal,” but referring especially to snakes (Laughlin 1975:123-124, 506). In Tzeldal, we have the entries ghuchchon “especie de vibora” and ghuch chan “vibora que come venados” (Boa constrictor) (Ara 1986:296, 475), in which ghuch is “venado bermejuelo” (Ara 1986:296, 475) and chon is cognate to Tzotzil chon. What prompted a shift in the ethnotaxonomy from a supernatural creature associated with maladies and witchcraft to a particular class of reptile that is said to consume deer, however, remains unclear.

The references and depictions that we have for such ancient Maya chiij-chan date predominantly to the Late Classic period (AD 550 – 800). It is therefore noteworthy to point out the deer-snakes that are represented in the Plaza de los Glifos, at La Ventilla, Teotihuacan (Figure 3e), which have been dated to c. AD 300 – 450 (Cabrera Castro 1996; Taube 2000b:13-15, 35; Nielsen and Helmke 2011:348, 349, 352). Also of interest in this regard are the “horned serpents” attested in the iconography of the Mississippian mound-builders (see Lankford 2007) on artefacts that date to anywhere between AD 1200 – 1450, corresponding to the Late Postclassic of Mesoamerica (Figure 30).10 Another type of horned serpent, the Sisiatil, is known from the mythology of the Kwakwaka’wakw, Nuu-chah-nulth, and other cultures of the Northwest Coast of North America (Boas 1897:371-372, 1966; Curtis 1915:279-282; Holm 1972:57; Jonaitis 1991:60-61, 90-91, 182-183, 224-225).11 Although diffusion from Central Mexico via the American Southwest is possible, recent research suggests that these horned serpents are instead reflections of an ancient and deep-seated stratum of Amerindian mythologies (Nielsen and Helmke 2011:355-357). What is truly remarkable is that the earliest reference to a “deer-snake” in Mesoamerica may be found in the glyphic passage on Stela 10 of Kaminaljuyu, respectively. In Chontal boas are known as masacu’, masacin, or masacub all obvious loans from Nawatl (Keller and Luciano 1997:18, 321, 361, 371, 502). In Tzotzil we have the entries ghuchchon “especie de vibora” and ghuch chan “vibora que come venados” (Boa constrictor) (Ara 1986:296, 475), in which ghuch is “venado bermejuelo” (Ara 1986:296, 475) and chon is cognate to Tzotzil chon. What prompted a shift in the ethnotaxonomy from a supernatural creature associated with maladies and witchcraft to a particular class of reptile that is said to consume deer, however, remains unclear.

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10 These horned serpents are known in the Mississippian literature as “Horned Water Serpents” that are typically associated with the aquatic Underworld and lakes as supported by the myths of North American Indians, particularly the Sioux, Creek, Cherokee, Shawnee, Fox, Ojibwa, Algonquin, and Micmac (see Lankford 2007:110-119). Such horned serpents are known as a-bich-kam (Algonquin) and che-pich-kaum (Micmac), and among the Fox Indians they are known to cause illness and swelling of the limbs or jaw (Lankford 2007:119-120).

11 The Sisiatil of the Northwest Coast cultures is an aquatic double-headed snake with curled horns atop each of its heads. It is a creature of great strength and “a human who caught sight of this creature might suffer a horrible death … contact with a sisiatil’s blood is also said to petrify human skin”; conversely “those fortunate enough to acquire its scales, spines, or blood might use it to their own advantage” (Jonaitis 1991:61).
Sub-class 3: (52) soot = nose of (fire)wood

In the following case study I examine the glyphic elements that comprise a calque that is attested in its most complete form in the iconography. In this particular case there is some overlap between language, writing, and imagery and I thus find myself relying on all these datasets, reviewing each constituent item in turn. The first element to establish is the term “soot” which in many Maya languages is the same as “ink” since the fine-powdered carbon particles of soot serve as the essential material from which ink was made in pre-Hispanic times. The cognate sets include sabak and sibäk in Yukatek and Itza’, <zibic> ~ sibik in Ch’orti’, Ch’ol, Chontal, and Ch’olti’, as well as sibak in Tzeltal, Tzotzil, and Tojolabal (Morán 1695:95; Wisdom 1950:635; Laughlin 1975:309, 507; Forbeee-Loosee 1976:374; Aulie and Aulie 1978:104; Barrera Vásquez et al. 1980:707; Hofling and Tesucún 1997:550, 890; Keller and Luciano 1997:215; Kaufman 2003:506). An alternate cognate set includes abak in Yukatek, Ch’ol, and ‘Tzeldal, or obak in Tzotzil as well as y-abak and y-äbak in Yukatek and Itza’, and <yabaac> in Ch’olti’ (Morán 1695:125; Attinasi 1973:237; Laughlin 1975:65, 507; Barrera Vásquez et al. 1980:1, 960; Ara 1986:239; Kaufman 2003:507). To varying degrees the terms listed all encompass the following glosses: “tizne, carbón, pollvora, hollín, pollvora de armas” or “soot, carbon, charcoal, black powder, lampblack, gunpowder.”

The corresponding terms in ancient Maya inscriptions are rendered syllabically as sa-ba-ka for sabak (Lacadena 2001:233; Boot 2002:69) and as ya-ba-ki, y-abaak (Lacadena 2001:237) demonstrating that variants of the two major cognate sets can be traced back to the Classic period. Consequently it seems reasonable to attribute the value ABAK to the corresponding logograms, yielding yabak when prefixed by ya- and sabak when prefixed by sa-. This conclusion was reached by Nikolai Grube when he first proposed the decipherment of the logograms for “soot, ink” (Coe and Kerr 1997:150-151; Grube n.d.). More recently several epigraphers have attributed the logogram with the value SIBIK (Grube et al. 2002:II-6) in keeping with the phonetic complementation in -ki, the widespread distribution of this cognate among all Ch’olan languages, and the affinity of the script to this language group. Thus, while the exact phonetic value of the logogram remains problematic since it may well have been polyvalent over the area and time periods of its usage, it is clear that the most likely values are closely in keeping with those documented for colonial and modern reflexes.

In the Classic period we see this logogram especially in reference to the scribal arts where it refers to “ink” (Figure 4a and b). Otherwise the “soot, ink” logogram also appears as part of a toponym referring to a little-known kingdom in Chiapas. The toponym is written as SIBIK-TE’ and most references to this place are made in the inscriptions of Tonina. The texts painted on the walls of the Jolja (a.k.a. Joloniel) and Yaeltsmen caves record the pilgrimages made to these sites by lords of Sibikte’ (see Grube et al. 2002:II-6; Helmke 2009:52, 79, 86, 151, 160-163). In Yukatek the cognate sabak che’ is glossed as
“árbol de cuyo humo hacen tinta para escribir” (Barrera Vásquez et al. 1980:707), while in Itzá’ sābık che’ is identified specifically with the “palo de quina” (Exostema mexicanum) (Atran and Ucan Ek’ 1999:41). These entries indicate that in addition to a toponym, the compound also refers to an ethnotaxon for a particular class of trees utilized in the elaboration of ink pigment.

Closely tied to the matter at hand is a supernatural entity that in the epigraphic literature has been termed the “Patron of Pax.” This designation owes to the fact that this supernatural presides in the so-called Initial Series Introductory Glyphs when the date recorded falls in the sixteenth month, known as Pax (see Thompson 1960:104-107, 115-116, Fig. 23). Usually we see the head variant of this supernatural (Figure 4c), but in rare cases the full-figure variant is also rendered (Figure 4f). In these cases the Patron of Pax is depicted with the logogram for “soot, ink” affixed to his nose, and most revealingly in a substitution set from Palenque, the Patron of Pax is rendered in conventional logograms as SIBIK-TE’ (Figure 4d). Based on these data it is clear that the Patron of Pax was known as Sibikte’ in the Classic period.

Demonstrating this substitution set are the examples in which the head of the Patron of Pax, when it occurs in isolation of the “soot, ink” logogram, is employed as the logogram TE’. This phonetic value is attested in cases where the sign helps to spell out the following entries:

(7) ja-wa-TE’
   jaw-a[n]-te’
   “Face up?” (tripod dish)
   (K4669, B3; c. AD 670 – 800) (Figure 5a)

(8) KAL-ma-TE’
   kal-[o]m-te’
   “Tree-hacker” (exalted title)
   (Tikal, Stela 12, D4; AD 527 – 9.4.13.0.0) (Figure 5b)

(9) TE’-le
   te’-[e]l
   “Forest” (qualifier to kakaw)
   (Buenavista del Cayo, K4464, E1; AD 693 – 728+ (Figure 5c)

(10) 3-TE’-TUN-ni
    ux-te’-tuun
    three-NC-stone
    “Three Stones” (toponym)
    (Calakmul, Structure 5, Hieroglyphic Stair, pB2; c. AD 600 – 650)

(11) 4-TE’-u-WAY-HAB
    chan-te’-u-way-ha[al]b
    four-NC-3SG.AJ?-year
    “4 Wayeb” (date)
    (Copan, Hieroglyphic Stair; AD 749 – 9.15.17.12.16) (Figure 5d)

In addition, several examples exist in which the head of the Patron of Pax serves as a qualifier, a semantic determinative, or personification element to trees in iconographic contexts, which further testifies to the reading of this sign as TE’ (Figure 5e; see also K0998, K4546, and K1345). The iconic depictions of the Patron of Pax in the script and imagery further indicate that “soot, ink” is 

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**Figure 5.**

(a) jawante’: tripod dish (K4669; drawing by Nikolai Grube); (b) kalo’mte’: exalted regal title (Tikal, Stela 12; drawing by Simon Martin); (c) te’el: qualifier to kakaw (Buenavista del Cayo, K4464; drawing by Christophe Helmke); (d) chante’ uaway-haab: date (Copan, Hieroglyphic Stair; drawing by Christophe Helmke); (e) head of the Patron of Pax as a qualifier to a gourd tree (K1226; drawing by Marc Zender); (f) Patron of Pax juxtaposed to a youthful Maize God (Tikal, Burial 116, Miscellaneous Text 55B; drawing by Annemarie Seuffert with minor restorations by Christophe Helmke); (g) winged Patron of Pax (Museo Amparo throne-back; drawing by Marc Zender).
intimately associated with his nose. Since the head of the Patron of Pax serves logographically as TE’ the depictions of his name render the whole calque iconically as “soot is the nose of wood.” Supporting this conclusion are two additional representations of the Patron of Pax in imagery outside of the script. The first example is depicted on one of pair of incised human bones that were recovered from Burial 116 at Tikal (Figure 5f). Here the Patron of Pax is juxtaposed to a youthful Maize god, and here again the “soot, ink” logogram is affixed to his nose demonstrating that it serves as an essential qualifier to this supernatural entity. The other example represents a winged Patron of Pax (Figure 5g), again with the “soot, ink” glyph balancing off the tip of his nose, in a mythological scene where the associated caption refers to his “descent from the Six-Sky-Place as the messenger of God D” (Zender 2005:12, 13).

In sum, the calque “soot is the nose of (fire)wood” can be said to have existed in the Classic period, although the present study has not found conclusive evidence for the existence of this calque among colonial and modern Maya languages (though see Smith-Stark 1994:Table 1).

Conclusion

What this study has uncovered are the possible trajectories of calques that existed in Classic Maya culture. Some calques have subsisted in the Maya area to the present, while others have greatly diffused throughout Mesoamerica (and beyond). Thus the notion of “deer snake” has been documented outside of Mesoamerica as far south as Costa Rica (Ara 1986:475), and “horned serpents” are attested in the Mississippian cultural complex (e.g., Lankford 2007) and as far north as the Northeast and Northwest Coast cultures. In contrast, other calques that existed in the Classic period have now ceased to exist. Consequently, the picture is much more dynamic and complex than has heretofore been supposed. This has implications for understanding cultural networks in Mesoamerica as well as the distribution of calques as areal features. Thus while certain Mesoamerican calques can be traced back to at least the Late Classic (c. AD 650 – 800) what remains to be done are detailed studies with the specific aim of assessing the temporal and spatial incidence of individual calques. The present treatment should also be extended to the other glyphic calques tabulated at the onset as a basis from which to expand this foray to a Mesoamerican scope.

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