Rose Thomas

Some reflections on morphology in the language of the Linear A libation formula

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Abstract: The well-known Minoan libation formula is the richest source of information about the grammar of the language(s) of Linear A that is currently available. The following article will proceed from the assumptions that the language has a Verb-Subject-Object (VSO] word order and a complex polysynthetic verb, and on the basis of these assumptions attempt to draw some conclusions about the morphology, both nominal and verbal, of the language in question. It will attempt to work through the logical possibilities for the elements of the libation formula, and draw conclusions about the most likely interpretations of the morphology of these elements. Such conclusions are necessarily tentative, and in some cases, due to the paucity of available data, it will not be possible to reach any conclusion. However, there will be suggestions for future research, should more information become available.

Keywords: Morphology, polysynthetic, case, subject agreement, object agreement.

1 Introduction

The Linear A script was a writing system used in Crete and other parts of the Aegean from approximately 1800 BCE to 1450 BCE, that is, from the MMII period to LMIB. There are only a few inscriptions later than this (Dimopoulou, Olivier and Réthémiotakis 1993). It consists of syllabic signs and also contains ideograms and numbers. The corpus consists of accounts tablets, a large number of which come from the site of Hagia Triadha, and inscriptions on stone vessels, roundels, sealings, metal objects and pots. Many of the inscribed stone vessels are libation tables, often found at peak sanctuaries such as that at Iouktas. Thus, the inscriptions they carry are probably dedications to a deity or deities. They almost always use a regular series of sequences (with some variants) which has come to be known as the 'libation formula'.

***Corresponding author: Rose Thomas**, 163 Hatfield Road, St Albans, Herts, AL1 4LB, UK.
E-mail luonnotar1065@yahoo.co.uk.

So far, the language (or languages) of Linear A has not been convincingly linked to any other known language, though there have been several attempts at decipherment. For example Palmer (1958) linked it to Luwian, and Gordon (1966) argued it was a West Semitic language.

The small size of the corpus is a barrier to decipherment. It is also not certain that only one language is written in the Linear A script. However, some progress has been made in understanding the morphology and syntax of some inscriptions, in particular the libation formula. The following analysis will attempt to build on this. It will focus largely on the libation formula, but other inscriptions will be referred to when necessary.

The paper is structured as follows. First there will be an account of the libation formula and its probable syntax. Then there will be an attempt to see what we can learn about the morphology of the language of this formula, using the ideas outlined in section 2, as well as Greenberg's (1963) language universals. Noun morphology will be dealt with in section 3, and verb morphology in section 4. I will attempt to assume as little as possible, and work through the logical possibilities, eliminating what seems to be impossible. Finally, there will be suggestions for future research. The conclusions drawn are necessarily tentative, as many proposed language universals are statistical tendencies rather than absolute laws (and word order assumptions could also be wrong).

The full texts of the inscriptions used are given in Appendix 1, together with the sources for the transliterations. I will not take any stance on what language family the language of the libation formula belongs to, or whether Linear A was used to write only one language.

2 The syntax of the libation formula

The well-known Linear A libation formula consists of a series of sequences, generally six in number, but with some variation. Most vessels which carry this formula are damaged, and do not contain all the signs in the formula. However, by comparing vessels, the basic formula can be reconstructed. It is shown below:

(1) a-ta-i-*301-wa-ja X ja/a-sa-sa-ra-me u-na-ka-na-si i-pi-na-ma si-ru-te

Usually, the sequences are the same (or involve clear variants of the same sequence) with the exception of the item in the position marked X. This is always different. This indicates that it is the name of the dedicant (Duhoux 1992, 80–81)

and thus highly likely to be the subject of the sentence. (PR Za1[1] has <se-to-i-ja>, a place name (Owens 1994) in the second slot.) The third sequence is usually <ja-/a-sa-sa-ra-me>, but two other sequences are attested in this position, <pa_3-ni-wi> on SY Za4 (Muhly and Olivier 2008, 207–208) and possibly <i-da-a > on KO Za1[2].

The syntax of this formula has been lastly investigated by Davis (2013, 2014). He notes firstly that the initial sequence appears in various forms, but always contains the same root. The forms in which it occurs are shown below:

(2) a-ta-i-*301-wa-ja (11 complete occurrences: IO Za2.1, IO Za3, IO Za7, KO Za1, PK Za12, SY Za1, SY Za2, SY Za3, SY Za4, SY Za8, TL Za1)
ta-na-i-*301-ti (once, PS Za2.2)
ta-na-i-*301-u-ti-nu (once, IO Za6)
ạ-na-ti-*301-wa-ja (once, IO Za8)
a-ta-i-*301-wa-e (once, PK Za11)
a-ṭạ-i-*301-de-ka (once, ZA Zb3)
ja-ta-i-*301-u-ja (once, AP Za1)

The sequence <-i-*301-> remains invariant, while various prefixes and suffixes attach to it. This indicates that the root of the word is <i-*301>. The sequence <i-*301> also occurs on a nodule from Hagia Triadha (HT Wa1022)[3], which is further evidence that it is an independent word. Four possible prefixes, <a/ja->, <-ta->, <-na-> and <-t-> are present, and seven possible suffixes, <-wa-/-u->, <-ja->, <-ti->, <-nu->, <-e->, <-de-> and <-ka> (we will return to precisely how these should be analysed in section 4). AP Za1[4], which begins the sequence with <ja-> instead of <a-> and has <-u-> instead of <-wa-> is unfortunately badly damaged, so it is impossible to know if anything in the rest of the inscription conditions these differences. However, the alternations <ja-/a-> and <wa-/u-> are known to occur in Linear A (Steele and Meissner 2017, 103), so it is likely we are here dealing with the same affixes[5]. The alternation <-ja/-e> may be significant (see Section 4).

1 GORILA IV, 46–49.
2 GORILA IV, 18–20.
3 GORILA II, 8.
4 GORILA IV, 2–3.
5 For example, <qe-ra2-u> (HT 1.1–2; HT 95a.4–5, b.4–5) and <qa-ra2-wa> (HT 86a3) for the <-wa-/-u-> alternation. The <ja-/a-> alternation could indicate the presence of a laryngeal in the language (Owens 1999, 24–25). Another possibility is that we have here the prefix *i-*, meaning "to/in" (Duhoux 1997, 291–293) before a word beginning with *a-*, though in many cases, it is difficult to see how this could be the case. For example, <ja-sa-sa-ra-me> and <a-sa-sa-ra-me> occur in the same position in the libation formula, without any indication of what could condition the difference. If <a-sa-sa-ra-me> is a noun phrase, then prefixing it with "to" would make it a pre-

Davis (2013, 39) points out that this type of inflection on a word is characteristic of verbs in polysynthetic languages such as Nahuatl[6]. Such languages are known to have existed in the general area of the ancient Aegean and Middle East, for example Sumerian (Edzard 2003, 71), and Hattic (Kassian 2010, 313). He suggests that this word is therefore the main verb of the formula, and has a meaning similar to 'give', as does Duhoux (1992, 80). If the subject is the second word in the sentence, it is highly likely that the sequence in third position, usually <ja/a-sa-sa-ra-me>, is the direct object, with a meaning something like 'offering', or 'dedication'. Finkelberg (1993, 54–55) also concludes, for different reasons, that this sequence is a direct object. Thus, the basic word order of the language of the libation formula may be VSO, and the first three sequences may have a meaning similar to "X gives an offering/dedication/altar".

This is further supported by the possible occurrence of the sign for olives, OLIV, in the same position as <ja/a-sa-sa-ra-me> on SY Za2, giving this inscription the meaning: 'X gives olives" *vel sim*.[7]

It is also the case that the first three sequences can occur alone, without the last three. Here are two examples:

(3a) a-ta-i-*301-wa-ja • ja-i-nwa-ẓạ • pa_3-ni-wi (SY Za4)
b) ta-na-i-*301-u-ti-nu • i-na-ta-i-ẓụ-di-si-ka • ja-sa-sa-ra-me (IO Za6)[8]

If the first sequence is not a verb, but a direct object, and the third sequence is the verb, we would have OSV word order, which is the rarest of basic word orders, occurring in less than 1 % of the world's languages – indeed in Tomlin's (1986) survey of 402 languages, 0 % had this order. Thus, these inscriptions are further evidence that the first sequence is the verb, and that the language has VSO word order as its basic, unmarked order. The final three sequences have not yet been found occurring alone, so they are, Davis suggests (2013, 38–42), a non-finite clause, perhaps meaning 'requesting divine favour' *vel sim*.

positional phrase, and thus give it a completely different role in the sentence. Furthermore if <a-ta-i-*301-wa-ja> is a finite verb, what role would a prefix meaning "to" play?

6 The term 'polysynthetic' will be used here to refer only to languages with a high level of verbal morphology, typically more than three morphemes per verb (Greenberg 1960, 185). Such languages frequently (though not always) have noun incorporation. There is no reason as yet to suppose that this exists in the language(s) of Linear A.

7 The sign has a resemblance to the Linear A sign <re>, in which case the name of the dedicant would be <ja-su-ma-tu-re>. Davis (2013, 40) suggests it should be interpreted as OLIV, thus giving the sentence an overt direct object, and Godart and Olivier (GORILA V, 65) also show this sign as OLIV.

8 GORILA V, 24–27.

3 Noun morphology

Some noun morphology for Linear A has already been established. Duhoux (1997, 291–293) has argued that the prefix <i-> in sequences such as <i-da-ma-te>, which occurs on AR Zf1 and AR Zf2[9] means "to/in" (cf. <da-ma-te>, on KY Za2). The suffix <-te/-ti> is likely to mean "from/of" (Valério, 2007, 11). It may be possible to go further.

First it is necessary to establish what the nouns in the libation formula are. It has already been argued that the sequence <ja-sa-sa-ra-me>, in the first half of the libation formula is a direct object and hence a noun. (More correctly, it is a noun phrase, although this sequence and all the other sequences we are concerned with in this section appear to be single words. For simplicity, they will be referred to as nouns.) However, it cannot be wholly ruled out that it is an indirect object. (An indirect object is of course still a noun, even when it is part of a prepositional phrase headed by "to/for", or is case-marked.)

It has often been argued that the sequence contains the name of a deity, and means "to <a-sa-sa-ra-me>" (Palmer 1958, Platon 1958) although this has been questioned (Pope 1961). If the <ja-/a-> alternation indicates that the prefix <i-> is present (that is, we should split up the sequence into <i>-<a-sa-sa-ra-me>) this could be so. Languages with highly polysynthetic verbs usually have direct object agreement on the verb, along with many other sentence elements, such as location and deixis. Thus the direct object could simply be realized as an affix on the verb, giving the first three sequences a meaning similar to "X gives *this* to <a-sa-sa-ra-me>".

However, there are arguments against this. The sequence can occur as <a-sa-sa-ra-me> in exactly the same position as the form with <ja-> (it appears in this form on PK Za11 and PR Za1). Furthermore, <i-> does not begin the sequence <pa_3-ni-wi> on SY Za4, nor is there any sign of the prefix on the presumed indirect object on Za Zb3 (Davis 2013, 50), to be returned to later in this section.

In fact there are reasons to suppose that the prefix <i-> is not present in the <ja-> form of the sequence. If <ja-sa-sa-ra-me> means "to <a-sa-sa-ra-me>", why does the sequence sometimes occur without the prefix? That is, why does a prepositional phrase become a noun phrase? One possibility is 'dative shift'[10], where an indirect object is promoted to the position of direct object, familiar in such English sentences as:

9 GORILA IV, 142, 143.

10 An anonymous reviewer suggests that parataxis is another possibility.

(4a) John gave flowers to Mary.
b) John gave Mary flowers.

If this is the case, we might expect to see a different word order when <a-sa-sa-ra-me> occurs, as in the English example above. However, both forms of the sequence appear in the same slot of the libation formula. Thus there is no evidence of a dative shift involving movement. Now it may be argued that if there is no overt direct object, only an affix on the verb, an indirect object's movement would not necessarily be obvious (as it would be if the direct object was overtly present). However, in many languages verbal morphology is also used to show the shift, whether the objects are overt or not. Here is an example from Bahasa Indonesian[11]:

(5a) Mereka membawa daging itu kepada dia
They brought meat the to him
"They brought the meat to him."

b) Mereka membawa**kan** dia daging itu
They brought him meat the
"They brought him the meat."

The morpheme in bold in (5b) indicates that the indirect object has been promoted to direct object.

Returning to the libation formula, there is no obvious change in verbal morphology when <a-sa-sa-ra-me> is present, assuming the first sequence is a verb. There are in fact only two occurrences of <a-sa-sa-ra-me> in inscriptions where the formula is reasonably complete, and from these we cannot draw any conclusions about the verb. On PK Za11, the first sequence ends in <-e>, but this may be just an orthographic variant of <-ja>. A different sequence begins the formula on PR Za1, so no conclusions can be drawn from that. However, on SY Za4, the third sequence is <pa_3-ni-wi>. There is no prefix <i->, and the first sequence is in its most common form <a-ta-i-*301-wa-ja>. Is <pa_3-ni-wi> a dative shifted indirect object? The sequence is in third position, precisely where <ja-/a-sa-sa-ra-me> is usually found, so it is not dative shifted by movement. There is also no change in verbal morphology to show a shift. Thus there is no reason to suppose it is a dative shifted indirect object. Since <ja-/a-sa-sa-ra-me> is highly likely to be the same sort of sentence constituent as <pa_3-ni-wi>, there is no reason to suppose

11 Taken from Tallerman (2011, 225–226).

that the <a-> form of this sequence is dative shifted either, and therefore no reason to suppose the <ja-> form involves the prefix <i->. The two forms of the sequence are likely to be variants of the same word, and a direct object.

There are also other possibilities for an indirect object. Valério (2007) has argued that the sequence <ja/a-di-ki-te-te-du-pu$_2$-re> is an indirect object meaning "to the master of Dikte", though he has since retreated from this view (Valério 2015).

What of the second half of the formula, that is, <u-na-ka-na-si i-pi-na-ma si-ru-te>? Davis (2013) suggests that this is a non-finite clause, with a meaning like 'requesting divine favour', as mentioned in section 2. If so, <u-na-ka-na-si> is a participle of some kind, and the sequences <i-pi-na-ma si-ru-te> are its direct object. In this case, the noun is likely to be <i-pi-na-ma>, and the adjective <si-ru-te>, since languages with predominantly VSO word order almost always place adjectives after nouns (Greenberg 1963, Universal 17). If, on the other hand, we suppose that the fourth, fifth and sixth sequences constitute a finite sentence in their own right, <u-na-ka-na-si> is a finite verb and the next two sequences could be a subject and object, hence nouns. However, it seems more likely that they constitute the direct object together, as on the libation table SY Za2 the sign for 'oil', OLE, follows <u-na-ka-na-si> by itself[12]. Oil is not likely to be the subject of a sentence. Thus, what follows <u-na-ka-na-si> is probably a direct object, with <i-pi-na-ma> as the head noun and <si-ru-te> an adjective or other modifier. The sequence <a-pa-du-pa[...]> which occurs on PK Za12[13] is also likely to be a noun, as it occupies the same slot as <i-pi-na-mi-na>[14], a variant of <i-pi-na-ma> which occurs on PK Za11 and PK Za10. The subject of this second clause (whether it is finite or non-finite) is identical to that of the first clause, i.e. the dedicant.

A variant of the libation formula occurs on a pithos from Zakros, along with VIN, the sign for wine, and the number 32. It is shown below:

(6) VIN 32 di-di-ka-se • a-sa-mu-ne • a-se (line 1)
a-ṭạ-i-*301-de-ka • a-re-pi-re-na • ti-ti-ku (line 2)
(ZA Zb3)[15]

Davis (2013, 49) suggests that VIN is the direct object and the next three sequences constitute an indirect object which has been fronted – notice that they all end in <-e>, which strongly suggests agreement. They may consist of a noun followed

12 GORILA V, 65.
13 GORILA IV, 35–38.
14 GORILA IV, 32–34.
15 GORILA IV, 112–113.

by two adjectives, a name, title and adjective, or a name, title and place-name. As an indirect object at least one of them must be a noun, most probably the first sequence.

What if VIN is not the direct object, but the final three sequences are a verb, subject and object? In that case <a-re-pi-re-na> and <ti-ti-ku> are nouns. If, on the other hand, the two words together constitute the subject, then <ti-ti-ku> could be an adjective (cf. <si-ru-te>, above). Another possibility is that it is a title, or name of an occupation (e.g. "farmer"). The sequence occurs as a heading on HT 35.1[16], and also occurs as part of a heading with the prefix <i-> and the suffix <-ni> on HT 96a.1–2[17]. If the prefix on HT 96a.1–2 is the "to" prefix, then <ti-ti-ku> is almost certainly a noun.

Is it possible to establish any kind of case system for subjects and objects in the language of the libation formula? That is, does the language have a Nominative-Accusative or Ergative-Absolutive system, or perhaps another way of showing core grammatical relations? Below are a list of (presumed) subjects and direct objects, if the VSO word order hypothesis is correct. Where the inscriptions are too badly damaged the subject and object sequences have not been included.

Subject	**Object**	
Ja-di-ki-tu	ja-sa-sa-ra-[me]	(IO Za2.1)[18]
I-na-ta-i-ẓụ-di-si-ka (two names?)	ja-sa-sa-ra-me	(IO Za6)
Tu-ru-sa?	i-da-a	(KO Za1)
Se-ṭọ-i-ja (place)	a-sa-sa-ra-me	(PR Za1)
Pi-te-ṛị a-ko-ạ-ṇẹ (two names)	ạ-sa-sa-ra-me	(PK Za11)
Ja-su-ma-tu	OLIV	(SY Za2)
Ja-i-nwa- ẓạ	pa_3-ni-wi	(SY Za4)
O-su-qa-re	ja-sa-sa-ra-me	(TL Za1)[19]
A-re-pi-re-na	VIN? ti-ti-ku?	(Za Zb3)

The sequence <tu-ru-sa> on KO Za1 is followed by <du-*314-re>, which may be a variant of <du-pu_2-re>, perhaps meaning "master/lord". Whatever it is, <du-pu_2-re> appears several times, and does not appear to be a name, but a common noun, perhaps a title, and an indirect object. The sequence <tu-ru-sa> is a *hapax* and coming directly after <a-ta-i-*301-wa-ja> is probably the dedicant's name. This

16 GORILA I, 66
17 GORILA I, 157.
18 GORILA V, 18–19.
19 GORILA IV, 58–59.

means that <i-da-a> is in the same slot as <ja-/a-sa-sa-ra-me> and is therefore likely to be a direct object. The notion that this word is connected with Mount Ida may be a case of later knowledge influencing how we interpret certain sequences. The original name of the mountain was Ιδα/Βιδα (Brown 1985, 130), so <i-da-> in Linear A must have had a pronunciation rather different from the mountain's name at the time when this inscription was made.

I will also include <i-pi-na-ma si-ru-te> and its variant <i-pi-na-mi-na si-ru-[?]> as direct objects, as well as the sign for OIL which occurs after <u-na-ka-na-si> on SY Za2.

There are no obvious signs of case-marking in the above, either on subjects or objects. The subjects can end in any consonant-vowel combination, so there appears to be no ergative suffix, and there is no sign of a prefix that could indicate ergative case either. The objects do not seem to be marked by anything that could constitute an accusative case. The prefix <i-> is unlikely to fulfill such a role. If it is present in <ja-sa-sa-re-me> and <i-da-a>, which is doubtful, it is absent from <a-sa-sa-ra-me> and <pa$_3$-ni-wi>. There is no sign of an accusative suffix. The fact that twice (possibly three times) a commodity sign is used instead of a full sequence in the 'object' position may indicate that marking something as a direct object was not a consideration. Thus there appear to be no signs of case-marking for core arguments in the libation formula.

This is perhaps not surprising, as languages with polysynthetic verbs frequently (though not always) lack case-marking on subjects and direct objects (Fortescue, Mithun and Evans 2017, 4). This is because these core arguments are marked on the verb by affixes in such languages, and thus information about what constitutes the subject or object need not be expressed any other way. There may be other cases present in the language, however.

Let us return to the pithos Za Zb3. As mentioned above, the first three sequences seem to show agreement, and may constitute an indirect object. If they are an indirect object, note that the prefix <i-> is not present. However, if this prefix means "to" in the 'allative' sense of "movement towards", it may not necessarily have 'dative' meaning ("to/for"), as this does not necessarily imply movement. Therefore, it need not be present on an indirect object. Instead, we may have a 'dative' case indicated by <-e> on the first three sequences here. This recalls <ja/a-di-ki-te-te-du-pu$_2$-re>, hypothesized to be an indirect object (Valério 2007), which also ends in <-e>.

Now consider the sequence <i-pi-na-ma>. This has a variant <i-pi-na-mi-na>, which occurs on PK Za10 and PK Za11[20]. On PK Za10 it occurs with only the sign

20 GORILA IV, 30–31 and 32–34.

<-si> before it and after it, but on PK Za11 most of the rest of the inscription is present. PK Za11 shows some interesting variants on the libation formula. It has two dedicants in the subject slot, <pi-te-ri> and <a-ko-a-ne>, and thus these variants are likely to be linked to plurality.

It has already been established that <i-pi-na-ma> is probably a noun. This in turn makes it likely that the sequence <i-pi-na-mi-na> is the plural of <i-pi-na-ma>[21], because there are two dedicants and furthermore, of all nominal inflections, the plural is the one most likely to be marked on a noun. No language is known to be without a way of expressing plurality (Greenberg 1963, Universal 35). There is no reason to suppose there is a different case ending here, as the item is in exactly the same position as <i-pi-na-ma> and there are no obvious elements present which could condition a different case. If <u-na-ru-ka-na-ti> is a different inflectional form of <u-na-ka-na-si>, its object will probably have the same case, and as argued above, the language may not mark case on subjects or objects. It is unlikely to be an adjective formed from the noun. Adjectives almost always follow nouns in VSO languages and there is nothing that could be another noun before <i-pi-na-mi-na>. The sequence <i-na-ja-pa-qa>, which ends this inscription, is unlikely to fulfill that role, as it should not have adjectival modifiers preceding it. Furthermore, the sequence <i-pi-na-mi-na> is again followed by <si-ru-[?]>, the most likely candidate for an adjective, on PK Za11. Unfortunately the sign after <si-ru-> is damaged, so it is not possible to establish if the sequence is in a form agreeing with the noun[22]. However, as a beginning, it is possible to hypothesise that a plural form <-(i)-na> exists in the language of the libation formula.

The sequence <ja-sa-sa-ra-ma-na> (KN Za10)[23] should also be considered. Given that <ja/a-sa-sa-ra-me> is almost certainly a noun (or contains one), this may be its plural. The other sequences of the libation formula are not present in this particular inscription so it is not possible to establish the exact position of <ja-sa-sa-ra-ma-na> on the single libation table where it occurs. If any instances of this sequence are found in the same position as <ja-/a-sa-sa-ra-me>, with the usual libation formula present, that would be strong evidence that it is a plural form. Notice that there is a change of vowel in the sign immediately before <-na>, as there is in <i-pi-na-mi-na>.

The sequence <-ku-pa$_3$-na-tu-na-te> (AP Za2) is also of interest (there appears to be a sign in front of <-ku->, which may be <i->[24]). The sequence <ku-pa$_3$-na-tu>

21 It could be a dual, since there are two dedicants, but at present there is no way of knowing if the language makes such a distinction.

22 Godart and Olivier suggest the sign may be <-du> (GORILA IV, 32–34).

23 GORILA IV, 8–9.

24 GORILA IV, 4–5.

is attested as a name (HT 47a.1–2, HT 119.3)[25], but could also be a common noun. We seem to have an inflectional variant of it here. The final suffix may be the marker <-te> which means "from/of"[26]. In that case there is further support for the claim that the sign before it is a plural, as case endings are very likely to follow plurals cross-linguistically (Greenberg 1963, Universal 39). The suffix <-te/-ti> must be a case ending, not a postposition, as VSO languages are always prepositional (Greenberg 1963, Universal 3). The sequence <ki-ki-na> (HT 88.2), which could mean "(type of) figs" (Duhoux 1984, 59), may also show this suffix.

Finally, it is interesting to consider whether the suffix <-ni>, which occurs after <i-ti-ti-ku-> on HT 96a.1–2, is a variant of this suffix, but there is not enough information to establish this at present.

Putting all this together, it is possible to hypothesise that one plural form <-(V)-na> exists in the language of the libation formula, where V stands for vowel. There may be other plural forms. It is not possible to say what conditions the vowel if it is present. There is a possible 'dative' case shown by <-e>, for at least some kinds of noun and adjective.

4 Verb morphology

There are two candidates for verbs in the libation formula: <i-*301> and <u-na-ka-na-si> (given in this form as it is not clear which part of the sequence is the verb root). What can we learn about their morphology?

Some insight into this may come from an examination of the libation tables PK Za11 and PK Za12. The two inscriptions are shown below:

(7a) a-ta-i-*301-wa-e • a-di-ki-te-te [……]-ṛẹ[27] • pi-te-ṛị • a-ko-ạ-ṇẹ • ạ-sa-sa-ra-me • u-na-ru-ka-na-ti • i-pi-ṇạ-mị-ṇạ [...]-si-ru-[...] • i-na-ja-pa-qa (PK ZA11)

b) a-ta-i-*301-wa-ja • a-di-ki-te-[…….]-si-[……..]-ra-me[...]-a-[…..]-ne • u-na-ru-ka-[...]-ja-si a-pa-du-ṇạ[…….]-ja-[….]-ja-pa-qa (PK Za12)

25 GORILA I, 90–91 and 202–203.

26 If the full sequence is <i-ku-pa$_3$-na-tu-na-te>, this illustrates the strange phenomenon whereby the "from" suffix <-te/-ti> sometimes occurs with the prefix <i->. It is difficult to know what to make of this, as an entity cannot move "to" and "from" a place simultaneously. Possibly <i-> has some different function in such cases or is a homonym of the "to" prefix.

27 Younger (Linear A texts) and Godart and Olivier (GORILA IV, 34) give this sign as <da>. Hogan (Linear A explorer) gives it as <re>. To me it looks like <re>, so I have shown this above.

As mentioned above, PK Za11 has two dedicants, while PK Za12 has one. This gives rise to some interesting variations in the sequences of the libation formula. The first is that on PK Za11 we have as the initial sequence <a-ta-i-*301-wa-e> instead of <a-ta-i-*301-wa-ja>. This may show third person plural subject agreement, though it is also possible that <-e> is a mere orthographic variant of <-ja>[28]. More interesting are the changes in the sequence which is usually <u-na-ka-na-si>.

On PK Za12, the sequence contains an infix <-ru-> before <-ka-[na?]->, and a suffix <-ja-> before <-si>. The infix <-ru-> is also present on PK Za11, without <-ja->, but with <-ti> instead of <-si>. A sequence <u-na-ru-ka-> occurs on IO Za16, but the rest of the inscription is missing.

First, let us consider the <-si/-ti> alternation. These suffixes are identical to the Indo-European second person singular and third person singular 'primary' subject agreement suffixes, and <-ti> could in principle also represent the Indo-European third person plural ending *-nti* (Owens 1999). It does not, however, follow that the language is Indo-European – co-incidences of form can occur, and can easily be misleading. It is also worth remembering that there are *two* dedicants on PK Za11, and an Indo-European language could well have a dual (as could a non-Indo-European language). For convenience, the terms singular and plural will be used.

Leaving aside considerations of genetic affiliation, what can we infer about these suffixes on the basis of the environments in which they occur?

Unless a deity is actually being addressed, it is unlikely that <-si> is a second person singular subject agreement suffix. On the other hand, if the subject of the sentence is the dedicant speaking in the third person, it is very tempting to interpret this ending as third person singular subject agreement, and to interpret <-ti> as third person plural subject agreement. If the clause is non-finite, we may have two forms of a participle agreeing with the main clause subject. It is also possible that the clause is finite, and here caution is required. It does not automatically follow that the <-si/-ti> alternation shows *subject* agreement. Languages with complex polysynthetic verbs usually have direct object agreement, and sometimes indirect object agreement too. Thus, the suffixes could be object agreement markers. This is particularly so, given that on PK Za11 <u-na-ru-ka-na-ti> is followed by a (possible) plural direct object <i-pi-na-mi-na>. However, there is evidence that <-ti> is a plural subject agreement marker, and that it attaches to a finite verb.

28 Davies (2013, 45) suggests it is likely to be an orthographic variant of <-ja>.

Firstly, the morpheme is found after the (presumed) verb <i-*301> on PS Za2.2. The bottom line of the inscription is given below (there are three signs on the top part of the table, which may be part of a different sentence):

(8) ta-na-i-*301-ti • [……..]-ja-ṭi • ja-sa-sa-ra-me (PS Za2.2)

There is room for about six signs in front of <-ja-ti> so it is possible that two dedicants are named on this table[29]. We also find:

(9) ta-na-i-*301-u-ti-nu • i-na-ta-i-ẓụ-di-si-ka • ja-sa-sa-ra-me (IO Za6)

Suffixes appear before and after the morpheme <-ti-> here. It cannot be established with certainty that it is the same suffix as that which occurs on PK Za11, but given the evidence of PS Za2.2, it seems likely. The sequence which occurs in the subject slot could well be the names of two dedicants (eight syllables is rather long for a single name)[30].

Secondly, the form <i-pi-na-mi-na> is found on PK Za10 with a word that ends in <-si> preceding it. This is probably <u-na-ka-na-si>, so it cannot be the change to <i-pi-na-mi-na>, a (possible) plural direct object, which conditions the <-si/-ti> alternation. It is most likely then, that <-ti> indicates third person plural subject agreement in some way, in which case <-si> indicates third person singular subject agreement. The subject of the second clause, as pointed out in section 3, is likely to be identical to that of the first.

The infix <-ru->, which occurs on PK Za11 and 12, is very interesting (it also occurs on IO Za16, though the inscription is incomplete). It does not form a discontinuous morpheme with <-ti> to show plurality, as it is present on PK Za12, which has only one dedicant and the sequence ends in <-si>. Nor does it have any obvious connection with <-ja->, which is absent from PK Za11. The only obvious element which could condition this variant is the (possible) plural direct object on PK Za11, <i-pi-na-mi-na>. It may be, then, that <-ru-> is a third person plural direct object agreement marker.

Unfortunately, it is impossible to test this against other inscriptions. On PK Za12 the sign after <a-pa-du-pa-> is damaged, so it cannot be established if it carries the morpheme <-(V)-na> or not (and there could be other ways of showing plurality). No object is visible on IO Za16. The possibility that <-ru-> is a direct

29 Hogan, https://lineara.xyz/.

30 Of course, it is also possible that an indirect object or the dedicant's place of origin could be present, instead of two personal names. In this case, it must be left as a matter of conjecture what <-ti> is.

object agreement marker should, however, be borne in mind. If it is, then we would expect to find a third person singular object agreement marker in the same position. But what is that position? If <u-na-ka-na-> is the verb root, then the morpheme <-ru-> is an infix. If the root is <-ka-na->, then it is a prefix, with <u-na-> as another prefix (or prefixes). Or the root may be <u-na-> with a sequence of suffixes after it. Furthermore, a third person singular marker is often realized as a zero morpheme.

We would also expect a third person singular object agreement marker to be present on the verb <i-*301>, assuming its object is singular. The only thing all available forms of this verb have in common is <-a-> somewhere before the root. Most forms also have a suffix <-wa-/-u->, but this is unlikely to be an object agreement marker because it is absent from PS Za2.2, which has an object <ja-sa-sa-ra-me>, and it is also absent from Za Zb3. Unfortunately, it cannot be established exactly which occurrence of <-a-> might be an object marker (if such is not a zero morpheme).

How exactly should the sequences <a-ta->, <ta-na-> and <a-na-t-> be broken down? Here, it is important not be led astray by the nature of the writing system. Just because a sequence like <a-ta-> consists of two signs, it does not necessarily consist of two morphemes. Furthermore, even if it does, it may be that we should break it down as <at-> and <-a->, not as <a-> and <-ta->. Likewise, <ta-na-> may represent morphemes <tan-> and <-a->, and <a-na-t-> may represent <an-> and <-at->, or even <an->, <-a-> and <-t->. If we do break down the prefixes as <at->, <-a->, <tan->, <-a-> and <an->, <-a->, <-t->, then possibly <-a-> is a third person singular object marker, prefixed somewhere before the root.

If the ideas above are correct, the position of the morphemes is rather surprising. Languages with VSO word order are usually heavily prefixing, so we might expect to find both subject and object agreement as prefixes. It is noticeable that the prefix (or prefixes) <ta-na-> precedes the verb on three libation tables where the (presumed) subjects might be plural – IO Za6[31], PS Za2.2 and PR Za1. The subject on PR Za1 is <se-to-i-ja>, a place. A place cannot make an offering by itself, so perhaps the meaning is: "(The people of) <se-to-i-ja> dedicate an offering" *vel sim*. However, <a-ta-> is present on the verb on PK Za11, where there are two dedicants. Therefore plurality of the subject cannot be what conditions the difference. Nor can the object be the cause of the difference as in each case the object is <ja/a-sa-sa-ra-me>. Thus, it is difficult to avoid the conclusion that <-si> and <-ti> are the only candidates at the moment for third person singular/plural subject markers. It is possible that <-ru-> is a third person plural object marker.

31 GORILA V, 24–27.

It is interesting to note that <a-ta->, in all its appearances except one (Za Zb3), occurs with the suffix(es) <-wa-ja>, while <ta-na-> never does (in the available inscriptions – future discoveries may change this). No conclusions can be drawn about what conditions <a-na-t-> as the rest of the inscription is missing.

It may be asked why, if <-si> and <-ti> are subject agreement markers, they are not present on the first word of the libation formula in its most common form. They may indicate participles of some sort which agree with the subject (though it would be hard to account for <ta-na-i-*301-ti> on this assumption), or the form <a-ta-i-*301-wa-ja> may be in some sort of optative or hortative mood, with a meaning "May X give an offering" *vel sim*. Such a mood may well have different endings to those of an indicative mood. This is the case, for example, in Sanskrit (Whitney 1879, 212).

Some slender evidence that this might be so comes from the London Medical Papyrus which contains spells "in the language of Keftiw". The spells may not actually be in the "language of Keftiw" (Steiner 1992, 197–198), but if they are in a language of Linear A, they may give some clues as to the nature of that language (see Appendix 2 for the hieroglyphic text).

Now, Kyriakidis (2002, 212–213) points out that such spells are often in an imperative mood or other non-indicative mood, in which an illness is ordered or requested to leave the patient. If the subject is third person, we may have a third person imperative or optative, most easily translated as: "Let/may X (perform this action)". Thus, the basic meaning of these spells could be: "Let/may this illness depart from X", or "Let/may (deity X) drive away this illness" *vel sim*. The two spells in question are given below:

Spell 32 – for the "Asiatic fever"
śa-n-ta-ka-pu-pi-wa-ja -'a-ja-ma-n-ta-ra-ku-ka-ra

Spell 33 – for the "smn" disease
W( )-b(?)-qi(?) [det: illness] śa-ti śabu-ê- ja-s̲a h.a-m-ka-tu ra-śi-ja [det:god] p3 wr a-ma- ê [det: god][32]

If the verbs in these spells actually are in some non-indicative mood, and the first sequence of the libation formula is also a verb in a non-indicative mood, we might expect to find some affixes in common. Spell 32 does not contain determinatives, so it is not possible to break it down into discrete words. Naturally, the vocalisation is uncertain, but it is possible that the ending <-wa-ja> is present

32 Transliteration and vocalisation adapted from Helck (1995, 85–86).

in this spell. Spell 33 contains determinatives for illness and for gods, so those items can be identified. It is more difficult to identify the verbs. The determinative 'seated man with hand on mouth' appears after <-ka-tu>. This usually indicates verbs of eating, drinking, saying or thinking, so Kyriakidis (2002, 216) suggests that this spell may ask or command a god to consume or summon away a disease. The ending of the verb (if that is what it is) is not one that has been seen in the inscriptions dealt with above. However, it is not certain that <h.a-m-ka-tu> is a verb. It appears in another spell in the same manuscript followed by the 'illness' determinative (Leitz 1999, 63), so the 'seated man' determinative in spell 33 may indicate that the expression is the name of the illness, personified as a demon. Another determinative, a pair of legs, may also be present in the spell. It usually occurs after intransitive verbs of motion. Kyriakidis (2002, 213) thinks that this determinative is used here phonetically – it is the sign transliterated above as s̲a. If it is not phonetic, it is interesting that the word in front of it may end in <-ja>. Thus these spells provide some very slender evidence that <-wa-ja> or <-ja> marks a non-indicative mood.

To return to the libation formula, it is not possible to say anything about the meaning of the other suffixes yet, though it can be established that there are at least two more. The suffixes <-u-> and <-nu> are clearly distinct suffixes. The fact that <-ti-> can occur alone means that <-u-ti-nu> is not a single morpheme, nor can we break it down into <-uti-> and <-nu>, or into <-u-> and <-tinu>. The suffix <-u-> on IO Za2.2 is probably an orthographic variant of <-wa-> (though it is strange that it appears as <-u-> in <ta-na-ra-te-u-ti-nu>, but as <-wa-> in the initial sequence). The final sign in <a-ta-i-*301-wa-ja> may be the same suffix as the sixth sign in <u-na-ru-ka-[na?]-ja-si> on PK Za12. This would mean that the ending <-wa-ja> consists of two distinct morphemes. Thus, <-u-/-wa->, <-ja->, <-si>, <-ti-> and <-nu> all seem to be part of verbal morphology in the language of the libation formula. The sequence <-de-ka> on ZA Zb3 cannot be further analyzed.

Even if it is impossible at present to establish the meaning of most of the verbal morphology, it is at least possible to establish the verbal status of several other words. The sequence <ta-na-ra-te-u-ti-nu> on IO Za2.2 contains exactly the same prefixes and suffixes as occur with <i-*301> on IO Za6. Therefore, if <i-*301> is a verb, <ra-te> is also a verb. PR Za1 begins with a sequence <ta-na-su-te-[..]-ke>. This is the initial sequence in the inscription and contains the prefix (or prefixes) <ta-na-> seen on IO Za2.2, IO Za6 and PS Za2. Thus this is very probably also a verb. The initial sequence on CR(?)Zf1[33], <a-ma-wa-si>, is also likely to be a verb,

33 GORILA IV, 147.

both because of its position, and the suffix <-si>. KN Zc7[34] carries what seems to be a garbled version of the libation formula, and begins with the sequence <a-ka-nu-za-ti>. Its position and the ending <-ti> may indicate it is a verb. The subject slot is filled by the sequences <du-ra-re> and <a-*79-ra>. If <du-ra-re> is not a garbled version of <du-pu$_2$-re>, there may be two dedicants here. Finally, the gold ring KN Zf13[35] does not show word dividers, but the first four characters, <a-re-ne-si>, may be a verb. It is noticeable that these last-mentioned three sequences all begin with <a->.

5 Conclusions

The above suggestions assume a VSO word order for the language of the Linear A libation formula, and that the language shows the properties usually found in VSO languages. They are necessarily speculative, and if any of the premises on which they are based are wrong then the conclusions which follow are wrong. However they may provide some guidelines for future research. Hopefully, future discoveries will reveal variants of the libation formula which make it possible to test some of the hypotheses outlined above.

Appendix 1: Texts

The following are the full texts of the inscriptions referred to above. Where the texts are taken from accounts tablets, I have shown only the relevant portions. I have used Robert Hogan's "Linear A Explorer", https://lineara.xyz, for transliterations of the texts and Godart and Olivier (GORILA vols. I–V) for photographs of the inscribed items, and transcriptions of the originals. I have also referred to the site "Linear A Texts" (Younger 2000, http://people.ku.edu/~jyounger/LinearA) for further guidance. Where there is disagreement as to how a sign or sequence should be read, I have used my own judgement.

AP Za1 (libation table)
ja-ta-i-*301-u-ja-[

34 GORILA IV, 122–125.
35 GORILA IV, 152–153.

(I cannot see a dot after this sequence. Instead there seems to be a sign which cannot be further distinguished.)

AP Za2 (cylindrical jar)
…]-na-si • i-pi-na-ma [……..]-ị-ku-pa$_3$-na-tu-na-te (line 1)
…]-pi-mi-na-te • i-na-ja-re-ṭạ-[…]- qa • (line 2)

AR Zf1 (gold axe)
i-da-ma-te

AR Zf2 (silver axe)
i-da-ma-te

CR(?) Zf1 (gold pin, uncertain provenance)
a-ma-wa-si • ka-ni-ja-mi • i-ja • qa-ki-se-nu-ti • a-ta-de

HT 35.1 (accounts tablet)
ti-ti-ku • *326 • i-ku-ta

HT 47a.1–2 (accounts tablet)
ku-pa$_3$-na-tu 20

HT 88.2
6 FIC • ki-ki-na 7

HT 96a.1–2 (accounts tablet)
i-ti-ti-ku-ni • a-pa-ra-ne • a-*123-te

HT 119.3 (accounts tablet)
ku-pa$_3$-na-tu 7

HT Wa1022 (nodule)
i-*301

IO Za2 (libation table)
a-ta-i-*301-wa-ja • ja-di-ki-tu • ja-sa-sa-ra-[……..]-si [•?] i-pi-na-ma • (line 1)
si-ru-te • ta-na-ra-te-u-ti-nu • i-[… (line 2)
(Godart and Oliver place <-da-> after <i-> in line 2 (GORILA V, 18–19. I cannot see anything after <i->.)

IO Za3 (libation table)
• a-ta-i-*301-wa-ja • au-[...

IO Za6 (stone cup)
ta-na-i-*301-u-ti-nu • i-na-ta-i-ẓụ-di-si-ka • ja-sa-sa-ra-me •

IO Za7 (libation table)
a-ta-i-*301-wa-ja • ja-ti-*321-[...

IO Za8 (libation table)
...] ạ-na-ti-*301-wa-ja [...

IO Za16 (libation table)
...]-*123 • ja-sa-sa-ra-me • u-na-ru-ka-[...

KN Za10 (libation table)
...]-ta-nu-ṃụ-ti • ja-sa-sa-ra-ma-na • da-wa-[•] ḍụ-wa-ṭọ • i-ja-[...

KN Zc7 (cup with painted inscription)
a-ka-nu-ẓạ-ti • du-ra-re • a-*79-ra • ja-ṣạ-ṛạ-a-na-ne • wi-pi-[...
(The sign given as <*79> (<zu>) is very dubious. It is given as such in GORILA IV, 122–125. Robert Hogan (Linear A Explorer) suggests it is perhaps <*17> (<za>.)

KN Zf13 (gold ring)
a-re-ne-si-di-*301-pi-ke-pa-ja-ta-ṛị-se-te-ṛị-ṃụ-a-ja-ku

KO Za1 (stone base)
a-ta-i-*301-wa-ja tu-ru-sa • ḍụ-*314 –ṛẹ • i-da-a • u-na-ka-na-si • i-pi-na-ma • si-ru-te

KY Za2 (stone ladle)
da-ma-te

PK Za10 (libation table)
...]-si • i-pi-na-mi-na • si-[...

PK Za11 (libation table)
a-ta-i-*301-wa-e • a-di-ki-te-te [.....]-ṛẹ • pi-te-ṛị • a-ko-ạ-ṇẹ • ạ-sa-sa-ra-me • u-na-ru-ka-na-ti • i-pi- ṇạ-ṃị-ṇạ [...] si-ru-[...] • i-na-ja-pa-qa
(The sign after <si-ru-> is damaged. Godart and Olivier suggest it might be <du>.)

PK Za12 (libation table)

a-ta-i-*301-wa-ja • a-di-ki-te-[...]-si-[.....]-ra-me [...]-a-[.....]-ne • u-na-ru-ka-[...]-ja-si a-pa-du-ṗạ-[.....]-ja-[...]-ja-pa-qa

PR Za1 (limestone box)

ta-na-su-ṭẹ-[...]-ke • se-ṭọ-i-ja • a-sa-sa-ra-me

PS Za2 (libation table)

...]-re-i-ke (line 1)

ta-na-i-*301-ti • [.....6 signs?.....]-ja-ṭị • ja-sa-sa-ra-me • (line 2)

SY Za1 (libation table)

...] ạ-ta-i-*301-wa-ja • i-da-mi • ja-[....

SY Za2 (libation table)

a-ta-i-*301-wa-ja • ja-su-ma-tu OLIV • u-na-ka-na-si OLE a-ja

(The sign shown as OLIV could be <re>.)

SY Za3 (libation table)

a-ṭạ-ị-*3̣0̣1-wa -[.....]-ka-na- [.....] si-ru-te

The above are the only signs I can distinguish on this table. Hogan (Linear A Explorer) gives it as:

a-ṭạ-ị-*3̣0̣1-wa-[ja.....c.8 signs.....] • • • -ṣẹ-ka-na-ṣi-[•] ṭẹ-[.....c.10 signs .....] si-ru-te

Godart and Olivier (GORILA V, 66–67) give it as:

a-ṭạ-ị-*3̣0̣1-wa-[.....c.20 signs.....] si-ru-te

SY Za4 (libation table)

a-ta-i-*301-wa-ja • ja-i-nwa-ẓạ • pa_3-ni-wi

SY Za8 (libation table)

ạ-ṭạ -i-*301-ẉạ-ja • ja-ja-[...

TL Za1 (stone ladle)

a-ta-i-*301-wa-ja • o-su-qa-re • ja-sa-sa-ra-me • u-na-ka-[.....]-na-ma si-ṛụ-[...]

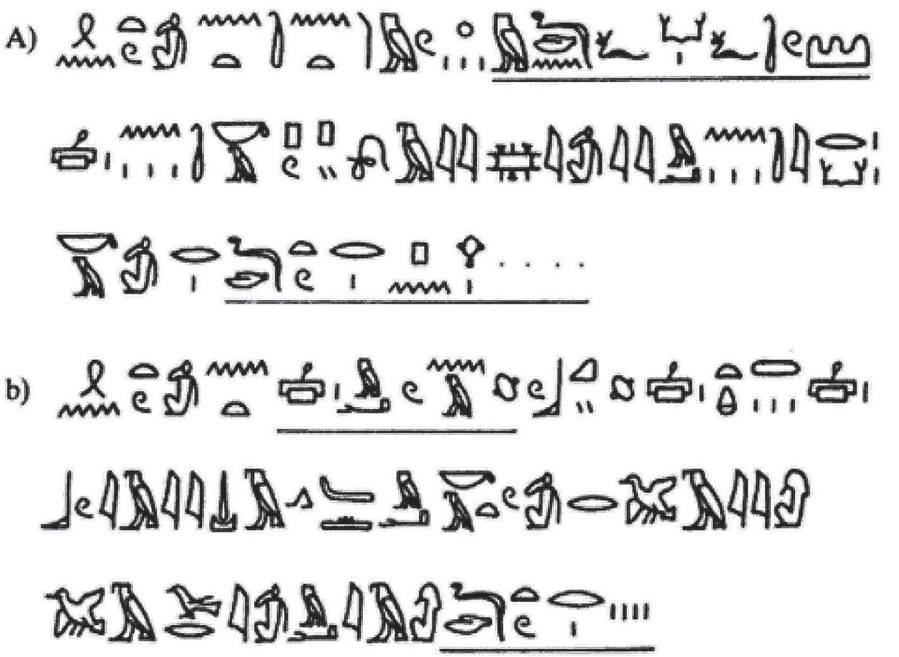
Za Zb3 (pithos)

VIN 32 di-di-ka-se a-sa-mu-ne a-se (line 1)

a-ṭạ-i-*301-de-ka • a-re-pi-re-na • ti-ti-ku (line 2)

Appendix 2: The London Medical Papyrus

The London Medical Papyrus is a New Kingdom text which contains spells in various languages, including two "in the language of Keftiw". Here is the hieroglyphic text (taken from Strange 1980, 99).



A transliteration is given below (taken from Helck 1995, 85–86).

Spell 32 (A) – for the "Asiatic fever"
śa-n-ta-ka-pu-pi-wa-ja -'a-ja-ma-n-ta-ra-ku-ka-ra

Spell 33 (b) – for the "smn" disease
W( )-b(?)-qi(?) [det: illness] śa-ti śabu-ê- ja-s̲a h.a-m-ka-tu ra-śi-ja [det:god] p3 wr a-ma- ê [det: god]

From spell 33, it appears that a laryngeal, the voiceless glottal fricative /h/, existed in the language of the spell. This gives support to the suggestion of Owens (1999, 24–25) that a laryngeal could have existed in the 'Minoan' language to account for the <ja-/a-> alternation.

In the second line of this spell's hieroglyphic text, a pair of legs can be seen as the eighth sign from the right. This may be a determinative indicating an intransitive verb of motion, or have a phonetic value. The 'seated man' determinative is the sixth sign from the left in the second line. It may indicate a verb of speaking, eating, drinking or thinking, or the disease personified as a demon.

Bibliography

Brown, R. A. 1985. *Evidence for Pre-Greek Speech on Crete from Greek Alphabetic Sources,* Amsterdam.

Davis, B. 2013. Syntax in Linear A: The Word Order of the Libation Formula, *Kadmos* 52(1), 35–52.

Davis, B. 2014. *Minoan Stone Vessels with Linear A Inscriptions*, Liège.

Dimopoulou, N., Olivier, J.-P. and Réthémiotakis, G. 1993. Une statuette en argile MR IIIA de Poros Irakliou avec inscription en linéaire A, *Bulletin de Correspondance Héllenique* 117, 501–521.

Duhoux, Y. 1984. Mycénien et écriture grecque, in *Linear B: A 1984 Survey*, A. Morpurgo-Davies and Y. Duhoux (eds.), Louvain-la-Neuve, 7–74.

Duhoux, Y. 1992. Variations morphosyntaxiques dans les textes votifs linéaires A, *Cretan Studies* 3, 65–88.

Duhoux, Y. 1997 (1994–1995). LA > B *da-ma-te* = Déméter? Sur la langue du linéaire A, *Minos* 29–30, 289–94.

Edzard, D. O. 2003. *Sumerian Grammar*, Leiden.

Finkelberg, M. 1993. Minoan Inscriptions on Libation Vessels, *Minos* 25–26, 43–85.

Fortescue, M., Mithun, M. and Evans, N. 2017. Introduction, in *The Oxford Handbook of Polysynthesis,* M. Fortescue, M. Mithun and N. Evans (eds.), Oxford, 1–16.

Godart, L. and Olivier, J.-P. 1975–1985. (GORILA). *Recueil des inscriptions en linéaire A*, vols. I–V, Etudes Crétoises 21.1–21.5, Paris.

Gordon, C. H. 1966. *Evidence for the Minoan Language,* New Jersey.

Greenberg, J. H. 1960. A Quantitative Approach to the Morphological Typology of Languages, *International Journal of American Linguistics* 26(3), 178–194.

Greenberg, J. H. 1963. Some Universals of Grammar with Particular Reference to the Order of Meaningful Elements, in *Universals of Language*, J. H. Greenberg (ed.), Cambridge, MA, 73–113.

Helck, W. 1995. *Die Beziehungen Ägyptens und Vorderasiens zur Ägäis bis ins 7. Jahrhundert v. Chr.*, Erträge der Forschung 120, Darmstadt.

Hogan, R. Linear A Explorer, https://lineara.xyz.

Kassian, A. 2010. Hattic as a Sino-Caucasian Language, *Ugarit-Forschungen. Internationales Jahrbuch für die Altertumskunde Syrien-Palästinas* 41, 309–447.

Kyriakidis, E. 2002. Indications on the Nature of the Language of the Keftiw from Egyptian Sources, *Ägypten und Levante* 12, 211–219.

Leitz, C. 1999. *Magical and Medical Papyri of the New Kingdom*, London.

Muhly, P. and Olivier, J.-P. 2008. Linear A Inscriptions from the Syme Sanctuary, Crete, *Archaiologike Ephemeris* 163, 197–223.

Owens, G. 1994. Was *se-to- i-ja* at Archanes?, *Kadmos* 33(1), 22–28.

Owens, G. 1999. The Structure of the Minoan Language, *Journal of Indo-European Studies* 27(1), 15–55.
Palmer, L. R. 1958. Luvian and Linear A, *Transactions of the Philological Society* 57(1), 75–100.
Platon, N. 1958. Inscribed Libation Vessel from a Minoan House at Prasa, Heraklion, in *Minoica. Festschrift zum 80. Geburtstag von Johannes Sundwall*, E. Grumach (ed.), Berlin, 305–318.
Pope, M. 1961. The Minoan Goddess Asasara – an Obituary, *Bulletin of the Institute of Classical Studies* 8, 29–31.
Steele, P. M. and Meissner, T. 2017. From Linear B to Linear A: The Problem of the Backward Projection of Sound Values, in *Understanding Relations Between Scripts: The Aegean Writing Systems*, P. M. Steele (ed.), Oxford, 93–111.
Steiner, R. 1992. Northwest Semitic Incantations in an Egyptian Medical Papyrus of the Fourteenth Century B.C.E., *Journal of Near Eastern Studies* 51(3), 191–200.
Strange, J. 1980. *Caphtor/Keftiu: A New Investigation*, Leiden.
Tallerman, M. 2011. *Understanding Syntax*, London.
Tomlin, R. S. 1986. *Basic Word Order: Functional Principles*, London.
Valério, M. 2007. 'Diktaian Master': A Minoan Predecessor of Diktaian Zeus in Linear A?, *Kadmos* 46(1), 3–14.
Valério, M. 2015. Linear A *du-pu$_2$-re*, Hittite *tabarna* and their Alleged Relatives Revisited, *Journal of Language Relationship* 13(4), 329–354.
Whitney, W. D. 1879. *A Sanskrit Grammar*, Leipzig.
Younger, J. 2000. Linear A Texts and Inscriptions in Phonetic Transcription, http://people.ku.edu/~jyounger/LinearA.