The Linearb font*

Peter Wilson†
Herries Press‡

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Abstract

The linearb bundle provides a font for the Linear B syllabary which was used for writing Greek in the Bronze Age.

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1 Introduction

The font presented here is a rendition of (part of) the Linear B script that was used in the Bronze Age, particularly on Crete. It is one of a series of fonts that was initially intended nnn to show how the Latin alphabet has evolved from its original Phoenician form to its present day appearance.

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†With thanks to Jürgen Kraus who corrected my misinterpretations of some of the signs.

‡herries dot press at earthlink dot net

This manual is typeset according to the conventions of the LaTeX DOCSTRIP utility which enables the automatic extraction of the LaTeX macro source files [GMS94].

Section 2 describes the usage of the package. Commented code for the fonts and source code for the package is in later sections.

1.1 An alphabetic tree

Scholars are reasonably agreed that all the world's alphabets are descended from a Semitic alphabet invented about 1600 BC in the Middle East [Dru95]. The word 'Semitic' refers to the family of languages used in the geographical area from Sinai in the south, up the Mediterranean coast to Asia Minor in the north and west to the valley of the Euphrates.

The Phoenician alphabet was stable by about 1100 BC and the script was written right to left. In earlier times the writing direction was variable, and so were the shapes and orientation of the characters. The alphabet consisted of 22 letters and they were named after things. For example, their first two letters were called *aleph* (ox), and *beth* (house). The Phoenician script had only one case — unlike our modern fonts which have both upper- and lower-cases. In modern day terms the Phoenician abecedary was:
A B G D E Y Z H Θ I K L M N X O P ts Q R S T
where the 'Y' (*vau*) character was sometimes written as 'F' and 'ts' stands for the *tsade* character.

The Greek alphabet is one of the descendants of the Phoenician alphabet; another was Aramaic which is the ancestor of the Arabic, Persian and Indian scripts. Initially Greek was written right to left but around the 6th C BC became *boustrophedron*, meaning that the lines alternated in direction. At about 500 BC the writing direction stabilised as left to right. The Greeks modified the Phoenician alphabet to match the vocalisation of their language. They kept the Phoenician names of the letters, suitably 'greekified', so *aleph* became the familar *alpha* and *beth* became *beta*. At this point the names of the letters had no meaning. Their were several variants of the Greek character glyphs until they were finally fixed in Athens in 403 BC. The Greeks did not develop a lower-case script until about 600–700 AD.

The Etruscans based their alphabet on the Greek one, and again modified it. However, the Etruscans wrote right to left, so their borrowed characters are mirror images of the original Greek ones. Like the Phoenicians, the Etruscan script consisted of only one case; they died out before ever needing a lower-case script. The Etruscan script was used up until the first century AD, even though the Etruscans themselves had dissapeared by that time.

In turn, the Romans based their alphabet on the Etruscan one, but as they wrote left to right, the characters were again mirrored (although the early Roman inscriptions are boustrophedron).

As the English alphabet is descended from the Roman alphabet it has a pedigree of some three and a half thousand years.

2 The **linearb** package

In 1900 AD Arthur Evans (later Sir Arthur) began excavating the palace of Knossos on Crete, which had been destroyed about 1400 BC. There he found clay tablets with unknown writing on them. There were two different scripts which he called Linear A and Linear B. Sir Arthur was convinced that the script was used for an unknown Minoan language. He tried his hand at deciphering the scripts but made virtually no progess. This was in spite of the fact that the Cypriot script, which had several signs in common with Linear B, had been deciphered in the 1870's and shown to be used for writing Greek. Later, in 1939, Carl W. Blegen of the University of Cincinnati led a combined American-Greek excavation at Pylos on the mainland where he also found tablets inscribed with Linear B. During his lifetime Sir Arthur published only a few of the tablets from Knossos. In 1951 the Pylos tablets were published and in 1952, eleven years after Sir Athur's death, the Knossos tablets were published.

Michael Ventris (1922–1956) was an English architect who was fascinated by the problem of deciphering Linear B. He had studied the few published examples of the script and had decided that Linear B was a syllabary rather than an alphabet because of the number of different signs. With the publication of the Pylos and Knossos tablets he had a larger corpus to work on. He ignored the clue of the Cypriot script and independantly determined that Linear B was probably used to write Greek, and then sought the help of John Chadwick of Cambridge University whose speciality was the early history of the Greek language. They published their decipherment of Linear B in the *Journal of Hellenic Studies*, 1953. Tragically, Ventris was killed in a car accident in 1956.

Apart from the specialised literature, the story of Linear B can be found in [Cha87] and [Gor87] among others.

Linear B was in use during the approximate period 1500–1200 BC, for writing in Mycenaean Greek. This was some centuries before the Greek alphabet was invented. Perhaps surprisingly, Linear B has no other relationship to the Greek alphabet except that they can both be used to write dialects of the same language.

Linear B is basically a syllabary, where there is a sign for each syllable. There are 60 basic signs and 16 optional signs for clarifying meanings; there are still some 11 signs whose meanings have not yet been identified. The script was used for record keeping, not for literary purposes. It has signs for numbering in a decimal system. The script also includes some ideographic signs, such as symbols for various kinds of goods and possesions, for example wheat or sheep or wool or wine. There is also a system for weights and measures within the script.

The font presented here is based on the signs illustrated by Chadwick [Cha87]. Jürgen Kraus (`jkraus@uni-goettingen.de`) was kind enough to review my first renditions and gave valuable advice concerning my errors of interpretation. The font consists of the basic, optional, unidentified, and numbering signs only.

`\linbfamily` This command selects the Linear B font family. The family name is `linb`.

`\textlinb` The command `\textlinb{`⟨*text*⟩`}` typesets ⟨*text*⟩ in the Linear B font.

All the character commands start with `\B` (for the B in Linear B).

The commands (and their ASCII equivalents) for the 60 basic signs are given

Table 1: Commands and encoding for the basic signs

	a	e	i	o	u
	\Ba a	\Be e	\Bi i	\Bo o	\Bu u
d	\Bda d	\Bde D	\Bdi f	\Bdo g	\Bdu x
j	\Bja j	\Bje J		\Bjo b	\Bju L
k	\Bka k	\Bke K	\Bki c	\Bko h	\Bku v
m	\Bma m	\Bme M	\Bmi y	\Bmo A	\Bmu B
n	\Bna n	\Bne N	\Bni C	\Bno E	\Bnu F
p	\Bpa p	\Bpe P	\Bpi G	\Bpo H	\Bpu I
q	\Bqa q	\Bqe Q	\Bqi X	\Bqo 8	
r	\Bra r	\Bre R	\Bri O	\Bro U	\Bru V
s	\Bsa s	\Bse S	\Bsi Y	\Bso 1	\Bsu 2
t	\Bta t	\Bte T	\Bti 3	\Bto 4	\Btu 5
w	\Bwa w	\Bwe W	\Bwi 6	\Bwo 7	
z	\Bza z	\Bze Z		\Bzo 9	

Table 2: Commands for the optional signs

a2 \Baii	a3 \Baiii	au \Bau
dwe \Bdwe	dwo \Bdwo	
nwa \Bnwa		
pa3 \Bpaiii	pu2 \Bpuii	pte \Bpte
ra2 \Braii	ra3 \Braiii	ro2 \Broii
swa \Bswa	swi \Bswi	
ta2 \Btaii	two \Btwo	

in Table 1; you can use either the command or its ASCII keyboard equivalent. There are 5 signs for the 5 vowels and the remaining 55 signs are two-character syllables. The apparently random ASCII mapping is so that a companion Cypriot font [Wil99] can use the same ASCII characters for syllables common to both scripts.

The commands for the 16 optional signs are given in Table 2. Each entry is of the form: X \Bcom, where X is the value of the sign and \Bcom is the command. Where the value includes a digit, I have used the corresponding roman numeral in the command.

The commands for the unidentified signs all have the form \BUr, where r is a roman numeral. There are either eleven or twelve of these signs, depending on the particular source for the character descriptions. The commands range from \BUi to \BUxii. The last of these signs, which looks like a 'B', may be classified as 'unidentified' in one source, while another source may give it the meaning *twe*; the commands \BUxii and \Btwe both print the same sign.

The commands for the numbers are given in Table 3. The commands are of the form \BNr, where r is the roman number for the numeral in question.

The Linear B script includes a word divider, which is a short vertical line. In

Table 3: Commands for the numbers

	digits	tens	hundreds	thousands
1	`\BNi`	`\BNx`	`\BNc`	`\BNm`
2	`\BNii`	`\BNxx`	`\BNcc`	
3	`\BNiii`	`\BNxxx`	`\BNccc`	
4	`\BNiv`	`\BNxl`	`\BNcd`	
5	`\BNv`	`\BNl`	`\BNd`	
6	`\BNvi`	`\BNlx`	`\BNdc`	
7	`\BNvii`	`\BNlxx`	`\BNdcc`	
8	`\BNviii`	`\BNlxxx`	`\BNdccc`	
9	`\BNix`	`\BNxc`	`\BNcm`	

Table 4: Commands for weights and measures

Weight		Volume	
Lightest	`\BPwta`	Smallest	`\BPvola`
	`\BPwtb`		`\BPvolb`
	`\BPwtc`	Largest (dry)	`\BPvolcd`
	`\BPwtd`	Largest (fluid)	`\BPvolcf`
Heaviest	`\BPtalent`		

this font, there are three synonomous dividers which are produced by the ASCII keyboard characters `:` `,` `/` (i.e., colon or comma or slash). Using any of these when typesetting the script produce the same word divider sign.

A variety of glyphs are provided encompassing some of the pictograms in the script. These are given in the following tables. All the commands start with `\BP` (the `P` for pictogram).

Table 4 lists the commands for the system of weights, and for volumetric quantities. There is an assumption that the heaviest weight might be a *talent*, which was the most common one in archaic times. There are different pictograms for the largest volume for dry materials (e.g., flour) and liquids.

Table 5 lists pictograms for various goods, and table 6 is for livestock as well as pictograms for a man and a woman.

Pictograms related to warlike activities are in table 7.

`\translitlinb` The command `\translitlinb{`⟨*char-commands*⟩`}`, where ⟨*char-commands*⟩ are the Linear B character commands, will typeset a transliteration of the signs. For example,

Table 5: Commands for commodities

cloth	`\BPcloth`	wool	`\BPwool`
wheat	`\BPwheat`	barley	`\BPbarley`
wine	`\BPwine`	olive oil	`\BPolive`
bronze	`\BPbronze`	gold	`\BPgold`

Table 6: Commands for people and livestock

		man	`\BPman`	woman	`\BPwoman`
sheep	`\BPsheep`	ram	`\BPram`	ewe	`\BPewe`
goat	`\BPgoat`	he goat	`\BPbilly`	she goat	`\BPnanny`
pig	`\BPpig`	boar	`\BPboar`	sow	`\BPsow`
ox	`\BPox`	bull	`\BPbull`	cow	`\BPcow`
horse	`\BPhorse`	foal	`\BPfoal`		

Table 7: Commands for weapons

chariot	`\BPchariot`	sword	`\BPsword`
chariot body	`\BPchassis`	arrow	`\BParrow`
(chariot) wheel	`\BPwheel`	spear	`\BPspear`

`\translitlinb{\Bti\Bme:\Bto/\Bre\Bti\Bre}` will generate
ti-me-:to-/re-ti-re-
Note that in the transliterated form the word dividers (`:` and `/` in this example) are printed as themselves. This is because only the character commands are modified while any other text is printed as is. The unidentified signs, `\BUi` through `\BUxii`, are all transliterated as *?-*. It is a feature of the command that all transliterated commands, except for pictograms, have a trailing `-` sign.

The transliterations of the pictograms are given as words, enclosed in slashes. For example, `\translitlinb{\BPolive}` is */olive oil/* .

`\translitlinbfont` The transliterated Linear B is typeset with the font declarations specified by `\translitlinbfont`, which defaults to `\itshape` thus printing the transliteration in an italic font. The font can be changed by redefining the command. For example, if you wanted to use a bold sans font you would do:
`\renewcommand{\translitlinbfont}{\sffamily\bfseries}`

References

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Numbers written in italic refer to the page where the corresponding entry is described; numbers underlined refer to the code line of the definition; numbers in roman refer to the code lines where the entry is used.