

# ΕΛΛΗΝΙΚΑ ΓΡΑΜΜΑΤΑ: A linguistic analysis of the early Greek alphabets

## Database of inscriptions

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The present database was created during the research for the PhD thesis ‘ΕΛΛΗΝΙΚΑ ΓΡΑΜΜΑΤΑ: A linguistic analysis of the early Greek alphabets’. It contains contextual and linguistic information on all Greek inscriptions from the 8<sup>th</sup> and 7<sup>th</sup> centuries BC known to the author. Here I will explain the information that can be found in the database and how it was encoded to occupy minimal space. More information about the methodology followed here and the decisions taken is found in §2.2 of the aforementioned dissertation. The data can be accessed in .xlsx or .csv formats.

In order to make the database as complete as possible, different sources of information were consulted to find the inscriptions belonging to the chronological framework used here (8<sup>th</sup> and 7<sup>th</sup> centuries BC). The starting point was the 2<sup>nd</sup> edition of Jeffery’s *LSAG* since it is the most important collection of archaic Greek inscriptions known by 1990. Although the usefulness of this book cannot be denied, the material had to be completed with inscriptions from other sources for multiple reasons. Jeffery’s work comprises a selection of inscriptions and, as already mentioned, most of them belong to the 6<sup>th</sup> and 5<sup>th</sup> centuries BC. This means that the total number of inscriptions that could be retrieved from this publication does not offer a complete view of the epigraphic material from the time period that concerns us. Furthermore, new documents have been found since this revised edition was published; thus, other collections and corpora of inscriptions of archaic sites excavated both before and after this publication have also been closely examined and the relevant inscriptions were included in the database. To complete it, I also consulted the Searchable Greek Inscriptions database of The Packard Humanities Institute so as to find any other inscriptions within journals and major epigraphic collections (e.g. *AEph*, *BCH* or *IG*, etc.).

All the inscriptions from these publications that are thought to belong to our chronological framework have been included in the database.<sup>1</sup> However, some inscriptions were excluded out of doubt that they might not be alphabetic writing strictly speaking. This is the case of signs that might be symbols rather than alphabetical letters, including crosses that may well be a chi in some Greek alphabets, or a cross with a symbolic meaning; the same way as a circle could be an omicron or just a circle when it appears as a single sign. Although it could be argued that these can also be interpreted as writing, the doubt that these might not belong to the realm of alphabetic writing, since they might not be representing a phonetic value, is the main reason to exclude them given the importance of the analysis of phonetic values in this dissertation. Other inscriptions that have been excluded from this thesis are the abecedaria in the so-called Fayum tablets. This decision was taken because of the strength of the debate about the dating and the authenticity of these documents.<sup>2</sup>

After the selection and data gathering processes, the database grew to a total of 714 inscriptions. The following information was gathered for each of them: date, origin, context, content, material and object, writing method, writing direction, linguistic correspondence of signs and phonetic values, word dividers and signs of unknown value. In the coming sections, I will explain how the information is organised within each column.

## **[0] Reference**

Each inscription has been made identifiable by a unique code based on the collection, corpus of inscriptions or publication from which it was retrieved. Abbreviations are applied for major publications and collections, whereas the name of the settlement is used for corpora, and those that are found in articles are identified by the author/s and year of publication. The name or abbreviation is followed by the number of the page where the inscription appears and the number of the inscription, both in Arabic numerals and separated by a dot (unless the whole

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<sup>1</sup> All the publications used are mentioned in §.

<sup>2</sup> While Woodard (2007) dates these abecedaria before the 8<sup>th</sup> century BC, Brixhe (2007) maintains that the tablets are copies of early abecedaria made in the 3<sup>th</sup> or 4<sup>th</sup> centuries. However, other scholars like Bingen or Lejeune argue that these are forgeries cf. SEG 55.1860; Lazzarini 1998, 61.

publication is dedicated to the specific inscription e.g. Boardman 1982). Volumes are indicated in Latin numbers where applicable. E.g. Arena III 79.72 refers to: Renato Arena. 1994. *Iscrizioni Greche Arcaiche di Sicilia e Magna Grecia. III Iscrizioni delle Colonie Euboiche*. Pisa, page 79, inscription no.72.

In order to keep abbreviations to a minimum, collections were preferred for the coding system. These are the names and abbreviations used for the naming of the inscriptions:

- *AEph* = *Αρχαιολογική ἐφημερίς: περιοδικὸν τῆς ἐν Ἀθήναις Ἀρχαιολογικῆς Ἐταιρείας*
- Andreiomenou 1981 = Aggeliki Andriomenou. 1981. “Ἀψιδωτά Ὑικοδομήματα καί κεραμεική του 8ου καί 7ου π.Χ. αἰ. ἐν Ἐρετρία”. *Annuario della scuola archeologica di Atene e delle missioni italiane in oriente* 59:187–236
- Arena III = Renato Arena. 1994. *Iscrizioni Greche Arcaiche di Sicilia e Magna Grecia. III Iscrizioni delle Colonie Euboiche*. Pisa
- Arena IV = Renato Arena. 1996. *Iscrizioni Greche Arcaiche di Sicilia e Magna Grecia. IV Iscrizioni delle colonie Achee*. Milano
- *Ath.Ag.* = Mabel L. Lang. 1976. *The Athenian Agora XXI. Graffiti and dipinti*. Princeton
- Bartoněk & Buchner 1995= Antonín Bartoněk and Giorgio Buchner. 1995. “Die ältesten griechischen Inschriften von Pithekoussai”. *Die Sprache* 37 (2): 129–237
- *BCH* = *Bulletin de Correspondence Hellenique*
- Boardman 1982 = John Boardman. 1982. “An Inscribed Sherd from Al Mina”. *Oxford Journal of Archaeology* 1 (3): 365–367
- Callaghan & Coldstream 1981 = P.J. Callaghan, John Nicolas Coldstream, and Jonathan H. Musgrave. 1981. “Knossos: An Early Greek Tomb on lower Gypsadhes Hill”. *The Annual of the British School at Athens* 76:141–165

- Daphnephoros = Anne Kenzelmann Pfyffer, Thierry Theurillat, and Samuel Verdan. 2005. “Graffiti d’*époque géométrique* provenant du sanctuaire d’Apollon Daphnéphoros à Erétrie”. *Zeitschrift für Papyrologie und Epigraphik* 151:51–83
- EG I = Margherita Guarducci. 1995. *Epigrafia greca. Vol.1 Caratteri e storia della disciplina. La scrittura Greca dalle origini all’età imperiale*. Roma
- Hoffmann 1972 = Herbert Hoffmann. 1972. *Early Cretan Armorers*. Mainz am Rhein
- Hymettos = Merle K. Langdon. 1976. *A Sanctuary of Zeus on Mount Hymettos*. Hesperia: Supplement XVI
- IC = *Inscriptiones Creticae*
- IG = *Inscriptiones Graecae*
- IvO = Wilhelm Dittenberger and Karl Purgold. 1896. *Die Inschriften von Olympia*. Berlin
- Kalapodi = Anna Palme-Koufa. 1996. “Die Graffiti auf der Keramik”. In *Kalapodi. Ergebnisse der Ausgrabungen im Heiligtum der Artemis und des Apollon von Hyampolis in der antiken Phokis. Band I*, 271–331. Mainz am Rhein
- Karageorghis & Masson 1965 = Vassos Karageorghis and Olivier Masson. 1965. “Quelques vases inscrits de Salamine de Chypre”. *Kadmos* 4 (2): 146–153
- Kommos = Eric Csapo, A.W. Johnston, and Daniel Geagan. 2000. “The Iron Age Inscriptions”. In *Kommos IV. The Greek Sanctuary*, ed. by W. Shaw, Joseph and Maria C. Shaw, 101–134. Princeton & Oxford
- Lefkandi = Lilian Hamilton Jeffery. 1980. “The Graffiti”. In *Lefkandi I: the Iron Age settlement*, ed. by Mervyn R. Popham et al. London
- LSAG = Lilian Hamilton Jeffery and Alan W. Johnston. 1990. *The local scripts of archaic Greece: a study of the origin of the Greek alphabet and its development from the eighth to the fifth centuries B.C.*. Rev. ed. Oxford
- Manni Piraino 1987 = Maria Teresa Manni Piraino. 1987. “Naxos - frammenti fittili iscritti”. *Kokalos* 33:27–46

- Mazarakis Ainian 1992 = Alexandros I. Mazarakis Ainian. 1992-98. “Επιγραφές από την Κύθνο”. *Horos. Ένα αρχαιολογικό περιοδικό* 10-12:451–454
- Methone = Matthaios Besios, Yannis Z. Tzifopoulos, and Antonis Kotsonas. 2012. *Μεθώνη Περίας: επιγραφές, χαράγματα και εμπορικά σύμβολα στη γεωμετρική και αρχαϊκή κεραμική από το Υπόγειο της Μεθώνης Περίας στη Μακεδονία*. Thessaloniki
- Pythagoreion Mus. = Unpublished item seen in the Pythagoreion Museum (Samos)
- Smyrna = Lilian Hamilton Jeffery. 1964. “Old Smyrna: Inscriptions on sherds and small objects”. *Annual of the British School at Athens* 59:39–49

## [1] Date

Although in many cases the chronology of these inscriptions is debated, here I have followed that given by the editions and collections of inscriptions. Moreover, in order to include as much information as possible in limited space and make it easier to read, a dating code was designed for the database inspired on the one used in *Etruskische Texte*.<sup>3</sup> When a year is not specified, only the century is referred to in Arabic numerals (8, 7 or 6, always BC) followed by these abbreviations:

E	Early	:1	First quarter
L	Late	:2	Second quarter
F	First half	:3	Third quarter
S	Second half	:4	Fourth quarter

Table 1: Date abbreviations

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<sup>3</sup> Rix et al. 2014.

## [2]-[5] Origin & Context

Four columns of the database gather the geographical information of each inscription: origin [2], latitude [3], longitude [4] and context [5]. The settlement where the inscription comes from is specified under ‘origin’ and its coordinates are indicated in ‘latitude’ and ‘longitude’.<sup>4</sup> The specific part of the settlement where the inscription was found is listed under ‘context’ if known. There are also a few cases where the inscription is thought to have a different origin from the settlement where it was found. In these cases, the latter is specified in the context column.<sup>5</sup>

## [6] Material: object

The present column is part of the contextual information of the database. Here, abbreviated and in capital letters are the materials used as support for the inscription.<sup>6</sup> Separated from the material with a colon is a description of the object. Only in a few cases the material or object are not specified because no photographs or information have been found.

While the objects are very varied and do not follow a specific code, I have adopted the following abbreviations for the materials:

C	Ceramic or clay	G	Gold
S	Stone	I	Ivory
B	Bronze		

Table 2: Abbreviations for materials

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<sup>4</sup> This information in most part taken from <https://pleiades.stoa.org>

<sup>5</sup> For specific examples and a complete account of the sites of origin attested see §2.2.3 in the dissertation.

<sup>6</sup> For a complete account of materials used in Greek epigraphy see Jeffery and Johnston 1990, 50-58.

<sup>7</sup> Possibly a burin, according to Guarducci 1995, 463 & 468.

## [7] Writing method

I have categorised the method of writing into three types:

G	Graffito
D	Dipinto
I	Inscription

Table 3: Writing methods abbreviations

Although the results of these three methods are normally referred to as ‘inscriptions’, there are considerable differences in how these three are performed and there is a close relationship between the supporting material and the writing method.

Dipinti are made on ceramic objects, always before firing. Therefore, it is often assumed that at least some potters were able to write and either included writing within their designs or accepted orders from customers that involved writing as well.

Graffiti are also made mostly on ceramics by scratching with some kind of pointed implement.<sup>7</sup> These can be made either before or after firing the object. Although it would have been very interesting to specify whether the graffiti included here were made before or after firing, I decided not to record it. This was owing to the lack of this kind of information in most of the publications. Graffiti can also be seen on materials like bronze, gold, ivory and soft kinds of stone, e.g. limestone.

Finally, I used the term inscription in the database for those samples of writing found on harder materials (mainly stone). These were made with tools that hit the material rather than scratch it, like chisels, and show as a result a deeper cut on the surface.

## [8] Writing direction

The possible writing directions have been listed as follows:

<	Right to left	M	Multiple
>	Left to right	NA	Not Applicable
B	Boustrophedon		

Table 4: Abbreviations for writing direction

The directions right to left and left to right are self-explanatory. Boustrophedon combines the two directions, changing each time a line ends. The category ‘multiple’ is used when different directions appear together, not necessarily in a boustrophedic way, but changing direction within the same line or even combining them in a more complex fashion. ‘Not applicable’ is used when the writing direction cannot be ascertained because the letter or letters are symmetrical and could be read either way. This happens specially with some single-sign inscriptions.<sup>7</sup>

## [9] Content

In this column I collected information on the types of texts that are found within these inscriptions. Even though most of the inscriptions are too fragmented and it is not possible to ascertain what is the content of their texts, several categories have been identified during the gathering of

data:

- **Abecedaria.** Inscriptions that show the alphabetic sequence or part of it.
- **Authorship.** Texts claiming the authorship of the inscription or the making of the object. These sometimes come together with dedications or ownership statements.
- **Boundary.** Marker of a sacred *horos*.
- **Dedications.** Votive inscriptions.

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<sup>7</sup> An exhaustive explanation of the directions used and how they are performed can be seen in Jeffery and Johnston 1990, 43-50.



- **Epitaphs & memorials.** Inscriptions signalling a tomb or honouring the dead.
- **Erotic.** Text referring to the beauty of an individual or to sexual activities (not necessarily connected to a sympotic context).
- **Label.** Within depictions of mythological scenes, the names of the characters are included as labels so as to make them identifiable.
- **Laws & decrees.** Public inscriptions concerning the laws and decrees issued by the institutions of the city.
- **Nonsense.** Inscriptions that, although complete and readable, do not have any meaning.
- **Ownership.** Statements of the owners claiming objects as their property. This can be done with a name in the genitive case, sometimes accompanied by εἰμί. They can also include a curse.
- **Personal name.** When the text shows only the name of an individual, not in the genitive case. Most of these are either in the nominative case or of unknown case because of fragmentation.
- **Single signs.** Inscriptions consisting only of one or two letters. In some cases these could be abbreviations.
- **Sympotic.** Texts referring to activities related to the context of the symposium.

## [10]-[40] Graphematic relationships

The following columns form the linguistic section of the database. Each of them represents a phoneme and, in their rows, a numerical code shows which signs render a given sound in each inscription. In the following subsections, I will explain the distribution of both phonemes and graphemes in the database.

## Phonemes

The reader will notice that the phonetic repertoire follows the IPA conventions, while it is mostly based on the Classical Attic Greek model (with few additions, e.g. /w/).<sup>8</sup> This choice was based on the fact that it has more phonemes than other dialects,<sup>9</sup> it is the most studied and it offers the largest amount of evidence, thus it is the one we know best.<sup>10</sup> The values considered as a result can be seen in Tables 5 and 6.

Vowels	Column
/a/-/a:/	[10]
/e/	[11]
/i/-/i:/	[12]
/o/	[13]
/u/-/u:/-/y/-/y:/	[14]
/ɛ:/-/æ:/	[15]
/ɔ:/	[16]
/e:/	[17]
/o:/	[18]

Table 5: Vowel system

Consonants	Column
Nasals	/m/ [19]
	/n/ [20]
Lateral approximant	/l/ [21]
Trill	/r/ [22]
Approximant	/w/ [23]
Fricative	/h/ [24]

<sup>8</sup> Following mostly Allen 1987 and van Emde Boas et al. 2019.

<sup>9</sup> As a non-psilotic dialect it has the aspiration /h/ and as *Doris mitior* it has different phonemes resulting from compensatory lengthenings and vowel contractions and therefore has a differentiation /e:/ vs. /e:/ and /o:/ vs. /ɔ:/. See §2.2.4 in the thesis for a more detailed discussion.

<sup>10</sup> Accommodating all the dialectal features present in the chronological framework of the thesis was not an easy task. I invite the reader to go to §2.2.4 to see the decisions that were taken in this respect.

Sibilant	/s/	[25]
Stops	/b/	[26]
	/d/	[27]
	/g/	[28]
	/p/	[29]
	/t/	[30]
	/k/	[31]
Aspirated stops	/k/ before back vowels	[32]
	/p <sup>h</sup> /	[33]
	/t <sup>h</sup> /	[34]
Compound sounds	/k <sup>h</sup> /	[35]
	/ps/	[36]
	/ks/	[37]
	/zd/	[38]

Table 6: Consonant system

## Graphemes

In order to make the comparison between alphabets possible, a unique number has been assigned to each grapheme to be used throughout the whole database, so that it is easier to identify the different values of a same grapheme or the use of different graphemes for the same value depending on the epichoric alphabet. The allographs for each of them are listed under the number given to the grapheme.<sup>11</sup> In the database, I recorded this information using the numbers given as a code to avoid problems with the font and to make searches easier. The table below (Table 7) is the complete list of the graphemes and allographs considered here (all as they would appear on a text written from left to right) and the numbers applied to them.<sup>12</sup>

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<sup>11</sup> Deciding whether a sign is an allograph of another or a separate grapheme was an important part of the research. Please, see §2.2.4 in the dissertation for a detailed discussion of the decision process.

<sup>12</sup> Since the same grapheme may be used for two different phonemes depending on the alphabet, it was not possible to follow a strict alphabetic order (based on the order of the Ionian alphabet), but it was kept whenever possible.

Two more symbols are used in the encoding of the graphemic information: (\*) and (.). The asterisk is used when the sign has been mirrored, either horizontally (} vs. {) or vertically (∨ vs. ∩). The point separates two graphemes that have been used for a given phoneme in the same inscription, e.g. † and ‡ for /s/ = 31.32.

1	A	Α Β Α	18	ʌ		35	ʌ		52	P	∩∩
2	ɸ		19	ʃ	ʃ	36	ʃ	ʃ	53	ʃ	ʃ
3	β	β	20	I		37	ʃ		54	‡	{}
4	C	(	21	H		38	M		55	ϻ	{}
5	ρ		22	□		39	ʃ		56	∩	
6	β		23	⊖		40	ʃ	N	57	T	†
7	∩		24	⊖		41	X		58	Y	Y Y
8	Λ	∩	25	⊕	⊗	42	‡	‡	59	∨	
9	Γ		26	⊖		43	○		60	ϕ	
10	∩	∩	27	⊖		44	○		61	Y	
11	Γ		28			45	⊙		62	∨	
12	<		29	∩		46	◇		63	+	
13	D	∩∩	30	∩	∩	47	Γ	Γ	64	∩	∩
14	Δ		31	∩	∩	48	∩		65	T	
15	∩	∩∩∩	32	{	Σ	49	∩	∩	66	:	:
16	∩		33	K	K K	50	∩		67	:	∩
17	∩		34	∩		51	∩	∩	68		∩

Table 7: Codes for graphemes and their allographs

### [39] Word dividers

This column contains information on the signs used to separate words. It follows the same numbered code as the columns of vowels and consonants.

## **[40] Uncertain**

Here, I have recorded all those graphemes for which a phonetic value cannot be reconstructed in the specific inscription. This might be because the text is fragmentary, nonsensical or because that particular grapheme could signify more than one value depending on its origin.

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