PROPOSAL SUMMARY FORM

A. Administrative

1.Title
Proposal to encode Ancient Greek Musical Notation Characters in the UCS
2. Requester's name
Thesaurus Linguae Graecae Project (University of California, Irvine)
3. **Requester type**
Expert contribution
4. Submission date:
2002-08-21
5. Requester's reference
6. Completion
This is a complete proposal. Additional information may be provided upon request

B. Technical - General

1.The proposal is for addition of character(s) to an existing block:
Greek and Coptic
2. Number of characters in proposal:
72 new characters
26 new definitions to characters already in UCS
3. Proposed category
Category C
4. Proposed Level of Implementation:
Level 1 and 3 for combining characters.
5a. Character names provided?
Yes.
5b. Character names in accordance with guidelines
Yes.
5c. Character shapes reviewable?
Yes
6a. Who will provide the appropriate computerized font for publishing the standard?
TLG Project
6b. Fonts currently available.
A number of Greek Unicode fonts are already available and listed at:
http://www.tlg.uci.edu/help/UnicodeTest.html. Additional symbols for new characters to be
added.
6c. Font format
True Type
7a. Are references (to other character sets, dictionaries, descriptive texts etc.) provided?
Yes
7b. Are published examples of proposed characters attached?
Yes.
8. Does the proposal address other aspects of character data processing?
No.

C. Technical - Justification

1. Has this proposal for addition of character(s) been submitted before?

No.

2. Has contact been made to members of the user community

Yes.The TLG has been in contact with a great number of experts in the field of Classics including textual criticism, papyrology, epigraphy, numismatics and historical linguistics. Earlier version of this proposal have been posted online and received comments by members of the profession.

3. Information on the user community for the proposed characters

Scholarly community.

4. The context of use for the proposed characters (type of use; common or rare)

Use varies. Some characters are common in extant Greek texts. Some appear less often. Approximate counts based on the TLG corpus have been included in the proposal when available.

5. Are the proposed characters in current use by the user community?

Yes. Characters are present in various editions of Greek texts and used extensively by scholars and students of Greek as well as individuals interested in the study of the Greek language. General references provided in attached bibliography.

6. After giving due considerations to the principles in *Principles and Procedures document*, must the proposed characters be entirely in the BMP?

Yes.

If YES, is a rationale provided?

Accordance with the Roadmap.

7. Should the proposed characters be kept together in a contiguous range (rather than being scattered)?

Some characters may be scattered. The majority falls into several contiguous ranges.

8. Can any of the proposed characters be considered a presentation form of an existing character or character sequence?

No.

9. Can any of the proposed characters be encoded using a composed character sequence of either existing characters or other proposed characters?

Yes. However, existing characters produce unworkable results.

10. Can any of the proposed character(s) be considered to be similar (in appearance or function) to an existing character?

No.

11a. Does the proposal include use of combining characters and/or use of composite sequences

Yes (combining characters).

11b. Is a list of composite sequences and their corresponding glyph images (graphic symbols) provided?

No. However, all possible sequences are discussed in the proposal.

12. Does the proposal contain characters with any special properties such as control function or similar semantics?

No.

13. Does the proposal contain any Ideographic compatibility character(s)?

No.

Proposal to encode Ancient Greek Musical Characters in the UCS

Additional documentation available at: http://www.tlg.uci.edu/~tlg/Uni.prop.html

Music played a central role in Ancient Greek and Roman societies. We have surviving musical scores of all sorts, ranging from a fragment of Euripides' *Orestes* to Christian hymns.[1] The Greeks had two systems of musical notation which correspond note for note with each other: one for the vocal and one for the instrumental melody (See overview of the two systems of notation below). The whole scheme covers a little over three octaves. The symbols form groups of three. The bottom symbol in each triad represents a 'natural' note on a diatonic scale. The modern notes shown in the boxes are the conventional equivalents used in most scholarly literature. The other two symbols in each triad represent successive sharpenings of the 'natural' note.[2] West also notes that the "degree of sharpening is not fixed but varies between a quarter–tone and a semitone, depending on the genus of the composition or the conventions of the key."[3] There is no distinction in this system between enharmonic and chromatic scales.

Greek Vocal Notation

The characters proposed here represent simple rotations or reflections of the characters of standard Greek alphabet. Exceptions to this will be discussed in the appropriate characters below. Greek Vocal Notation Symbols 1-24 are a set of variants on the whole Greek alphabet in reverse order. Greek Vocal Notation Symbols 49-54 are further variants of the last six letters of the standard Greek alphabet, again in reverse order.

Greek Instrumental Notation

The Instrumental set is rather more complicated in form and obscure in origin than the vocal notation.[4] The first two triads are variations on the last six letters of the Greek alphabet. The following twelve triads are formed thus: the first character is either a standard Greek letter or is a variant thereof; the second character in the triad is the first character rotated 90º counter-clockwise; the third is the first character reflected in the y-axis. The final three triads proposed all have variants of 039D GREEK CAPITAL LETTER ETA as their first symbol. The second and third symbols in each are based on diagonal slashes.[5] Instrumental symbols that overlap with vocal, even at different pitches have not been included in this proposal. Also symbols that overlap with Greek alphabetic characters have not been reproposed.

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[1] Ibid. 218-263 for an in depth analysis of surviving scores. See also Mathiesen (1999) 12-13, 247-252.

[2] West (1992) 255

[3] Ibid.

[4] See Winnington-Ingram (1978) 237

[5] See Winnington-Ingram (1978) 241-248

The Font Used in this Proposal

The vast majority of these characters are variant forms of standard upper case Greek letters. We have used a font without serifs to represent these characters, for reasons of clarity and because scholars usually type musical characters in fonts without serifs in order to distinguish them from the usually serifed standard Greek font they are using. It is not, however, prescriptive that these characters are used in a font without serifs; for instance West uses a font with serifs.[6]

The Beta Code Field

Of the central ancient Greek musical treatises, only Aristides Quintilianus and Anonyma Bellermaniana are currently in the TLG Canon. Further, there are as yet, no musical scores in the TLG Canon. As a result, the Beta Code Counts should not be taken as representative, but rather perhaps as indicators, of the frequency these characters occur in Greek literature. Additional references are provided.

Naming Conventions

There is no standardized ancient system for naming these characters. For instance, while Alypius—our most extensive source[7]—provides descriptive names for the characters, such as 'inverted gamma' for Vocal Notation Symbol 22, his scheme of naming is based on his own deductions from looking at the characters, rather than understanding how they developed and, on occasion his naming is misleading and his terminology inconsistent. For instance, Vocal Notation Symbol 20 is described as being a Digamma, however, given its position in the list of following a variant Delta and preceding a variant Zeta, it is much more likely that it is a variant Epsilon.[8] We propose the standard names widely used by modern scholars. The naming convention is simple: Vocal Notation Symbol 1, etc.[9]

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[6] West (1996) 256

[7] Landels (1999) 207

[8] For further discussion on this, and on the problems of naming these musical symbols based on ancient testimony, see Winnington-Ingram (1978) 237-248. See also Landels (1999) 207-208.

[9] An attempt to provide a revised system, which removed Vocal and Instrumental Notation Symbols 1-3 was proposed by Pöhlmann (1970) 144 (who in turn was following Chailley) on the argument that these were late additions. However, this revision has since been discarded since new papyri have now been published which include these characters. See Johnson (2001).

Bibliography

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Jan, K., *Musici scriptores Graeci* (Hildesheim, 1962)

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Landels, J.G., *Music in Ancient Greece and Rome* (London, 1999)

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Pöhlmann, E., *Denkmäler altgriechischer Musik* (Nuremberg, 1970)

West, M.L., *Ancient Greek Music* (Oxford, 1992)

Winnington-Ingram, R.P., "The First Notational Diagram of Aristides Quintilianus", in *Philologus* 117 (1973) 244-249

Winnington-Ingram, R.P., "Two studies in Greek musical notation" in *Philologus* 122 (1978) 237-248

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Overview of Ancient Greek Musical Notation[10]

Modern Equivalent	Notation Number	Vocal Characters	Instrumental Characters	Modern Equivalent	Notation Number	Vocal Characters	Instrumental Characters	Modern Equivalent	Notation Number	Vocal Characters	Instrumental Characters	Modern Equivalent	Notation Number	Vocal Characters	Instrumental Characters
					54	⊥	Ƴ		33	Π	Ɔ		12	И	⊟
					53	Υ	Ƴ		32	Ρ	Ϲ		11	Ͷ	⊟
				a′	52	Θ	↳	*a*	31	Ϲ	Ϲ	*A*	10	φ	Η
					51	Ж	Ƴ		30	Τ	Ⅎ		9	Ц	Ɜ
					50	Ѣ	ↄ		29	Υ	Ⅎ		8	Ь	ω
g″	70	Ʊ′	⅂′	*g′*	49	Ʊ	⅂	*g*	28	Φ	Ⅎ	*G*	7	Ɜ	Ɛ
	69	Α′	\′		48	Α	\		27	Χ	Ꞁ		6	⊤	Τ
	68	Β′	/′		47	Β	/		26	Ψ	⌐		5	Υ	Υ
f″	67	Γ′	Ͷ′	*f′*	46	Γ	Ͷ	*f*	25	Ω	⌐	*F*	4	ᗡ	Ρ
	66	Δ′	⌐′		45	Δ	⌐		24	Ɐ	⅂		3	Ӿ	Ӿ
	65	Ε′	Ⴂ′		44	Ε	Ⴂ		23	Я	Ⅼ		2	Ⴄ	Ⴄ
e″	64	Ζ′	⊏′	*e′*	43	Ζ	⊏	*e*	22	Ⴗ	Γ	*E*	1	Ↄ	Ω
	63	Η′	>′		42	Η	>		21	∇	⊤				
	62	Θ′	Ⅴ′		41	Θ	Ⅴ		20	Ⅎ	⊥				
d″	61	Ι′	<′	*d′*	40	Ι	<	*d*	19	Ꙅ	⊦				
	60	Κ′	Λ′		39	Κ	Λ		18	Ⱶ	Ⅎ				
	59	Λ′	◁′		38	Λ	◁		17	⌐	Ш				
c″	58	Μ′	▷′	*c′*	37	Μ	▷	*c*	16	\	Ε				
	57	Ν′	⋆		36	Ν	⋆		15	Ӿ	Ⴗ				
	56	Ξ′	Ӿ		35	Ξ	Ӿ		14	Ⅴ	Γ				
b′	55	Ο′	Κ′	*b*	34	Ο	Κ	*B*	13	Ш	Ⴙ				

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[10] Not including combining characters.

A. Ancient Greek Musical Characters: New Characters

Number		Name	Unicode	Comment
Ancient Greek Vocal Notation				
1a	Ɔ	Greek Vocal Notation Symbol 1		
2a	Ə	Greek Vocal Notation Symbol 2		
3a	Ӿ	Greek Vocal Notation Symbol 3 · Greek Instrumental Notation Symbol 3		
4a	ᴅ	Greek Vocal Notation Symbol 4		
5a	⊰	Greek Vocal Notation Symbol 5		
6a	⅃	Greek Vocal Notation Symbol 6 · Greek Instrumental Notation Symbol 21		
7a	ε	Greek Vocal Notation Symbol 7 · Greek Instrumental Notation Symbol 9		
8a	Ь	Greek Vocal Notation Symbol 8		
9a	⊔	Greek Vocal Notation Symbol 9 · Greek Instrumental Notation Symbol 44		
10a	♀	Greek Vocal Notation Symbol 10		A variant of 03D8 (Koppa)
11a	Ͷ	Greek Vocal Notation Symbol 11		
12a	И	Greek Vocal Notation Symbol 12		
13a	ꟺ	Greek Vocal Notation Symbol 13		
14a	V	Greek Vocal Notation Symbol 14 · Greek Instrumental Notation Symbol 41		Similar to 0056 LATIN CAPITAL LETTER V
15a	⋜	Greek Vocal Notation Symbol 15 · Greek Instrumental Notation Symbol 35		
16a	＼	Greek Vocal Notation Symbol 16		One glyph variant is similar to 005C RECERSE SOLIDUS; another variant is similar to 2014 EM DASH
17a	∩	Greek Vocal Notation Symbol 17		
18a	⊢	Greek Vocal Notation Symbol 18 · Greek Instrumental Notation Symbol 15		
19a	⌐	Greek Vocal Notation Symbol 19		
20a	F	Greek Vocal Notation Symbol 20 · Greek Instrumental Notation Symbol 28		0046 LATIN CAPITAL LETTER F
21a	∇	Greek Vocal Notation Symbol 21		
22a	⌐	Greek Vocal Notation Symbol 22		
23a	R	Greek Vocal Notation Symbol 23		0052 LATIN CAPITAL LETTER R
24a	Ɐ	Greek Vocal Notation Symbol 24		
25a	℧	Greek Vocal Notation Symbol 49		Similar to 2127 INVERTED OHM SIGN
26a	ⱖ	Greek Vocal Notation Symbol 50		
27a	X̄	Greek Vocal Notation Symbol 51		
28a	θ	Greek Vocal Notation Symbol 52		
29a	⋎	Greek Vocal Notation Symbol 53		

30a	⊥	Greek Vocal Notation Symbol 54 · Greek Instrumental Notation Symbol 20		
Ancient Greek Instrumental Notation				
31a	⊆	Greek Instrumental Notation Symbol 1		
32a	∈	Greek Instrumental Notation Symbol 2		
33a	◻	Greek Instrumental Notation Symbol 4		
34a	⅄	Greek Instrumental Notation Symbol 5		
35a	ε	Greek Instrumental Notation Symbol 7		
36a	ω	Greek Instrumental Notation Symbol 8		
37a	Ⱶ	Greek Instrumental Notation Symbol 11		
38a	Ⴙ	Greek Instrumental Notation Symbol 12		
39a	⅄	Greek Instrumental Notation Symbol 13		
40a	⌐	Greek Instrumental Notation Symbol 14		
41a	ꟸ	Greek Instrumental Notation Symbol 17		
42a	Ǝ	Greek Instrumental Notation Symbol 18		
43a	⊢	Greek Instrumental Notation Symbol 19		
44a	L	Greek Instrumental Notation Symbol 23		
45a	⌐	Greek Instrumental Notation Symbol 24		
46a	⌐	Greek Instrumental Notation Symbol 25		
47a	⌐	Greek Instrumental Notation Symbol 26		
48a	⅄	Greek Instrumental Notation Symbol 27		
49a	ⱶ	Greek Instrumental Notation Symbol 29		
50a	∃	Greek Instrumental Notation Symbol 30		
51a	ɔ	Greek Instrumental Notation Symbol 32		
52a	Ж	Greek Instrumental Notation Symbol 36		
53a	▷	Greek Instrumental Notation Symbol 37		
54a	◁	Greek Instrumental Notation Symbol 38		
55a	Λ	Greek Instrumental Notation Symbol 39		
56a	<	Greek Instrumental Notation Symbol 40		
57a	>	Greek Instrumental Notation Symbol 42		
58a	⊏	Greek Instrumental Notation Symbol 43		
59a	⊐	Greek Instrumental Notation Symbol 45		
60a	╱	Greek Instrumental Notation Symbol 47		Similar to 002F
61a	╲	Greek Instrumental Notation Symbol 48		Similar to 005C
62a	⅃	Greek Instrumental Notation Symbol 49		
63a	⟋	Greek Instrumental Notation Symbol 50		
64a	⟍	Greek Instrumental Notation Symbol 51		
65a	⅄	Greek Instrumental Notation Symbol 52		
66a	⟋	Greek Instrumental Notation Symbol 53		
67a	⟍	Greek Instrumental Notation Symbol 54		
Further Greek Musical Notation Symbols				
68a	◌̈	Greek Musical Diseme		Combining characters
69a	◌̈	Greek Musical Triseme		Combining characters
70a	◌̈	Greek Musical Tetraseme		Combining characters
71a	◌̈	Greek Musical Pentaseme		Combining characters
72a	∩	Greek Musical Leimma		

B. Ancient Greek Musical Characters already in the UCS: Additional Definition of Characters

Number		Name	Unicode	Comment
Ancient Greek Vocal Notation				
1b	Ω	Greek Vocal Notation Symbol 25	03A9	
2b	Ψ	Greek Vocal Notation Symbol 26	03A8	
3b	Χ	Greek Vocal Notation Symbol 27	03A7	
4b	Φ	Greek Vocal Notation Symbol 28	03A6	
5b	Υ	Greek Vocal Notation Symbol 29	03A5	
6b	Τ	Greek Vocal Notation Symbol 30	03A4	
7b	Ϲ	Greek Vocal Notation Symbol 31		
8b	Ρ	Greek Vocal Notation Symbol 32	03A1	
9b	Π	Greek Vocal Notation Symbol 33	03A0	
10b	Ο	Greek Vocal Notation Symbol 34	039F	
11b	Ξ	Greek Vocal Notation Symbol 35	039E	
12b	Ν	Greek Vocal Notation Symbol 36 · Greek Instrumental Notation Symbol 46	039D	
13b	Μ	Greek Vocal Notation Symbol 37	039C	
14b	Λ	Greek Vocal Notation Symbol 38	039B	
15b	Κ	Greek Vocal Notation Symbol 39 · Greek Instrumental Notation Symbol 34	039A	
16b	Ι	Greek Vocal Notation Symbol 40	0399	
17b	Θ	Greek Vocal Notation Symbol 41	0398	
18b	Η	Greek Vocal Notation Symbol 42	0397	
19b	Ζ	Greek Vocal Notation Symbol 43	0396	
20b	Ε	Greek Vocal Notation Symbol 44 · Greek Instrumental Notation Symbol 16	0395	
21b	Δ	Greek Vocal Notation Symbol 45	0394	
22b	Γ	Greek Vocal Notation Symbol 46	0393	
23b	Β	Greek Vocal Notation Symbol 47	0392	
24b	Α	Greek Vocal Notation Symbol 48	0391	
25b	◌̇	Greek Musical Stigme	0307 02D9	Non-spacing character Spacing character
26b	+	Greek Musical Unreadable Notation	002B	