

# Greek characters supported by *greek-fontenc*

Günter Milde

August 16, 2023

## Abstract

This document lists all Greek characters that are supported by *greek-fontenc*. It also tests the outcome of `\MakeUppercase` and `\MakeLowercase` for different input variants (literal input, LICR<sup>1</sup> macro, Latin transliteration).

The document is compiled with pdfLaTeX, format version 2020-10-01 patch-level 4, and the L3 programming layer from 2021-01-09.

The *babel-greek* version is “2023/06/23 1.13.3 Greek support for the babel system”.

The `\greekfontencoding` is LGR and the current language variant is *polutoniko*.

## Contents

### 1 Input Variants

The columns represent the following input variants:

1. literal character
2. named accent macro + LICR
3. short accent macro + LICR
4. short accent macro + transliteration
5. accent character + transliteration

For composite diacritics, there are additional columns for short macros in reversed order and with the second diacritic as accent macro.

### 2 Greek and Coptic

Characters from the Greek and Coptic Unicode block that are supported by *greek-fontenc* and *greek-inputenc*:

x0374	''	''	''
x0375	''	''	''
x037A	.....	.....	.....
0x37E	;;;;;	;;;;;	;;;;;
x0384	'''''	'''''	'''''

---

<sup>1</sup>LaTeX internal character representation

x0385	''''''	.....	''''''
x0386	'A'A'A'A'A	A A A A A	άάάάά
x0387	.....	.....	.....
x0388	'E'E'E'E'E	E E E E E	έέέέέ
x0389	'H'H'H'H'H	H H H H H	ήήήήή
x038A	'I'I'I'I'I	I I I I I	ίίίίί
x038C	'O'O'O'O'O	O O O O O	όόόόό
x038E	'Υ'Υ'Υ'Υ'Υ	Υ Υ Υ Υ Υ	ύύύύύ
x038F	'Ω'Ω'Ω'Ω'Ω	Ω Ω Ω Ω Ω	ώώώώώ
x0390	iiiiiiii	İİİİİİİİ	ίίίίίίίί
x0391	A A A A A	A A A A A	ααααα
x0392	B B B B B	B B B B B	βββββ
x0393	Γ Γ Γ Γ Γ	Γ Γ Γ Γ Γ	γγγγγ
x0394	Δ Δ Δ Δ Δ	Δ Δ Δ Δ Δ	δδδδδ
x0395	E E E E E	E E E E E	εεεεε
x0396	Z Z Z Z Z	Z Z Z Z Z	ζζζζζ
x0397	H H H H H	H H H H H	ηηηηη
x0398	Θ Θ Θ Θ Θ	Θ Θ Θ Θ Θ	θθθθθ
x0399	I I I I I	I I I I I	ιιιιι
x039A	K K K K K	K K K K K	κκκκκ
x039B	Λ Λ Λ Λ Λ	Λ Λ Λ Λ Λ	λλλλλ
x039C	M M M M M	M M M M M	μμμμμ
x039D	N N N N N	N N N N N	ννννν
x039E	Ξ Ξ Ξ Ξ Ξ	Ξ Ξ Ξ Ξ Ξ	ξξξξξ
x039F	O O O O O	O O O O O	οοοοο
0x3A0	Π Π Π Π Π	Π Π Π Π Π	πππππ
0x3A1	Ρ Ρ Ρ Ρ Ρ	Ρ Ρ Ρ Ρ Ρ	ρρρρρ
0x3A3	Σ Σ Σ Σ Σ	Σ Σ Σ Σ Σ	ςςςςς
0x3A4	Τ Τ Τ Τ Τ	Τ Τ Τ Τ Τ	τττττ
0x3A5	Υ Υ Υ Υ Υ	Υ Υ Υ Υ Υ	υυυυυ
0x3A6	Φ Φ Φ Φ Φ	Φ Φ Φ Φ Φ	φφφφφ
0x3A7	Χ Χ Χ Χ Χ	Χ Χ Χ Χ Χ	χχχχχ
0x3A8	Ψ Ψ Ψ Ψ Ψ	Ψ Ψ Ψ Ψ Ψ	ψψψψψ
0x3A9	Ω Ω Ω Ω Ω	Ω Ω Ω Ω Ω	ωωωωω
0x3AA	İ İ İ İ İ	İ İ İ İ İ	ϊϊϊϊϊ
0x3AB	ÿ Ÿ Ÿ Ÿ Ÿ	ÿ Ÿ Ÿ Ÿ Ÿ	ÿÿÿÿÿ
0x3AC	ά ά ά ά ά	A A A A A	άάάάά
0x3AD	έ έ έ έ έ	E E E E E	έέέέέ
0x3AE	ή ή ή ή ή	H H H H H	ήήήήή
0x3AF	ί ί ί ί ί	I I I I I	ίίίίί
x03B0	ύ ύ ύ ύ ύ ύ ύ	ÿ Ÿ Ÿ Ÿ Ÿ Ÿ Ÿ Ÿ	ύ ύ ύ ύ ύ ύ ύ
x03B1	α α α α α	A A A A A	α α α α α
x03B2	β β β β β	B B B B B	β β β β β
x03B3	γ γ γ γ γ	Γ Γ Γ Γ Γ	γ γ γ γ γ
x03B4	δ δ δ δ δ	Δ Δ Δ Δ Δ	δ δ δ δ δ
x03B5	ε ε ε ε ε	E E E E E	ε ε ε ε ε
x03B6	ζ ζ ζ ζ ζ	Z Z Z Z Z	ζ ζ ζ ζ ζ
x03B7	η η η η η	H H H H H	η η η η η
x03B8	θ θ θ θ θ	Θ Θ Θ Θ Θ	θ θ θ θ θ
x03B9	ι ι ι ι ι	I I I I I	ι ι ι ι ι
x03BA	κ κ κ κ κ	K K K K K	κ κ κ κ κ

x03BB	λ λ λ λ λ	Λ Λ Λ Λ Λ	λ λ λ λ λ
x03BC	μ μ μ μ μ	Μ Μ Μ Μ Μ	μ μ μ μ μ
x03BD	ν ν ν ν ν	Ν Ν Ν Ν Ν	ν ν ν ν ν
x03BE	ξ ξ ξ ξ ξ	Ξ Ξ Ξ Ξ Ξ	ξ ξ ξ ξ ξ
x03BF	ο ο ο ο ο	Ο Ο Ο Ο Ο	ο ο ο ο ο
x03C0	π π π π π	Π Π Π Π Π	π π π π π
x03C1	ρ ρ ρ ρ ρ	Ρ Ρ Ρ Ρ Ρ	ρ ρ ρ ρ ρ
x03C2	ς ς ς ς ς	Σ Σ Σ Σ Σ	ς ς ς ς ς
x03C3	σ σ σ σ σ	Σ Σ Σ Σ Σ'	σ σ σ σ σ
x03C4	τ τ τ τ τ	Τ Τ Τ Τ Τ	τ τ τ τ τ
x03C5	υ υ υ υ υ	Υ Υ Υ Υ Υ	υ υ υ υ υ
x03C6	φ φ φ φ φ	Φ Φ Φ Φ Φ	φ φ φ φ φ
x03C7	χ χ χ χ χ	Χ Χ Χ Χ Χ	χ χ χ χ χ
x03C8	ψ ψ ψ ψ ψ	Ψ Ψ Ψ Ψ Ψ	ψ ψ ψ ψ ψ
x03C9	ω ω ω ω ω	Ω Ω Ω Ω Ω	ω ω ω ω ω
x03CA	ϊ ι ι ι ι	Ϊ Ϊ Ϊ Ϊ Ϊ	ϊ ι ι ι ι
x03CB	ϋ ϋ ϋ ϋ ϋ	Ϋ Ϋ Ϋ Ϋ Ϋ	ϋ ϋ ϋ ϋ ϋ
x03CC	ό ό ό ό ό	Ο Ο Ο Ο Ο	ό ό ό ό ό
x03CD	ύ ύ ύ ύ ύ	Υ Υ Υ Υ Υ	ύ ύ ύ ύ ύ
x03CE	ώ ώ ώ ώ ώ	Ω Ω Ω Ω Ω	ώ ώ ώ ώ ώ
x03D0	β β	Β Β	β β
x03D1	θ θ	Θ Θ	θ θ
x03D5	φ φ	Φ Φ	φ φ
x03D6	π π	Π Π	π π
x03D8	ρ ρ	Ρ Ρ	ρ ρ
x03D9	φ φ	Φ Φ	φ φ
x03DA	τ τ	Τ Τ	τ τ
x03DB	ς ς	Σ Σ	ς ς
x03DC	Ϝ Ϝ	Ϝ Ϝ	Ϝ Ϝ
x03DD	ϝ ϝ	ϝ ϝ	ϝ ϝ
x03DE	ι ι	Ι Ι	ι ι
x03DF	ι ι	Ι Ι	ι ι
x03E0	λ λ	Λ Λ	λ λ
x03E1	λ λ	Λ Λ	λ λ
x03F0	κ κ	Κ Κ	κ κ
x03F1	ρ ρ	Ρ Ρ	ρ ρ
x03F4	θ θ	Θ Θ	θ θ
x03F5	ε ε	Ε Ε	ε ε

### 3 Greek extended

x1F00	ά ά ά ά ά	Α Α Α Α Α	ά ά ά ά ά
x1F01	ά ά ά ά ά	Α Α Α Α Α	ά ά ά ά ά
x1F02	â â â â â â â â	Α Α Α Α Α Α Α Α	â â â â â â â â
x1F03	â â â â â â â â	Α Α Α Α Α Α Α Α	â â â â â â â â
x1F04	ǎ ǎ ǎ ǎ ǎ ǎ ǎ ǎ	Α Α Α Α Α Α Α Α	ǎ ǎ ǎ ǎ ǎ ǎ ǎ ǎ
x1F05	ǎ ǎ ǎ ǎ ǎ ǎ ǎ ǎ	Α Α Α Α Α Α Α Α	ǎ ǎ ǎ ǎ ǎ ǎ ǎ ǎ
x1F06	ǎ ǎ ǎ ǎ ǎ ǎ ǎ ǎ	Α Α Α Α Α Α Α Α	ǎ ǎ ǎ ǎ ǎ ǎ ǎ ǎ
x1F07	ǎ ǎ ǎ ǎ ǎ ǎ ǎ ǎ	Α Α Α Α Α Α Α Α	ǎ ǎ ǎ ǎ ǎ ǎ ǎ ǎ

x1F08	À Á Â Ã Ä	A A A A	à á â ã ä
x1F09	Å Æ Ç È É	A A A A	å æ ç è é
x1F0A	Ê Ë Ì Í Î Ï Ñ Ò Ó	A A A A A A A A	ê ë ì í î ï ñ ò ó
x1F0B	Ô Õ Ö × Ø Ù Ú Û Ü	A A A A A A A A	ô õ ö ø ù ú û ü
x1F0C	Ý Þ ß à á â ã	A A A A A A A A	ý þ ß à á â ã
x1F0D	ä å æ ç è é	A A A A A A A A	ä å æ ç è é
x1F0E	ê ë ì í î ï ñ ò	A A A A A A A A	ê ë ì í î ï ñ ò
x1F0F	ó ô õ ö ø ù ú û	A A A A A A A A	ó ô õ ö ø ù ú û
x1F10	È É Ê Ë Ì	E E E E E	è é ê ë ì
x1F11	Í Î Ï Ñ Ò Ó	E E E E E	í î ï ñ ò ó
x1F12	Ô Õ Ö × Ø Ù Ú	E E E E E	ô õ ö ø ù ú
x1F13	Û Ü Ý Þ ß à	E E E E E	û ü ý þ ß à
x1F14	á â ã ä å æ ç	E E E E E	á â ã ä å æ ç
x1F15	è é ê ë ì	E E E E E	è é ê ë ì
x1F18	Ì Í Î Ï Ñ Ò	E E E E E	ì í î ï ñ ò
x1F19	Ó Ô Õ Ö × Ø Ù	E E E E E	ó ô õ ö ø ù
x1F1A	Ú Û Ü Ý Þ ß	E E E E E	ú û ü ý þ ß
x1F1B	à á â ã ä å	E E E E E	à á â ã ä å
x1F1C	æ ç è é ê ë ì	E E E E E	æ ç è é ê ë ì
x1F1D	í î ï ñ ò ó	E E E E E	í î ï ñ ò ó
x1F20	Ħ Ĩ Ĵ ĵ Ķ	H H H H H	ħ ĩ ĵ ħ ĳ
x1F21	Ĵ ĵ Ķ ħ ĩ Ĵ	H H H H H	ĵ ħ ĳ ħ ĩ ĵ
x1F22	Ķ ħ ĩ Ĵ ĵ Ķ	H H H H H	ĳ ħ ĳ ħ ĳ ĳ
x1F23	Ĵ ĵ Ķ ħ ĩ Ĵ	H H H H H	ĵ ħ ĳ ħ ĳ ĳ
x1F24	Ĵ ĵ Ķ ħ ĩ Ĵ	H H H H H	ĵ ħ ĳ ħ ĳ ĳ
x1F25	Ĵ ĵ Ķ ħ ĩ Ĵ	H H H H H	ĵ ħ ĳ ħ ĳ ĳ
x1F26	Ĵ ĵ Ķ ħ ĩ Ĵ	H H H H H	ĵ ħ ĳ ħ ĳ ĳ
x1F27	Ĵ ĵ Ķ ħ ĩ Ĵ	H H H H H	ĵ ħ ĳ ħ ĳ ĳ
x1F28	Ĥ Ħ Ĩ Ĵ ĵ Ķ	H H H H H	ĥ ħ ĳ ħ ĳ ĳ
x1F29	Ĥ Ħ Ĩ Ĵ ĵ Ķ	H H H H H	ĥ ħ ĳ ħ ĳ ĳ
x1F2A	Ĥ Ħ Ĩ Ĵ ĵ Ķ	H H H H H	ĥ ħ ĳ ħ ĳ ĳ
x1F2B	Ĥ Ħ Ĩ Ĵ ĵ Ķ	H H H H H	ĥ ħ ĳ ħ ĳ ĳ
x1F2C	Ĥ Ħ Ĩ Ĵ ĵ Ķ	H H H H H	ĥ ħ ĳ ħ ĳ ĳ
x1F2D	Ĥ Ħ Ĩ Ĵ ĵ Ķ	H H H H H	ĥ ħ ĳ ħ ĳ ĳ
x1F2E	Ĥ Ħ Ĩ Ĵ ĵ Ķ	H H H H H	ĥ ħ ĳ ħ ĳ ĳ
x1F2F	Ĥ Ħ Ĩ Ĵ ĵ Ķ	H H H H H	ĥ ħ ĳ ħ ĳ ĳ
x1F30	İ İ İ İ İ	I I I I I	ı ı ı ı ı
x1F31	İ İ İ İ İ	I I I I I	ı ı ı ı ı
x1F32	İ İ İ İ İ	I I I I I	ı ı ı ı ı
x1F33	İ İ İ İ İ	I I I I I	ı ı ı ı ı
x1F34	İ İ İ İ İ	I I I I I	ı ı ı ı ı
x1F35	İ İ İ İ İ	I I I I I	ı ı ı ı ı
x1F36	İ İ İ İ İ	I I I I I	ı ı ı ı ı
x1F37	İ İ İ İ İ	I I I I I	ı ı ı ı ı
x1F38	İ İ İ İ İ	I I I I I	ı ı ı ı ı
x1F39	İ İ İ İ İ	I I I I I	ı ı ı ı ı
x1F3A	İ İ İ İ İ	I I I I I	ı ı ı ı ı
x1F3B	İ İ İ İ İ	I I I I I	ı ı ı ı ı
x1F3C	İ İ İ İ İ	I I I I I	ı ı ı ı ı
x1F3D	İ İ İ İ İ	I I I I I	ı ı ı ı ı
x1F3E	İ İ İ İ İ	I I I I I	ı ı ı ı ı

x1F3F	ᳵ ᳵ ᳵ ᳵ ᳵ	I I I I I	ᳵ ᳵ ᳵ ᳵ ᳵ
x1F40	ᄀ ᄀ ᄀ ᄀ ᄀ	O O O O O	ᄀ ᄀ ᄀ ᄀ ᄀ
x1F41	ᄁ ᄁ ᄁ ᄁ ᄁ	O O O O O	ᄁ ᄁ ᄁ ᄁ ᄁ
x1F42	ᄂ ᄂ ᄂ ᄂ ᄂ	O O O O O	ᄂ ᄂ ᄂ ᄂ ᄂ
x1F43	ᄃ ᄃ ᄃ ᄃ ᄃ	O O O O O	ᄃ ᄃ ᄃ ᄃ ᄃ
x1F44	ᄄ ᄄ ᄄ ᄄ ᄄ	O O O O O	ᄄ ᄄ ᄄ ᄄ ᄄ
x1F45	ᄅ ᄅ ᄅ ᄅ ᄅ	O O O O O	ᄅ ᄅ ᄅ ᄅ ᄅ
x1F48	ᄆ ᄆ ᄆ ᄆ ᄆ	O O O O O	ᄆ ᄆ ᄆ ᄆ ᄆ
x1F49	ᄇ ᄇ ᄇ ᄇ ᄇ	O O O O O	ᄇ ᄇ ᄇ ᄇ ᄇ
x1F4A	ᄈ ᄈ ᄈ ᄈ ᄈ	O O O O O	ᄈ ᄈ ᄈ ᄈ ᄈ
x1F4B	ᄉ ᄉ ᄉ ᄉ ᄉ	O O O O O	ᄉ ᄉ ᄉ ᄉ ᄉ
x1F4C	ᄊ ᄊ ᄊ ᄊ ᄊ	O O O O O	ᄊ ᄊ ᄊ ᄊ ᄊ
x1F4D	ᄋ ᄋ ᄋ ᄋ ᄋ	O O O O O	ᄋ ᄋ ᄋ ᄋ ᄋ
x1F50	ᄌ ᄌ ᄌ ᄌ ᄌ	Y Y Y Y Y	ᄌ ᄌ ᄌ ᄌ ᄌ
x1F51	ᄍ ᄍ ᄍ ᄍ ᄍ	Y Y Y Y Y	ᄍ ᄍ ᄍ ᄍ ᄍ
x1F52	ᄎ ᄎ ᄎ ᄎ ᄎ	Y Y Y Y Y	ᄎ ᄎ ᄎ ᄎ ᄎ
x1F53	ᄏ ᄏ ᄏ ᄏ ᄏ	Y Y Y Y Y	ᄏ ᄏ ᄏ ᄏ ᄏ
x1F54	ᄐ ᄐ ᄐ ᄐ ᄐ	Y Y Y Y Y	ᄐ ᄐ ᄐ ᄐ ᄐ
x1F55	ᄑ ᄑ ᄑ ᄑ ᄑ	Y Y Y Y Y	ᄑ ᄑ ᄑ ᄑ ᄑ
x1F56	ᄒ ᄒ ᄒ ᄒ ᄒ	Y Y Y Y Y	ᄒ ᄒ ᄒ ᄒ ᄒ
x1F57	ᄓ ᄓ ᄓ ᄓ ᄓ	Y Y Y Y Y	ᄓ ᄓ ᄓ ᄓ ᄓ
x1F59	ᄔ ᄔ ᄔ ᄔ ᄔ	Y Y Y Y Y	ᄔ ᄔ ᄔ ᄔ ᄔ
x1F5B	ᄕ ᄕ ᄕ ᄕ ᄕ	Y Y Y Y Y	ᄕ ᄕ ᄕ ᄕ ᄕ
x1F5D	ᄖ ᄖ ᄖ ᄖ ᄖ	Y Y Y Y Y	ᄖ ᄖ ᄖ ᄖ ᄖ
x1F5F	ᄗ ᄗ ᄗ ᄗ ᄗ	Y Y Y Y Y	ᄗ ᄗ ᄗ ᄗ ᄗ
x1F60	ᄘ ᄘ ᄘ ᄘ ᄘ	Ω Ω Ω Ω Ω	ᄘ ᄘ ᄘ ᄘ ᄘ
x1F61	ᄙ ᄙ ᄙ ᄙ ᄙ	Ω Ω Ω Ω Ω	ᄙ ᄙ ᄙ ᄙ ᄙ
x1F62	ᄚ ᄚ ᄚ ᄚ ᄚ	Ω Ω Ω Ω Ω	ᄚ ᄚ ᄚ ᄚ ᄚ
x1F63	ᄛ ᄛ ᄛ ᄛ ᄛ	Ω Ω Ω Ω Ω	ᄛ ᄛ ᄛ ᄛ ᄛ
x1F64	ᄜ ᄜ ᄜ ᄜ ᄜ	Ω Ω Ω Ω Ω	ᄜ ᄜ ᄜ ᄜ ᄜ
x1F65	ᄝ ᄝ ᄝ ᄝ ᄝ	Ω Ω Ω Ω Ω	ᄝ ᄝ ᄝ ᄝ ᄝ
x1F66	ᄞ ᄞ ᄞ ᄞ ᄞ	Ω Ω Ω Ω Ω	ᄞ ᄞ ᄞ ᄞ ᄞ
x1F67	ᄟ ᄟ ᄟ ᄟ ᄟ	Ω Ω Ω Ω Ω	ᄟ ᄟ ᄟ ᄟ ᄟ
x1F68	ᄠ ᄠ ᄠ ᄠ ᄠ	Ω Ω Ω Ω Ω	ᄠ ᄠ ᄠ ᄠ ᄠ
x1F69	ᄡ ᄡ ᄡ ᄡ ᄡ	Ω Ω Ω Ω Ω	ᄡ ᄡ ᄡ ᄡ ᄡ
x1F6A	ᄢ ᄢ ᄢ ᄢ ᄢ	Ω Ω Ω Ω Ω	ᄢ ᄢ ᄢ ᄢ ᄢ
x1F6B	ᄣ ᄣ ᄣ ᄣ ᄣ	Ω Ω Ω Ω Ω	ᄣ ᄣ ᄣ ᄣ ᄣ
x1F6C	ᄤ ᄤ ᄤ ᄤ ᄤ	Ω Ω Ω Ω Ω	ᄤ ᄤ ᄤ ᄤ ᄤ
x1F6D	ᄥ ᄥ ᄥ ᄥ ᄥ	Ω Ω Ω Ω Ω	ᄥ ᄥ ᄥ ᄥ ᄥ
x1F6E	ᄦ ᄦ ᄦ ᄦ ᄦ	Ω Ω Ω Ω Ω	ᄦ ᄦ ᄦ ᄦ ᄦ
x1F6F	ᄧ ᄧ ᄧ ᄧ ᄧ	Ω Ω Ω Ω Ω	ᄧ ᄧ ᄧ ᄧ ᄧ
x1F70	ᄨ ᄨ ᄨ ᄨ ᄨ	A A A A A	ᄨ ᄨ ᄨ ᄨ ᄨ
x1F71	ᄩ ᄩ ᄩ ᄩ ᄩ	A A A A A	ᄩ ᄩ ᄩ ᄩ ᄩ
x1F72	ᄪ ᄪ ᄪ ᄪ ᄪ	E E E E E	ᄪ ᄪ ᄪ ᄪ ᄪ
x1F73	ᄫ ᄫ ᄫ ᄫ ᄫ	E E E E E	ᄫ ᄫ ᄫ ᄫ ᄫ
x1F74	ᄬ ᄬ ᄬ ᄬ ᄬ	H H H H H	ᄬ ᄬ ᄬ ᄬ ᄬ
x1F75	ᄭ ᄭ ᄭ ᄭ ᄭ	H H H H H	ᄭ ᄭ ᄭ ᄭ ᄭ
x1F76	ᄮ ᄮ ᄮ ᄮ ᄮ	I I I I I	ᄮ ᄮ ᄮ ᄮ ᄮ
x1F77	ᄯ ᄯ ᄯ ᄯ ᄯ	I I I I I	ᄯ ᄯ ᄯ ᄯ ᄯ
x1F78	ᄰ ᄰ ᄰ ᄰ ᄰ	O O O O O	ᄰ ᄰ ᄰ ᄰ ᄰ



x1FAE	Ω̇ Ω̇ Ω̇ Ω̇ Ω̇ Ω̇	Ω̇ Ω̇ Ω̇ Ω̇ Ω̇ Ω̇	ϕ̇ ϕ̇ ϕ̇ ϕ̇ ϕ̇ ϕ̇
x1FAF	Ω̇ Ω̇ Ω̇ Ω̇ Ω̇ Ω̇	Ω̇ Ω̇ Ω̇ Ω̇ Ω̇ Ω̇	ϕ̇ ϕ̇ ϕ̇ ϕ̇ ϕ̇ ϕ̇
x1FB0	ǎ ǎ ǎ ǎ ǎ ǎ	ǎ ǎ ǎ ǎ ǎ ǎ	ǎ ǎ ǎ ǎ ǎ ǎ
x1FB1	ā ā ā ā ā ā	ā ā ā ā ā ā	ā ā ā ā ā ā
x1FB2	ǝ ǝ ǝ ǝ ǝ ǝ	A₁ A₁ A₁ A₁ A₁ A₁	ǝ ǝ ǝ ǝ ǝ ǝ
x1FB3	ɔ ɔ ɔ ɔ ɔ ɔ	A₁ A₁ A₁ A₁ A₁ A₁	ɔ ɔ ɔ ɔ ɔ ɔ
x1FB4	ó ó ó ó ó ó	A₁ A₁ A₁ A₁ A₁ A₁	ó ó ó ó ó ó
x1FB6	ǎ ǎ ǎ ǎ ǎ ǎ	A A A A A A	ǎ ǎ ǎ ǎ ǎ ǎ
x1FB7	ǎ ǎ ǎ ǎ ǎ ǎ	A₁ A₁ A₁ A₁ A₁ A₁	ǎ ǎ ǎ ǎ ǎ ǎ
x1FB8	ǎ ǎ ǎ ǎ ǎ ǎ	ǎ ǎ ǎ ǎ ǎ ǎ	ǎ ǎ ǎ ǎ ǎ ǎ
x1FB9	ā ā ā ā ā ā	ā ā ā ā ā ā	ā ā ā ā ā ā
x1FBA	`A `A `A `A `A `A	A A A A A A	à à à à à à
x1FBB	`A `A `A `A `A `A	A A A A A A	á á á á á á
x1FBC	A₁ A₁ A₁ A₁ A₁ A₁	A₁ A₁ A₁ A₁ A₁ A₁	ɔ ɔ ɔ ɔ ɔ ɔ
x1FBD	˘˘˘˘˘˘	˘˘˘˘˘˘	˘˘˘˘˘˘
x1FBE	˘˘˘˘˘˘	˘˘˘˘˘˘	˘˘˘˘˘˘
x1FBF	˘˘˘˘˘˘	˘˘˘˘˘˘	˘˘˘˘˘˘
x1FC0	˘˘˘˘˘˘	˘˘˘˘˘˘	˘˘˘˘˘˘
x1FC1	˘˘˘˘˘˘	˘˘˘˘˘˘	˘˘˘˘˘˘
x1FC2	ḣ ḣ ḣ ḣ ḣ ḣ	H₁ H₁ H₁ H₁ H₁ H₁	ḣ ḣ ḣ ḣ ḣ ḣ
x1FC3	ḣ ḣ ḣ ḣ ḣ ḣ	H₁ H₁ H₁ H₁ H₁ H₁	ḣ ḣ ḣ ḣ ḣ ḣ
x1FC4	ḣ ḣ ḣ ḣ ḣ ḣ	H₁ H₁ H₁ H₁ H₁ H₁	ḣ ḣ ḣ ḣ ḣ ḣ
x1FC6	ḣ ḣ ḣ ḣ ḣ ḣ	H H H H H H	ḣ ḣ ḣ ḣ ḣ ḣ
x1FC7	ḣ ḣ ḣ ḣ ḣ ḣ	H₁ H₁ H₁ H₁ H₁ H₁	ḣ ḣ ḣ ḣ ḣ ḣ
x1FC8	Ė Ė Ė Ė Ė Ė	E E E E E E	Ė Ė Ė Ė Ė Ė
x1FC9	Ė Ė Ė Ė Ė Ė	E E E E E E	Ė Ė Ė Ė Ė Ė
x1FCA	Ḣ Ḣ Ḣ Ḣ Ḣ Ḣ	H H H H H H	Ḣ Ḣ Ḣ Ḣ Ḣ Ḣ
x1FCB	Ḣ Ḣ Ḣ Ḣ Ḣ Ḣ	H H H H H H	Ḣ Ḣ Ḣ Ḣ Ḣ Ḣ
x1FCC	H₁ H₁ H₁ H₁ H₁ H₁	H₁ H₁ H₁ H₁ H₁ H₁	ḣ ḣ ḣ ḣ ḣ ḣ
x1FCD	˘˘˘˘˘˘	˘˘˘˘˘˘	˘˘˘˘˘˘
x1FCE	˘˘˘˘˘˘	˘˘˘˘˘˘	˘˘˘˘˘˘
x1FCF	˘˘˘˘˘˘	˘˘˘˘˘˘	˘˘˘˘˘˘
x1FD0	ı̇ ı̇ ı̇ ı̇ ı̇ ı̇	İ̇ İ̇ İ̇ İ̇ İ̇ İ̇	ı̇ ı̇ ı̇ ı̇ ı̇ ı̇
x1FD1	ı̇ ı̇ ı̇ ı̇ ı̇ ı̇	İ̇ İ̇ İ̇ İ̇ İ̇ İ̇	ı̇ ı̇ ı̇ ı̇ ı̇ ı̇
x1FD2	ı̇ ı̇ ı̇ ı̇ ı̇ ı̇	İ̇ İ̇ İ̇ İ̇ İ̇ İ̇	ı̇ ı̇ ı̇ ı̇ ı̇ ı̇
x1FD3	ı̇ ı̇ ı̇ ı̇ ı̇ ı̇	İ̇ İ̇ İ̇ İ̇ İ̇ İ̇	ı̇ ı̇ ı̇ ı̇ ı̇ ı̇
x1FD6	ı̇ ı̇ ı̇ ı̇ ı̇ ı̇	I I I I I I	ı̇ ı̇ ı̇ ı̇ ı̇ ı̇
x1FD7	ı̇ ı̇ ı̇ ı̇ ı̇ ı̇	İ̇ İ̇ İ̇ İ̇ İ̇ İ̇	ı̇ ı̇ ı̇ ı̇ ı̇ ı̇
x1FD8	ı̇ ı̇ ı̇ ı̇ ı̇ ı̇	İ̇ İ̇ İ̇ İ̇ İ̇ İ̇	ı̇ ı̇ ı̇ ı̇ ı̇ ı̇
x1FD9	ı̇ ı̇ ı̇ ı̇ ı̇ ı̇	İ̇ İ̇ İ̇ İ̇ İ̇ İ̇	ı̇ ı̇ ı̇ ı̇ ı̇ ı̇
x1FDA	ı̇ ı̇ ı̇ ı̇ ı̇ ı̇	I I I I I I	ı̇ ı̇ ı̇ ı̇ ı̇ ı̇
x1FDB	ı̇ ı̇ ı̇ ı̇ ı̇ ı̇	I I I I I I	ı̇ ı̇ ı̇ ı̇ ı̇ ı̇
x1FDD	˘˘˘˘˘˘	˘˘˘˘˘˘	˘˘˘˘˘˘
x1FDE	˘˘˘˘˘˘	˘˘˘˘˘˘	˘˘˘˘˘˘
x1FDF	˘˘˘˘˘˘	˘˘˘˘˘˘	˘˘˘˘˘˘
x1FE0	ü̇ ü̇ ü̇ ü̇ ü̇ ü̇	ÿ̇ ÿ̇ ÿ̇ ÿ̇ ÿ̇ ÿ̇	ü̇ ü̇ ü̇ ü̇ ü̇ ü̇
x1FE1	ü̇ ü̇ ü̇ ü̇ ü̇ ü̇	ÿ̇ ÿ̇ ÿ̇ ÿ̇ ÿ̇ ÿ̇	ü̇ ü̇ ü̇ ü̇ ü̇ ü̇
x1FE2	ü̇ ü̇ ü̇ ü̇ ü̇ ü̇ ü̇ ü̇	ÿ̇ ÿ̇ ÿ̇ ÿ̇ ÿ̇ ÿ̇ ÿ̇ ÿ̇	ü̇ ü̇ ü̇ ü̇ ü̇ ü̇ ü̇ ü̇
x1FE3	ó ó ó ó ó ó ó ó	ÿ̇ ÿ̇ ÿ̇ ÿ̇ ÿ̇ ÿ̇ ÿ̇ ÿ̇	ó ó ó ó ó ó ó ó
x1FE4	ê ê ê ê ê ê ê ê	P P P P P P	ê ê ê ê ê ê ê ê

x1FE5	Ṗ Ṗ Ṗ Ṗ Ṗ	P P P P P	Ṗ Ṗ Ṗ Ṗ Ṗ
x1FE6	Ṫ Ṫ Ṫ Ṫ Ṫ	Υ Υ Υ Υ Υ	Ṫ Ṫ Ṫ Ṫ Ṫ
x1FE7	Ṷ Ṷ Ṷ Ṷ Ṷ Ṷ Ṷ Ṷ	Ŷ Ŷ Ŷ Ŷ Ŷ Ŷ Ŷ Ŷ	Ṷ Ṷ Ṷ Ṷ Ṷ Ṷ Ṷ Ṷ
x1FE8	Ŷ Ŷ Ŷ Ŷ Ŷ	Ŷ Ŷ Ŷ Ŷ Ŷ	Ṫ Ṫ Ṫ Ṫ Ṫ
x1FE9	Ŷ Ŷ Ŷ Ŷ Ŷ	Ŷ Ŷ Ŷ Ŷ Ŷ	Ṫ Ṫ Ṫ Ṫ Ṫ
x1FEA	Ŷ Ŷ Ŷ Ŷ Ŷ Ŷ	Υ Υ Υ Υ Υ	Ṫ Ṫ Ṫ Ṫ Ṫ
x1FEB	Ŷ Ŷ Ŷ Ŷ Ŷ Ŷ	Υ Υ Υ Υ Υ	Ṫ Ṫ Ṫ Ṫ Ṫ
x1FEC	Ṗ Ṗ Ṗ Ṗ Ṗ Ṗ	P P P P P	Ṗ Ṗ Ṗ Ṗ Ṗ
x1FED	Ṗ Ṗ Ṗ Ṗ Ṗ	.....	Ṗ Ṗ Ṗ Ṗ Ṗ
x1FEE	Ṗ Ṗ Ṗ Ṗ Ṗ	.....	Ṗ Ṗ Ṗ Ṗ Ṗ
x1FEF	Ṗ Ṗ Ṗ Ṗ Ṗ	.....	Ṗ Ṗ Ṗ Ṗ Ṗ
x1FE3	ῶ ῶ ῶ ῶ ῶ	Ω <sub>1</sub> Ω <sub>1</sub> Ω <sub>1</sub> Ω <sub>1</sub> Ω <sub>1</sub>	ῶ ῶ ῶ ῶ ῶ
x1FE4	ῷ ῷ ῷ ῷ ῷ	Ω <sub>1</sub> Ω <sub>1</sub> Ω <sub>1</sub> Ω <sub>1</sub> Ω <sub>1</sub>	ῷ ῷ ῷ ῷ ῷ
x1FE5	Ὸ Ὸ Ὸ Ὸ Ὸ	Ω <sub>1</sub> Ω <sub>1</sub> Ω <sub>1</sub> Ω <sub>1</sub> Ω <sub>1</sub>	Ὸ Ὸ Ὸ Ὸ Ὸ
x1FE6	Ό Ό Ό Ό Ό	Ω Ω Ω Ω Ω	Ό Ό Ό Ό Ό
x1FE7	Ὼ Ὼ Ὼ Ὼ Ὼ	Ω <sub>1</sub> Ω <sub>1</sub> Ω <sub>1</sub> Ω <sub>1</sub> Ω <sub>1</sub>	Ὼ Ὼ Ὼ Ὼ Ὼ
x1FE8	Ώ Ώ Ώ Ώ Ώ	Ο Ο Ο Ο Ο	Ώ Ώ Ώ Ώ Ώ
x1FE9	ῼ ῼ ῼ ῼ ῼ	Ο Ο Ο Ο Ο	ῼ ῼ ῼ ῼ ῼ
x1FEA	´ ´ ´ ´ ´	Ω Ω Ω Ω Ω	´ ´ ´ ´ ´
x1FEB	῾ ῾ ῾ ῾ ῾	Ω Ω Ω Ω Ω	῾ ῾ ῾ ῾ ῾
x1FEC	῿ ῿ ῿ ῿ ῿	Ω <sub>1</sub> Ω <sub>1</sub> Ω <sub>1</sub> Ω <sub>1</sub> Ω <sub>1</sub>	῿ ῿ ῿ ῿ ῿
x1FED	῿ ῿ ῿ ῿ ῿	.....	῿ ῿ ῿ ῿ ῿
x1FEE	῿ ῿ ῿ ῿ ῿	.....	῿ ῿ ῿ ῿ ῿

## 4 Discussion

### 4.1 Differences between literal input and LICRs

Under pdfTeX and XeTeX, all input variants select pre-composed characters if possible ([Unicode normalization NFC](#)). Under luaTeX, accent macros on a literal character are printed using combining diacritical marks. This leads to suboptimal placement of diacritics with many fonts, often resulting in illegible output.

#### 4.1.1 Upcasing

Up to 2022, diacritics were dropped from Greek letters in UPPERCASE in any locale. The new `\MakeUppercase` implementation follows the Unicode standard, where dropping diacritics is a feature of the Greek locale (“el”).

However, “named” accent macros with Greek names behave according to Greek typesetting rules in *all* locales. The current implementation also drops diacritics input via standard accent macros in documents that declare the Greek language with Babel.

Apart from the diacritical marks native to Greek itself, linguists also regularly mark vowel length with macrons (ˉ) and breves (˘). The length markers are used in dictionaries and textbooks but not part of the Greek orthography. There is no established praxis regarding their handling in uppercase. LaTeX keeps them but the [Unicode reference implementation](#) drops them.

Greek stand-alone diacritics are dropped by `\MakeUppercase` if input via accent macros (e.g. `\accdialytika` or `\>`).





## 4.5 Problems with the Latin transliteration

- With monotonic Greek or if `\greekfontencoding` is not LGR, the tilde `~` keeps its default expansion as no-break space (NBSP) and transliterations involving `~` fail. If the `greek` language is loaded with Babel, the tilde accent `\~` as well as combined accents involving the tilde work in all language variants.
- In order to drop accents from input using the Latin transliteration, the characters `'`, `‘`, `~`, `<`, and `>` are suppressed in uppercase. This affects other uses of these characters:

`«'~'» → « »`    `'ξ' → Ξ`

Workaround: use literal typographical quote characters or “french” quotes:

`'ξ' → 'Ξ'`    `«ξ» → «Ξ»`

To keep side-effects to a minimum, breathings, combined accents and varia are dropped only with the language variants *polutoniko* or *ancient* as they are not required with monotonic Greek (the current language variant is *polutoniko*).

- The uppercase of spacing composite diacritics including a dialytika `"~ " ' "` appears as apostrophe, as a single `"` stands for an apostrophe in the LGR transliteration if followed by a space or empty character.
- With the pre-2022 `\MakeUppercase`, the input order is important in combined accents involving the dialytika, e.g., `'"i "'i` is upcased `ı̇` `ı̇ → İ̇`.