Test Greek diacritics with 8-bit TeX

This document tests support for the Greek non-standard LGR fonts with the contributed packages *greek-fontenc* and *greek-inputenc*. It is compiled with the **old (pre-2022/06/01) \MakeUppercase** version.

The LGR font encoding definition file `lgrenc.def` defines LICR macros for all non-ASCII characters in the LGR font encoding and loads definitions shared with the TU font encoding from `greek-fontenc.def`.

In addition to the LICR, Greek letters can also be input via a Latin transliteration.

Greek accent macros have names starting with `\acc` followed by the Greek accent name as used in the Unicode standard (e.g. `\acctonos`). The standard symbol accents `\' \` \~ \"` should behave according to Greek typography if used with Greek letters.

Apart from the diacritical marks native to Greek itself, linguists also regularly mark vowel length with macrons (¯) and breves (˘). Both keep the "Latin" behaviour also with capital Greek letters.

The *textalpha* or *alphabeta* packages define the symbol macros `\<` and `\>` as alias for the breathings (Dasia and Psili).

Diacritics can be specified as named macro, short macro, or combined accent macros, e.g. `\accpsiliperispomeni{w} \accpsili\accperispomeni w` and `\>\~w \~>{w} \~\>w \>~w` all become ὦ ὦ ὦ ὦ ὦ ὦ.

The pre-June 22 version of `\MakeUppercase` works correctly, with one exception: There is a spurious space in upcased combined accents with a literal tilde like `\>~`. This can be fixed by using a tilde accent (`\>\~` or `\~>`) or loading Babel with the "greek" language option (even in text parts only changing the font encoding without selecting the Greek language).

ὦ ὦ ὦ ὦ ὦ ὦ → Ω Ω Ω Ω Ω Ω

Test the upcasing of the different input methods:

Accent macro + Latin transliteration

single accent (named, [alias], short)
ώ ώ ώ → Ω Ω Ω
ὼ ὼ → Ω Ω
ῶ ῶ → Ω Ω
ὁ ὁ → Ω Ω
ὀ ὀ → Ω Ω
ϋ ϋ → Ϋ Ϋ
ῳ ῳ → Ω_Ι Ω_Ι
combined accents (name, name+name, short+short, short+char)
ὤ ὤ ὤ ὤ → Ω Ω Ω Ω
ὢ ὢ ὢ ὢ → Ω Ω Ω Ω
ὦ ὦ ὦ ὦ → Ω Ω Ω Ω
ὦ ὦ ὦ ὦ → Ω Ω Ω Ω

ὤ ὤ ὤ ὤ → Ω Ω Ω Ω
ὦ ὦ ὦ ὦ → Ω Ω Ω Ω
ὒ ὒ ὒ ὒ → Ὕ Ὕ Ὕ Ὕ
ὔ ὔ ὔ ὔ → Ὕ Ὕ Ὕ Ὕ
ὒ ὒ ὒ ὒ → Ὕ Ὕ Ὕ Ὕ
ῴ ῴ ῴ ῴ → Ω_Ι Ω_Ι Ω_Ι Ω_Ι

With TeXLive 2020 (Debian/stable), all accents except dialytika and ypogegrammeni/prosgegrammeni are dropped in ALL CAPS.

With current (2023/01/28) TeXLive, upcasing short accent macros does no longer work as expected: accents are not dropped.

The mute iota is kept (as expected).

Accent macro + Latin transliteration

single accent (named, [alias], short)
ώ ώ ώ → Ω Ω Ω
ὼ ὼ → Ω Ω
ῶ ῶ → Ω Ω
ὡ ὡ → Ω Ω
ὼ ὼ → Ω Ω
ϋ ϋ → Ὕ Ὕ
ῳ ῳ → Ω_Ι Ω_Ι
combined accents (name, name+name, short+short, short+char)
ὦ ὦ ὦ ὦ → Ω Ω Ω Ω
ὧ ὧ ὧ ὧ → Ω Ω Ω Ω
ὤ ὤ ὤ ὤ → Ω Ω Ω Ω
ὥ ὥ ὥ ὥ → Ω Ω Ω Ω
ὤ ὤ ὤ ὤ → Ω Ω Ω Ω
ὥ ὥ ὥ ὥ → Ω Ω Ω Ω
ὒ ὒ ὒ ὒ → Ὕ Ὕ Ὕ Ὕ
ὔ ὔ ὔ ὔ → Ὕ Ὕ Ὕ Ὕ
ὒ ὒ ὒ ὒ → Ὕ Ὕ Ὕ Ὕ
ῴ ῴ ῴ ῴ → Ω_Ι Ω_Ι Ω_Ι Ω_Ι

With TeXLive 2020 (Debian/stable), all Greek accents except dialytika and prosgegrammeni are dropped in ALL CAPS. (The standard accents macron and breve are kept as well.)

With current (2023/01/28) TeXLive, upcasing the \˜ accent macro and combining accents with dialytika (\˜" \"' \"`) does no longer work as expected: accents are not dropped (only the dialytika, macron and breve must be kept).

Upcasing keeps the mute iota (as expected).

Accent macro + literal Greek character

Accent + literal Greek (utf-8) character is not supported in 8-bit TeX.

The hiatus feature

Tonos and dasia mark a *hiatus* (break-up of a diphthong) if placed on the first vowel of a diphthong. A dialytika must be placed on the second vowel if they are dropped:

Named + LICR: άι, άυ, έι, ἄι, ἄυ, ἔι → AΪ, AΫ, EΪ, AΪ, AΫ, EΪ.

Short + LICR: άι, άυ, έι, ἄι, ἄυ, ἔι → AΪ, AΫ, EΪ, AΪ, AΫ, EΪ.

Named + transliteration: άι, άυ, έι, ἄι, ἄυ, ἔι → AΪ, AΫ, EΪ, AΪ, AΫ, EΪ.

Short + transliteration: άι, άυ, έι, ἄι, ἄυ, ἔι → AΪ, AΫ, EΪ, AΪ, AΫ, EΪ.

In current TeXLive, the *hiatus* feature keeps working with named accend macros but fails with short accent macros.

Pre-composed literal Greek character

The Greek and Coptic Unicode Block

```
, ; ´ ῾ Ά · Έ Ή Ί Ό Ύ Ώ
ΐ Α Β Γ Δ Ε Ζ Η Θ Ι Κ Λ Μ Ν Ξ Ο
Π Ρ Σ Τ Υ Φ Χ Ψ Ω Ϊ Ϋ ά έ ή ί
ΰ α β γ δ ε ζ η ϑ ι κ λ μ ν ξ ο
π ρ ς σ τ υ φ χ ψ ω ϊ ϋ ό ύ ώ
```

MakeUppercase:

```
, ; ¨ Α · Ε Η Ι Ο Υ Ω
Ϊ Α Β Γ Δ Ε Ζ Η Θ Ι Κ Λ Μ Ν Ξ Ο
Π Ρ Σ Τ Υ Φ Χ Ψ Ω Ϊ Ϋ Α Ε Η Ι
Ϋ Α Β Γ Δ Ε Ζ Η Θ Ι Κ Λ Μ Ν Ξ Ο
Π Ρ Σ Σ Τ Υ Φ Χ Ψ Ω Ϊ Ϋ Ο Υ Ω
```

Greek extended Unicode block

```
ἀ ἁ ἂ ἃ ἄ ἅ ἆ ἇ Ἀ Ἁ Ἂ Ἃ Ἄ Ἅ Ἆ Ἇ
ἐ ἑ ἒ ἓ ἔ ἕ     Ἐ Ἑ Ἒ Ἓ Ἔ Ἕ
ἠ ἡ ἢ ἣ ἤ ἥ ἦ ἧ Ἠ Ἡ Ἢ Ἣ Ἤ Ἥ Ἦ Ἧ
ἰ ἱ ἲ ἳ ἴ ἵ ἶ ἷ Ἰ Ἱ Ἲ Ἳ Ἴ Ἵ Ἶ Ἷ
ὀ ὁ ὂ ὃ ὄ ὅ     Ὀ Ὁ Ὂ Ὃ Ὄ Ὅ
ὐ ὑ ὒ ὓ ὔ ὕ ὖ ὗ   Ὑ   Ὓ   Ὕ   Ὗ
ὠ ὡ ὢ ὣ ὤ ὥ ὦ ὧ Ὠ Ὡ Ὢ Ὣ Ὤ Ὥ Ὦ Ὧ
ὰ ά ὲ έ ὴ ή ὶ ί ὸ ό ὺ ύ ὼ ώ
ᾀ ᾁ ᾂ ᾃ ᾄ ᾅ ᾆ ᾇ ᾈ ᾉ ᾊ ᾋ ᾌ ᾍ ᾎ ᾏ
ᾐ ᾑ ᾒ ᾓ ᾔ ᾕ ᾖ ᾗ ᾘ ᾙ ᾚ ᾛ ᾜ ᾝ ᾞ ᾟ
ᾠ ᾡ ᾢ ᾣ ᾤ ᾥ ᾦ ᾧ ᾨ ᾩ ᾪ ᾫ ᾬ ᾭ ᾮ ᾯ
ᾰ ᾱ ᾲ ᾳ ᾴ   ᾶ ᾷ Ᾰ Ᾱ Ὰ Ά ᾼ ᾿ ῀
῁ ῂ ῃ ῄ   ῆ ῇ Ὲ Έ Ὴ Ή ῌ ῍ ῎
῏ ῐ ῑ ῒ ΐ   ῖ ῗ Ῐ Ῑ Ὶ Ί ῝ ῞
῟ ῠ ῡ ῢ ΰ   ῤ ῥ ῦ ῧ Ῠ Ῡ Ὺ Ύ Ῥ ῭ `
   ῲ ῳ ῴ   ῶ ῷ Ὸ Ό Ὼ Ώ ῼ ´
```

MakeUppercase:

```
A A A A A A A A A A A A A A A
E E E E E E   E E E E E E
H H H H H H H H H H H H H H H
I I I I I I I I I I I I I I I
O O O O O O   O O O O O O
Υ Υ Υ Υ Υ Υ Υ   Υ   Υ   Υ
Ω Ω Ω Ω Ω Ω Ω Ω Ω Ω Ω Ω Ω Ω Ω Ω
A A E E H H I I O O Υ Υ Ω Ω
Aꟾ Aꟾ Aꟾ Aꟾ Aꟾ Aꟾ Aꟾ Aꟾ Aꟾ Aꟾ Aꟾ Aꟾ Aꟾ Aꟾ Aꟾ Aꟾ
Hꟾ Hꟾ Hꟾ Hꟾ Hꟾ Hꟾ Hꟾ Hꟾ Hꟾ Hꟾ Hꟾ Hꟾ Hꟾ Hꟾ Hꟾ Hꟾ
Ωꟾ Ωꟾ Ωꟾ Ωꟾ Ωꟾ Ωꟾ Ωꟾ Ωꟾ Ωꟾ Ωꟾ Ωꟾ Ωꟾ Ωꟾ Ωꟾ Ωꟾ Ωꟾ
Ă Ā Aꟾ Aꟾ Aꟾ   A Aꟾ Ă Ā A A Aꟾ  ꟾ
¨ Hꟾ Hꟾ Hꟾ   H Hꟾ E E H H Hꟾ
Ĭ Ī Ï Ï   I Ï Ĭ Ī I I
Ῠ̆ Ῡ̄ Ϋ̈ Ϋ̈   P P Υ Ϋ̈ Υ Υ P ¨
   Ωꟾ Ωꟾ Ωꟾ   Ω Ωꟾ O O Ω Ω Ωꟾ
```

With TeXLive 2020 (Debian/stable), all Greek accents except dialytika and prosgegrammeni are dropped in UPPERCASE and kept in lowercase. No errors.

With current (2023/01/28) TeXLive:

Upcasing leads to "Unicode errors" ("combining characters not set not set up for use with LaTeX") although no combining characters are used in the source.

Accents are not dropped (with some exceptions).

The sub-iota became a capital iota (solved by an update to MakeUppercase).