Test LGR font encoding definitions

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The file lgrenc.def provides a comprehensive set of macros to typeset Greek with LGR encoded fonts. It works for both, monotonic and polytonic Greek, independent of the *Babel* package.

The example from usage.tex in babel-greek input using the LICR macros:

```
Τί φήις; Ίδὼν ἐνθέδε παῖδ' ἐλευθέραν τὰς πλησίον Νύμφας στεφανοῦσαν, Σώστρατε, ἐρῶν ἀπῆλθες εὐθύς;
```

1 Symbols

See the source file lgrenc-test.tex for the macros used to access the symbols.

1.1 Generic text symbols

```
Latin: + - = < > - — { [ () ] } \ | %0 %00 _{\square} LGR: + - = < > - — { [ () ] } \ | %0 _{\square} (Per-mille symbol is missing in LGR.)
```

Quotes:¹ «a» «a», 'a' 'a', "a" "a" (double quotes wrong with Kerkis fonts)

Single guillemots and base-quotes ((a) "a",a') are missing in LGR.

Ligature break up: AY fi AY $\ddot{\imath} \mapsto$ AY fi AY $\ddot{\imath}$

Symbols for SI-units: $5 \,\mu\text{m}$, $5 \,k\Omega$; $5 \,\mu\text{m}$, $5 \,k\Omega$; but never italic: $5 \,\mu\text{m}$

Letter schwa and Euro symbol: ə, €

Some symbol definitions expect a Latin font. babel-greek redefines them with \latintext, however this macro is not guaranteed to be defined, so it should

¹Single quotes need special attention to prevent conversion to accents. Test the input conventions: ' α ' ' α ' ' α ' ' α ' but not α ' ' α ' ' α ' ' α ' ' α ' but not α ' ' α

not be used in a font encoding definition file. The textcomp.sty package provides coyright, registered, and trademark symbols for use with any font encodings. (Like any other Latin character, the "sharp s" (β) is not save to use when LGR is the active font encoding.)

Latin: © ® TM SS (uppercase of ß).

LGR (with textcomp): $\mathbb{C} \otimes \mathbb{R}^{TM} \Sigma\Sigma$ (uppercase of \mathfrak{g}).

1.2 Greek alphabet

Greek letters via Latin transcription and LICR macros:

ΑΒΓΔΕΖΗΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ

αβγδεζηθικλμνξοπρστυφχψω

A B Γ Δ E Z H Θ I K Λ M N Ξ O Π P Σ T Υ Φ X Ψ Ω

αβγδεζηθικλμνξοπρστυφχψω

The small sigma is set with a different glyph if it ends a word:

 σ textsigma

 ς textfinalsigma or textvarsigma

In the Latin transcription, the letter 's' stands for \textautosigma which automatically chooses the glyph according to the position.

1.3 Additional Greek symbols

- 4 textkoppa
- የ textqoppa (archaic koppa)
- 9 textQoppa (archaic Koppa)
- τ textstigma
- ฐ textvarstigma
- T textStigma (Sigma-Tau-Ligature in CB-fonts)²
- ৰ textsampi
- λ textSampi
- f textdigamma
- F textDigamma
- ' textnumeralsigngreek (Dexia keraia)
- textnumeralsignlowergreek (Aristeri keraia)

 $^{^2{\}rm the}$ name "stigma" originally applied to a medieval sigma-tau ligature, whose shape was confusingly similar to the cursive digamma

Mathematical notation sometimes uses variant shapes for pi (ϖ) , kappa $(no\ TeX\ symbol\ available)$, rho (ϱ) , and theta (ϑ) . These variations have no syntactic meaning in Greek text and are not given code-points in the LGR encoding. Some Greek text fonts use the variant shapes in place of the "regular" ones.

2 Diacritics

Capital Greek letters have Greek diacritics (except the dialytika) to the left (instead of above) and drop them in UPPERCASE. This is implemented for all combinations for which a pre-composed Unicode character exists (but not, for, e.g., $\tilde{\Omega}$).

Different conventions exist for the treatment of the sub-iota with uppercase letters. The CB-Fonts use a capital Iota "index" (A_I, H_I, Ω_I) .

LaTeX standard accents (Latin, Greek, Greek Capitals \mapsto UPPERCASE)

The comma-below (\k) is not defined in LGR.

Additional Greek diacritics

ά ἐ ῗ ť ť ῗ ἢ ὄ ὄ ὄ ኞ
$$\mapsto$$
 A Ε Ι Ϊ Ϊ Ϊ Η Ο Ο Υ Ω Ά Έ ῗ Ι Ϊ Ϊ Ϊ Ή Ο Ο Υ Ω

Input variants and their conversion with MakeUppercase:

"A "A "A "A
$$\mapsto$$
 A A A A.

The tilde character can be used in combined accents. However, in documents not defining the Babel language *greek* or *polutonikogreek*, it will produce a no-break space if converted with \MakeUppercase:

Use the tilde-accent macro: $\tilde{\iota} \ \tilde{\upsilon} \mapsto \ddot{I} \ \Upsilon$.

Accents input via the Latin transliteration are not dropped with MakeUppercase, unless Babel is loaded and the current language is Greek (because the required local re-definitions of the uccode are done in greek.ldf from the babel-greek package).

Accent macros can start with \a instead of $\$ when the short form is redefined, e.g. inside a tabbing environment. This also works for the locally defined Dasia and Psili shortcuts $\$ and $\$:

```
COL1 COL2 COL3 COL4 COL1 COL3 Viele Grüße \dot{\alpha} \dot{\omega}
```

Combinations with named accents: $\mathring{\alpha}$ $\mathring{\alpha}$.

The dialytika must be kept in UPPERCASE, e.g.

```
μαΐστρος \mapsto ΜΑΪΣΤΡΟΣ or εὐζωΐα \mapsto ΕΥΖΩΪΑ.
```

This is implemented for all input variants of diacritics with dialytika:

```
\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}}\ddot{\phantom{a}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```

Tonos and dasia mark a *hiatus* (break-up of a diphthong) if placed on the first vowel of a diphthong ($\acute{\alpha}\iota$, $\acute{\alpha}\upsilon$, $\acute{\epsilon}\iota$). A dialytika must be placed on the second vowel if they are dropped: (AÏ, AŸ, EÏ).

```
άυλος \mapsto ΑΫ́ΛΟΣ, ἄυλος \mapsto ΑΫ́ΛΟΣ, μάινα \mapsto ΜΑΪΝΑ, κέικ, \mapsto ΚΕΪΚ ἀυπνία \mapsto ΑΫ́ΠΝΙΑ
```

Test the auto-hiatus feature for side-effects:

A B (must keep space after A).

Kerning (see the input):

```
AO A\Psi AI A\Upsilon PA OA \UpsilonA \Delta\Upsilon
^{\circ} AO A\Psi AI A\Upsilon PA OA \UpsilonA \Delta\Upsilon
' AO ΑΨ ΑΪ Αϔ PA OA ΥΑ ΔΥ
"ΑΟ Α\Psi ΑΪ Α\mathring{\Upsilon} PA ΟΑ \UpsilonΑ \Delta\Upsilon
΄ ΑΟ ΑΨ ΑΪ Αϔ ΡΑ ΟΑ ΥΑ ΔΥ
*ΑΟ ΑΨ ΑΪ Αϔ ΡΑ ΟΑ ΥΑ ΔΥ

 AO ΑΨ ΑΪ ΑΫ PA OA ΥΑ 

Υ
'AO A\Psi AI A\Upsilon PA OA \UpsilonA \Delta\Upsilon
"AO A\Psi AI A\Upsilon PA OA \UpsilonA \Delta\Upsilon
^{\sim} AO A\Psi AI A\Upsilon PA OA \UpsilonA \Delta \Upsilon
^{\circ} AO A\Psi AI A\Upsilon PA OA \UpsilonA \Delta \Upsilon
^{\circ} AO Α\Psi AI Α\Upsilon PA OA \UpsilonA \Delta \Upsilon
^{\circ} AO A\Psi AI A\Upsilon PA OA \UpsilonA \Delta \Upsilon
"AO A\Psi AÏ A\Upsilon PA OA \UpsilonA \Delta\Upsilon
"ÄO Ä\Psi ÄI Ä\Upsilon PA ÖA \UpsilonÄ \Delta \mathring{\Upsilon}
\tilde{A}ÄO Ä\PsiÄI Ä\Upsilon PA ÖA \UpsilonÄ \Delta\Upsilon
```

Rows $3 \dots 7$: Look-ahead (to check for a hiatus) breaks kerning before A with Tonos or Psili.

Rows 15 and 16: Like in any font encoding, there is no kerning for non-defined accent-letter-combinations (dialytica on A O Δ).

Downcasing should keep diacritics (of course, it cannot regenerate "manually" dropped ones): 'A Ï $\ddot{\Upsilon}$ 'A \mapsto á ϊ ϋ å