# Gregorio and gregoriotex: A project which provides tools for gregorian score engraving.

Homepage
Source code available on GitHub.

This is a draft document which does not reflect the whole of the package. We are working on making a more complete version.

## Contents

# 1 Gregoriotex Macros

The following sections document the macros available in the gregoriotex package. The format is as follows:

**Macroname** *source file*

| Arg | Value | Description |
|---|---|---|
| Arg # | Data type | Descriptor |

The source file where the macro is defined is included for developers who wish to consult it.
Some of the macros intended for inclusion in the main.tex file by the user include usage examples.

# 2 User Controls

These functions are available to the user to customize elements of the score which cannot be controlled from the gabc file. They can be added to any `.tex` file. Do not add them to any `.gtex` or `.gabc` file.

## 2.1 Commands

In general, commands should not be modified. Exceptions are noted below.

`\usepackage[`*(options)*`]{gregoriotex}` *gregoriotex.sty*

Usepackage macro for gregoriotex. Has the following optional arguments:

| Argument | Description |
|---|---|
| nevercompile | Default. The classic behavior of gregoriotex. The user is responsible for compiling gabc scores into gtex files. |
| autocompile | Gregoriotex will automatically compile gtex files from gabc files when necessary. If the gabc has been modified, or the gtex has an outdated version, or the gtex file does not exist, THEN gregoriotex will compile a new gtex file. |
| forcecompile | Gregoriotex will compile all scores from their gabc files. |

**`\includescore[#1]{#2}`** *gregoriotex.tex*

Macro for including scores. Works on both gabc and tex files.

| Arg | Value | Description |
|-----|-------|-------------|
| #1 | n | Optional. Bypasses compilation checks. |
| | c | Optional. Forces gregoriotex to compile the gabc file. |
| #2 | string | Relative or absolute path to the score. |

Example:

```
\includescore[n]{TecumPrincipium.tex}
\includescore{Chant/VirgoVirginum.gabc}
\includescore{/home/user/chant/AdTeLevavi}
\includescore[c]{AveMaria}

%The following lines include the same score:
\includescore{Christus}
\includescore{Christus.gtex}
\includescore{./Christus}
\includescore{./Christus.gabc}

%With the optional arg, #2 must be a file usable by TeX.
\includescore[n]{TecumPrincipium.gabc} % Wrong
```

For the sake of clarity it is suggested that the file extension be omitted from `#2`.

When called with the optional argument `[c]` gregoriotex will automatically generate a `gtex` file in this format: *`scorename`*`-x_x_x.gtex` where `x_x_x` is the gregotio version.

When called with the optional argument `[n]` gregoriotex will include the score without doing anything else. This is the same as the old behavior of gregoriotex and the default behavior.


**`\forcecompilegabc`** *gregoriotex.tex*

A switch to change the behavior of the way gregoriotex includes scores. When used, all later calls of `\includescore` will compile the gabc file into a gtex file. This is similar to using the package option `[forcecompile]`, but does not necessarly apply to the entire document.

**\autocompilegabc** *gregoriotex.tex*

A switch to change the behavior of the way gregoriotex includes scores. When used, all later calls of `\includescore` will use gregoriotex's automatic compilation of gabc files. This is similar to using the packape option `[autocompile]`, but does not necessarly apply to the entire document.

**\nevercompilegabc** *gregoriotex.tex*

A switch to change the behavior of the way gregoriotex includes scores. When used, all later calls of `\includescore` will include the score without doing anything else. This is the same as the traditional behavior of gregoriotex. It is the package default.

The three previous macros can be combined in the same document to switch between the different includescore behaviors:

```
\usepackage{gregoriotex}
----
\includescore{TecumPrincipium} % gabc never compiled.
\includescore[c]{TecumPrincipium} % gabc always compiled.

\autocompile
\includescore{TecumPrincipium} % gabc auto compiled.
\includescore[n]{TecumPrincipium} % gabc never compiled.
\includescore[c]{TecumPrincipium} % gabc always compiled.

\forcecompile
\includescore{TecumPrincipium} % gabc auways compiled.
\includescore[n]{TecumPrincipium} % gabc never compiled.
```

**\englishcentering** *gregoriotex-syllable.tex*

Changes settings to align syllables in the English style (center of syllable aligns with center of first glyph in neume). Will only affect scores which do not have "centering-scheme: english;" in their gabc header.

**\defaultcentering** *gregoriotex-syllable.tex*

Changes settings to align syllables in the Latin style (center of vowel aligns

with center of first glyph in neume). Will only affect scores which do not have "centering-scheme: english;" in their gabc header.
Default.

**\gresetdim{#1}{#2}{#3}**  *gregoriotex-spaces.tex*

Macro to set one of gregoriotex's distances. Does not update dependent distances. Used primarily to initialize distances in a space configuration file. This function if `gre` prefixed to highlight that it should not be used for distances not defined in GregorioTeX.

| Arg | Value | Description |
|-----|-------|-------------|
| #1 | string | The name of the distance to be changed. See Distances below. |
| #2 | string | The distance in string format. **Note:** You cannot use a length register for this argument. You *must* use a string because of the way that gregoriotex handles spaces. |
| #3 | 0 | Distance will not scale when staff size is changed. |
|  | 1 | Distance will scale when staff size is changed. |

**\grechangedim{#1}{#2}{#3}**  *gregoriotex-spaces.tex*

Macro to change one of gregoriotex's distances and update any dependent distances. This function if `gre` prefixed to highlight that it should not be used for distances not defined in GregorioTeX.

| Arg | Value | Description |
|-----|-------|-------------|
| #1 | string | The name of the distance to be changed. See Distances below. |
| #2 | string | The distance in string format. **Note:** You cannot use a length register for this argument. You *must* use a string because of the way that gregoriotex handles spaces. |
| #3 | 0 | Distance will not scale when staff size is changed. |
|  | 1 | Distance will scale when staff size is changed. |

**\grenoscaledim{#1}**  *gregoriotex-spaces.tex*

Macro to turn off scaling for a particular distance. This function if `gre`

prefixed to highlight that it should not be used for distances not defined in
GregorioTEX.

| Arg | Value | Description |
|-----|-------|-------------|
| #1 | string | The name of the distance for which scaling it to be turned off. See Distances below. |

**\grescaledim{#1}**                                                 *gregoriotex-spaces.tex*

Macro to turn on scaling for a particular distance. This function if `gre`
prefixed to highlight that it should not be used for distances not defined in
GregorioTEX.

| Arg | Value | Description |
|-----|-------|-------------|
| #1 | string | The name of the distance for which scaling it to be turned on. See Distances below. |

**\GreLoadSpaceConf{#1}**                                            *gregoriotex-spaces.tex*

Macro to load a space configuration file. Space configuration file names have
the format `gsp-identifier.tex` and must be in the same directory as your
project or in your texmf directory. This function if `gre` prefixed to highlight
that it only loads distances for GregorioTEX.

| Arg | Value | Description |
|-----|-------|-------------|
| #1 | string | The identifier of the space configuration file. |

Example:

```
% loads gsp-default.tex, the default configuration file
\GreLoadSpaceConf{default}
% loads a custom configuration called gsp-myspaces.tex
\GreLoadSpaceConf{myspaces}
```

**\setaboveinitialseparation{#1}{#2}**                               *gregoriotex-spaces.tex*

Macro to set the spacing between the annotations.

| Arg | Value | Description |
| --- | --- | --- |
| #1 | string | The distance in string format. **Note:** You cannot use a length register for this argument. You *must* use a string because of the way that gregoriotex handles spaces. |
| #2 | 0 | Distance will not scale when staff size is changed. |
| | 1 | Distance will scale when staff size is changed. |

**Warning:** This function formerly had only one arguments. It now takes 2. Deprecated version: `\GreSetAboveInitialSeparation` which only took the first argument. If you use the deprecated command the second argument will be assumed to be 1.

**`\setspaceafterinitial{#1}{#2}`**                         *gregoriotex-spaces.tex*

Macro to set the spacing after the initial (and before the staff lines).

| Arg | Value | Description |
| --- | --- | --- |
| #1 | string | The distance in string format. **Note:** You cannot use a length register for this argument. You *must* use a string because of the way that gregoriotex handles spaces. |
| #2 | 0 | Distance will not scale when staff size is changed. |
| | 1 | Distance will scale when staff size is changed. |

**Warning:** This function formerly had only one arguments. It now takes 2. Deprecated version: `\GreSetSpaceAfterInitial` which only took the first argument. If you use the deprecated command the second argument will be assumed to be 1.

**`\setspacebeforeinitial{#1}{#2}`**                         *gregoriotex-spaces.tex*

Macro to set the spacing before the initial.

| Arg | Value | Description |
| --- | --- | --- |
| #1 | string | The distance in string format. **Note:** You cannot use a length register for this argument. You *must* use a string because of the way that gregoriotex handles spaces. |
| #2 | 0 | Distance will not scale when staff size is changed. |
| | 1 | Distance will scale when staff size is changed. |

**Warning:** This function formerly had only one arguments. It now takes 2.

Deprecated version: `\GreSetSpaceBeforeInitial` which only took the first argument. If you use the deprecated command the second argument will be assumed to be 1.

**`\setinitialspacing{#1}{#2}{#3}{#4}`**                     *gregoriotex-spaces.tex*

Macro to set the spacing around and for the initial.

| Arg | Value | Description |
|-----|-------|-------------|
| #1 | string | The distance before the initial in string format. **Note:** You cannot use a length register for this argument. You *must* use a string because of the way that gregoriotex handles spaces. |
| #2 | string | The distance for the initial in string format. This distance is ignored if set to 0pt. **Note:** You cannot use a length register for this argument. You *must* use a string because of the way that gregoriotex handles spaces. |
| #3 | string | The distance after the initial in string format. **Note:** You cannot use a length register for this argument. You *must* use a string because of the way that gregoriotex handles spaces. |
| #4 | 0 | Distance will not scale when staff size is changed. |
|  | 1 | Distance will scale when staff size is changed. |

**Warning:** This function formerly had only three arguments. It now takes 4.

**`\setstafflinethickness{#1}`**                     *gregoriotex-spaces.tex*

Macro to adjust the thickness of the staff lines.

| Arg | Value | Description |
|-----|-------|-------------|
| #1 | integer | The relative thickness of the staff lines. The default value is 10. Higher numbers yield thicker staff lines. |

Deprecated version: `\gresetstafflinefactor`.

## 2.2  Distances

Each of the following distances controls some aspect of the spacing of the Gregorio score. They are changed using commands documented above (e.g. \changedim). If the distance permits a rubber value then the default value will indicate the stretch and shrink (even if they are zero by default). Distances whose default value does not include a stretch or shrink may not take a rubber value.

*Note:* Because of the way Gregorio handles distances these cannot be manipulated as if they were normal TeX dimensions or skips. As a result they should only be changed using the commands defined by gregoriotex for this purpose.

**additionallineswidth**                                          *gsp-default.tex*

The additional width of the additional lines (compared to the width of the glyph they're associated with).
Default: 0.14584 cm

**alterationspace**                                               *gsp-default.tex*

Space between an alteration (flat or natural) and the next glyph.
Default: 0.07747 cm plus 0.01276 cm minus 0.00455 cm

**beforealterationspace**                                         *gsp-default.tex*

Negative space, difference between the normal space between two notes and the space between a note and a flat.
Default: −0.32816 cm plus 0.01093 cm minus 0.01093 cm

**beforechoralsignspace**                                         *gsp-default.tex*

Space before a choral sign.
Default: 0.04556 cm plus 0.00638 cm minus 0.00638 cm

**clefflatspace**                                                 *gsp-default.tex*

Space between a clef and a flat (for clefs with flat).
Default: 0.05469 cm plus 0.00638 cm minus 0.00638 cm

**interglyphspace** *gsp-default.tex*

Space between glyphs in the same element.
Default: 0.06927 cm plus 0.00363 cm minus 0.00363 cm

**zerowidthspace** *gsp-default.tex*

Null space.
Default: 0 cm plus 0 cm minus 0 cm

**interelementspace** *gsp-default.tex*

Space between elements.
Default: 0.06927 cm plus 0.00182 cm minus 0.00363 cm

**largerspace** *gsp-default.tex*

Larger space between elements.
Default: 0.10938 cm plus 0.01822 cm minus 0.00911 cm

**glyphspace** *gsp-default.tex*

Space between elements which has the size of a note.
Default: 0.21877 cm plus 0.01822 cm minus 0.01822 cm

**intersyllablespace** *gsp-default.tex*

Minimum space between two notes of different syllables.
Default: 0.25523 cm plus 0.31903 cm minus 0 cm

**spacebeforecusto** *gsp-default.tex*

Space before custo.
Default: 0.1823 cm plus 0.31903 cm minus 0.0638 cm

**spacebeforesigns** *gsp-default.tex*

Space before punctum mora and augmentum duplex.
Default: 0.05469 cm plus 0.00455 cm minus 0.00455 cm

**spaceaftersigns** *gsp-default.tex*

Space after punctum mora and augmentum duplex.
Default: 0.08203 cm plus 0.0082 cm minus 0.0082 cm


**spaceafterlineclef** *gsp-default.tex*

Space after a clef at the beginning of a line.
Default: 0.27345 cm plus 0.14584 cm minus 0.01367 cm


**interwordspacenotes** *gsp-default.tex*

Space after at the end of a word when the last written symbol is a note and
the first is a note.
Default: 0.29169 cm plus 0.08751 cm minus 0.05469 cm


**interwordspacenotestext** *gsp-default.tex*

Space after at the end of a word when the last written symbol is a note and
the first is text.
Default: 0.27345 cm plus 0.27345 cm minus 0.07292 cm


**interwordspacetextnotes** *gsp-default.tex*

Space after at the end of a word when the last written symbol is text and
the first is a note.
Default: 0.27345 cm plus 0.27345 cm minus 0.07292 cm


**interwordspacetext** *gsp-default.tex*

Space after at the end of a word when the last written symbol is text and
the first is text.
Default: 0.22787 cm plus 0.41019 cm minus 0.07292 cm


**bitrivirspace** *gsp-default.tex*

Space between notes of a bivirga or trivirga.
Default: 0.06927 cm plus 0.00182 cm minus 0.00546 cm


**bitristrospace** *gsp-default.tex*

Space between notes of a bistropha or tristrophae.
Default: 0.06927 cm plus 0.00182 cm minus 0.00546 cm

**`punctuminclinatumshift`** *gsp-default.tex*

Space between two punctum inclinatum.
Default: -0.03918 cm plus 0.0009 cm minus 0.0009 cm

**`beforepunctainclinatashift`** *gsp-default.tex*

Space before puncta inclinata.
Default: 0.05286 cm plus 0.00728 cm minus 0.00455 cm

**`punctuminclinatumanddebilisshift`** *gsp-default.tex*

Space between a punctum inclinatum and a punctum inclinatum deminutus.
Default: -0.02278 cm plus 0.0009 cm minus 0.0009 cm

**`punctuminclinatumdebilisshift`** *gsp-default.tex*

Space between two punctum inclinatum deminutus.
Default: -0.00728 cm plus 0.0009 cm minus 0.0009 cm

**`punctuminclinatumbigshift`** *gsp-default.tex*

Space between puncta inclinata, larger ambitus (range=3rd).
Default: 0.07565 cm plus 0.0009 cm minus 0.0009 cm

**`punctuminclinatummaxshift`** *gsp-default.tex*

Space between puncta inclinata, larger ambitus (range=4th -or more?-).
Default: 0.17865 cm plus 0.0009 cm minus 0.0009 cm

**`spacearoundsmallbar`** *gsp-default.tex*

Space around virgula and divisio minima.
Default: 0.1823 cm plus 0.22787 cm minus 0.05469 cm

**`spacearoundminor`** *gsp-default.tex*

Space around divisio minor.
Default: 0.1823 cm plus 0.22787 cm minus 0.05469 cm

**spacearoundmaior**                                              *gsp-default.tex*

Space around divisio maior.
Default: 0.1823 cm plus 0.22787 cm minus 0.05469 cm

**spacearoundfinalis**                                            *gsp-default.tex*

Space around divisio finalis.
Default: 0.1823 cm plus 0.1823 cm minus 0.05469 cm

**spacebeforefinalfinalis**                                       *gsp-default.tex*

A special space for finalis, for when it is the last glyph.
Default: 0.29169 cm plus 0.07292 cm minus 0.27345 cm

**spacearoundclefbars**                                           *gsp-default.tex*

Additional space that will appear around bars that are preceded by a custo
and followed by a key.
Default: 0.03645 cm plus 0.00455 cm minus 0.0009 cm

**textbartextspace**                                              *gsp-default.tex*

Space between the text and the text of the bar.
Default: 0.24611 cm plus 0.13672 cm minus 0.04921 cm

**notebarspace**                                                  *gsp-default.tex*

Minimal space between a note and a bar.
Default: 0.31903 cm plus 0.27345 cm minus 0.02824 cm

**maximumspacewithoutdash**                                       *gsp-default.tex*

Maximal space between two syllables for which we consider a dash is not
needed.
Default: 0.02005 cm

**afterclefnospace** *gsp-default.tex*

An extensible space for the beginning of lines.
Default: 0 cm plus 0.27345 cm minus 0 cm


**additionalcustoslineswidth** *gsp-default.tex*

Width of the additional lines, used only for the custos. The width is the one
for the custos at end of lines, the line for custos in the middle of a score is
the same multiplied by 2.
Default: 0.09114 cm


**afterinitialshift** *gsp-default.tex*

Space between the initial and the beginning of the score.
Default: 0.2457 cm plus 0 cm minus 0 cm


**beforeinitialshift** *gsp-default.tex*

Space between the initial and the beginning of the score.
Default: 0.2457 cm plus 0 cm minus 0 cm


**minimalspaceatlinebeginning** *gsp-default.tex*

Minimal space at the beginning of a line.
Default: 1.7 cm


**manualinitialwidth** *gsp-default.tex*

Space to force the initial width to. Ignored when 0.
Default: 0 cm


**aboveinitialseparation** *gsp-default.tex*

This space is the one between the bottom of the first annotation line and the
top of the second annotation line (above the initial).
Default: 0.85 cm


**noclefspace** *gsp-default.tex*

Space at the beginning of the lines if there is no clef.
Default: 0.1 cm

**abovesignsspace** *gsp-default.tex*

Space above the chironomic signs.
Default: 0.8 cm

**belowsignsspace** *gsp-default.tex*

Space below the chironomic signs.
Default: 0 cm

**lowchoralsignshift** *gsp-default.tex*

The shift for the low choral sign and the high choral signs on totally free interlines.
Default: 0.00911 cm

**highchoralsignshift** *gsp-default.tex*

The shift for the high choral sign.
Default: $-0.04556$ cm

**translationheight** *gsp-default.tex*

The space for the translation.
Default: 0.5 cm

**spaceabovelines** *gsp-default.tex*

The space above the lines.
Default: 0.45576 cm plus 0.36461 cm minus 0.09114 cm

**spacelinestext** *gsp-default.tex*

The space between the lines and the bottom of the text.
Default: 0.60617 cm plus 0 cm minus 0 cm

**spacebeneathtext** *gsp-default.tex*

The space beneath the text.
Default: $0\,\text{cm}$ plus $0\,\text{cm}$ minus $0\,\text{cm}$

**abovelinestextraise** *gsp-default.tex*

Height of the text above the note line.
Default: $1.7\,\text{cm}$

**abovelinestextheight** *gsp-default.tex*

Height that is added at the top of the lines if there is text above the lines (it must be bigger than the text for it to be taken into consideration).
Default: $0.3\,\text{cm}$

**braceshift** *gsp-default.tex*

An additional shift you can give to the brace above the bars.
Default: $0\,\text{cm}$

**curlybraceaccentusshift** *gsp-default.tex*

A shift you can give to the accentus above the curly brace.
Default: $-0.05\,\text{cm}$

# 3   Gregorio Controls

These functions are the ones written by Gregorio to the gtex file. While one could, in theory, use/change them to alter the appearance of elements of the score, it is far better to make your changes in the gabc file and let Gregorio make the changes to the gtex file.

**\grefirstlinebottomspace#1#2** *gregoriotex-spaces.tex*

Macro for calculating the additional space needed below the first line of the score.

| Arg | Value | Description |
| --- | --- | --- |
| #1 | 0 | no notes below the staff |
|  | 1 | note below the first staff line (c position) |
|  | 2 | note on the 0 staff line (b position) |
|  | 3 | note below the 0 staff line (a position) |
| #2 | 1 | there is a translation below the text |
|  | 0 | there is no translation below the text |

# 4    Gregoriotex Controls

These functions are the ones used by Gregoriotex internally as it process the commands listed above. They should not appear in any user document and are listed here for programmer documentation purposes only.

**\gre@calculate@constantglyphraise**                    *gregoriotex-spaces.tex*

Macro to caluclate \gre@constantglyphraise

**\gre@addtranslationspace**                    *gregoriotex-spaces.tex*

Macro to tell Gregorio to set space for the translation.

**\gre@removetranslationspace**                    *gregoriotexspaces.tex*

Macro to tell Gregorio to remove the space allocated to the translation.

**\gre@calculate@additionalspaces#1#2**                    *gregoriotex-spaces.tex*

Macro which calculates \gre@additionalbottomspace and \gre@additionaltopspace

| Arg | Value | Description |
|-----|-------|-------------|
| #1  | 0     | no note above staff |
|     | 1     | note above 4th line (position k) |
|     | 2     | note on 5th line (position l) |
|     | 3     | note above 5th line (position m) |
| #2  | 0     | no note below staff |
|     | 1     | note below 1st line (position c) |
|     | 2     | note on 0th line (position b) |
|     | 3     | note below 0th line (position a) |
|     | 4     | note below 0th line (position a) with vertical episemus |

**\gre@calculate@textaligncenter#1#2#3**　　　　　*gregoriotex-spaces.tex*

Macro for calculating `\gre@textaligncenter`.

| Arg | Value  | Description |
|-----|--------|-------------|
| #1  | string | The first part of the syllable (any preceding consonants in Latin). |
| #2  | string | The middle part of the syllable (the vowel in Latin, the whole syllable in English). |
| #3  | 0      | Calculation is being performed for the current syllable. |
|     | 1      | Calculation is being performed for the next syllable. |

**\gre@calculate@aboveinitialraise**　　　　　*gregoriotex.tex*

Macro to give `\gre@aboveinitialfirstraise` and
`\gre@aboveinitialsecondraise` their working values.

**\gre@englishcentering**　　　　　*gregoriotex-syllable.tex*

Count to track if we are using english centering scheme (1), or not (0).

**\gre@calculate@textlower**　　　　　*gregoriotex-spaces.tex*

Calculates the default value of `textlower`. Default is `spacebeneathtext`.

**\gre@calculate@linewidth**　　　　　*gregoriotex-spaces.tex*

Calculates the default line width. Default is the width of the printable space (`\hsize`).

**`\gre@calculate@stafflinewidth`**                    *gregoriotex-spaces.tex*

Calculates the default width of the staff lines. Default is `linewidth`.

**`\gre@calculate@stafflineheight`**                   *gregoriotex-spaces.tex*

Calculates the height (thickness) of the staff lines. Dependent on `stafflineheightfactor` and `grefactor`.

**`\gre@calculate@interstafflinespace`**               *gregoriotex-spaces.tex*

Calculates the distance between the staff lines. Dependent on `stafflineheight` and `grefactor`

**`\gre@calculate@stafflinediff`**                     *gregoriotex-spaces.tex*

Calculates a correction factor for when the staff lines are not their default thickness. Dependent on `stafflineheight` and `grefactor`.

**`\gre@calculate@staffheight`**                       *gregoriotex-spaces.tex*

Calculates the total height of the staff. Dependent on `stafflineheight` and `interstafflinespace`.

**`\gre@calculate@constantglyphraise`**                *gregoriotex-spaces.tex*

Calculates the baseline correction for the glyphs. Dependent on `grefactor`, `additionalbottomspace`, `spacebeneathtext`, `spacelinestext`, `interstafflinespace`, `stafflineheight`, `currenttranslationheight`, and `stafflinediff`.

**`\gre@computespaces`**                               *gregoriotex-spaces.tex*

Aggregates all of the global distance calculations and calls them in the order needed to respect dependencies.

**`\gre@calculate@glyphraisevalue#1#2`**               *gregoriotex-spaces.tex*

Calculates the raise values for a glyph (glyphraisevalue and addedraisevalue) based on where it is to be placed and what kind of a glyph it is. This is a time of use calculation.

| Arg | Value | Description |
| --- | --- | --- |
| #1 | integer | The number for where the glyph is located. `a` in gabc is 1, `b` is 2, etc. |
| #2 | 0 | no modification |
| | 1 | puts the value on the interline just above if it is on a line |
| | 2 | puts the value on the interline just beneath if it is on a line |
| | 3 | case of the vertical episemus, which is not placed at the same place if the corresponding note is on a line or not |
| | 4 | case of the punctum mora, for the same reason |
| | 5 | case of the horizontal episemus under a note, that must be placed a bit lower if the note is on a line |
| | 6 | case of the signs above (accentus, etc.) |
| | 8 | case of the punctum mora of the first note of a podatus or the 2nd note of a porrectus, etc. |
| | 9 | case of the horizontal episemus, that must be placed a bit lower if the note is on a line |
| | 10 | case of the low choral sign |
| | 11 | case of the high choral sign |
| | 12 | case of the low choral sign which is lower than the note |
| | 13 | case of the brace above the bars |

**\gre@stafflinefactor**                                    *gregoriotex-spaces.tex*

A number indicating the thickness of the staff lines.

**\gre@scale@stafflinefactor**                              *gregoriotex-spaces.tex*

Flag indicating whether the stafflinefactor should scale with changes of grefactor (1), or not (0).

**\gre@calculate@additionalspaces#1#2**                     *gregoriotex-spaces.tex*

Calculates the extra spaces above and below the staff lines. This is a time of use calculation.

| Arg | Value | Description |
|-----|-------|-------------|
| #1 | 0 | no notes above the staff |
| | 1 | there is a note above the 4th line |
| | 2 | there is a note on the 5th line |
| | 3 | there is a note above the 5th line |
| #2 | 0 | no notes below the staff |
| | 1 | there is a note below the 1st line |
| | 2 | there is a note on the 0th line |
| | 3 | there is a note below the 0th line |
| | 4 | there is a note below the 0th line with a vertical episemus attached |

**\gre@calculate@textaligncenter#1#2#3**          *gregoriotex-spaces.tex*

Macro to calculate the distance from the beginning of the text of a syllable to its alignment point (the center of the vowel for Latin centering, the center of the syllable for English centering). This is a time of use calculation.

| Arg | Value | Description |
|-----|-------|-------------|
| #1 | string | the first part of the syllable |
| #2 | string | the middle part of the syllable |
| #3 | 0 | perform this calculation for the current syllable |
| | 1 | perform this calculation for the next syllable |

**\gre@calculate@enddifference#1#2#3#4#5**          *gregoriotex-spaces.tex*

Calculates the difference between the end of the notes and the end of the syllable text. Also stores the value for the previous syllable if needed. This is a time of use calculation.

| Arg | Value | Description |
|-----|-------|-------------|
| #1 | length | the total width of the notes |
| #2 | length | the total width of the syllable text |
| #3 | length | the alignment distance for the text (`textaligncenter`) |
| #4 | length | the alignment distance for the notes (`notesaligncenter`) |
| #5 | 0 | do not save the value for the previous syllable before calculating the new value |
| | 1 | save the value for the previous syllable before calculating the new value |

**\gre@changeonedimenfactor#1#2#3**                          *gregoriotex-spaces.tex*

Change the scale of a single distance from one factor to another.

| Arg | Value | Description |
|-----|-------|-------------|
| #1 | string | name of the distance to be scaled. See Distances. |
| #2 | integer | the factor the distance is currently in |
| #3 | integer | the factor the distance is to be put into |

**\gre@changedimenfactor#1#2**                          *gregoriotex-spaces.tex*

Rescales all the distances (and stafflinefactor) which are supposed to scale with a change in factor.

| Arg | Value | Description |
|-----|-------|-------------|
| #1 | integer | the factor the distance is currently in |
| #2 | integer | the factor the distance is to be put into |

**\gre@calculate@nextbegindifference#1#2#3#4**                          *gregoriotex-spaces.tex*

Macro to calculate `nextbegindifference`.

| Arg | Value | Description |
|-----|-------|-------------|
| #1 | string | the first letters of the next syllable |
| #2 | string | the middle letters of the next syllable (the vowel in Latin, the whole syllable in English) |
| #3 | string | the end letters of the next syllable |
| #4 | $0 < \text{integer} < 19$ | the type of notes alignment. See Note Alignment Type. |
|  | $20 < \text{integer} < 39$ | Same as below 20 except there is a flat before the notes. Subtract 20 to get the type of notes alignment. |
|  | $40 < \text{integer} < 59$ | Same as below 20 except there is a natural before the notes. Subtract 40 to get the type of notes alignment. |

**\gre@tempdimcount** *gregoriotex-spaces.tex*

Temporary count used in calculations.

**\ifchecklength** *gregoriotex-spaces.tex*

Boolean flag used in \gresetdim to indicate if we are attempting to set a rubber length.

**\ifbadlength** *gregoriotex-spaces.tex*

Boolean flag used in \gresetdim to indicate that we are attempting to assign a rubber length to a distance which cannot accept a rubber value.

**\ifrubber** *gregoriotex-spaces.tex*

Boolean flag used in \gre@changeonedimenfactor to indicate if we are dealing with one of the distances which can accept a rubber length.

**\gre@makein#1** *gregoriotex-spaces.tex*

Strips the decimals and units from a distance.

| Arg | Value | Description |
|-----|-------|-------------|
| #1 | distance | should be in the form "[0-9]+.[0-9]+pt". (i.e. the result of applying \the to a distance register) |

**\gre@makenum#1** *gregoriotex-spaces.tex*

Strips the units from a distance.

| Arg | Value | Description |
|-----|-------|-------------|
| #1 | distance | should be in the form "[0-9]+.[0-9]+pt". (i.e. the result of applying \the to a distance register) |

**\gre@unitfactor** *gregoriotex-spaces.tex*

Temporary count used by \gre@convertto.

**\gre@basefactor** *gregoriotex-spaces.tex*

Temporary count used by \gre@convertto.

**\gre@temp@count@one** *gregoriotex-spaces.tex*

Temporary count used by \gre@convertto.

**\gre@convertto#1#2** *gregoriotex-spaces.tex*

Macro which converts a distance into a particular set of units. Result is placed in \gre@converted as a string.

| Arg | Value | Description |
|-----|-------|-------------|
| #1 | string | two letter abbreviation for the units. Should recognize all legal TeX units. |
| #2 | distance | Distance to be converted. |

**\gre@converted** *gregoriotex-spaces.tex*

Macro holding result of last call to \gre@convertto.

**\gre@consistentunits#1#2** *gregoriotex-spaces.tex*

This function takes a distance and formats it as a string so that its units conform to the pattern set by a string representation of a distance. Result is placed in \gre@stringdist.

| Arg | Value | Description |
|-----|-------|-------------|
| #1 | string | the standard whose format is to be matched. |
| #2 | distance | the distance to be adjusted. |

**\gre@stringdist** *gregoriotex-spaces.tex*

Macro holding result of last call to **\gre@consistentunits**.

**\gre@temp@count@two** *gregoriotex-spaces.tex*

Temporary count used by **\gre@changedimenfactor**.

**\gre@includescore#1** *gregoriotex.tex*

Macro that handles **\includescore** calls when they do not have an optional argument.

| Arg | Value | Description |
|-----|-------|-------------|
| #1 | string | Relative or absolute path to the score. |

**\gre@includescorewithoption[#1]#2** *gregoriotex.tex*

Macro that handles **\includescore** calls when they have an optional argument.

| Arg | Value | Description |
|-----|-------|-------------|
| #1 | n | Optional. Bypasses compilation checks. |
| | c | Optional. Forces gregoriotex to compile the gabc file. |
| #2 | string | Relative or absolute path to the score. |

## 4.1 Distances

All of the distances listed in Distances have two internals associated with them. These take the form of **\gre@\*** and **\gre@scale@\***. The first stores the value of the distance (in string representation). The second is a numerical flag which indicates if the distance should scale when the staff size changes (1) or not (0).

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These additional distances are calculated by Gregorio based on the values for the user customizable distances and what may be going on in the score at the time of their use.

**\gre@clefwidth** *gregoriotex-spaces.tex*

Width of the clef.

**\gre@tempdimsignwidth** *gregoriotex-spaces.tex*

Temporary dimension used to calculate placement of signs.

**gre@tempdimtwo** *gregoriotex-spaces.tex*

A temporary dimension used in calculations.

**\gre@constantglyphraise** *gregoriotex-spaces.tex*

Dimension representing the space between the 0 of the gregorian fonts and the effective 0 of the TeX score.

**\gre@currenttranslationheight** *gregoriotex-spaces.tex*

Dimension representing the space for the translation beneath the text.

**\gre@stafflinewidth** *gregoriotex-spaces.tex*

Dimension representing the width of a line of staff. Can vary, for example, at the first line.

**\gre@linewidth** *gregoriotex-spaces.tex*

Dimension representing the width of the score (including initial).

**\gre@additionalbottomspace** *gregoriotex-spaces.tex*

Dimension representing extra space below the staff needed for low notes.

**\gre@additionaltopspace** *gregoriotex-spaces.tex*

Dimension representing extra space above the staff needed for high notes.

**\gre@textlower** *gregoriotex-spaces.tex*

Dimension representing the height of the separation between the 0th line (which is invisible except for notes in the a or b position) and the bottom of the text.

**\gre@tempwidth** *gregoriotex-spaces.tex*

Dimension representing width of some element.

**\gre@textaligncenter** *gregoriotex-spaces.tex*

Dimension representing the width from the beginning of the letters in a syllable to the middle of the middle letters. Used for lining up neumes and syllables.

**\gre@additionalleftspace** *gregoriotex-spaces.tex*

Dimension representing the additional space that has to be added to the localleftbox for a big initial (one taking two lines).

**\gre@initialwidth** *gregoriotex-spaces.tex*

Dimension representing the width of the initial (and the space after).

**\gre@aboveinitialfirstraise** *gregoriotex-spaces.tex*

Dimension representing the space allocated to the first annotation.

**\gre@aboveinitialsecondraise** *gregoriotex-spaces.tex*

Dimension representing the space allocated to the second annotation.

**\gre@currentabovelinestextheight** *gregoriotex-spaces.tex*

Dimension representing the space allocated above the lines for text.

**\gre@staffheight** *gregoriotex-spaces.tex*

The total height of the staff including the width of the lines and the spaces between them.

**\gre@stafflinediff**                                                   *gregoriotex-spaces.tex*

Distance representing the difference between the actual size of the staff lines and the "standard" size.

**\gre@stafflineheight**                                                 *gregoriotex-spaces.tex*

The height of the staff line.

**\gre@interstafflinespace**                                             *gregoriotex-spaces.tex*

The space between the lines.

**\gre@glyphraisevalue**                                                 *gregoriotex-spaces.tex*

The value that a particular glyph must be raised to be set in the correct position.

**\gre@addedraisevalue**                                                 *gregoriotex-spaces.tex*

The additional raise needed for the vertical episema and the puncta.

**\gre@enddifference**                                                   *gregoriotex-spaces.tex*

Distance from the end of the notes to the end of the text for the previous syllable. Positive values when notes go further than text, negative in the other case.

**\gre@previousenddifference**                                           *gregoriotex-spaces.tex*

Stored value of enddifference prior to the current one.

**\gre@nextbegindifference**                                             *gregoriotex-spaces.tex*

The difference between the start of the notes and the start of the text for the next syllable. Positive when when text begins first, negative in other case.

**\gre@begindifference**                    *gregoriotex-spaces.tex*

The difference between the start of the notes and the start of the text for the current syllable. Positive when when text begins first, negative in other case.

**\gre@lastglyphwidth**                      *gregoriotex-spaces.tex*

The width of the last glyph.

**\gre@notesaligncenter**                    *gregoriotex-spaces.tex*

Distance from beginning of notes to their point of alignment.

**\gre@tempdim**                             *gregoriotex-spaces.tex*

Temporary dimension used in calculations.

**\gre@tempdimskip**                         *gregoriotex-spaces.tex*

Temporary skip used in calculations.

**\gre@skipone**                             *gregoriotex-spaces.tex*

Temporary skip used in calculations.

**\gre@temp**                                *gregoriotex-spaces.tex*

Temporary skip used in calculations.

**\gre@temp@dimen@one**                       *gregoriotex-spaces.tex*

Temporary dimension used in calculations.

**\gre@temp@skip@one**                        *gregoriotex-spaces.tex*

Temporary skip used in calculations.

**\gre@unit**                                *gregoriotex-spaces.tex*

Temporary dimension used by **\gre@convertto**.

**\gre@base** *gregoriotex-spaces.tex*

Temporary dimension used by \gre@convertto.

**\gre@maxlen** *gregoriotex-spaces.tex*

Distance holding the maximum legal length in TeX.

# 5   Special arguments

These arguments are used by multiple functions and take a lot of space to describe so we describe them once here and refer to this section rather than have multiple definitions.

## 5.1   Note Alignment Type

| | Integer with the following possibilities: |
|---|---|
| 0 | one-note glyph or more than two notes glyph except porrectus : here we must put the aligncenter in the middle of the first note |
| 1 | two notes glyph (podatus is considered as a one-note glyph) : here we put the aligncenter in the middle of the glyph |
| 2 | porrectus : has a special align center |
| 3 | initio-debilis : same as 1 but the first note is much smaller |
| 4 | case of a glyph starting with a quilisma |
| 5 | case of a glyph starting with an oriscus |
| 6 | case of a punctum inclinatum |
| 7 | case of a stropha |
| 8 | flexus with an ambitus of one |
| 9 | flexus deminutus |
| 10 | virgula |
| 11 | divisio minima, minor and maior |
| 12 | divisio finalis |