

The **mëtrix** package

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Abstract

— — — — — | — ∪ ∪ — ∪ ∪ —
et quod temptābam | scribere versus erat

The **mëtrix** package can be used to print the prosodics/metrics of (latin) verses. It provides macros to typeset the symbols stand alone and in combination with syllables (including automatic alignment like seen above). Furthermore it defines a new brēvis and a lōnga accent¹ and a bow to contract syllables.

Thanks to David Carlisle, Marco Daniel, Enrico Gregorio, Bruno Le Floch and Joseph Wright who helped me with starting in L^AT_EX3 programming. The verse above is by Ovid in his Tristia 4,10,26.

1 Prerequisites

mëtrix relies only on a few packages: tikz (including the calc library), xpatch and xparse, which stand for the whole L^AT_EX3 bundle.

2 Package loading

Load **mëtrix** as usual with `\usepackage{metrix}`. At the moment it has no options.

A CWL file `metrix.cwl` for autocompletion in TeXstudio is available in the GitHub repo. To install the CWL file copy it to `~/.config/texstudio/` on Linux and OS X and to `C:\Documents and Settings\User\AppData\Roaming\texstudio\`. See section 1.5 of the TeXstudio manual for more information.

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¹I know that these signs are no accents in the linguistic sense, but they are in the T_EX tradition ...

3 Bugs and feedback

3.1 Known issues

- At the moment the escaping of hyphen chars is not that good (see section 7.3).
- Unfortunately you can't use the active quotes of `csquotes` inside of `\metrics` syllable list (see section 7.4).

I'm sure there are more bugs and issues let me know if you find them ...

3.2 Feedback

Any feedback on **mētrix** is appreciated. You may use its GitHub repository at <https://github.com/tweh/matrix> to request features and report bugs or send me an e-mail (mail@tobiw.de).

Please note that I don't speak latin myself and forthat the examples in this manual may be wrong—as long as they show how to use the package I don't consider such errors as bugs ;-).

4 Metric symbols

4.1 Syntax for symbols

Before I'll show you the central macros for typesetting the symbols, you need to "learn" the syntax for the symbols. All symbols are represented by a single or a combination of characters. The list with all available abbreviations can be found in table 1. Please keep in mind that **mētrix** uses spaces to separate the abbreviations an something like `_ ' x` will cause an error, the correct input is `_ ' x` (where indicates a space/blank).

Accents above symbols (ictus)

If you want to add an additional accent above a symbol you may precede the symbol with an acute ``` or grave ```. At the moment this only works with breve (``u` or ``u`) and longum (``_` or ``_`).

Table 1: Symbol abbreviations

| abbreviation | symbol | name/explantation | accent/ictus? |
|---------------------|--------|----------------------------|---------------|
| e | | empty (= invisible) symbol | |
| u | ◡ | elementum breve | yes |
| _ <i>underscore</i> | — | elementum longum | yes |
| uu | ◡◡ | double breve | |
| uu_ | ◡◡ | elementum biceps | |
| _uu | ◡◡ | elementum biceps | |
| u_uu | ◡◡ | elementum anceps | |

...

Table 1: Symbol abbreviations (cont.)

| abbreviation | symbol | name/explanation | accent/ictus? |
|--------------|--------|------------------------|-------------------------|
| x | × | elementum anceps | |
| n | ∩ | elementum indifferens | |
| u_ | ⌞ | elementum indifferens | |
| A | ^ | * | |
| v | ∨ | * | |
| o | ○ | * | |
| oo | ○○ | aeolic base | |
| l | | * | |
| ll | | * | |
| p | / | primary stress | |
| s | \ | secondary stress | |
| | | pipe | break (see 4.4) |
| | | two pipes | verse break (see 4.4) |
| ' | | apostrophe (shift + #) | shorter break (see 4.4) |
| , | | comma | shorter break (see 4.4) |

* I added these symbols as someone might needs them. If you use them please let me know what to add as name/explanation.

4.2 Stand alone metric symbols

`\metricsymbols` ★ `\metricsymbols{<*>[<highlighting>]{<symbols>}}`

This macro typesets stand alone versions of the symbols, i.e. without syllables below (or above) of them. Use the starred version for smaller (in line) symbols and the normal version for bigger symbols. `<symbols>` must be a list of abbreviations as explained in section 4.1; the abbreviations must be separated by one (or more) spaces.

Example

The *diphilius* can be shown with this code.

```
\metricsymbols{ _ _uu _ _uu u_ | x _ u u _ x u_ }
— ∩ — ∩ ∩ | × — ∩ ∩ — × ∩
```

4.3 Metric symbols above (or below) syllables

`\metrics` ★ `\metrics[<highlighting>]{<symbols>}{<syllables>}`

This command can be used to align the symbols above (or below) syllables. The first argument works as in `\metricsymbols`, the second argument `<syllables>` takes the hyphenated verse.

Example

```
\metrics{ _   u u _ _ _ | _   _ u u _ _ _ }
          {flos ve-te-ris vi-ni | meis na-ri-bus ob-iec-tust}

 _   ^ ^ _ _ _ | _   _ ^ ^ _ _ _
flos veteris vini | meis naribus obiectust
```

You may use multiple spaces to align the abbreviations above the syllables but this is not mandatory and does not affect the output. But mind that the number of syllables equals the number of symbols. If you use the $\circ\circ$ symbol you may omit the hyphen between the two syllables belonging to this symbol. You can merge multiple words by *embracing* them.

Example

```
\metrics{ _   u u _ _ _ _ _ }
          {mol-ta quo-{que et} bel-lo pas-sus}

 _   ^ ^ _ _ _ _ _
molta quoque et bello passus
```

The macros `\metrics` and `\metricsymbols` can also be used to typeset single symbols or symbol syllable combinations.

Example

The `\metricsymbols*{_uu}` shows an `\emph{elementum biceps}`.

The ϖ shows an *elementum biceps*.

4.4 Adding symbols for breaks

As seen in the examples above you can use pipes, i.e. `|` or `||`, to mark breaks. In `\metrics` the markers must appear in $\langle symbols \rangle$ and $\langle syllables \rangle$.

Example

```
\metrics{ _   u u _ _ _ | _   _ u u _ _ || }
          {flos ve-te-ris vi-ni | meis na-ri-bus ob ||}

 _   ^ ^ _ _ _ | _   _ ^ ^ _ _ ||
flos veteris vini | meis naribus ob ||
```

If you want the breaks to be shown in the symbol line only you can use the shorter break which is represented by an apostrophe (shift + #) or a comma. This mark must be used in $\langle symbols \rangle$ only and is kind of special:

- It *can't* be highlighted and thus doesn't count for the numbers used for highlights,
- it is ignored at the beginning and the end of $\langle symbols \rangle$,
- in `\metricsymbols` it is treated like the pipe, and
- \TeX needs at least one additional run to get the right positions.

Example

```
\metrics{ _ u u ' _ u u ' _ _ ' _ _ | _ u u | _ _ ||}
{Ar-ma vi-rum-que ca-no Tro-iae qui | pri-mus ab | o-ris ||}

_ _ _ | _ _ _ | _ _ | _ _ |
Ar-ma vi-rum-que ca-no Tro-iae qui | pri-mus ab | o-ris ||
```

The difference between ' and , is that the break defined with an apostrophe is vertically centred between the surrounding symbols while the break set with the comma is vertically centred between the corresponding syllables. They both align horizontally within the row of symbols.

Example

```
\emph{apostrophe:}
\metrics{ _ _ ' _ }
{au-ra-{r\bow{um e}st}} \qqquad
\emph{comma:}
\metrics{ _ _ , _ }
{au-ra-{r\bow{um e}st}}

_ _ | _ _ _ _ | _ _
apostrophe: aurarum est comma: aurarum est
```

4.5 Highlight certain symbols/syllables

As you can see above `\metrics` and `\metricsymbols` got an optional argument taking some options to highlight a certain symbol/syllable. The *highlighting* list must contain one or more comma separated pairs of *numbers*=*style*, where *numbers* is the number of a symbol/syllable (e.g. 3) or a list of numbers separated by plus signs (e.g. 2+3+5) in the list and *style* is any TikZ style (other TikZ options may not work properly, so you maybe must create your own style, see section 7.9.)

mëtrix comes with several predefined highlighting styles:

- **add arrow**

```
 _ _ _ | _ _ _ |
flos veteris vini | meis naribus ob ||

 _ _ _ | _ _ _ |
flos veteris vini | meis naribus ob ||
```

This style adds an arrow above the metric symbol. To change the arrow symbol, edit the **mëtrix** variable `arrow`.

- **add text**=*text*

```
 _ _ _ | _ _ _ |
flos veteris vini | meis naribus ob ||

 _ _ _ | _ _ _ |
flos veteris vini | meis naribus ob ||
```

This style takes a *mandatory* argument to add some text above a symbol. To change the default font change the font of the TikZ node style `every metricx added text`.

- **bold highlight**

```
 _ _ _ | _ _ _ |
flos veteris vini | meis naribus ob ||

 _ _ _ | _ _ _ |
flos veteris vini | meis naribus ob ||
```

- `colored highlight=<color>`

flos veteris vini | meis naribus ob ||

This style has an *optional* argument to change the highlighting color on the fly. To change the color in general change the value of the variable `highlightcolor`.

- `dashed highlight`

flos veteris vini | meis naribus ob ||

- `filled highlight=<color>`

flos veteris vini | meis naribus ob ||

This style has an *optional* argument to change the filling color on the fly. To change the color in general change the value of the variable `fillcolor`.

- `superscript=<text>`

flos veteris vini^a | meis naribus ob^b ||

This style takes a *mandatory* argument to add a superscript letter or a number to a symbol. It is designed to work with the break symbols, but works with others too.

Styles with an argument must be set in braces (see the examples)!

Example

Highlight some syllables with color.

```
\metrics
[
  2=colored highlight,
  4={colored highlight=orange},
  5={colored highlight=blue},
  7=colored highlight,
  11=colored highlight
]
{ _   u u _ _ _ | _ _ u u _ }
{flos ve-te-ris vi-ni | meis na-ri-bus ob}

flos veteris vini | meis naribus ob
```

Example

The shorter version using the + syntax.

```
\metrics[2+5+9=bold highlight]
{ _   u u _ _ _ | _ _ u u _ }
{flos ve-te-ris vi-ni | meis na-ri-bus ob}
```

flos veteris vini | meis naribus ob

Example

Mixing and combining styles is possible too.

```
\metricsymbols[1+4=bold highlight, 3=colored highlight]
  {u_uu x _ || u _ n ||} \
\metricsymbols[2={bold highlight,colored highlight}]
  {u_uu x _ || u _ n ||}
```

ŭ × — || ŭ — ŭ ||
ŭ × — || ŭ — ŭ ||

Example

Add some superscripts to the breaks.

```
\metricsymbols[6={superscript=5},10={colored highlight,superscript=bD}]
  {_ _uu _ _uu _ | _uu _ _uu || _ uu _ u_}
```

— ŭ — ŭ — |⁵ ŭ — ŭ ||^{bD} — ŭ — ŭ

5 Accents and bows

`\brv` ★ `\brv{⟨vowel⟩}` `\lng`{⟨vowel⟩} `\acct`{⟨vowel⟩}

`\lng` ★ The first commands offer an alternative to the standard accent macros `\u` and `\=`. The difference is that `\brv` centers the accent above the vowel or diphthong and `\lng` stretches the bar across the whole vowel or diphthong. `\acct` adds an accent dot below a vowel or diphthong.²

Example

Add accents to all vowels.

```
\brv{a}m\acct{\lng{i}}c\brv{u}s pr\acct{\brv{o}}f\brv{u}g\brv{u}s
āmīcūs prōfūgūs
```

mētrix also tries to do some kind of italic correction, and shifts the accents a little to the right when an italic or slanted font is used.

ŭ ŭ ŭ ĭ ĭ ĭ æ æ æ ŭ ŭ ŭ ĭ ĭ ĭ æ æ æ
 ū ū ū ī ī ī ā ē ā ē ū ū ū ī ī ī ā ē ā ē
 ȳ ȳ ȳ ï ï ï æ æ æ ȳ ȳ ȳ ï ï ï æ æ æ

²Actually you can use any vowel, diphtong, syllable or word as *⟨vowel⟩*, it makes no difference as long as it is text.

Fine Tuning

To make some fine tuning for a certain accent possible the three macros actually got some additional, *optional* arguments:

```
\brv(<coordinate>){<vowel>}  
\lng(<coordinate>)[<left length>]{<vowel>}[<right length>]  
\acct(<coordinate>){<vowel>}
```

Where *<coordinate>* must be a valid TikZ coordinate and can be used to move the accent. In addition to that the accent produced by `\lng` can be extended with *<left/right length>* by a certain amount.

Example

Prevent collision between accent and descender of an *f*.

```
\itshape somn\acct(-0.05em,-0.45ex){i}fero  
  
somnifero
```

`\bow` ★ `\bow{<syllables>}`

`\bow` can be used to show the contraction of two vowels or syllables.

Example

```
mult\bow{um i}lle or d\bow{ei}nde  
  
multum ille or deinde
```

Fine Tuning

To make some fine tuning for a certain bow possible the macro actually has some additional, *optional* arguments:

```
\bow(<coordinate>)[<left length>]{<syllable>}[<right length>]
```

Where *<left/right length>* can be used to shorten the bow by a certain amount.

Example

Prevent collision between accent and bow.

```
c\acct{oe}-1\bow{um \acct{e}}[2pt]st  
  
coe-lum est
```

6 Environments

`symbolline`

This environment can be used to display a line of stand alone symbols.

Example

```
Text text text ...
\begin{sybolline}
  \metricsymbols{oo e _ u u _ e u _ e u _ u_}
\end{sybolline}
Text text text ...

Text text text ...

      oo  —  ∪ ∪ —  ∪ —  ∪ — ∪

Text text text ...
```

metricverses

```
\begin{metricverses}[\langle source \rangle]
\langle content optional \verseref{\langle reference \rangle} \rangle
\end{metricverses}
```

Use this environment to display a verse with metric symbols, separate multiple verses by a blank line.

Example

```
Text text text ...
\begin{metricverses}
  \metrics{ _ u u _ _ _ | _ _ u u _ _ _ }
           {flos ve-te-ris vi-ni | meis na-ri-bus ob-iec-tust}

  \metrics{ _ u u _ u u _ | _ _ _ _ u u _ _ u u _ }
           {ei-us a-mor cu-pi-dam | {m\bow{e h}uc} pro-li-cit
                                           per te-ne-bras}
\end{metricverses}
Text text text ...

Text text text ...

      _ ∪ ∪ — — — | — — ∪ ∪ — — —
      flos veteris vini | meis naribus obiectust
      _ ∪ ∪ — ∪ ∪ — | — — — ∪ ∪ — ∪ ∪ —
      eius amor cupidam | me huc prolicit per tenebras

Text text text ...
```

\verseref

```
\verseref{\langle reference \rangle}
```

Inside of {metricverses} you may use \verseref to print a reference.

Example

```
Text text text ...
\begin{metricverses}
  \metrics{ _ u u _ _ _ | _ _ u u _ _ _ }
```

```

        {flos ve-te-ris vi-ni | meis na-ri-bus ob-iec-tust}
\verseref{Plaut. \emph{Curc.} 96f}

\metrics{ _ u u _ u u _ | _ _ _ _ _ u u _ u u _ }
        {ei-us a-mor cu-pi-dam | {m\bow{e h}uc} pro-li-cit
                                                per te-ne-bras}
\end{metricverses}
Text text text ...

Text text text ...

        _ _ _ _ _ | _ _ _ _ _
        flos veteris vini | meis naribus obiectust
        _ _ _ _ _ | _ _ _ _ _
        eius amor cupidam | me huc prolicit per tenebras

Text text text ...

```

Plaut. *Curc.* 96f

7 FAQs

7.1 How can I display the symbols below the syllables?

Change the variable `symbolshift` to a negative value.

Example

```

\setmetrixvar{symbolshift}{-0.6em}
% later ...
\metrics{ _ u u _ _ _ | _ _ _ _ _ u u _ _ _ }
        {flos ve-te-ris vi-ni | meis na-ri-bus ob-iec-tust}

flos veteris vini | meis naribus obiectust
_ _ _ _ _ | _ _ _ _ _

```

7.2 How can I combine two words below one symbol?

Use braces `{}` in the lists to keep them processed as one element.

Example

```

\metrics{u u _ | _ _ _ _ _ u u }
        {cu-pi-dam | {m\bow{e h}uc} pro-li-cit }

_ _ _ | _ _ _ _ _
cupidam | me huc prolicit

```

7.3 How can I show a hyphen character?

To escape a hyphen – put it inside braces, but you must still add an unbraced hyphen to show **mētrix** where your syllables split.

Example

If you enclose the hyphen in braces together with a syllable, the symbol gets centered above both.

```
\metrics{ _ _ }
          {vi-{-ni}}
```

— —
vi-ni

You can enclose only the hyphen in braces and treat it as a syllable but then you must add an empty symbol e too.

```
\metrics{ _ e _ }
          {vi-{-}-ni}
```

— —
vi-ni

7.4 How can I use quotes in \metrics?

It should be possible to use all shorthands (or direct input with Unicode) etc. for quotation marks except the active quotes of csquotes, which won't work inside the \metrics syllable list. It is possible to use csquotes besides **mëtrix** though.

Example

```
\metrics{ _ u }{ ``si me'' }
\metrics{ _ u }{ \glqq si me\grqq }% with \usepackage[<lang>]{babel}
\metrics{ _ u }{ "si me" }% with \usepackage[ngerman]{babel}

— — — — —
“si me” „si me“ „si me“
```

7.5 How can I add a superscript letter to a certain symbol?

Use the superscript highlighting style as described above.

7.6 How can I make subscripts instead of superscripts?

The easiest way is to use the superscript style and change a part of its definition to shift the superscripts to subscript positions.

Example

```
\metricsymbols[2={superscript=x}]{ u || u } \quad vs. \quad
% ...
\tikzset{
  every superscript picture/.style={
    baseline=1ex,
  },
}
% ...
\metricsymbols[2={superscript=x}]{ u || u }
```

$\cup \parallel^x \cup$ vs. $\cup \parallel_x \cup$

Normally the `\tikzset` should be part of your preamble, I used it this way to show the differences.

7.7 How can I highlight all symbols/syllables?

Way 1 Just call your desired highlighting style before using on of the macros `\metrics` or `\metricsymbols`. You may enclose this in a group to not affect the other following sequences. Mind that the highlighting styles must be in a way changing the `every ...` styles to make this way work.

Example

```
{% begin group
  \tikzset{colored highlight}
  \metrics{ _ u u _ _ _ }
           {flos ve-te-ris vi-ni}
}% end group
_ _ _ _ _
flos veteris vini
```

Way 2 Change the `every metrix ...` styles.

Example

```
{% begin group
  \tikzset{every metrix symbol/.append style={red}}
  \metrics{ _ u u _ _ _ }
           {flos ve-te-ris vi-ni}
}% end group
_ _ _ _ _
flos veteris vini
```

Leave out the grouping (and put this to your preamble) if you want to highlight the symbols in your whole document.

7.8 How can I change the size of a symbol?

Change the two base vector units.

Example

```
\setmetrixvar{baseunit}{1em}  
\setmetrixvar{bigbaseunit}{1.6em}
```

If you want to change the size of a single symbol to highlight it you must create your own highlighting style.

Example

```
\tikzset{  
  bigger highlight/.style={  
    every metrix symbol/.append style={x=2.5em,y=2.5em,line width=1.5pt},  
  },  
}  
% later  
\metricsymbols[2=bigger highlight]{u_u x _ || u _ n x}  
  
u u X — || u — u x
```

7.9 How can I stop highlighting the syllables too?

Way 1 Change the highlight styles (in your preamble).

Example

```
\tikzset{  
  colored highlight/.style={  
    every metrix symbol/.append style={  
      draw=\usemetrixvar{highlightcolor},  
    },  
  },  
}  
% later ...  
\metrics[3=colored highlight]{_ u u _ _ _ }  
                                {flos ve-te-ris vi-ni}  
  
_ u u _ _ _  
flos veteris vini
```

Way 2 Create your own highlighting style, which is very similar to way 1, as the following example shows. Every own style should change the appearance by appending the settings to one of the every ... styles.

Example

```
\tikzset{  
  my highlight/.style={  
    every metrix symbol/.append style={draw=blue,line width=0.07em},  
  },  
}  
% later ...  
\metrics[5=my highlight]{_ u u _ _ _ }  
                                {flos ve-te-ris vi-ni}
```

7.10 Why got the highlight styles that long names?

To prevent conflict with other packages.

Example

If you want to shorten it create your own style as described above or use

```
\tikzset{
  hl/.style={colored highlight}
}
```

to map the style to a shorter name. Then you can use it like in

```
\metricsymbols[2=hl]{u _ _ u}
```

7.11 How can I change the font of all syllables?

Extend the every metrix syllable node style

Example

Print all syllables in italic with the following extension.

```
\tikzset{
  every metrix syllable node/.append style={font=\itshape},
}
```

8 Customization

Some hints were already given in the FAQ section (see section 7) but here I will list all variables and TikZ styles that are in use and can be changed to customize **mëtrix** easily.

8.1 Variables

```
\setmetrixvar \setmetrixvar{<variable>}{<value>}
```

```
\usemetrixvar
```

To customize the rendering of the symbols, accents and bow **mëtrix** has some variables that you can change. Use `\setmetrixvar` to change a value. The variables and the default values are listed in table 2. To access a value you can use `\usemetrixvar{<variable>}`.

It is highly recommended to use font size depending units, i.e. `em` or `ex`, for all lengthen to keep the symbols usable in different font sizes, for example in headlines or footnotes.

Example

Change the highlighting color to blue.

```
\setmetrixvar{highlightcolor}{blue}
% later
```

```
\metrics[5=colored highlight]{_ u u _ _ _ }
                             {flos ve-te-ris vi-ni}

_ ˘ ˘ _ ˘ ˘
flos veteris vini
```

Example

Create your own highlighting style but use the default highlighting color.

```
\tikzset{
  my highlight/.style={
    every metrix symbol/.append style={
      draw=\usemetrixvar{highlightcolor},
      line width=0.15em
    },
  },
}
\metrics[5=my highlight]{_ u u _ _ _ }
                        {flos ve-te-ris vi-ni}

_ ˘ ˘ _ ˘ ˘
flos veteris vini
```

Table 2: Variables

| variable | default | explanation |
|--------------------|---------|---|
| sympollinewidth | 0.04em | line width of symbols above syllables and small stand alone symbols |
| bigsympollinewidth | 0.06em | line width of big stand alone symbols |
| accentlinewidth | 0.03em | line width of accents (<code>\lng</code> and <code>\brv</code>) |
| bowlinewidth | 0.03em | line width of bows (<code>\bow</code>) |
| symbolsep | 0.4em | gap between symbols in stand alone lists |
| baseunit | 0.9em | length of the base vector for drawing symbols above syllables, small stand alone symbols, accents and bows |
| bigbaseunit | 1.4em | length of the base vector for drawing stand alone symbols |
| shortsyllablelimit | 0.8em | all syllables shorter than this can be treated specially, e.g. they'll get a shorter <i>elementum longum</i> . |
| gap | 0.09em | small gap between lines of the symbols, e.g. the distance between the two lines of a verse break |
| symbolshift | 1.1em | length to shift the symbols above or below the syllables (try <code>-0.6em</code> to display the symbols below the base line) |
| lngshift | 0.8em | length to shift the <i>longa</i> accent |

...

Table 2: Variables (cont.)

| variable | default | explanation |
|----------------|-----------------------------|---|
| lngshortening | 0.075em | length to shorten the longa accent a little |
| lngminlength | 0.25em | minimum width of a longa accent |
| brvshift | 0.9em | length to shift the brevis accent |
| dotshift | -0.15em | length to shift the dot accent |
| itcorrection | 0.11em | length to shift the accents above italic/slanted letters |
| accentxshift | -0.025em | length to shift the accents horizontally |
| bowshift | -0.15em | length to shift the bow below the base line |
| bowshortening | 0.15em | length to shrink the bow a little |
| bowlooseness | 0.75 | value to influence the bending of the bow |
| symbolcolor | . (curr. color) | color of metric symbols |
| accentcolor | . (curr. color) | color of accents (<code>\lng</code> and <code>\brv</code>) |
| bowcolor | . (curr. color) | color of bows (<code>\bow</code>) |
| highlightcolor | red | color of highlighted symbols and syllabels used in <code>colored highlight</code> style |
| fillcolor | yellow | color of filled symbol nodes used in <code>filled highlight</code> style |
| arrow | <code>\$\downarrow\$</code> | arrow for highlighting |
| breakgap | 0.6em | gap before and after a (verse) break |
| emptywidth | 1em | gap replacing an empty symbol (abbreviation e) |
| acute | ` | acute accent character/symbol |
| grave | ` | grave accent character/symbol |

8.2 TikZ styles

Beside the variables you may change the TikZ styles used by **mëtrix**. But please mind that all styles are not empty by default so you should prefer `/ .append style` against `/ .style`. Otherwise it may cause strange effects. Remind that you can use `\usemetrixvar` to access a variable.

```
every_mëtrix_symbol
every_mëtrix_big_symbol
every_mëtrix_symbol_node
```

These three styles define the apperance of the metric symbols. They define the line width, the color, the basis vectors and other things.

```
every_mëtrix_syllable_node
every_mëtrix_break_node
```

These styles defines the nodes in which a syllable or a break symbol (the ones spanning across the symbol and the syllable line) is typeset, e.g. it aligns these nodes at their base line.

| | |
|---|--|
| <hr/> <hr/> <code>every_metrix_accent</code> <hr/> <hr/> | This style defines the apperance of accents created by <code>\lng</code> and <code>\brv</code> . |
| <hr/> <hr/> <code>every_metrix_bow</code> <hr/> <hr/> | This style defines the apperance of bows below symbols. |
| <hr/> <hr/> <code>bold_highlight</code> <code>colored_highlight</code> <code>dashed_highlight</code> <code>filled_highlight</code> <code>superscript</code> <hr/> <hr/> | These styles can be used to highlight a certain symbol. |
| <hr/> <hr/> <code>every_superscript_picture</code> <code>every_superscript_node</code> <code>every_superscript_label</code> <hr/> <hr/> | These styles are used to define the superscript highlighting style. |
| <hr/> <hr/> <code>every_metrix_added_text</code> <hr/> <hr/> | This style is used for text added to a symbol with the <code>add_text</code> highlighting. |

9 Implementation

```

1 <*package>
2 <@@=metrix>
3 \ProvidesExplPackage
4   {\metrixFileName}{\metrixFileDate}{\metrixFileVersion}{\metrixFileDescription}

```

9.1 Required packages

```

5 \RequirePackage{xparse}
6 \RequirePackage{xpatch}
7 \RequirePackage{tikz}
8 \ExplSyntaxOff
9 \usetikzlibrary{calc}
10 \ExplSyntaxOn

```

9.2 Constants and internal variables

These constants variables are for internal use only and can't be changed/accessed by the user.

9.2.1 Constants

```

\c__metrix_acute_accent_tl Constant holding an acute accent char.
11 \tl_const:Nn \c__metrix_acute_accent_tl { ´ }
(End definition for \c__metrix_acute_accent_tl.)

\c__metrix_acute_accent_tl Constant holding an grave accent char.
12 \tl_const:Nn \c__metrix_grave_accent_tl { ` }
(End definition for \c__metrix_acute_accent_tl.)

```

9.2.2 Variables

`\l__metrix_words_tl` This list stores the words of the `\metrics` macro.

`\tl_new:N \l__metrix_words_tl`

(End definition for `\l__metrix_words_tl`.)

`\l__metrix_syllables_seq` This list stores the words of the `\l__metrix_words_tl` list.

`\seq_new:N \l__metrix_syllables_seq`

(End definition for `\l__metrix_syllables_seq`.)

`\l__metrix_symbols_seq` This list stores the metric symbols of `\metrics` and `\metricsymbols`.

`\seq_new:N \l__metrix_symbols_seq`

(End definition for `\l__metrix_symbols_seq`.)

`\l__metrix_short_breaks_seq` This list stores the short and foot breaks of `\metrics`.

`\l__metrix_foot_breaks_seq` `\seq_new:N \l__metrix_short_breaks_seq`

`\seq_new:N \l__metrix_foot_breaks_seq`

(End definition for `\l__metrix_short_breaks_seq` and `\l__metrix_foot_breaks_seq`.)

`\l__metrix_highlights_prop` This list stores the highlighting styles of `\metrics` and `\metricsymbols`.

`\prop_new:N \l__metrix_highlights_prop`

(End definition for `\l__metrix_highlights_prop`.)

`\l__metrix_highlight_seq` This lists are used to evaluate a highlight style.

`\l__metrix_highlight_pos_seq` `\seq_new:N \l__metrix_highlight_seq`

`\seq_new:N \l__metrix_highlight_pos_seq`

(End definition for `\l__metrix_highlight_seq` and `\l__metrix_highlight_pos_seq`.)

`\q__metrix_space_marker` This is the marker for spaces inside of the `\l__metrix_words_tl` list.

`\quark_new:N \q__metrix_space_marker`

(End definition for `\q__metrix_space_marker`.)

`\l__metrix_process_int` This process counter is used to combine the symbols and syllables.

`\int_new:N \l__metrix_process_int`

(End definition for `\l__metrix_process_int`.)

`\l__metrix_short_syllable_bool` This boolean can be used to store that a syllable is short, e.g. *li* will be defined as short

`\l__metrix_syllable_box` whereas *man* is long. That will be used to shorten the `|_` symbol. Furthermore we'll need a

`\g__metrix_variable_shortsyllablelimit_tl` box to measure the length of a syllable and a variable to save the limit for short syllables.

`\bool_new:N \l__metrix_short_syllable_bool`

`\box_new:N \l__metrix_syllable_box`

`\tl_new:N \g__metrix_variable_shortsyllablelimit_tl`

`\tl_set:Nn \g__metrix_variable_shortsyllablelimit_tl { 0.8em }`

(End definition for `\l__metrix_short_syllable_bool`, `\l__metrix_syllable_box`, and `\g__metrix_variable_shortsyllablelimit_tl`.)

`\l__metrix_current_symbol_tl` Variable holding the current symbol abbreviation.
`27 \tl_new:N \l__metrix_current_symbol_tl`
(End definition for \l__metrix_current_symbol_tl.)

`\l__metrix_current_symbol_head_tl` Variable holding first char of the current symbol abbreviation.
`28 \tl_new:N \l__metrix_current_symbol_head_tl`
(End definition for \l__metrix_current_symbol_head_tl.)

`\l__metrix_has_acute_accent_bool` Bool for switching on an acute accent of a symbol.
`29 \bool_new:N \l__metrix_has_acute_accent_bool`
(End definition for \l__metrix_has_acute_accent_bool.)

`\l__metrix_has_grave_accent_bool` Bool for switching on an grave accent of a symbol.
`30 \bool_new:N \l__metrix_has_grave_accent_bool`
(End definition for \l__metrix_has_grave_accent_bool.)

9.3 User variables

These variables save things, the user can change via `\setmetrixvar` and use via `\usemetrixvar`.

`\g__metrix_variable_symbollinewidth_tl` This variable stores the line width for all metric symbols above (or below) syllables.
`31 \tl_new:N \g__metrix_variable_symbollinewidth_tl`
`32 \tl_set:Nn \g__metrix_variable_symbollinewidth_tl { 0.04em }`
(End definition for \g__metrix_variable_symbollinewidth_tl.)

`\g__metrix_variable_bigsymbollinewidth_tl` This variable stores the line width for all stand alone metric symbols.
`33 \tl_new:N \g__metrix_variable_bigsymbollinewidth_tl`
`34 \tl_set:Nn \g__metrix_variable_bigsymbollinewidth_tl { 0.06em }`
(End definition for \g__metrix_variable_bigsymbollinewidth_tl.)

`\g__metrix_variable_accentlinewidth_tl` This variable stores the line width of the accent like symbols.
`35 \tl_new:N \g__metrix_variable_accentlinewidth_tl`
`36 \tl_set:Nn \g__metrix_variable_accentlinewidth_tl { 0.04em }`
(End definition for \g__metrix_variable_accentlinewidth_tl.)

`\g__metrix_variable_bowlinewidth_tl` This variable stores the line width of the bow.
`37 \tl_new:N \g__metrix_variable_bowlinewidth_tl`
`38 \tl_set:Nn \g__metrix_variable_bowlinewidth_tl { 0.04em }`
(End definition for \g__metrix_variable_bowlinewidth_tl.)

`\g__metrix_variable_symbolsep_tl` This variable stores the gap between two or more stand alone metric symbols.
`39 \tl_new:N \g__metrix_variable_symbolsep_tl`
`40 \tl_set:Nn \g__metrix_variable_symbolsep_tl { 0.4em }`
(End definition for \g__metrix_variable_symbolsep_tl.)

| | |
|---|---|
| <code>\g__metrix_variable_baseunit_tl</code> | <p>This variable stores the length of the basis vector for all metric symbols above (or below) syllables and accent like symbols.</p> <pre> 41 \tl_new:N \g__metrix_variable_baseunit_tl 42 \tl_set:Nn \g__metrix_variable_baseunit_tl { 0.9em } </pre> <p>(End definition for <code>\g__metrix_variable_baseunit_tl</code>.)</p> |
| <code>\g__metrix_variable_bigbaseunit_tl</code> | <p>This variable stores the length of the basis vector for all stand alone metric symbols.</p> <pre> 43 \tl_new:N \g__metrix_variable_bigbaseunit_tl 44 \tl_set:Nn \g__metrix_variable_bigbaseunit_tl { 1.4em } </pre> <p>(End definition for <code>\g__metrix_variable_bigbaseunit_tl</code>.)</p> |
| <code>\g__metrix_variable_gap_tl</code> | <p>Length for small gaps in the symbols, e.g. the gap between the two bows of an elementum biceps.</p> <pre> 45 \tl_new:N \g__metrix_variable_gap_tl 46 \tl_set:Nn \g__metrix_variable_gap_tl { 0.09em } </pre> <p>(End definition for <code>\g__metrix_variable_gap_tl</code>.)</p> |
| <code>\g__metrix_variable_symbolshift_tl</code> | <p>This variable stores the value to shift metric symbols above (or below) syllables. Set this variable to approx 1.1em to draw the symbols above the syllable and to -0.6em to draw them below.</p> <pre> 47 \tl_new:N \g__metrix_variable_symbolshift_tl 48 \tl_set:Nn \g__metrix_variable_symbolshift_tl { 1.1em } </pre> <p>(End definition for <code>\g__metrix_variable_symbolshift_tl</code>.)</p> |
| <code>\g__metrix_variable_lngshift_tl</code> | <p>This variable stores the value to shift the longa accent.</p> <pre> 49 \tl_new:N \g__metrix_variable_lngshift_tl 50 \tl_set:Nn \g__metrix_variable_lngshift_tl { 0.15em } </pre> <p>(End definition for <code>\g__metrix_variable_lngshift_tl</code>.)</p> |
| <code>\g__metrix_variable_lngshortening_tl</code> | <p>This variable stores the value to shorten the longa accent.</p> <pre> 51 \tl_new:N \g__metrix_variable_lngshortening_tl 52 \tl_set:Nn \g__metrix_variable_lngshortening_tl { 0.075em } </pre> <p>(End definition for <code>\g__metrix_variable_lngshortening_tl</code>.)</p> |
| <code>\g__metrix_variable_lngminlength_tl</code> | <p>This variable stores the value to shorten the longa accent.</p> <pre> 53 \tl_new:N \g__metrix_variable_lngminlength_tl 54 \tl_set:Nn \g__metrix_variable_lngminlength_tl { 0.25em } </pre> <p>(End definition for <code>\g__metrix_variable_lngminlength_tl</code>.)</p> |
| <code>\g__metrix_variable_brvshift_tl</code> | <p>This variable stores the value to shift the brevis accent.</p> <pre> 55 \tl_new:N \g__metrix_variable_brvshift_tl 56 \tl_set:Nn \g__metrix_variable_brvshift_tl { 0.25em } </pre> <p>(End definition for <code>\g__metrix_variable_brvshift_tl</code>.)</p> |
| <code>\g__metrix_variable_dotshift_tl</code> | <p>This variable stores the value to shift the brevis accent.</p> <pre> 57 \tl_new:N \g__metrix_variable_dotshift_tl 58 \tl_set:Nn \g__metrix_variable_dotshift_tl { -0.15em } </pre> |

(End definition for `\g__metrix_variable_dotshift_tl`.)

`\g__metrix_variable_itcorrection_tl` These variables are used to set the italic correction of accents.
`\l__metrix_internal_itcorrection_tl` 59 `\tl_new:N \g__metrix_variable_itcorrection_tl`
`\g__metrix_internal_itcorrection_zero_tl` 60 `\tl_set:Nn \g__metrix_variable_itcorrection_tl { 0.11em }`
61 `\tl_new:N \l__metrix_internal_itcorrection_tl`
62 `\tl_set:Nn \l__metrix_internal_itcorrection_tl { 0em }`
63 `\tl_new:N \g__metrix_internal_itcorrection_zero_tl`
64 `\tl_set:Nn \g__metrix_internal_itcorrection_zero_tl { 0em }`

(End definition for `\g__metrix_variable_itcorrection_tl`, `\l__metrix_internal_itcorrection_tl`, and `\g__metrix_internal_itcorrection_zero_tl`.)

`\g__metrix_variable_accentxshift_tl` This variable is used to shift the accents horizontally.
65 `\tl_new:N \g__metrix_variable_accentxshift_tl`
66 `\tl_set:Nn \g__metrix_variable_accentxshift_tl { -0.025em }`

(End definition for `\g__metrix_variable_accentxshift_tl`.)

`\g__metrix_variable_bowshift_tl` This variable stores the value to shift the bow.
67 `\tl_new:N \g__metrix_variable_bowshift_tl`
68 `\tl_set:Nn \g__metrix_variable_bowshift_tl { -0.15em }`

(End definition for `\g__metrix_variable_bowshift_tl`.)

`\g__metrix_variable_bowshortening_tl` This variable stores the value to shrink the bow.
69 `\tl_new:N \g__metrix_variable_bowshortening_tl`
70 `\tl_set:Nn \g__metrix_variable_bowshortening_tl { 0.15em }`

(End definition for `\g__metrix_variable_bowshortening_tl`.)

`\g__metrix_variable_bowlooseness_tl` This variable stores the value to shrink the bow.
71 `\tl_new:N \g__metrix_variable_bowlooseness_tl`
72 `\tl_set:Nn \g__metrix_variable_bowlooseness_tl { 0.75 }`

(End definition for `\g__metrix_variable_bowlooseness_tl`.)

`\g__metrix_variable_symbolcolor_tl` These variables store the color of symbols, accents and bows.
`\g__metrix_variable_accentcolor_tl` 73 `\tl_new:N \g__metrix_variable_symbolcolor_tl`
`\g__metrix_variable_bowcolor_tl` 74 `\tl_set:Nn \g__metrix_variable_symbolcolor_tl { . }`
75 `\tl_new:N \g__metrix_variable_accentcolor_tl`
76 `\tl_set:Nn \g__metrix_variable_accentcolor_tl { . }`
77 `\tl_new:N \g__metrix_variable_bowcolor_tl`
78 `\tl_set:Nn \g__metrix_variable_bowcolor_tl { . }`
(End definition for `\g__metrix_variable_symbolcolor_tl`, `\g__metrix_variable_accentcolor_tl`, and `\g__metrix_variable_bowcolor_tl`.)

`\g__metrix_variable_highlightcolor_tl` These variable stores the color used in the colored highlight style.
79 `\tl_new:N \g__metrix_variable_highlightcolor_tl`
80 `\tl_set:Nn \g__metrix_variable_highlightcolor_tl { red }`

(End definition for `\g__metrix_variable_highlightcolor_tl`.)

`\g__metrix_variable_fillcolor_tl` These variable stores the color used in the filled highlight style.

```
81 \tl_new:N \g__metrix_variable_fillcolor_tl
82 \tl_set:Nn \g__metrix_variable_fillcolor_tl { yellow }
```

(End definition for `\g__metrix_variable_fillcolor_tl`.)

`\g__metrix_variable_arrow_tl` These variable stores the color used in the filled highlight style.

```
83 \tl_new:N \g__metrix_variable_arrow_tl
84 \tl_set:Nn \g__metrix_variable_arrow_tl { $\downarrow$ }
```

(End definition for `\g__metrix_variable_arrow_tl`.)

`\g__metrix_variable_breakgap_tl` This variable stores the width of the gap around the two break symbols.

```
85 \tl_new:N \g__metrix_variable_breakgap_tl
86 \tl_set:Nn \g__metrix_variable_breakgap_tl { 0.6em }
```

(End definition for `\g__metrix_variable_breakgap_tl`.)

`\g__metrix_variable_emptywidth_tl` This variable stores the width of the gap caused by an empty symbol (abbreviation e).

```
87 \tl_new:N \g__metrix_variable_emptywidth_tl
88 \tl_set:Nn \g__metrix_variable_emptywidth_tl { 1em }
```

(End definition for `\g__metrix_variable_emptywidth_tl`.)

`\g__metrix_variable_acute_tl` This variable stores acute symbol.

```
89 \tl_new:N \g__metrix_variable_acute_tl
90 \tl_set:Nn \g__metrix_variable_acute_tl { ´ }
```

(End definition for `\g__metrix_variable_acute_tl`.)

`\g__metrix_variable_grave_tl` This variable stores grave symbol.

```
91 \tl_new:N \g__metrix_variable_grave_tl
92 \tl_set:Nn \g__metrix_variable_grave_tl { ` }
```

(End definition for `\g__metrix_variable_grave_tl`.)

9.4 Variants

Later we'll need the following variant.

```
93 \cs_generate_variant:Nn \prop_item:Nn { No , Nf , NV , Nx }
94 \cs_generate_variant:Nn \prop_put:Nnn { Nnx , Nxx , Nff , Noo }
95 \cs_generate_variant:Nn \seq_item:Nn { Nf , NV , Nx }
96 \cs_generate_variant:Nn \seq_set_split:Nnn { Nnf , NnV , Nnx }
97 \cs_generate_variant:Nn \tl_remove_once:Nn { NV }
```

9.5 Internal main macros

`__metrix_metrics:nn` This macro processes the two lists of `\metrics` and combines the symbols and syllables.³

```

98 \cs_new_protected:Npn \__metrix_metrics:nn #1 #2
99 {
100   \tl_set:Nx \l__metrix_words_tl { \tl_trim_spaces:n { #2 } }

```

First replace the spaces by a special marker `\q__metrix_space_marker` and add hyphens: a space becomes a syllable.

```

101   \tl_replace_all:Nnn \l__metrix_words_tl { ~ } { - \q__metrix_space_marker - }

```

Then split the word list at hypens.

```

102   \seq_set_split:NnV \l__metrix_syllables_seq { - } \l__metrix_words_tl

```

Split the symbol list at spaces.

```

103   \seq_set_split:Nnx \l__metrix_symbols_seq { ~ } { \tl_trim_spaces:n { #1 } }

```

Search for the short and foot breaks and remove them afterwards.

```

104   \int_zero:N \l__metrix_process_int
105   \seq_clear:N \l__metrix_short_breaks_seq
106   \seq_clear:N \l__metrix_foot_breaks_seq
107   \seq_map_inline:Nn \l__metrix_symbols_seq {
108     \int_incr:N \l__metrix_process_int
109     \tl_if_eq:nnT { ##1 } { ' } {
110       \seq_put_right:Nx \l__metrix_short_breaks_seq { \int_use:N \l__metrix_process_int }
111       \int_decr:N \l__metrix_process_int
112     }
113     \tl_if_eq:nnT { ##1 } { , } {
114       \seq_put_right:Nx \l__metrix_foot_breaks_seq { \int_use:N \l__metrix_process_int }
115       \int_decr:N \l__metrix_process_int
116     }
117   }
118   \seq_remove_all:Nn \l__metrix_symbols_seq { , }
119   \seq_remove_all:Nn \l__metrix_symbols_seq { ' }

```

Test whether both lists got the same length:

```

120   \int_zero:N \l__metrix_process_int
121   \seq_map_inline:Nn \l__metrix_syllables_seq
122   {
123     \tl_if_eq:nnT { ##1 } { \q__metrix_space_marker }
124     { \int_incr:N \l__metrix_process_int }
125   }
126   \int_compare:nTF
127   {
128     \seq_count:N \l__metrix_syllables_seq -
129     \seq_count:N \l__metrix_symbols_seq = \l__metrix_process_int
130   }
131   {

```

³The framing of this macro was provided by Enrico Gregorio at <http://tex.stackexchange.com/q/124528/4918>, a follow up question was <http://tex.stackexchange.com/q/124698/4918>. David Carlisle and Bruno Le Floch lead me to the implementation of the highlighting mechanism, see <http://tex.stackexchange.com/q/124782/4918>

continue with list processing, if the numbers are equal:

```

132 \int_zero:N \l__metrix_process_int
133 \seq_map_inline:Nn \l__metrix_syllables_seq
134 {
135   \int_incr:N \l__metrix_process_int
136   \tl_if_eq:nnTF { ##1 } { \q__metrix_space_marker }
137   {

```

If the syllable is a space the process counter must be decremented and a space is typeset.

```

138     \int_add:Nn \l__metrix_process_int { -1 }
139     \c_space_token
140   }
141   {

```

Finally typeset the syllable and it's symbol.

```

142     \str_case:nnF { ##1 }
143     {
144       { | }
145       {
146         \__metrix_break_node:n { \__metrix_l_break: }
147       }
148       { || }
149       {
150         \__metrix_break_node:n { \__metrix_ll_break: }
151       }
152     }
153     {
154       \__metrix_print_syllable:n { ##1 }
155     }
156   }
157 }

```

And add the short break symbols if necessary:

```

158 \seq_if_empty:NF \l__metrix_short_breaks_seq {
159   \seq_map_inline:Nn \l__metrix_short_breaks_seq {
160     \int_set:Nn \l_tmpa_int { ##1 - 1 }
161     \bool_if:nF {
162       \int_compare_p:n
163       { 0 = \l_tmpa_int }
164     ||
165     \int_compare_p:n
166     { \seq_count:N \l__metrix_symbols_seq = \l_tmpa_int }
167   } {
168     \tikz [remember~picture, overlay] {
169       \node [every~metrix~symbol~node] at
170       ($(\l__metrix_symbol_node\int_use:N \l_tmpa_int.east)!
171       0.5!(\l__metrix_symbol_node_##1.west)$)
172       { \__metrix_short_break: };
173     }
174   }
175 }
176 }

```

And add the foot break symbols if necessary:

```

177 \seq_if_empty:NF \l__metrix_foot_breaks_seq {

```



```

178 \seq_map_inline:Nn \l__metrix_foot_breaks_seq {
179   \int_set:Nn \l_tmpa_int { ##1 - 1 }
180   \bool_if:nF {
181     \int_compare_p:n
182       { 0 = \l_tmpa_int }
183     ||
184     \int_compare_p:n
185       { \seq_count:N \l__metrix_symbols_seq = \l_tmpa_int }
186   } {
187     \tikz [remember~picture, overlay] {
188       \coordinate (l__metrix_tmp_coord) at
189         ($(\l__metrix_syllable_node\_int\_use:N \l_tmpa\_int.east)!
190           0.5!(\l__metrix_syllable\_node\_##1.west)$);
191       \node [every~metrix~symbol~node] at
192         ($(\l__metrix\_symbol\_node\_int\_use:N \l\_tmpa\_int.east)!
193           (\l__metrix\_tmp\_coord)!(\l__metrix\_symbol\_node\_##1.west)$)
194         { \__metrix_foot_break: };
195     }
196   }
197 }
198 }
199 }

```

Send an error, else.

```

200 {
201   \__metrix_error_msg:n
202   {
203     Numbers-of~symbols~(\seq_count:N \l__metrix_symbols_seq)~and~syllables~
204     (\int_eval:n
205       {
206         \seq_count:N \l__metrix_syllables_seq - \l__metrix_process_int
207       }
208     )~mismatch.
209   }
210 }
211 }

```

(End definition for __metrix_metrics:nn.)

__metrix_metricsymbols:n This macro works like __metrix_metrics but is used to print stand alone metric symbols via \metricsymbols.

```

212 \cs_new_protected:Npn \__metrix_metricsymbols:n #1
213 {
214   \seq_set_split:Nnx \l__metrix_symbols_seq { ~ } { \tl_trim_spaces:n { #1 } }
215   \int_zero:N \l__metrix_process_int
216   \seq_map_inline:Nn \l__metrix_symbols_seq
217   {
218     \int_incr:N \l__metrix_process_int
219     \int_compare:nT { \l__metrix_process_int > 1 }
220     {
221       \hspace{\usemetrixvar{symbolsep}}
222     }
223     \str_case:nnF { ##1 }
224     {
225       { , }

```

```

226 {
227   \_metrix_break_gap:
228   \_metrix_align_symbol:n { \_metrix_l_bigmark: }
229   \_metrix_break_gap:
230 }
231 { ' }
232 {
233   \_metrix_break_gap:
234   \_metrix_align_symbol:n { \_metrix_l_bigmark: }
235   \_metrix_break_gap:
236 }
237 { | }
238 {
239   \_metrix_break_gap:
240   \_metrix_align_symbol:n { \_metrix_l_bigmark: }
241   \_metrix_break_gap:
242 }
243 { '' }
244 {
245   \_metrix_break_gap:
246   \_metrix_align_symbol:n { \_metrix_ll_bigmark: }
247   \_metrix_break_gap:
248 }
249 { || }
250 {
251   \_metrix_break_gap:
252   \_metrix_align_symbol:n { \_metrix_ll_bigmark: }
253   \_metrix_break_gap:
254 }
255 }
256 {
257   \_metrix_align_symbol:n { \_metrix_print_symbol: }
258 }
259 }
260 }

```

(End definition for _metrix_metricsymbols:n.)

_metrix_print_syllable:n This macro combines a single syllable and the corresponding metric symbol taken from the symbol list index with the process counter.

```

261 \cs_new_protected:Npn \_metrix_print_syllable:n #1
262 {
263   \group_begin:

```

Check whether the current syllable is short or long and set the corresponding bbol.

```

264   \hbox_set:Nn \l__metrix_syllable_box { #1 }
265   \dim_compare:nTF
266     { \box_wd:N \l__metrix_syllable_box < \g__metrix_variable_shortsyllablelimit_tl }
267     { \bool_set_true:N \l__metrix_short_syllable_bool }
268     { \bool_set_false:N \l__metrix_short_syllable_bool }

```

Set up the current highlight if it is defined

```

269   \cs_set:Npx \_metrix_current_highlight: {
270     \prop_item:NV \l__metrix_highlights_prop \l__metrix_process_int
271   }
272   \expandafter\tikzset\expandafter{\_metrix_current_highlight:}

```

Finally print the syllable and the symbol above. Use `{pgfinterruptboundingbox}` so that the symbol doesn't take space and doesn't cause gaps between the syllables.

```

273 \hbox_set:Nn \l_tmpa_box { \__metrix_print_symbol: }
274 \begin{tikzpicture}
275 [
276   remember~picture,
277   baseline=(l__metrix_syllable_node\int_use:N \l__metrix_process_int.base),
278 ]
279 \node [every~metrix~syllable~node]
280   (l__metrix_syllable_node\int_use:N \l__metrix_process_int)
281   { #1 };
282 \begin{pgfinterruptboundingbox}
283 \node [every~metrix~symbol~node]
284   (l__metrix_symbol_node\int_use:N \l__metrix_process_int)
285   at ($
286     (l__metrix_syllable_node\int_use:N \l__metrix_process_int.base)
287     +
288     (0,\usemetrixvar{symbolshift})
289     +
290     (\tl_use:N \l__metrix_internal_itcorrection_tl,0)
291     $)
292   { \box_use:N \l_tmpa_box };
293 \end{pgfinterruptboundingbox}
294 \end{tikzpicture}
295 \group_end:
296 }

```

(End definition for `__metrix_print_syllable:n`.)

`__metrix_print_symbol:` This command selects the right symbol by its abbreviation.

```

297 \cs_new_protected:Npn \__metrix_print_symbol:
298 {
299   \tl_set:Nx \l__metrix_current_symbol_tl
300   {
301     \seq_item:Nn \l__metrix_symbols_seq { \l__metrix_process_int }
302   }
303   \tl_set:Nx \l__metrix_current_symbol_head_tl
304   {
305     \tl_head:N \l__metrix_current_symbol_tl
306   }
307   \tl_case:NnT \l__metrix_current_symbol_head_tl
308   {
309     \c__metrix_acute_accent_tl { \bool_set_true:N \l__metrix_has_acute_accent_bool }
310     \c__metrix_grave_accent_tl { \bool_set_true:N \l__metrix_has_grave_accent_bool }
311   }
312   {
313     \tl_remove_once:NV \l__metrix_current_symbol_tl \l__metrix_current_symbol_head_tl
314   }
315   \cs_if_exist_use:cF
316   {
317     __metrix_
318     \tl_use:N \l__metrix_current_symbol_tl
319     _mark:
320   }

```

```

321 {
322   \__metrix_error_msg:n
323   {
324     Unknown~symbol~abbreviation~'\tl_use:N \l__metrix_current_symbol_tl'.
325   }
326 }
327 }

```

(End definition for __metrix_print_symbol:.)

9.6 Internal auxiliary macros

__metrix_error_msg:n An abbreviation to throw an error message.

```

328 \cs_new_protected:Npn \__metrix_error_msg:n #1
329 {
330   \PackageError{ \metrixFileName } { #1 }
331   {
332     Please~take~a~look~at~the~manual~or~send~an~email.
333   }
334 }

```

(End definition for __metrix_error_msg:n.)

__metrix_warning_msg:n An abbreviation to throw an error message.

```

335 \cs_new_protected:Npn \__metrix_warning_msg:n #1
336 {
337   \PackageWarning{ \metrixFileName } { #1 }
338 }

```

(End definition for __metrix_warning_msg:n.)

__metrix_align_symbol:n This macro aligns the metric symbols in a stand alone list.

```

339 \cs_new_protected:Npn \__metrix_align_symbol:n #1
340 {
341   \group_begin:
342   \cs_set:Npx \__metrix_current_highlight: {
343     \prop_item:NV \l__metrix_highlights_prop \l__metrix_process_int
344   }
345   \expandafter\tikzset\expandafter{\__metrix_current_highlight:}
346   \begin{tikzpicture}
347     [
348       baseline={ (0,-0.25*\usemetrixvar{baseunit}) },
349     ]
350     \node [every~metrix~symbol~node] {#1};
351   \end{tikzpicture}
352   \group_end:
353 }

```

(End definition for __metrix_align_symbol:n.)

__metrix_break_gap: This macro typesets the gap around the two break symbols.

```

354 \cs_new_protected:Npn \__metrix_break_gap:
355 {
356   \hspace{\usemetrixvar{breakgap}}
357 }

```

(End definition for _metrix_break_gap:.)

_metrix_break_node:n This macro typsets the gap around the two break symbols.

```

358 \cs_new:Npn \_metrix_break_node:n #1
359 {
360   \group_begin:
361   \cs_set:Npx \_metrix_current_highlight: {
362     \prop_item:NV \l__metrix_highlights_prop \l__metrix_process_int
363   }
364   \expandafter\tikzset\expandafter{\_metrix_current_highlight:}
365   \tikz[baseline=(l__metrix_break_node.base)]
366   \node (l__metrix_break_node) [every~metrix~break~node] { #1 }
367   ;
368   \group_end:
369 }

```

(End definition for _metrix_break_node:n.)

_metrix_e_gap: This macro typsets the gap around the two break symbols.

```

370 \cs_new_protected:Npn \_metrix_e_gap:
371 {
372   \hspace*{\usemetrixvar{emptywidth}}
373 }

```

(End definition for _metrix_e_gap:.)

_metrix_evaluate_higlhts:N This macro evaluates and prints the highlighting options.

```

374 \cs_new_protected:Npn \_metrix_evaluate_higlhts:n #1
375 {

```

Start with clearing the property list, otherwise the highlights from the last time will survive.

```

376   \prop_clear:N \l__metrix_highlights_prop

```

Then spilt and process the argument as a comma separated list.

```

377   \clist_map_inline:nn { #1 }
378   {

```

The result is a sequence of key value pairs that we store in \l__metrix_highlight_seq. The first part of this sequence must be split again at the plus sign—store it in \l__metrix_highlight_pos_seq.

```

379   \seq_set_split:Nnn \l__metrix_highlight_seq { = } { ##1 }
380   \seq_set_split:Nnf \l__metrix_highlight_pos_seq { + }
381   {
382     \seq_item:Nn \l__metrix_highlight_seq { 1 }
383   }

```

Process the \l__metrix_highlight_pos_seq list and set up the property list:

```

384   \seq_map_inline:Nn \l__metrix_highlight_pos_seq
385   {
386     \prop_put:Nnx \l__metrix_highlights_prop

```

The key is the current item of \l__metrix_highlight_pos_seq.

```

387     {
388       ###1
389     }
390     {

```

The value is the second item of `\l__metrix_highlight_seq`.

```

391     \seq_item:Nn \l__metrix_highlight_seq { 2 }
392   }
393 }
394 }
395 }

```

(End definition for `__metrix_evaluate_highlights:N`.)

9.7 Patching font macros

To apply the italic correction of the accents we need to patch the font switches.

```

396 \xpretocmd { \itshape }
397 {
398   \tl_set_eq:NN
399   \l__metrix_internal_itcorrection_tl
400   \g__metrix_variable_itcorrection_tl
401 }
402 { }
403 {
404   \__metrix_warning_msg:n { Could-not-patch~\string\itshape. }
405 }
406 \xpretocmd { \slshape }
407 {
408   \tl_set_eq:NN
409   \l__metrix_internal_itcorrection_tl
410   \g__metrix_variable_itcorrection_tl
411 }
412 { }
413 {
414   \__metrix_warning_msg:n { Could-not-patch~\string\slshape. }
415 }
416 \xpretocmd { \upshape }
417 {
418   \tl_set_eq:NN
419   \l__metrix_internal_itcorrection_tl
420   \g__metrix_internal_itcorrection_zero_tl
421 }
422 { }
423 {
424   \__metrix_warning_msg:n { Could-not-patch~\string\upshape. }
425 }
426 \xpretocmd { \normalfont }
427 {
428   \tl_set_eq:NN
429   \l__metrix_internal_itcorrection_tl
430   \g__metrix_internal_itcorrection_zero_tl
431 }
432 { }
433 {
434   \__metrix_warning_msg:n { Could-not-patch~\string\normalfont. }
435 }

```

9.8 Internal macros for metric symbols

`_metrix_e_mark:` The empty symbol.

```
436 \cs_new:Npn \_metrix_e_mark: { \_metrix_e_gap: }
(End definition for \_metrix_e_mark:.)
```

`_metrix_u_mark:` The brevis symbol \breve .

```
437 \cs_new:Npn \_metrix_u_mark:
438 {
439   \begin{tikzpicture}[every~metrix~symbol]
440     \draw (0,0) arc [start~angle=0, end~angle=180, radius=-0.225];
441     \bool_if:NT \l__metrix_has_acute_accent_bool
442     {
443       \node at (0.225,0) {\usemetrixvar{acute}};
444     }
445     \bool_if:NT \l__metrix_has_grave_accent_bool
446     {
447       \node at (0.225,0) {\usemetrixvar{grave}};
448     }
449   \end{tikzpicture}
450 }
(End definition for \_metrix_u_mark:.)
```

`_metrix__mark:` The longa symbol — .

```
451 \cs_new:Npn \_metrix__mark:
452 {
453   \bool_if:NTF \l__metrix_short_syllable_bool
454   {
455     \begin{tikzpicture}[every~metrix~symbol]
456       \draw (0,0) -- ++(0.4,0);
457       \bool_if:NT \l__metrix_has_acute_accent_bool
458       {
459         \node at (0.2,0) {\usemetrixvar{acute}};
460       }
461       \bool_if:NT \l__metrix_has_grave_accent_bool
462       {
463         \node at (0.2,0) {\usemetrixvar{grave}};
464       }
465     \end{tikzpicture}
466   }
467   {
468     \begin{tikzpicture}[every~metrix~symbol]
469       \draw (0,0) -- ++(0.75,0);
470       \bool_if:NT \l__metrix_has_acute_accent_bool
471       {
472         \node at (0.375,0) {\usemetrixvar{acute}};
473       }
474       \bool_if:NT \l__metrix_has_grave_accent_bool
475       {
476         \node at (0.375,0) {\usemetrixvar{grave}};
477       }
478     \end{tikzpicture}
479   }
```

480 }

(End definition for _metrix_mark:.)

_metrix_uu_mark: The biceps symbol \smile .

```
481 \cs_new:Npn \_metrix\_uu\_mark:
482 {
483   \begin{tikzpicture}[every-metrix-symbol]
484     \draw (0,0) arc [start-angle=0, end-angle=180, radius=-0.2];
485     \draw ($(0.4,0)+(\pgflinewidth,0)+(\usemetrixvar{gap},0)$) arc
486       [start-angle=0, end-angle=180, radius=-0.2];
487   \end{tikzpicture}
488 }
```

(End definition for _metrix_uu_mark:.)

_metrix_uu_mark: The biceps symbol \smile .

```
489 \cs_new:Npn \_metrix\_uu\_mark:
490 {
491   \begin{tikzpicture}[every-metrix-symbol]
492     \draw (0,0) arc [start-angle=0, end-angle=180, radius=-0.2];
493     \draw ($(0.4,0)+(\pgflinewidth,0)+(\usemetrixvar{gap},0)$) arc
494       [start-angle=0, end-angle=180, radius=-0.2];
495     \draw ($(0,-0.2)+(-0.5\pgflinewidth,-\pgflinewidth)-(0,\usemetrixvar{gap})$) --
496       ($(0.8,-0.2)+(1.5\pgflinewidth,-\pgflinewidth)
497       +(\usemetrixvar{gap},-\usemetrixvar{gap})$);
498   \end{tikzpicture}
499 }
```

(End definition for _metrix_uu_mark:.)

_metrix_uu_mark: Another biceps symbol \smile .

```
500 \cs_new:Npn \_metrix\_uu\_mark:
501 {
502   \begin{tikzpicture}[every-metrix-symbol]
503     \draw (0,0) arc [start-angle=0, end-angle=180, radius=-0.2];
504     \draw ($(0.4,0)+(\pgflinewidth,0)+(\usemetrixvar{gap},0)$) arc
505       [start-angle=0, end-angle=180, radius=-0.2];
506     \draw ($(0,0)+(-0.5\pgflinewidth,0.5\pgflinewidth)+(0,\usemetrixvar{gap})$) --
507       ($(0.8,0)+(1.5\pgflinewidth,0.5\pgflinewidth)
508       +(\usemetrixvar{gap},\usemetrixvar{gap})$);
509   \end{tikzpicture}
510 }
```

(End definition for _metrix_uu_mark:.)

_metrix_u_uu_mark: An another biceps symbol \smile .

```
511 \cs_new:Npn \_metrix\_u\_uu\_mark:
512 {
513   \begin{tikzpicture}[every-metrix-symbol]
514     \draw (0,0) arc [start-angle=0, end-angle=180, radius=-0.2];
515     \draw ($(0.4,0)+(\pgflinewidth,0)+(\usemetrixvar{gap},0)$) arc
516       [start-angle=0, end-angle=180, radius=-0.2];
517     \draw ($(0,0)+(-0.5\pgflinewidth,0.5\pgflinewidth)+(0,\usemetrixvar{gap})$) --
518       ($(0.8,0)+(1.5\pgflinewidth,0.5\pgflinewidth)
```



```

519     +(\usemetrixvar{gap},\usemetrixvar{gap})$);
520     \draw ($(0.2,0.2)+(0.5\pgflinewidth,1.5\pgflinewidth)$
521     +(0.5*\usemetrixvar{gap},2*\usemetrixvar{gap})$)
522     arc [start~angle=0, end~angle=180, radius=-0.2];
523     \end{tikzpicture}
524 }

```

(End definition for `_metrix_u_uu_mark:`.)

`_metrix_x_mark:` The anceps symbol \times .

```

525 \cs_new:Npn \_metrix_x\_mark:
526 {
527   \begin{tikzpicture}[every~metrix~symbol]
528     \draw (-0.2,0.2) -- (0.2,-0.2);
529     \draw (-0.2,-0.2) -- (0.2,0.2);
530   \end{tikzpicture}
531 }

```

(End definition for `_metrix_x_mark:`.)

`_metrix_v_mark:` The (yet) unnamed symbol \vee .

```

532 \cs_new:Npn \_metrix_v\_mark:
533 {
534   \begin{tikzpicture}[every~metrix~symbol]
535     \draw (0,0) -- (0.225,-0.225) -- (0.45,0);
536   \end{tikzpicture}
537 }

```

(End definition for `_metrix_v_mark:`.)

`_metrix_A_mark:` The (yet) unnamed symbol \wedge .

```

538 \cs_new:Npn \_metrix_A\_mark:
539 {
540   \begin{tikzpicture}[every~metrix~symbol]
541     \draw (0,0) -- (0.225,0.225) -- (0.45,0);
542   \end{tikzpicture}
543 }

```

(End definition for `_metrix_A_mark:`.)

`_metrix_o_mark:` The (yet) unnamed symbol \circ .

```

544 \cs_new:Npn \_metrix_o\_mark:
545 {
546   \begin{tikzpicture}[every~metrix~symbol]
547     \draw (0,0) circle [radius=0.2];
548   \end{tikzpicture}
549 }

```

(End definition for `_metrix_o_mark:`.)

`_metrix_oo_mark:` The aeolic symbol $\circ\circ$.

```

550 \cs_new:Npn \_metrix_oo\_mark:
551 {
552   \begin{tikzpicture}[every~metrix~symbol]
553     \draw (0,0) circle [radius=0.2];

```

```

554 \draw ($(0.4,0)+(1\pgflinewidth,0)+(\usemetrixvar{gap},0)$) circle [radius=0.2];
555 \end{tikzpicture}
556 }

```

(End definition for `_metrix_oo_mark:`)

`_metrix_u_mark:` The indifferent symbol \simeq .

```

557 \cs_new:Npn \_metrix_u_mark:
558 {
559 \begin{tikzpicture}[every-metrix-symbol]
560 \draw (0,0) arc [start-angle=0, end-angle=180, radius=-0.2];
561 \draw ($(0,-0.2)+(-0.5\pgflinewidth,-\pgflinewidth)-(0,\usemetrixvar{gap})$) --
562 ($ (0.4,-0.2)+(0.5\pgflinewidth,-\pgflinewidth)
563 + (0,-\usemetrixvar{gap}) $);
564 \end{tikzpicture}
565 }

```

(End definition for `_metrix_u_mark:`)

`_metrix_n_mark:` An alternative indifferent symbol \simeq .

```

566 \cs_new:Npn \_metrix_n_mark:
567 {
568 \begin{tikzpicture}[every-metrix-symbol]
569 \draw (0,0) arc [start-angle=0, end-angle=180, radius=0.225];
570 \fill (-0.225,0.75*\usemetrixvar{symbollinewidth})
571 circle [radius=0.7\pgflinewidth];
572 \end{tikzpicture}
573 }

```

(End definition for `_metrix_n_mark:`)

`_metrix_p_mark:` The primary stress symbol \prime .

```

574 \cs_new:Npn \_metrix_p_mark:
575 {
576 \begin{tikzpicture}[every-metrix-symbol]
577 \draw (-0.2,-0.2) -- (0.2,0.2);
578 \end{tikzpicture}
579 }

```

(End definition for `_metrix_p_mark:`)

`_metrix_s_mark:` The secondary stress symbol \backslash .

```

580 \cs_new:Npn \_metrix_s_mark:
581 {
582 \begin{tikzpicture}[every-metrix-symbol]
583 \draw (-0.2,0.2) -- (0.2,-0.2);
584 \end{tikzpicture}
585 }

```

(End definition for `_metrix_s_mark:`)

`__metrix_l_mark:` The simple break symbol | (above syllables).

```
586 \cs_new:Npn \__metrix_l_mark:
587 {
588   \begin{tikzpicture}[every~metrix~symbol]
589     \draw (0,0) -- (0,0.5);
590   \end{tikzpicture}
591 }
```

(End definition for __metrix_l_mark:.)

`__metrix_ll_mark:` The verse break symbol || (above syllables).

```
592 \cs_new:Npn \__metrix_ll_mark:
593 {
594   \begin{tikzpicture}[every~metrix~symbol]
595     \draw (0,0) -- (0,0.5);
596     \draw ($(\pgflinewidth,0)+(1.5*\usemetrixvar{gap},0)$) -- ++(0,0.5);
597   \end{tikzpicture}
598 }
```

(End definition for __metrix_ll_mark:.)

`__metrix_l_bigmark:` The simple break symbol | (stand alone version).

```
599 \cs_new:Npn \__metrix_l_bigmark:
600 {
601   \begin{tikzpicture}[every~metrix~symbol]
602     \draw (0,0) -- (0,0.8);
603   \end{tikzpicture}
604 }
```

(End definition for __metrix_l_bigmark:.)

`__metrix_ll_bigmark:` The verse break symbol || (stand alone version).

```
605 \cs_new:Npn \__metrix_ll_bigmark:
606 {
607   \begin{tikzpicture}[every~metrix~symbol]
608     \draw (0,0) -- (0,0.8);
609     \draw ($(\pgflinewidth,0)+(1.5*\usemetrixvar{gap},0)$) -- ++(0,0.8);
610   \end{tikzpicture}
611 }
```

(End definition for __metrix_ll_bigmark:.)

`__metrix_l_break` The simple break symbol | (between syllables with symbols).

```
612 \cs_new:Npn \__metrix_l_break:
613 {
614   \begin{tikzpicture}[every~metrix~symbol,baseline=0.05em]
615     \draw (0,\usemetrixvar{symbolshift}+0.325em)
616       -- (0,-0.05em) -- (0,0.8em) -- (0,\usemetrixvar{symbolshift});
617   \end{tikzpicture}
618 }
```

(End definition for __metrix_l_break.)

`__metrix_ll_break` The verse break symbol `\|` (between syllables with symbols).

```

619 \cs_new:Npn \__metrix_ll_break:
620 {
621   \begin{tikzpicture}[every~metrix~symbol,baseline=0.05em]
622     \draw (0,\usemetrixvar{symbolshift}+0.325em)
623       -- (0,-0.05em) -- (0,0.8em) -- (0,\usemetrixvar{symbolshift});
624     \draw
625       [
626         shift=({$(\pgflinewidth,0)+(1.5*\usemetrixvar{gap},0)$}),
627       ]
628       (0,\usemetrixvar{symbolshift}+0.325em) -- (0,-0.05em) -- (0,0.8em)
629       -- (0,\usemetrixvar{symbolshift});
630     \end{tikzpicture}
631   }

```

(End definition for `__metrix_ll_break`.)

`__metrix_short_break`: The shorter break symbol.

```

632 \cs_new:Npn \__metrix_short_break:
633 {
634   \begin{tikzpicture}[every~metrix~symbol]
635     \draw (0,0.3) -- (0,-0.3);
636   \end{tikzpicture}
637 }

```

(End definition for `__metrix_short_break`.)

`__metrix_foot_break`: The shorter break symbol for foot break is the same as the regular short break.

```

638 \cs_set_eq:NN \__metrix_foot_break: \__metrix_short_break:

```

(End definition for `__metrix_foot_break`.)

9.9 User level macros

`\setmetrixvar` This macro saves the value to an internal variable.

```

639 \NewDocumentCommand{ \setmetrixvar }{ m m }
640 {
641   \tl_if_exist:cTF { g__metrix_variable_#1_tl } {
642     \tl_set:cn { g__metrix_variable_#1_tl } { #2 }
643   }
644   {
645     \__metrix_error_msg:n { Unknown~variable~'#1'. }
646   }
647 }

```

(End definition for `\setmetrixvar`. This function is documented on page 14.)

`\usemetrixvar` With this command one can access the value of an internal variable.⁴

```

648 \DeclareExpandableDocumentCommand{ \usemetrixvar }{ m }
649 {
650   \tl_if_exist:cTF { g__metrix_variable_#1_tl } {
651     \tl_use:c { g__metrix_variable_#1_tl }
652   }

```

⁴Marco Daniel showed me this hint at <http://tex.stackexchange.com/q/124600/4918>.

```

653 {
654   \__metrix_error_msg:n { Unknown-variable-'\#1'. }
655 }
656 }

```

(End definition for `\usemetrixvar`. This function is documented on page 14.)

`\metrics` This user macro calls `\@_metrics` to typset syllables with symbols.

```

657 \NewDocumentCommand { \metrics } { 0{} m m }
658 {
659   \__metrix_evaluate_highlights:n { #1 }
660   \__metrix_metrics:nn { #2 } { #3 }
661 }

```

(End definition for `\metrics`. This function is documented on page 3.)

`\metricsymbols` This command typesets stand alone symbols. The starred version prints smaller versions.

```

662 \NewDocumentCommand { \metricsymbols } { s 0{} m }
663 {
664   \group_begin:
665   \IfBooleanF { #1 } { \tikzset{every-metrix-symbol/.style={every-metrix-big-symbol}} }
666   \__metrix_evaluate_highlights:n { #2 }
667   \__metrix_metricsymbols:n { #3 }
668   \group_end:
669 }

```

(End definition for `\metricsymbols`. This function is documented on page 3.)

`\lng` This macro prints the longa accent above its argument.

```

670 \NewDocumentCommand { \lng } { D(){} 0{Opt} m 0{Opt} }
671 {
672   \begin{tikzpicture}[
673     baseline = (l__metrix_syllable_node_\int_use:N \l__metrix_process_int.base),
674     every-metrix-accent
675   ]
676   \node [every-metrix-syllable-node]
677     (l__metrix_syllable_node_\int_use:N \l__metrix_process_int)
678     { #3 };
679   \begin{pgfinterruptboundingbox}
680     \draw [shorten-< = -#2, shorten-> = -#4]
681       ($ (l__metrix_syllable_node_\int_use:N \l__metrix_process_int.north)
682         - (\usemetrixvar{lngminlength}/2,0)
683         + (\usemetrixvar{accentxshift},\usemetrixvar{lngshift})
684         + (\tl_use:N \l__metrix_internal_itcorrection_tl,0)
685         + (#1)$)
686       --
687       ($ (l__metrix_syllable_node_\int_use:N \l__metrix_process_int.north)
688         + (\usemetrixvar{lngminlength}/2,0)
689         + (\usemetrixvar{accentxshift},\usemetrixvar{lngshift})
690         + (\tl_use:N \l__metrix_internal_itcorrection_tl,0)
691         + (#1)$)
692       ;
693   \draw [shorten-< = -#2, shorten-> = -#4]
694     ($ (l__metrix_syllable_node_\int_use:N \l__metrix_process_int.north-west)
695       + (\usemetrixvar{lngshortening}+\usemetrixvar{accentxshift},\usemetrixvar{lngshift})

```

```

696 + (\tl_use:N \l__metrix_internal_itcorrection_tl,0)
697 + (#1)$)
698 --
699 ($(\l__metrix_syllable_node\_int_use:N \l__metrix_process_int.north-east)
700 +(-\usemetrixvar{lngshortening}+\usemetrixvar{accentxshift},\usemetrixvar{lngshift})
701 + (\tl_use:N \l__metrix_internal_itcorrection_tl,0)
702 + (#1)$)
703 ;
704 \end{pgfinterruptboundingbox}
705 \end{tikzpicture}%
706 }

```

(End definition for \lmg. This function is documented on page 7.)

\brv This macro prints the brevis accent above its argument.

```

707 \NewDocumentCommand { \brv } { D() {0,0} m }
708 {
709   \begin{tikzpicture}[
710     baseline = (\l__metrix_syllable_node\_int_use:N \l__metrix_process_int.base),
711     every~metrix~accent
712   ]
713   \node [every~metrix~syllable~node]
714     (\l__metrix_syllable_node\_int_use:N \l__metrix_process_int)
715     { #2 };
716   \begin{pgfinterruptboundingbox}
717     \draw ($(\l__metrix_syllable_node\_int_use:N \l__metrix_process_int.north)
718       + (-0.15,0)
719       + (\usemetrixvar{accentxshift},\usemetrixvar{brvshift})
720       + (\tl_use:N \l__metrix_internal_itcorrection_tl,0)
721       + (#1)$)
722       arc [start~angle=0, end~angle=180, radius=-0.15];
723   \end{pgfinterruptboundingbox}
724   \end{tikzpicture}
725 }

```

(End definition for \brv. This function is documented on page 7.)

\acct This macro prints the dot accent below its argument.

```

726 \NewDocumentCommand { \acct } { D() {0,0} m }
727 {
728   \begin{tikzpicture}[
729     baseline = (\l__metrix_syllable_node\_int_use:N \l__metrix_process_int.base),
730     every~metrix~accent
731   ]
732   \node [every~metrix~syllable~node]
733     (\l__metrix_syllable_node\_int_use:N \l__metrix_process_int)
734     { #2 };
735   \begin{pgfinterruptboundingbox}
736     \fill ($(\l__metrix_syllable_node\_int_use:N \l__metrix_process_int.south)
737       + (0,\usemetrixvar{dotshift})
738       + (#1)$)
739       circle [radius=1.25\pgflinewidth];
740   \end{pgfinterruptboundingbox}
741   \end{tikzpicture}
742 }

```

(End definition for `\acct`. This function is documented on page 7.)

\bow This macro prints the bow below it's argument.

```

743 \NewDocumentCommand { \bow } { 0{0pt} m 0{0pt} }
744 {
745   \begin{tikzpicture}[
746     baseline = (l__metrix_syllable_node_\int_use:N \l__metrix_process_int.base),
747     every~metrix~bow
748   ]
749     \node [every~metrix~syllable~node]
750       (l__metrix_syllable_node_\int_use:N \l__metrix_process_int)
751       { #2 };
752     \draw [shorten~< = #1, shorten~> = #3]
753       ($ (l__metrix_syllable_node_\int_use:N \l__metrix_process_int.base~west)+
754         (\usemetrixvar{bowshortening},\usemetrixvar{bowshift})$)
755       to [out=-45, in=225, looseness=\usemetrixvar{bowlooseness}]
756       ($ (l__metrix_syllable_node_\int_use:N \l__metrix_process_int.base~east)+
757         (-\usemetrixvar{bowshortening},\usemetrixvar{bowshift})$);
758   \end{tikzpicture}
759 }

```

(End definition for `\bow`. This function is documented on page 8.)

9.10 TikZ styles

The **métrix** package uses several TikZ styles to draw the macros.

```

760 \ExplSyntaxOff
761 \tikzset {
762   every metrix symbol/.style={
763     line width=\usemetrixvar{symbollinewidth},
764     color=\usemetrixvar{symbolcolor},
765     x=\usemetrixvar{baseunit},y=\usemetrixvar{baseunit},
766   },
767   every metrix big symbol/.style={
768     line width=\usemetrixvar{bigsymbollinewidth},
769     color=\usemetrixvar{symbolcolor},
770     x=\usemetrixvar{bigbaseunit},y=\usemetrixvar{bigbaseunit},
771   },
772   every metrix symbol node/.style={
773     inner sep=0pt, anchor=center,
774   },
775   every metrix break node/.style={
776     inner sep=0pt, anchor=base,
777   },
778   every metrix syllable node/.style={
779     inner sep=0pt, anchor=base,
780   },
781   every metrix bow/.style={
782     line width=\usemetrixvar{bowlinewidth},
783     color=\usemetrixvar{bowcolor},
784     x=\usemetrixvar{baseunit},y=\usemetrixvar{baseunit},
785   },
786   every metrix accent/.style={
787     line width=\usemetrixvar{accentlinewidth},

```

```

788   color=\usemetrixvar{accentcolor},
789   x=\usemetrixvar{baseunit},y=\usemetrixvar{baseunit},
790 },
791 bold highlight/.style={
792   every metrix symbol/.append style={line width=2\pgflinewidth},
793   every metrix syllable node/.append style={font=\bfseries},
794   every superscript node/.append style={font/.expand once=\tikz@textfont\bfseries},
795 },
796 colored highlight/.style={
797   every metrix symbol/.append style={draw=#1},
798   every metrix syllable node/.append style={text=#1},
799   every superscript node/.append style={text=#1},
800 },
801 colored highlight/.default={
802   \usemetrixvar{highlightcolor}
803 },
804 dashed highlight/.style={
805   every metrix symbol/.append style={dash pattern=on 1pt off 0.4pt},
806 },
807 filled highlight/.style={
808   every metrix symbol node/.append style={inner sep=2pt,fill=#1},
809 },
810 filled highlight/.default={
811   \usemetrixvar{fillcolor},
812 },
813 every superscript picture/.style={
814   baseline=-3ex,
815 },
816 every superscript node/.style={
817   inner sep=0pt,
818   font=\scriptsize,
819 },
820 every superscript label/.style={
821   inner xsep=0pt,
822   inner ysep=-3ex,
823   label distance=0.5pt,
824 },
825 add superscript/.style={
826   label={[every superscript label]right:}%
827   \tikz[every superscript picture]\node at (0,0) [every superscript node] {#1};%
828   },
829 },
830 superscript/.style={
831   every metrix symbol node/.append style={
832     add superscript=#1,
833   },
834   every metrix break node/.append style={
835     add superscript=#1,
836   },
837 },
838 superscript/.value required,
839 add arrow/.style={
840   every metrix symbol node/.append style={
841     label=90:\usemetrixvar{arrow},

```



```

842   },
843 },
844 add text/.style={
845   every metrix symbol node/.append style={
846     label={[every metrix added text]#1},
847   },
848 },
849 every metrix added text/.style = {
850   font = \scriptsize\itshape,
851 },
852 add text/.value required,
853 }
854 \ExplSyntaxOn

```

9.11 Environments

symbolline Environment to display stand alone symbols.

```

855 \NewDocumentEnvironment{symbolline} { }
856 {
857   \par\addvspace{\baselineskip}
858   \centering
859 }
860 {
861   \par\vspace{\baselineskip}
862   \noindent\ignorespacesafterend
863 }

```

(End definition for *symbolline*. This function is documented on page 8.)

__metrix_print_vers_ref:n The internal macro to print the verse reference inside of {metricvers}

```

864 \cs_new:Npn __metrix_print_vers_ref:n #1
865 {
866   \hspace*{\fill}\nolinebreak[1] \quad \hspace*{\fill} \mbox{\footnotesize #1}
867 }

```

(End definition for *__metrix_print_vers_ref:n*.)

metricverses Environment to display a verse with metric symbols and a source. And a macro to print
\verseref a right aligned reference.

```

868 \NewDocumentCommand { \verseref } { m }
869 {
870   \__metrix_error_msg:n {
871     \string\verseref\space can~only~be~used~in~{metricverses}~env.
872   }
873 }
874 \NewDocumentEnvironment{metricverses} { }
875 {
876   \RenewDocumentCommand { \verseref } { m }
877   {
878     \__metrix_print_vers_ref:n { ##1 }
879   }
880   \par
881   \addvspace{0.7\baselineskip}
882   \fp_compare:nT { \usemetrixvar{symbolshift} < 0.0 }

```

```

883 {
884   \vspace{\usemetrixvar{symbolshift}}
885 }
886 \addtolength{\baselineskip}{0.6\baselineskip}
887 }
888 {
889   \par
890   \addtolength{\baselineskip}{-0.6\baselineskip}
891   \vspace{\baselineskip}
892   \noindent\ignorespacesafterend
893 }

```

(End definition for `metricverses` and `\verseref`. These functions are documented on page 9.)

```

894 \end{package}

```

10 Change History

| | | | |
|---|----|--|----|
| v1.0 | | \bow: Finetuning for \bow. | 39 |
| General: Initial version | 42 | \brv: Finetuning for \brv. | 38 |
| v1.0a | | \lng: Finetuning for \lng. | 37 |
| General: Added cw1 file for TeXstudio | 1 | | |
| v1.1 | | v1.2a | |
| General: New section about breaks (see | | General: Replaced deprecated | |
| 4.4) | 4 | \prop_get variants (Thanks to J. | |
| New section about the symbol syntax | | Wright). | 42 |
| (see 4.1) | 2 | | |
| __metrix_l_break: Made line slightly | | v1.3 | |
| longer | 35 | General: New highlight styles: add | |
| __metrix_ll_break: Made lines | | text and add arrow. | 42 |
| slightly longer | 36 | __metrix_metrics:nn: Extended | |
| __metrix_metrics:nn: Made short | | short breaks feature | 23 |
| breaks available | 23 | \g__metrix_variable_arrow_tl: New | |
| __metrix_print_syllable:n: Symbol | | variable for arrow | 22 |
| nodes get individual names now. | 26 | | |
| __metrix_u_mark:: Removed red | | v1.4 | |
| dot. | 34 | General: Added docs for l and ll | |
| v1.1a | | symbol. | 42 |
| General: New contact info (mail and | | Added possibility to add | |
| URL). | 1 | accents/icutus above symbols. | 42 |
| __metrix_metrics:nn: Replaced | | __metrix_A_mark:: Added A symbol. | 33 |
| deprecated \str_case:nnn with | | __metrix_o_mark:: Added o symbol. | 33 |
| \str_case:nnF. | 24 | __metrix_p_mark:: Added primary | |
| __metrix_metricsymbols:n: | | stress symbol. | 34 |
| Replaced deprecated | | __metrix_s_mark:: Added secondary | |
| \str_case:nnn with | | stress symbol. | 34 |
| \str_case:nnF. | 25 | __metrix_v_mark:: Added v symbol. | 33 |
| v1.2 | | g__metrix_variable_bowcolor_tl: | |
| \acct: Finetuning for \acct. | 38 | Changed symbol and accent color to | |
| | | current color. | 21 |

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