

Expanded Times Roman Fonts As Used in *Journal d'Analyse Mathématique*

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Abstract

This package provides L^AT_EX support for expanded Times Roman font, which has been used by *Journal d'Analyse Mathématique* for many years. Mathematics support is based on *Bellek* fonts.

Contents

1	Introduction	1
2	User Guide	2
2.1	Installation	2
2.2	Usage	3
3	Implementation	5
3.1	Identification	5
3.2	Fontinst Driver	5
3.3	Fontmap Generation	10
3.4	Style File	10
3.5	Some Auxiliary Files	12

1 Introduction

For about a decade *Journal d'Analyse Mathématique* (<http://www.ma.huji.ac.il/jdm/>) used a set of fonts based on the well known Times Roman family¹. The fonts were slightly expanded in the x direction. This small change gave the journal its unique look and feel. The fonts worked for many years. However, over this time a number of problems turned up:

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¹It is now difficult to say who designed these fonts initially. Dov Goldstein supported the fonts for a number of years.

1. The fonts were originally created for `dvips` and included some PostScript trickery (for example, in dotless *j*). This made their use with `pdftex` difficult.
2. The fonts included only OT1 encoding.
3. The math was based on the combination of Times Roman *and* Computer Modern for the symbols absent in Times Roman. These fonts do not mesh well. Later the journal tried to use just Computer Modern math throughout, which still contrasted with the body text.
4. It was considered beneficial to give the authors the option of prepare their papers with the journal fonts, and the package lacked documentation and installation instruction.

At last *Magnes Press*, the publisher of *Journal d'Analyse Mathématique*, commissioned the overhaul of the journal T_EX styles. This package is a part of the effort.

We recreate the fonts from scratch. The mathematics is based on Belleek fonts [1], expanded to match the body. The text fonts are provided in OT1 and T1 encoding.

The package works both with the `pdflatex` route and the `latexotdvips` route. The files `textsample.pdf`, `mathsample.pdf` and `textsample_ps.pdf`, `mathsample_ps.pdf` provide the sample of output for these two routes.

2 User Guide

2.1 Installation

You need Belleek fonts [1] and (optionally) Math Design fonts [2]. They are now a part of most modern distributions. If you do not have them, just download them from CTAN.

Download the file <http://ctan.tug.org/install/fonts/psfonts/public/jamstimes.tds.zip> and unzip it in the \$TEXMF directory. For T_EXLive it is probably `/usr/local/texlive/texmf-local`, or `/usr/local/share/texmf-local`, or `~/texmf`, or `C:\ProgramFiles\texlive\texmf-local`, etc. For MikT_EX it is probably `C:\miktex\texmf` or `C:\miktex\localtexmf`. Run `texhash` to update the database of file names.

Now you need to add the map file `jtm.map` to the configuration files of `dvips` and `pdftex`. This again depends on your distribution. For T_EXLive you create a file `$TEXMF/updmap.d/50jtm.cfg` with just the line

```
Map jtm.map
```

and then run `texhash` and `updmap`. If you use Debian or Ubuntu, the system-wide `updmap.d` directory is located in `/etc`, and you need to create the file `jtm.list` in `/var/lib/tex-common/fontmap-cfg/whitnca.list` with the line

50jtm

If you use MikTeX2.6, run

```
initexmf --edit-config-file updmap
```

Add to the config file

```
Map jtm.map
```

save, exit and run updmap.

If you use MikTeX2.5 or earlier, edit `localtexmf\web2c\updmap.cfg`, adding the line

```
Map jtm.map
```

and run updmap.

Refer to your distribution documentation for the details.

An interesting question: it is possible to use the package with the commercial MathTimeTM fonts from PCTEX (<http://www.pctex.com/>)? I think that the answer is positive, but since I do not have these fonts, I have not tested this setup. If you have them, just change the lines in the file `jtm.map` to refer to the proper fonts. Note that these fonts have some options (bold math, heavy math) not supported by the package.

2.2 Usage

If your installation have been successful, add the line

```
\usepackage[<options>]{(jamtimes)}
```

to the preamble of your document. Note that this package changes both math and text fonts.

The package provides a number of options. The default values of the options correspond to the practice of *Journal d'Analyse Mathématique*. You can try to change them to get a different look and feel.

option The package has the option `scaled=...`. The fonts are uniformly scaled
scaled according to the numerical value of the option. By default the fonts are scaled
5%, as if the setting `scaled=1.05` is in effect. If you do not want to scale the fonts
at all, just call the package with the option `scaled=1`.

options By default the package uses Helvetica as the sans serif font and Courier as the
sffamily monospaced font. This default can be changed with the options `sffamily=...`
ttfamily (the default value is `phv`) and `ttfamily=...` (the default value is `pcr`).

option If the sans serif family is Helvetica, the package provides an additional options
sfscalded `sfscalded=...`. It sets the scaling of the sans serif fonts. By default it is 0.94: this
provides a good mesh with 5% scaled Times fonts.

Table 1: Fonts Provided by the Package. `EE` corresponds to font encoding (see [3]).

NFSS Code	Fontname Name	Comments
<i>c, n</i>	<code>jtmrEEc</code>	Times Roman, compressed 20%
<i>m, n</i>	<code>jtmrEEe</code>	Times Roman, expanded 5%
<i>m, it</i>	<code>jtmriEEe</code>	Times Roman Italic, expanded 5%
<i>m, sl</i>	<code>jtmroEEe</code>	(fake) Times Roman Oblique, expanded 5%
<i>m, sc</i>	<code>jtmrcEEe</code>	(fake) Small Caps Times Roman, expanded 5%
<i>b, n</i>	<code>ptmbEE^a</code>	Times Bold
<i>b, it</i>	<code>ptmbiEE^a</code>	Times Bold Italic
<i>b, sl</i>	<code>ptmboEE^a</code>	(fake) Times Bold Oblique
<i>b, sc</i>	<code>ptmbcEE^a</code>	(fake) small caps Times Bold
<i>x, n</i>	<code>jtmrEEw</code>	Times Roman, expanded 25%
<i>x, it</i>	<code>jtmriEEw</code>	Times Roman Italic, expanded 25%
<i>x, sl</i>	<code>jtmroEEw</code>	(fake) Times Roman Oblique, expanded 25%
<i>x, sc</i>	<code>jtmrcEEw</code>	(fake) Small Caps Times Roman, expanded 25%
<i>bx, n</i>	<code>jtmbEEv</code>	Times Bold, expanded 15%
<i>bx, it</i>	<code>jtmbiEEv</code>	Times Bold Italic, expanded 15%
<i>bx, sl</i>	<code>jtmbobEEv</code>	(fake) Times Bold Oblique, expanded 15%
<i>bx, sc</i>	<code>jtmbcEEv</code>	(fake) small caps Times Bold, expanded 15%

^aThese fonts coincide with the standard Times fonts

option `amsfontsscaled` The package automatically loads `amsfonts`, including Euler Script, and Euler Fraktur fonts. The option `amsfontsscaled=...` provides a way to change the scaling of these fonts. By default they are scaled 5%, just as the body and main math fonts.

The package provides the fonts listed in Table 1. Note that the expansion mentioned there always means expansion along the horizontal axis *in addition* to the scaling set by the package options.

`\bfdefault` Another notable detail is that usually \LaTeX sets `\bfdefault` to be `bx` (bold extended), and most font packages substitute it to `b` (bold). Our fonts have both bold and bold extended fonts, and by default use bold extended fonts for `\bfdefault`. If you want to use bold extended fonts instead, just say

```
\renewcommand{\bfdefault}{b}
```

3 Implementation

3.1 Identification

We start with the declaration who we are. Most `.dtx` files put driver code in a separate driver file `.drv`. We roll this code into the main file, and use the pseudo-guard `<gobble>` for it.

```
1 <style>\NeedsTeXFormat{LaTeX2e}
2 <*gobble>
3 \ProvidesFile{jamtimes.dtx}
4 </gobble>
5 <style>\ProvidesClass{jamtimes}
6 <drv>\ProvidesFile{drv.tex}
7 <map>\ProvidesFile{map.tex}
8 <jamomlhax>\ProvidesMtxPackage{jamomlhax.mtx}
9 <*style | drv | map>
10 [2010/11/09 v1.12 Expanded Times Fonts (Journal d'Analyse Mathematique)]
11 </style | drv | map>
```

And the driver code:

```
12 <*gobble>
13 \documentclass{ltxdoc}
14 \usepackage{booktabs}
15 \usepackage[tableposition=top]{caption}
16 \usepackage{url}
17 \usepackage[breaklinks,colorlinks,linkcolor=black,citecolor=black,
18             pagecolor=black,urlcolor=black,hyperindex=false]{hyperref}
19 \PageIndex
20 \CodelineIndex
21 \RecordChanges
22 \EnableCrossrefs
23 \begin{document}
24   \DocInput{jamtimes.dtx}
25 \end{document}
26 </gobble>
```

3.2 Fontinst Driver

This follows [4].

First, the preamble

```
27 <*drv>
28 \input fontinst.sty
29
30 Definition of the parameters
31 \setint{slant}{167}
32 \setint{smallcapsscale}{750}
33 \setint{compressedscale}{800}
34 \setint{extendedscale}{1050}
35 \setint{extraextendedscale}{1150}
36 \setint{widescale}{1250}
```

Starting recording transforms:

```
35 \recordtransforms{rec.tex}
36 \transformfont{jtmr8rc}{\xscalefont{\int{compressedscale}}}%
37 \reencodefont{8r}{\fromafm{ptmr8a}}
38 \transformfont{jtmr8re}{\xscalefont{\int{extendedscale}}}%
39 \reencodefont{8r}{\fromafm{ptmr8a}}
40 \transformfont{jtmri8re}{\xscalefont{\int{extendedscale}}}%
41 \reencodefont{8r}{\fromafm{ptmri8a}}
42 \transformfont{jtmro8re}{\slantfont{\int{slant}}}%
43 \fromany{jtmr8re}}
44 \transformfont{jtmr8rw}{\xscalefont{\int{widescale}}}%
45 \reencodefont{8r}{\fromafm{ptmr8a}}
46 \transformfont{jtmri8rw}{\xscalefont{\int{widescale}}}%
47 \reencodefont{8r}{\fromafm{ptmri8a}}
48 \transformfont{jtmro8rw}{\slantfont{\int{slant}}}%
49 \fromany{jtmr8rw}}
50 \transformfont{jtmb8rv}{\xscalefont{\int{extraextendedscale}}}%
51 \reencodefont{8r}{\fromafm{ptmb8a}}
52 \transformfont{jtmbi8rv}{\xscalefont{\int{extraextendedscale}}}%
53 \reencodefont{8r}{\fromafm{ptmbi8a}}
54 \transformfont{jtmbo8rv}{\slantfont{\int{slant}}}%
55 \fromany{jtmb8rv}}
```

Same with math fonts. Note that Dov wanted medium weight mathematical fonts *not* extended. We reverse this decision. Note that `rblmi` does not have non-Greek letters, so we call its encoding `7z` instead of `7m`

```
56 %\transformfont{jtmr7voe}{\fromafm{blex}}
57 \transformfont{jtmr7yoe}{\xscalefont{\int{extendedscale}}\fromafm{bly}}
58 \transformfont{jtmri7ze}{\xscalefont{\int{extendedscale}}\fromafm{rblmi}}
```

There is no hook in `fontinst.sty` for writing our own preamble to `.fd` file. However, we need to add scaling commands to the preamble. OK, we will patch `fontinst`:

```
59 \fontinstcc
60 \def\fd_family#1#2#3{
61   \a_toks{#3}
62   \edef\lowercase_file{\lowercase{
63     \edef\noexpand\lowercase_file{#1#2.fd}}}
64   \lowercase_file
65   \open_out{\lowercase_file}
66   \out_line{\percent_char~Filename:~\lowercase_file}
67   \out_line{\percent_char~Created~by:~tex~\jobname}
68   \out_line{\percent_char~Created~using~fontinst~v\fontinstversion}
69   \out_line{}
70   \out_line{\percent_char~THIS~FILE~SHOULD~BE~PUT~IN~A~TEX~INPUTS~
71     DIRECTORY}
72   \out_line{}}
```

```

73 \out_line{\string\ProvidesFile{\lowercase_file}}
74 \out_lline{[
75   \the\year/
76   \ifnum10>\month0\fi\the\month/
77   \ifnum10>\day0\fi\the\day\space
78   Fontinst~v\fontinstversion\space
79   font~definitions~for~#1/#2.
80 ]}
81 \out_line{}
```

Here is our patch:

```

82 \out_line{\string\expandafter\string\ifx\string\csname\space
83   Jtms@scale\string\endcsname\string\relax}
84 \out_line{\space\string\let\string\Jtms@@scale\string\@empty}
85 \out_line{\string\else}
86 \out_line{\space\string\edef\string\Jtms@@scale\left_brace_char
87   s*[\string\csname\space Jtms@scale\string\endcsname]
88   \right_brace_char\percent_char}
89 \out_line{\string\fi\percent_char}
90 \out_line{}
```

End of the patch.

```

91 \out_line{\string\DeclareFontFamily{#1}{#2}{\the\a_toks}}
92 {
93   \csname #1-#2\endcsname
94   \out_line{ }
95   \let\do_shape=\substitute_shape
96   \csname #1-#2\endcsname
97   \let\do_shape=\remove_shape
98   \csname #1-#2\endcsname
99 }
100 \x_cs\g_let{#1-#2}\x_relax
101 \out_line{ }
102 \out_line{\string\endinput}
103 \close_out{Font~definitions}
104 }
105 \normalcc
```

Now we are ready to install fonts. Note that bold fonts here are not extended, so we use standard Times fonts for bold.

First, OT1:

```

106 \installfonts
107 \installfamily{OT1}{jtm}{\skewchar\font=127}
108 \installfont{jtmr7tc}{jtmr8rc,jtmri7ze,newlatin,jamot1hax}{ot1}{OT1}{jtm}{c}{n}{
109 <->\string\Jtms@@scale}
110 \installfont{jtmr7te}{jtmr8re,jtmri7ze,newlatin,jamot1hax}{ot1}{OT1}{jtm}{m}{n}{
111 <->\string\Jtms@@scale}
112 \installfont{jtmri7te}{jtmri8re,jtmri7ze,newlatin,jamot1hax}{ot1}{OT1}{jtm}{m}{it}{
113 <->\string\Jtms@@scale}
114 \installfont{jtmro7te}{jtmro8re,jtmri7ze,newlatin,jamot1hax}{ot1}{OT1}{jtm}{m}{sl}{
115 <->\string\Jtms@@scale}
```

```

116 \installfont{jtmrc7te}{jtmr8re,jtmri7ze,newlatin,jamot1hax}{ot1c}{OT1}{jtm}{m}{sc}{
117 <->\string\Jtms@@scale}
118 \installfontas{ptmb7t}{OT1}{jtm}{b}{n}{
119 <->\string\Jtms@@scale}
120 \installfontas{ptmbi7t}{OT1}{jtm}{b}{it}{
121 <->\string\Jtms@@scale}
122 \installfontas{ptmbo7t}{OT1}{jtm}{b}{sl}{
123 <->\string\Jtms@@scale}
124 \installfontas{ptmbc7t}{OT1}{jtm}{b}{sc}{
125 <->\string\Jtms@@scale}
126 \installfont{jtmr7tw}{jtmr8rw,jtmri7ze,newlatin,jamot1hax}{ot1}{OT1}{jtm}{x}{n}{
127 <->\string\Jtms@@scale}
128 \installfont{jtmri7tw}{jtmri8rw,jtmri7ze,newlatin,jamot1hax}{ot1}{OT1}{jtm}{x}{it}{
129 <->\string\Jtms@@scale}
130 \installfont{jtmro7tw}{jtmro8rw,jtmri7ze,newlatin,jamot1hax}{ot1}{OT1}{jtm}{x}{sl}{
131 <->\string\Jtms@@scale}
132 \installfont{jtmrc7tw}{jtmr8rw,jtmri7ze,newlatin,jamot1hax}{ot1c}{OT1}{jtm}{x}{sc}{
133 <->\string\Jtms@@scale}
134 \installfont{jtmb7tv}{jtmb8rv,jtmri7ze,newlatin,jamot1hax}{ot1}{OT1}{jtm}{bx}{n}{
135 <->\string\Jtms@@scale}
136 \installfont{jtmbi7tv}{jtmbi8rv,jtmri7ze,newlatin,jamot1hax}{ot1}{OT1}{jtm}{bx}{it}{
137 <->\string\Jtms@@scale}
138 \installfont{jtmbo7tv}{jtmbo8rv,jtmri7ze,newlatin,jamot1hax}{ot1}{OT1}{jtm}{bx}{sl}{
139 <->\string\Jtms@@scale}
140 \installfont{jtmbo7tv}{jtmbc8rv,jtmri7ze,newlatin,jamot1hax}{ot1c}{OT1}{jtm}{bx}{sc}{
141 <->\string\Jtms@@scale}

```

Then T1

```

142 \installfamily{T1}{jtm}{
143 \installfont{jtmr8tc}{jtmr8rc,jtmri7ze,newlatin}{t1}{T1}{jtm}{c}{n}{
144 <->\string\Jtms@@scale}
145 \installfont{jtmr8te}{jtmr8re,jtmri7ze,newlatin,jtmri7ze}{t1}{T1}{jtm}{m}{n}{
146 <->\string\Jtms@@scale}
147 \installfont{jtmri8te}{jtmri8re,jtmri7ze,newlatin,jtmri7ze}{t1}{T1}{jtm}{m}{it}{
148 <->\string\Jtms@@scale}
149 \installfont{jtmro8te}{jtmro8re,jtmri7ze,newlatin}{t1}{T1}{jtm}{m}{sl}{
150 <->\string\Jtms@@scale}
151 \installfont{jtmrc8te}{jtmr8re,jtmri7ze,newlatin}{t1c}{T1}{jtm}{m}{sc}{
152 <->\string\Jtms@@scale}
153 \installfontas{ptmb8t}{T1}{jtm}{b}{n}{
154 <->\string\Jtms@@scale}
155 \installfontas{ptmbi8t}{T1}{jtm}{b}{it}{
156 <->\string\Jtms@@scale}
157 \installfontas{ptmbo8t}{T1}{jtm}{b}{sl}{
158 <->\string\Jtms@@scale}
159 \installfontas{ptmbc8t}{T1}{jtm}{b}{sc}{
160 <->\string\Jtms@@scale}
161 \installfont{jtmr8tw}{jtmr8rw,jtmri7ze,newlatin}{t1}{T1}{jtm}{x}{n}{
162 <->\string\Jtms@@scale}
163 \installfont{jtmri8tw}{jtmri8rw,jtmri7ze,newlatin}{t1}{T1}{jtm}{x}{it}{

```



```

164 <->\string\Jtms@scale}
165 \installfont{jtmro8tw}{jtmro8rw,jtmri7ze,newlatin}{t1}{T1}{jtm}{x}{s1}{
166 <->\string\Jtms@scale}
167 \installfont{jtmrc8tw}{jtmr8rw,jtmri7ze,newlatin}{t1c}{T1}{jtm}{x}{sc}{
168 <->\string\Jtms@scale}
169 \installfont{jtmbo8tv}{jtmbo8rv,jtmri7ze,newlatin}{t1}{T1}{jtm}{bx}{n}{
170 <->\string\Jtms@scale}
171 \installfont{jtmbo8tv}{jtmbo8rv,jtmri7ze,newlatin}{t1}{T1}{jtm}{bx}{it}{
172 <->\string\Jtms@scale}
173 \installfont{jtmbo8tv}{jtmbo8rv,jtmri7ze,newlatin}{t1}{T1}{jtm}{bx}{s1}{
174 <->\string\Jtms@scale}
175 \installfont{jtmbo8tv}{jtmbo8rv,jtmri7ze,newlatin}{t1c}{T1}{jtm}{bx}{sc}{
176 <->\string\Jtms@scale}

```

Then TS1. We do not fake small caps here, so `textcomp` can take (faked) `\texteuero` from normal fonts.

```

177 \installfamily{TS1}{jtm}{}
178 \installfont{jtmr8cc}{jtmr8rc,textcomp}{ts1}{TS1}{jtm}{c}{n}{
179 <->\string\Jtms@scale}
180 \installfont{jtmr8ce}{jtmr8re,textcomp,jtmri7ze}{ts1}{TS1}{jtm}{m}{n}{
181 <->\string\Jtms@scale}
182 \installfont{jtmri8ce}{jtmri8re,textcomp,jtmri7ze}{ts1}{TS1}{jtm}{m}{it}{
183 <->\string\Jtms@scale}
184 \installfont{jtmro8ce}{jtmro8re,textcomp}{ts1}{TS1}{jtm}{m}{s1}{
185 <->\string\Jtms@scale}
186 %\installfont{jtmrc8te}{TS1}{jtm}{m}{sc}{
187 % <->\string\Jtms@scale}
188 \installfontas{ptmb8c}{TS1}{jtm}{b}{n}{
189 <->\string\Jtms@scale}
190 \installfontas{ptmbi8c}{TS1}{jtm}{b}{it}{
191 <->\string\Jtms@scale}
192 \installfontas{ptmbo8c}{TS1}{jtm}{b}{s1}{
193 <->\string\Jtms@scale}
194 %\installfontas{ptmbo8c}{TS1}{jtm}{b}{sc}{
195 % <->\string\Jtms@scale}
196 \installfont{jtmr8cw}{jtmr8rw,textcomp}{ts1}{TS1}{jtm}{x}{n}{
197 <->\string\Jtms@scale}
198 \installfont{jtmri8cw}{jtmri8rw,textcomp}{ts1}{TS1}{jtm}{x}{it}{
199 <->\string\Jtms@scale}
200 \installfont{jtmro8cw}{jtmro8rw,textcomp}{ts1}{TS1}{jtm}{x}{s1}{
201 <->\string\Jtms@scale}
202 %\installfontas{jtmrc8tw}{TS1}{jtm}{x}{sc}{
203 % <->\string\Jtms@scale}
204 \installfont{jtmbo8cv}{jtmbo8rv,textcomp}{ts1}{TS1}{jtm}{bx}{n}{
205 <->\string\Jtms@scale}
206 \installfont{jtmbo8cv}{jtmbo8rv,textcomp}{ts1}{TS1}{jtm}{bx}{it}{
207 <->\string\Jtms@scale}
208 \installfont{jtmbo8cv}{jtmbo8rv,textcomp}{ts1}{TS1}{jtm}{bx}{s1}{
209 <->\string\Jtms@scale}
210 %\installfontas{jtmbo8cv}{TS1}{jtm}{bx}{sc}{

```

```
211 % <->\string\Jtms@@scale}
```

Now math fonts. We add italics to the OML fonts. Since there are some fonts missing in the Beleek smybols fonts, we reset them and take fake fonts from Computer Modern

```
212 \installfamily{OML}{jtm}{\skewchar\font=127}
213 \installfont{jtmri7me}{jtmri7ze,jtmri7te,cmmi10,jamomlhax}{oml}{OML}{jtm}{m}{it}{
214 <->\string\Jtms@@scale}
215 \installfont{jtmrbi7me}{jtmrbi7tv,jtmrbi7ze,cmmib10,jamomlhax}{oml}{OML}{jtm}{bx}{it}{
216 <->\string\Jtms@@scale}
217 \installfamily{OMS}{jtm}{\skewchar\font=48}
218 \installfont{jtmr7ye}{jtmr7yoe,cmsy10}{oms}{OMS}{jtm}{m}{n}{
219 <->\string\Jtms@@scale}
```

And the end:

```
220 \endinstallfonts
221 \endrecordtransforms
222 \bye
223 </drv>
```

3.3 Fontmap Generation

This is a standard procedure [4]. We use URW Times files, because `pdftex` cannot extend fonts unless they are embedded.

```
224 <*map>
225 \input finstmisc.sty
226 \resetstr{PSfontsuffix}{.pfb}
227 \specifyfont{Times-Roman}{\download{utmr8a.pfb}}
228 \specifyfont{Times-Italic}{\download{utmri8a.pfb}}
229 \specifyfont{Times-Bold}{\download{utmb8a.pfb}}
230 \specifyfont{Times-BoldItalic}{\download{utmbi8a.pfb}}
231 %\etxtoenc{omx}{texmext}
232 %\enctoetx{texmext}{omx}
233 \adddriver{dvips}{jtm.map}
234 \input rec.tex
235 \donedrivers
236 \bye
237 </map>
```

3.4 Style File

First, define all options:

```
238 <*style>
239 \RequirePackage{xkeyval}
240 \DeclareOptionX{scaled}{\gdef\Jtms@scale{#1}}
241 \DeclareOptionX{sfscaled}{\gdef\Hv@scale{#1}}
242 \DeclareOptionX{amsfontsscaled}{\gdef\AmsFonts@scale{#1}}
243 \DeclareOptionX{sffamily}{\gdef\sffdefault{#1}}
244 \DeclareOptionX{ttfamily}{\gdef\ttdefault{#1}}
```

```

245 \ExecuteOptionsX{scaled=1.05,sfscaled=0.94,amsfontsscaled=1.05,sffamily=phv,%
246 ttfamily=pcr}
247 \ProcessOptionsX
248 \edef\AmsFonts@scale{*\csname AmsFonts@scale\endcsname}

    Now we make jtm the text default.
249 \def\rmdefault{jtm}

    Math is more complex. We follow mostly [5]. Note that blex font is broken,
    so we use math design font cmex for large symbols.
250 \DeclareSymbolFont{operators}      {OT1}{jtm}{m}{n}
251 \DeclareSymbolFont{letters}        {OML}{jtm}{m}{it}
252 \DeclareSymbolFont{symbols}        {OMS}{jtm}{m}{n}
253 \DeclareSymbolFont{largesymbols}   {OMX}{cmex}{m}{n}
254 \SetSymbolFont{operators}{bold}    {OT1}{jtm}{bx}{n}
255 \SetSymbolFont{letters}{bold}      {OML}{jtm}{bx}{it}
256 \SetMathAlphabet{\mathrm}{normal}{OT1}{\rmdefault}{m}{n}
257 \SetMathAlphabet{\mathbf}{normal}{OT1}{\rmdefault}{b}{n}
258 \SetMathAlphabet{\mathit}{normal}{OT1}{\rmdefault}{m}{it}
259 \SetMathAlphabet{\mathsf}{normal}{OT1}{\sfdefault}{m}{n}
260 \SetMathAlphabet{\mathtt}{normal}{OT1}{\ttdefault}{m}{n}
261 \DeclareMathAlphabet{\mathbold}    {OT1}{jtm}{bx}{it}
262 \DeclareMathSymbol{\nabla}{\mathord}{symbols}{114}
263 \DeclareMathSymbol{\Gamma}{\mathalpha}{operators}{0}
264 \DeclareMathSymbol{\Delta}{\mathalpha}{operators}{1}
265 \DeclareMathSymbol{\Theta}{\mathalpha}{operators}{2}
266 \DeclareMathSymbol{\Lambda}{\mathalpha}{operators}{3}
267 \DeclareMathSymbol{\Xi}{\mathalpha}{operators}{4}
268 \DeclareMathSymbol{\Pi}{\mathalpha}{operators}{5}
269 \DeclareMathSymbol{\Sigma}{\mathalpha}{operators}{6}
270 \DeclareMathSymbol{\Upsilon}{\mathalpha}{operators}{7}
271 \DeclareMathSymbol{\Phi}{\mathalpha}{operators}{8}
272 \DeclareMathSymbol{\Psi}{\mathalpha}{operators}{9}
273 \DeclareMathSymbol{\Omega}{\mathalpha}{operators}{10}

    We change the scale of amsfonts:
274 \RequirePackage{eucal,amsfonts}
275 \DeclareFontFamily{U}{msa}{-}
276 \DeclareFontShape{U}{msa}{m}{n}{-}
277   <5><6><7><8><9> gen\AmsFonts@scale msam%
278   <10><10.95><12><14.4><17.28><20.74><24.88> s\AmsFonts@scale msam10%
279   }{-}
280 \DeclareFontFamily{U}{msb}{-}
281 \DeclareFontShape{U}{msb}{m}{n}{-}
282   <5><6><7><8><9> gen\AmsFonts@scale msbm%
283   <10><10.95><12><14.4><17.28><20.74><24.88> s\AmsFonts@scale msbm10%
284   }{-}
285 \DeclareFontFamily{U}{euf}{-}
286 \DeclareFontShape{U}{euf}{m}{n}{-}
287   <5><6><7><8><9> gen\AmsFonts@scale eufm%
288   <10><10.95><12><14.4><17.28><20.74><24.88> s\AmsFonts@scale eufm10%

```

```

289 }{}
290 \DeclareFontShape{U}{euf}{b}{n}{%
291 <5><6><7><8><9>gen\AmsFonts@@scale eufb%
292 <10><10.95><12><14.4><17.28><20.74><24.88>s\AmsFonts@@scale eufb10%
293 }{}
294 \DeclareFontFamily{U}{euex}{}
295 \DeclareFontShape{U}{euex}{m}{n}{%
296 <5-8>sfixed\AmsFonts@@scale euex7<8><9>gen\AmsFonts@@scale euex%
297 <10><10.95><12><14.4><17.28><20.74><24.88>s\AmsFonts@@scale euex10%
298 }{}
299 \DeclareFontFamily{U}{eus}{\skewchar\font'60}
300 \DeclareFontShape{U}{eus}{m}{n}{%
301 <5><6><7><8><9>gen\AmsFonts@@scale eusm%
302 <10><10.95><12><14.4><17.28><20.74><24.88>s\AmsFonts@@scale eusm10%
303 }{}
304 \DeclareFontShape{U}{eus}{b}{n}{%
305 <5><6><7><8><9>gen\AmsFonts@@scale eusb%
306 <10><10.95><12><14.4><17.28><20.74><24.88>s\AmsFonts@@scale eusb10%
307 }{}

```

`\hbar` Redefine `\hbar`, so it is like h (amsmath defines a different shape). The trick is from [6]

```

308 \DeclareRobustCommand\hbar{%
309 \dimen@.04em%
310 \dimen@ii.06em%
311 \def\@tempa##1##2{%
312 \lower##1\dimen@\rlap{\kern##1\dimen@ii\the##2 0\char22}}%
313 \mathchoice\@tempa\@ne\textfont
314 \@tempa\@ne\textfont
315 \@tempa\defaultscriptratio\scriptfont
316 \@tempa\defaultscriptscriptratio\scriptscriptfont
317 h}}
318 </style>

```

3.5 Some Auxiliary Files

In the OT1 encoding we want upcase Greek

```

319 <*jamotlhx>
320 \relax
321
322 Upcase Greek for OT1
323
324 \metrics
325
326 % Moved equal sign
327 \resetglyph{equal}
328 \mover{130}
329 \glyph{equal}{1000}

```

```

330 \resetwidth{\add{\width{equal}}{120}}
331 \endsetglyph
332
333
334 \unsetglyph{Gamma}
335 \setglyph{Gamma}
336 \glyph{Gamma1}{1000}
337 \endsetglyph
338 \unsetglyph{Delta}
339 \setglyph{Delta}
340 \glyph{Delta1}{1000}
341 \endsetglyph
342 \unsetglyph{Theta}
343 \setglyph{Theta}
344 \glyph{Theta1}{1000}
345 \endsetglyph
346 \unsetglyph{Theta}
347 \setglyph{Theta}
348 \glyph{Theta1}{1000}
349 \endsetglyph
350 \unsetglyph{Lambda}
351 \setglyph{Lambda}
352 \glyph{Lambda1}{1000}
353 \endsetglyph
354 \unsetglyph{Xi}
355 \setglyph{Xi}
356 \glyph{Xi1}{1000}
357 \endsetglyph
358 \unsetglyph{Pi}
359 \setglyph{Pi}
360 \glyph{Pi1}{1000}
361 \endsetglyph
362 \unsetglyph{Sigma}
363 \setglyph{Sigma}
364 \glyph{Sigma1}{1000}
365 \endsetglyph
366 \unsetglyph{Upsilon}
367 \setglyph{Upsilon}
368 \glyph{Upsilon1}{1000}
369 \endsetglyph
370 \unsetglyph{Phi}
371 \setglyph{Phi}
372 \glyph{Phi1}{1000}
373 \endsetglyph
374 \unsetglyph{Psi}
375 \setglyph{Psi}
376 \glyph{Psi1}{1000}
377 \endsetglyph
378 \unsetglyph{Omega}
379 \setglyph{Omega}

```

```

380 \glyph{Omega1}{1000}
381 \endsetglyph
382
383
384 \endmetrics
385 </jamotlhax>

```

This main idea is taken from [7]. We changed the parameters, of course.

```

386 <*jamomlhax>
387 \relax
388
389 These hacks help adjust the positioning of accents on italic
390 characters and some sidebearings
391
392 \metrics
393
394 % Expanding a little J
395 \resetglyph{J}
396 \mover{70}
397 \glyph{J}{1000}
398 \resetwidth{\add{\width{J}}{50}}
399 \endsetglyph
400
401
402 % Expanding a little j
403 \resetglyph{j}
404 \mover{170}
405 \glyph{j}{1000}
406 \resetwidth{\add{\width{j}}{200}}
407 \endsetglyph
408
409
410 % Expanding a little f
411 \resetglyph{f}
412 \mover{150}
413 \glyph{f}{1000}
414 \resetwidth{\add{\width{f}}{200}}
415 \endsetglyph
416
417
418 % Expanding a little l
419 \resetglyph{l}
420 \mover{50}
421 \glyph{l}{1000}
422 \resetwidth{\add{\width{l}}{50}}
423 \endsetglyph
424
425
426 % Expanding a little m
427 \resetglyph{m}

```

```

428 \glyph{m}{1000}
429 \resetwidth{\add{\width{m}}{50}}
430 \endsetglyph
431
432
433
434
435
436 % Adding italic correction
437 \setcommand\additalic#1#2{\resetglyph{#1}\glyph{#1}{1000}\resetitalic{\add{\italic{#1}}{#2}}\ven
438
439 \additalic{B}{75}
440 \additalic{C}{50}
441 \additalic{D}{75}
442 \additalic{E}{75}
443 \additalic{F}{75}
444 \additalic{G}{50}
445 \additalic{H}{75}
446 \additalic{I}{50}
447 \additalic{J}{50}
448 \additalic{K}{75}
449 \additalic{M}{75}
450 \additalic{N}{75}
451 \additalic{O}{25}
452 \additalic{P}{25}
453 \additalic{Q}{25}
454 \additalic{R}{25}
455 \additalic{S}{50}
456 \additalic{T}{75}
457 \additalic{U}{50}
458 \additalic{V}{50}
459 \additalic{W}{50}
460 \additalic{X}{50}
461 \additalic{Y}{50}
462 \additalic{Z}{50}
463
464 \additalic{a}{25}
465 \additalic{d}{75}
466 \additalic{i}{75}
467 \additalic{j}{75}
468 \additalic{k}{25}
469 \additalic{l}{50}
470 \additalic{r}{50}
471 \additalic{v}{-300}
472
473 \additalic{beta}{50}
474 \additalic{delta}{75}
475 \additalic{zeta}{50}
476 \additalic{theta}{50}
477 \additalic{xi}{50}

```

```

478 \additalic{phi}{50}
479
480
481 % \skewkern sets a skewchar kern, assuming that tie is the skewchar.
482 \setcommand\skewkern#1#2{\resetkern{#1}{tie}{#2}}
483
484
485 % We need to check that tie is defined
486 \ifisglyph{tie}\then\else\setglyph{tie}\endsetglyph\fi
487
488
489 \skewkern{A}{75}
490 \skewkern{B}{70}
491 \skewkern{C}{100}
492 \skewkern{D}{50}
493 \skewkern{E}{75}
494 \skewkern{F}{75}
495 \skewkern{G}{100}
496 \skewkern{H}{50}
497 \skewkern{I}{100}
498 \skewkern{J}{120}
499 \skewkern{K}{75}
500 \skewkern{M}{25}
501 \skewkern{N}{50}
502 \skewkern{O}{100}
503 \skewkern{P}{100}
504 \skewkern{Q}{100}
505 \skewkern{R}{100}
506 \skewkern{S}{100}
507 \skewkern{T}{50}
508 \skewkern{U}{50}
509 \skewkern{V}{50}
510 \skewkern{W}{50}
511 \skewkern{X}{50}
512 \skewkern{Y}{50}
513 \skewkern{Z}{50}
514 \skewkern{a}{75}
515 \skewkern{c}{75}
516 \skewkern{d}{100}
517 \skewkern{e}{75}
518 \skewkern{f}{140}
519 \skewkern{g}{75}
520 \skewkern{i}{75}
521 \skewkern{j}{120}
522 \skewkern{l}{100}
523 \skewkern{m}{40}
524 \skewkern{n}{50}
525 \skewkern{o}{75}
526 \skewkern{p}{75}
527 \skewkern{q}{75}

```


528 $\text{\skewkern{r}{50}}$
529 $\text{\skewkern{s}{80}}$
530 $\text{\skewkern{t}{50}}$
531 $\text{\skewkern{u}{75}}$
532 $\text{\skewkern{v}{-80}}$
533 $\text{\skewkern{w}{75}}$
534 $\text{\skewkern{x}{50}}$
535 $\text{\skewkern{y}{50}}$
536 $\text{\skewkern{z}{50}}$
537 $\text{\skewkern{dotlessi}{50}}$
538 $\text{\skewkern{dotlessj}{120}}$
539 $\text{\skewkern{\Gamma}{100}}$
540 $\text{\skewkern{\Delta}{200}}$
541 $\text{\skewkern{\Theta}{100}}$
542 $\text{\skewkern{\Lambda}{200}}$
543 $\text{\skewkern{\Xi}{125}}$
544 $\text{\skewkern{\Pi}{100}}$
545 $\text{\skewkern{\Sigma}{100}}$
546 $\text{\skewkern{\Upsilon}{100}}$
547 $\text{\skewkern{\Phi}{100}}$
548 $\text{\skewkern{\Psi}{50}}$
549 $\text{\skewkern{\Omega}{100}}$
550 $\text{\%skewkern{\alpha}{50}}$
551 $\text{\skewkern{\beta}{75}}$
552 $\text{\skewkern{\gamma}{25}}$
553 $\text{\skewkern{\delta}{100}}$
554 $\text{\skewkern{\epsilon_1}{75}}$
555 $\text{\skewkern{\zeta}{50}}$
556 $\text{\skewkern{\eta}{25}}$
557 $\text{\skewkern{\theta}{50}}$
558 $\text{\%skewkern{\iota}{50}}$
559 $\text{\%skewkern{\kappa}{50}}$
560 $\text{\%skewkern{\lambda}{50}}$
561 $\text{\skewkern{\mu}{35}}$
562 $\text{\%skewkern{\nu}{50}}$
563 $\text{\skewkern{\xi}{75}}$
564 $\text{\%skewkern{\pi}{50}}$
565 $\text{\skewkern{\rho}{75}}$
566 $\text{\skewkern{\sigma}{25}}$
567 $\text{\skewkern{\tau}{25}}$
568 $\text{\%skewkern{\upsilon}{-25}}$
569 $\text{\skewkern{\phi}{125}}$
570 $\text{\skewkern{\chi}{50}}$
571 $\text{\skewkern{\psi}{50}}$
572 $\text{\skewkern{\omega}{25}}$
573 $\text{\skewkern{\epsilon}{50}}$
574 $\text{\%skewkern{\theta_1}{50}}$
575 $\text{\%skewkern{\omega_1}{50}}$
576 $\text{\skewkern{\rho_1}{50}}$
577 $\text{\%skewkern{\sigma_1}{75}}$

```
578 \skewkern{lscript}{75}  
579 \skewkern{weierstrass}{60}  
580  
581  
582 \endmetrics  
583 </jamomlhx>
```

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Change History

v1.0	Moved J, a, D, r	14
General: First fully functional version		1
v1.1	v1.2	
General: Added skewchar parameters	General: Added jamomlhax.mtx	14
Slightly moved equal sign	Added jamotlhax.mtx	12
Used math design for large symbols	v1.2a	
\hbar : Added macro	General: Documentation update	1
v1.10	v1.3	
General: Changed italic correction for v in OML	General: Corrected map entries	1
Slightly increased the spacing around f in OML	v1.5	
v1.11	General: Added symbols missing from the Belleek fonts	1
General: Changed many italic corrections on OML	v1.6	
v1.12	General: Documentation changes	1
General: Moved a little j and l	v1.7	
	General: Documentation changes	1
	Uppercase upright Greek	1
	v1.9	
	General: Fixed a bug in installation script	1

Index

Numbers written in *italic* refer to the page where the corresponding entry is described; numbers underlined refer to the code line of the definition; numbers in roman refer to the code lines where the entry is used.

	Symbols		
<code>\@empty</code>	..... 84	<code>\DeclareMathAlphabet</code>	..... 261
<code>\@ne</code>	..... 313, 314	<code>\DeclareMathSymbol</code>	..... 262–273
<code>\@tempa</code>	... 311, 313–316	<code>\DeclareOptionX</code>	240–244
	A	<code>\DeclareRobustCommand</code>	..... 308
<code>\a</code>	..... 61, 91	<code>\DeclareSymbolFont</code>	..... 250–253
<code>\add</code>	.. 330, 398, 406, 414, 422, 429, 437	<code>\def</code>	..... 60, 249, 311
<code>\adddriver</code>	..... 233	<code>\defaultscritratio</code>	315
<code>\additalic</code>	..... . 437, 439–462, 464–471, 473–478	<code>\defaultscriptscriptratio</code>	..... 316
<code>\AmsFonts@scale</code>	.. .... 248, 277, 278, 282, 283, 287, 288, 291, 292, 296, 297, 301, 302, 305, 306	<code>\Delta</code>	..... 264
<code>\AmsFonts@scale</code>	... 242	<code>\dimen@</code>	..... 309, 312
<code>amsfontsscaled</code>	(op- tion) 4	<code>\dimen@ii</code>	.... 310, 312
	B	<code>\do</code>	..... 95, 97
<code>\begin</code>	..... 23	<code>\DocInput</code>	..... 24
<code>\bfdefault</code>	..... 4	<code>\documentclass</code>	.... 13
<code>\bye</code>	..... 222, 236	<code>\donedriver</code>	..... 235
	C	<code>\download</code>	.... 227–230
<code>\char</code>	..... 312		E
<code>\close</code>	..... 103	<code>\edef</code>	.... 62, 63, 86, 248
<code>\CodelineIndex</code>	.... 20	<code>\else</code>	..... 85, 486
<code>\csname</code>	..... 82, 87, 93, 96, 98, 248	<code>\EnableCrossrefs</code>	.. 22
	D	<code>\enctoetx</code>	..... 232
<code>\day</code>	..... 77	<code>\end</code>	..... 25
<code>\DeclareFontFamily</code>	.. .... 91, 275, 280, 285, 294, 299	<code>\endcsname</code>	.... 83, 87, 93, 96, 98, 248
<code>\DeclareFontShape</code>	.. . 276, 281, 286, 290, 295, 300, 304	<code>\endinput</code>	..... 102
		<code>\endinstallfonts</code>	.. 220
		<code>\endmetrics</code>	... 384, 582
		<code>\endrecordtransforms</code>	..... 221
		<code>\endsetglyph</code>	.. 331, 337, 341, 345, 349, 353, 357, 361, 365, 369, 373, 377, 381, 399, 407, 415, 423, 430, 437, 486
		<code>\etxtoenc</code>	..... 231
		<code>\ExecuteOptionsX</code>	.. 245
		<code>\expandafter</code>	..... 82
			F
		<code>\fd</code>	..... 60
		<code>\fi</code>	.... 76, 77, 89, 486
		<code>\font</code>	. 107, 212, 217, 299
		<code>\fontinstcc</code>	..... 59
		<code>\fontinstversion</code>	68, 78
		<code>\fromafm</code>	37, 39, 41, 45, 47, 51, 53, 56–58
		<code>\fromany</code>	.... 43, 49, 55
			G
		<code>\g</code>	..... 100
		<code>\Gamma</code>	..... 263
		<code>\gdef</code>	..... 240–244
		<code>\glyph</code>	329, 336, 340, 344, 348, 352, 356, 360, 364, 368, 372, 376, 380, 397, 405, 413, 421, 428, 437
			H
		<code>\hbar</code>	..... <u>308</u>
		<code>\Hv@scale</code>	..... 241
			I
		<code>\ifisglyph</code>	..... 486
		<code>\ifnum</code>	..... 76, 77
		<code>\ifx</code>	..... 82
		<code>\input</code>	.... 28, 225, 234
		<code>\installfamily</code>	107, 142, 177, 212, 217
		<code>\installfont</code>	..... . 108, 110, 112, 114, 116, 126, 128, 130, 132, 134, 136, 138, 140, 143, 145, 147, 149, 151, 161, 163, 165, 167, 169, 171,

173, 175, 178,	<code>\mathbf</code> 257	<code>\RequirePackage</code> 239, 274
180, 182, 184,	<code>\mathbold</code> 261	<code>\resetglyph</code>
186, 196, 198,	<code>\mathchoice</code> 313	. 327, 395, 403,
200, 204, 206,	<code>\mathit</code> 258	411, 419, 427, 437
208, 213, 215, 218	<code>\mathord</code> 262	<code>\resetitalic</code> 437
<code>\installfontas</code> 118,	<code>\mathrm</code> 256	<code>\resetkern</code> 482
120, 122, 124,	<code>\mathsf</code> 259	<code>\resetstr</code> 226
153, 155, 157,	<code>\mathtt</code> 260	<code>\resetwidth</code> 330, 398,
159, 188, 190,	<code>\metrics</code> 324, 392	406, 414, 422, 429
192, 194, 202, 210	<code>\month</code> 76	<code>\right</code> 88
<code>\installfonts</code> 106	<code>\mover</code> 328,	<code>\rlap</code> 312
<code>\int</code> 36, 38, 40,	396, 404, 412, 420	<code>\rmdefault</code> 249, 256–258
42, 44, 46, 48,		
50, 52, 54, 57, 58		
<code>\italic</code> 437		
	N	S
J	<code>\nabla</code> 262	<code>scaled</code> (option) 3
<code>\jobname</code> 67	<code>\NeedsTeXFormat</code> 1	<code>\scriptfont</code> 315
<code>\Jtms@scale</code>	<code>\noexpand</code> 63	<code>\scriptscriptfont</code> . 316
84, 86, 109, 111,	<code>\normalcc</code> 105	<code>\setcommand</code> . . . 437, 482
113, 115, 117,		<code>\setglyph</code>
119, 121, 123,	O	. 335, 339, 343,
125, 127, 129,	<code>\Omega</code> 273	347, 351, 355,
131, 133, 135,	<code>\open</code> 65	359, 363, 367,
137, 139, 141,	options:	371, 375, 379, 486
144, 146, 148,	<code>amsfontsscaled</code> . . 4	<code>\setint</code> 29–34
150, 152, 154,	<code>scaled</code> 3	<code>\SetMathAlphabet</code> . .
156, 158, 160,	<code>sfamily</code> 3	. . . . . 256–260
162, 164, 166,	<code>sfscaled</code> 3	<code>\SetSymbolFont</code> 254, 255
168, 170, 172,	<code>ttfamily</code> 3	<code>\sfdefault</code> . . . 243, 259
174, 176, 179,	<code>\out</code> . . . 66–70, 72–74,	<code>sfamily</code> (option) . . . 3
181, 183, 185,	81, 82, 84–86,	<code>sfscaled</code> (option) . . . 3
187, 189, 191,	89–91, 94, 101, 102	<code>\Sigma</code> 269
193, 195, 197,		<code>\skewchar</code>
199, 201, 203,	P	. 107, 212, 217, 299
205, 207, 209,	<code>\PageIndex</code> 19	<code>\skewkern</code>
211, 214, 216, 219	<code>\percent</code> 66–68, 70, 88, 89	. 481, 482, 489–579
<code>\Jtms@scale</code> 240	<code>\Phi</code> 271	<code>\slantfont</code> . . 42, 48, 54
	<code>\Pi</code> 268	<code>\space</code> 77,
K	<code>\ProcessOptionsX</code> . . 247	78, 82, 84, 86, 87
<code>\kern</code> 312	<code>\ProvidesClass</code> 5	<code>\specifypsfont</code> 227–230
	<code>\ProvidesFile</code> 3, 6, 7, 73	<code>\string</code> 73,
L	<code>\ProvidesMtxPackage</code> . 8	82–87, 89, 91,
<code>\Lambda</code> 266	<code>\Psi</code> 272	102, 109, 111,
<code>\left</code> 86		113, 115, 117,
<code>\let</code> 84, 95, 97	R	119, 121, 123,
<code>\lower</code> 312	<code>\RecordChanges</code> 21	125, 127, 129,
<code>\lowercase</code> . . 62–66, 73	<code>\recordtransforms</code> . 35	131, 133, 135,
	<code>\reencodefont</code> 37, 39,	137, 139, 141,
	41, 45, 47, 51, 53	144, 146, 148,
M	<code>\relax</code> 83, 320, 387	150, 152, 154,
<code>\mathalpha</code> . . . 263–273	<code>\remove</code> 97	156, 158, 160,

162, 164, 166,	<code>\Theta</code> 265	W
168, 170, 172,	<code>\transformfont</code>	<code>\width</code> 330, 398,
174, 176, 179,	. . . 36, 38, 40,	406, 414, 422, 429
181, 183, 185,	42, 44, 46, 48,	
187, 189, 191,	50, 52, 54, 56–58	X
193, 195, 197,	<code>\ttdefault</code> . . . 244, 260	<code>\x</code> 100
199, 201, 203,	<code>ttfamily</code> (option) 3	<code>\Xi</code> 267
205, 207, 209,		<code>\xscalefont</code>
211, 214, 216, 219	U	. 36, 38, 40, 44,
<code>\substitute</code> 95	<code>\unsetglyph</code> 334, 338,	46, 50, 52, 57, 58
	342, 346, 350,	
T	354, 358, 362,	
<code>\textfont</code> 313, 314	366, 370, 374, 378	Y
<code>\the</code> 75–77, 91, 312	<code>\Upsilon</code> 270	<code>\year</code> 75
<code>\then</code> 486	<code>\usepackage</code> 14–17	