

# The fontspec test suite

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## Preamble

The examples shown in the remainder of the document are generated directly from the code shown alongside. As well as being good minimal examples, these tests are useful to ensure that changes to fontspec don't affect old behaviour.

When the test suite is run, the new output is compared pixel by pixel with that shown here and warnings produced if the outputs are not identical (within a small tolerance to account for rounding errors).

Tests with a name that begins with 'X' are processed with `xelatex` only; 'L' with `lualatex`; and 'F' with both. In the latter case, the output from both engines is compared with each other, ensuring that the package is consistent cross-platform.

To generate tests yourself, write a new file in the `testsuite/` folder with filename

`<FLX><num><letter>.ltx`

according to the naming scheme above and the following numbering scheme. If you are writing a new test entirely, increment the `<num>`; if you are writing a variation on an old test, increment the `<letter>`. No need to be too fussy, though.

After writing the new test, run

`make initest`

This will generate the reference output (`*.safe.pdf`) from which to check all future tests. After any changes have been made to fontspec, the entire test suite is compiled with

`make check`

If you want to run just a single test, use

`make <testname>`

(but this syntax *may* be fragile and need to be changed in the future).

## 1 Test F-alias-feature-option

```
\documentclass{testsuite}
\usepackage{fontspec}
\begin{document}

\aliasfontfeature{Numbers}{123}
\aliasfontfeatureoption{Numbers}{Lining}{UC}
\aliasfontfeatureoption{Numbers}{OldStyle}{LC}

\fontspec[123=UC]{TeX Gyre Pagella}
Numbers: 12345

\fontspec[123=LC]{TeX Gyre Pagella}
Numbers: 12345

\end{document}
```

Numbers: 12345

Numbers: 12345

## 2 Test F-alias-feature

```
\documentclass{testsuite}
\usepackage{fontspec}
\begin{document}

\aliasfontfeature{ItalicFeatures}{IF}
\fontspec[IF = {Colour=FF0000}]{Times}
Roman letters \itshape and red italics

\end{document}
```

Roman letters *and red italics*

## 3 Test F-autofake

```
\documentclass{testsuite}
\usepackage{fontspec}
\begin{document}
\Large
\def\text{ABC \textit{ABC} \textbf{ABC}
\textbf{\textit{ABC}}\}
\fontspec{Inconsolata}\text
\fontspec[AutoFakeSlant]{Inconsolata}\text
\fontspec[AutoFakeBold]{Inconsolata}\text
\fontspec[AutoFakeSlant,AutoFakeBold]
{Inconsolata}\text
\fontspec[AutoFakeSlant=0.4]{Inconsolata}\text
\fontspec[AutoFakeBold=5]{Inconsolata}\text
\fontspec[AutoFakeSlant=0.4,AutoFakeBold=5]
{Inconsolata}\text
\end{document}
```

ABC ABC ABC ABC  
ABC *ABC* ABC ABC  
ABC ABC ABC ABC  
ABC *ABC* ABC *ABC*  
ABC *ABC* ABC ABC  
ABC ABC ABC ABC  
ABC *ABC* ABC *ABC*

## 4 Test F-autoscaling

```
\documentclass{testsuite}
\usepackage{fontspec}
\begin{document}
\Large
\setmainfont{TeX Gyre Termes} aA
\fontspec{TeX Gyre Heros} aA
\fontspec{TeX Gyre Cursor} aA
\fontspec[Scale=MatchUppercase]{TeX Gyre Heros} aA
\fontspec[Scale=MatchUppercase]{TeX Gyre Cursor} aA
\fontspec[Scale=MatchLowercase]{TeX Gyre Heros} aA
\fontspec[Scale=MatchLowercase]{TeX Gyre Cursor} aA
\end{document}
```

aA aA aA aA aA aA

## 5 Test F-charactervariant

```
\documentclass{testsuite}
\usepackage{fontspec}
\begin{document}
\Large
\fontspec{EB Garamond Italic} very
\fontspec[CharacterVariant=5]{EB Garamond Italic} very
\fontspec[CharacterVariant=5:0]{EB Garamond Italic} very
\fontspec[CharacterVariant=5:1]{EB Garamond Italic} very
\fontspec[CharacterVariant=5:2]{EB Garamond Italic} very
\fontspec[CharacterVariant=5:3]{EB Garamond Italic} very
\end{document}
```

*very very very very very very*

## 6 Test F-colour-basic

```
\documentclass{testsuite}
\usepackage{fontspec}
\usepackage{xcolor}
\begin{document}
{\fontspec[Color=5500FF]{Verdana}Test}

{\fontspec[Color=red]{Verdana}Test} vs
{\color{red}\fontspec{Verdana}Test}

\definecolor{Foo}{rgb}{0.3,0.4,0.5}
{\fontspec[Color=Foo]{Verdana}Test} vs
{\color{Foo}\fontspec{Verdana}Test}
\end{document}
```

Test

Test vs Test

Test vs Test

## 7 Test F-colour-clash

```
\documentclass{testsuite}
\usepackage{fontspec}
\usepackage{xcolor}
\begin{document}
\fontspec{Verdana}
Black
\color{red}
Red

\fontspec[Color=red]{Verdana}
\color{blue}
Red?
\end{document}
```

Black Red

Red?

## 8 Test F-colour-opacity

```
\documentclass{testsuite}
\usepackage{fontspec}
\usepackage{xcolor}
\begin{document}
\fontspec[Color=red]{Verdana}
Test

\fontspec[
  Color=red,Opacity=0.5
]{Verdana}
Test

\fontspec[
  Color=00FF00,Opacity=0.5
]{Verdana}
Test
\end{document}
```

Test

Test

Test

## 9 Test F-feat-numbers

```
\documentclass{testsuite}
\usepackage{fontspec}
\begin{document}

\fontspec[Numbers={Proportional,OldStyle}]
{TeX Gyre Adventor}
`In 1842, 999 people sailed 97 miles in
13 boats. In 1923, 111 people sailed 54
miles in 56 boats.' \bigskip

{\addfontfeatures{Numbers={Monospaced,Lining}}}
\begin{tabular}{@{} cccc @{}}
  Year & People & Miles & Boats & \\
\hline
  1842 & 999 & 75 & 13 & \\
  1923 & 111 & 54 & 56 & \\
\end{tabular}

\end{document}
```

`In 1842, 999 people sailed 97 miles in 13 boats.  
In 1923, 111 people sailed 54 miles in 56 boats.'

Year	People	Miles	Boats
1842	999	75	13
1923	111	54	56

## 10 Test F-font-selection-bold

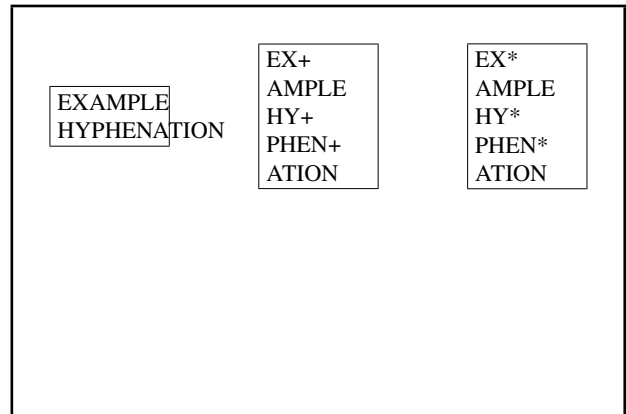
```
\documentclass{testsuite}
\usepackage{fontspec}
\begin{document}
\Large
  \fontspec[BoldFont={Kurier Heavy}]
    {Kurier Bold}
    Kurier Bold \\
  {\itshape Kurier Bold Italic} \\
  {\bfseries Kurier Heavy} \\
  {\bfseries\itshape Kurier Heavy Italic} \\
\end{document}
```

Kurier Bold  
Kurier Bold Italic  
Kurier Heavy  
*Kurier Heavy Italic*

## 11 Test F-hyphenchar

```
\documentclass{testsuite}
\usepackage{fontspec}
\begin{document}
\def\text{\fbox{\parbox{1.55cm}{%
  EXAMPLE HYPHENATION%
}}\hfill}

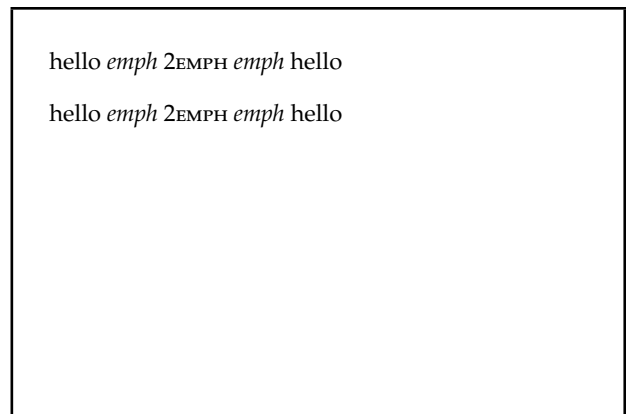
\fontspec{TeX Gyre Termes}
\addfontfeature{HyphenChar=None}
\text
\addfontfeature{HyphenChar={+}}
\text
\addfontfeature{HyphenChar={"2A}}
\text
\end{document}
```



## 12 Test F-inner-emph

```
\documentclass{testsuite}
\usepackage{fontspec}
\renewcommand\eminnershape{\upshape\scshape}
\begin{document}
\setmainfont[
  ItalicFont=texgyrepagella-italic.otf
]{texgyrepagella-regular.otf}
hello \emph{emph \emph{2emph} emph} hello

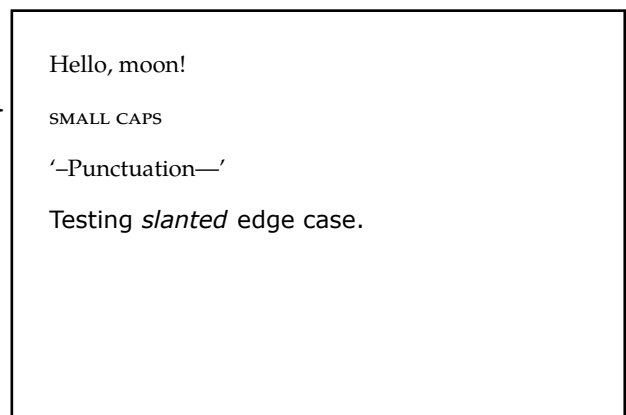
hello {\em emph {\em 2emph} emph} hello
\end{document}
```



## 13 Test F-loading-basic

```
\documentclass{testsuite}
\usepackage{fontspec}
\setmainfont[Ligatures=TeX]{TeX Gyre Pagella}
\begin{document}
Hello, moon!\par
\textsc{small caps}\par
`--Punctuation---'

\def\itdefault{sl}
\setmainfont{Verdana}
Testing \textsl{slanted} edge case.
\end{document}
```



## 14 Test F-loading-external-underdefined

```
\documentclass{testsuite}
\usepackage{fontspec}
\begin{document}
% behaviour fixed Sept 2011; external
% fonts should not search for variants
% if they're not specified.

\setmainfont
  [ExternalLocation,
   SlantedFont={lmroman10-italic}]
  {lmroman10-regular}

test \textsl{hello}

\setmainfont
  [ExternalLocation,
   BoldFont={lmroman10-bold}]
  {lmroman10-regular}

test \textbf{hello}

\end{document}
```

test *hello*

test **hello**

## 15 Test F-loading-nested-scfeat

```
\documentclass{testsuite}
\usepackage{fontspec}
\usepackage{xcolor}
\begin{document}
\fontspec[
  UprightFeatures={Color = 220022,
    SmallCapsFeatures = {Color=115511}},
  ItalicFeatures={Color = 2244FF,
    SmallCapsFeatures = {Color=112299}},
  BoldFeatures={Color = FF4422,
    SmallCapsFeatures = {Color=992211}},
  BoldItalicFeatures={Color = 888844,
    SmallCapsFeatures = {Color=444422}},
  ]{TeX Gyre Termes}
Upright {\scshape Small Caps}\
\itshape Italic {\scshape Italic Small Caps}\
\upshape\bfseries Bold {\scshape Bold Small Caps}\
\itshape Bold Italic {\scshape Bold Italic Small Caps}
\end{document}
```

Upright SMALL CAPS

*Italic ITALIC SMALL CAPS*

**Bold BOLD SMALL CAPS**

***Bold Italic BOLD ITALIC SMALL CAPS***

## 16 Test F-loading-scale

```
\documentclass{testsuite}
\usepackage{fontspec}
\setmainfont[Color=FF0000]{Georgia}
\def\1{abcABC}\def\2{XYZxyz}
\def\test{\1\textsf{\2}\1\}
\begin{document}
\setsansfont{Verdana}
\test
\setsansfont[Scale=0.5]{Verdana}
\test
\setsansfont[Scale=MatchLowercase]{Verdana}
\test
\setsansfont[Scale=MatchUppercase]{Verdana}
\test
\end{document}
```

abcABCXYZxyzabcABC  
abcABC<sub>XYZxyz</sub>abcABC  
abcABCXYZxyzabcABC  
abcABCXYZxyzabcABC

## 17 Test F-loading-sizefeatures

```
\documentclass{testsuite}
\usepackage{fontspec}
\usepackage{xcolor}
\begin{document}
\fontspec[SizeFeatures={
  {Size={-8}, Font=TeX Gyre Bonum Italic, Color=AA0000},
  {Size={8-14}, Color=00AA00},
  {Size={14-}, Color=0000AA}}]{TeX Gyre Chorus}

{\scriptsize Small\par} Normal size\par {\Large Large\par}
\end{document}
```

*Small*

*Normal size*

*Large*

## 18 Test F-optical-sizes

```
\documentclass{testsuite}
\usepackage{fontspec}
\begin{document}
\fontspec{Latin Modern Roman}
Automatic optical size\par
\scalebox{0.4}{\Huge
Automatic optical size}
\end{document}
```

Automatic optical size

Automatic optical size

## 19 Test F-ot-cvxx-2

```
\documentclass{testsuite}
\usepackage{fontspec}
\usepackage{xcolor}
\begin{document}
\huge
\fontspec{EB Garamond Italic}
\fontspec[CharacterVariant={4}]{EB Garamond Italic}
\fontspec[CharacterVariant={5:2}]{EB Garamond Italic}
\fontspec[CharacterVariant={4,5:2}]{EB Garamond Italic}
\end{document}
```

*É violet*  
*é violet*  
*É violet*  
*é violet* & violet \\  
*é violet* & violet \\  
*É violet* & violet \\  
*é violet* & violet \\

## 20 Test F-ot-cvxx

```
\documentclass{testsuite}
\usepackage{fontspec}
\usepackage{xcolor}
\begin{document}
\huge
\fontspec{EB Garamond Italic}
\fontspec[CharacterVariant=5]{EB Garamond Italic}
\fontspec[CharacterVariant=5:0]{EB Garamond Italic}
\fontspec[CharacterVariant=5:1]{EB Garamond Italic}
\fontspec[CharacterVariant=5:2]{EB Garamond Italic}
\fontspec[CharacterVariant=5:3]{EB Garamond Italic}
\end{document}
```

*very*  
*very*  
*very*  
*very* \\  
*very* \\  
*very* \\  
*very* \\  
*very* \\  
*very* \\

## 21 Test F-ot-ss06

```
\documentclass{testsuite}
\usepackage{fontspec}
\begin{document}
\Huge
\fontspec{Junicode}
Before
\addfontfeature{StylisticSet=6}
After
\end{document}
```

Before After



## 22 Test F-programmers-interface

```
\documentclass{testsuite}
\usepackage{fontspec}
\begin{document}
\ExplSyntaxOn
LM~is
\fontspec_if_fontspec_font:TF {\ERROR}{~not~a~fontspec~font.\par}

\setmainfont{TeX Gyre Pagella}
TeX Gyre Pagella
\fontspec_if_fontspec_font:TF {\fontspec_if_fontspec_font:TF {\ERROR}}
\fontspec_if_opentype:TF {,~is~OpenType}{\ERROR}

\fontspec_if_feature:nTF {smcp}{,~has~small~caps}{\ERROR}

\fontspec_if_current_script:nTF {latn}{,~is~using~Latin~script}{\ERROR}

\fontspec_if_script:nTF {cyr1}{,~also~has~Cyrillic}{\ERROR}

\fontspec_if_current_language:nTF {DFLT}{,~is~using~`default'~language}{\ERROR}

\fontspec_if_language:nnTF {latn}{ROM}{,~also~has~Romanian}{\ERROR}

\end{document}
```

LM is not a fontspec font.

TeXGyrePagella is a fontspec font, is OpenType, has small caps, using Latin script, also has Cyrillic, is using 'default' language, also has Romanian

## 23 Test F-verb-fancyvrb

```
\documentclass[twocolumn]{testsuite}
\usepackage{fontspec,fancyvrb}
\begin{document}
\begin{Verbatim}
testing spaces
\end{Verbatim}
\begin{Verbatim*}
testing spaces
\end{Verbatim*}
\end{document}
```

testing spaces

testing␣spaces

## 24 Test F-verb-listings

```
\documentclass[twocolumn]{testsuite}
\usepackage{fontspec,listings}
\begin{document}
\begin{lstlisting}
testing spaces
\end{lstlisting}
\begin{lstlisting}[showspaces]
testing spaces
\end{lstlisting}
\end{document}
```

testing spaces

testing␣spaces

## 25 Test F-verb-moreverb

```
\documentclass[twocolumn]{testsuite}
\usepackage{fontspec,moreverb}
\begin{document}
\setmainfont{texgyretermes-regular.otf}
\setmonofont{Inconsolata.otf}
\begin{listing}{7}
testing spaces
\end{listing}
\begin{listing*}{7}
testing spaces
\end{listing*}
\end{document}
```

7    testing spaces

7    testing\_spaces

## 26 Test F-verb-plain

```
\documentclass[twocolumn]{testsuite}
\usepackage{fontspec}
\begin{document}
\setmainfont{texgyretermes-regular.otf}
\setmonofont{Inconsolata.otf}
\verb|testing spaces|\\
\verb*|testing spaces|
\begin{verbatim}
testing spaces
\end{verbatim}
\begin{verbatim*}
testing spaces
\end{verbatim*}
\newpage
\setmonofont{Courier New}
\verb|testing spaces|\\
\verb*|testing spaces|
\begin{verbatim}
testing spaces
\end{verbatim}
\begin{verbatim*}
testing spaces
\end{verbatim*}
\end{document}
```

testing spaces	testing spaces
testing_spaces	testing_spaces

testing spaces	testing spaces
----------------	----------------

testing_spaces	testing_spaces
----------------	----------------

## 27 Test F-verb-verbatim

```
\documentclass[twocolumn]{testsuite}
\usepackage{fontspec,verbatim}
\begin{document}
\setmainfont{texgyretermes-regular.otf}
\setmonofont{Inconsolata.otf}
\verb|testing spaces|\\
\verb*|testing spaces|
\begin{verbatim}
testing spaces
\end{verbatim}
\begin{verbatim*}
testing spaces
\end{verbatim*}
\newpage
\setmonofont{Courier New}
\verb|testing spaces|\\
\verb*|testing spaces|
\begin{verbatim}
testing spaces
\end{verbatim}
\begin{verbatim*}
testing spaces
\end{verbatim*}
\end{document}
```

testing spaces	testing spaces
testing_spaces	testing_spaces
testing spaces	testing spaces
testing_spaces	testing_spaces

## 28 Test F-wordspace

```
\documentclass{testsuite}
\usepackage{fontspec}
\begin{document}
\fontspec{TeX Gyre Termes}
Some text for our example to take
up some space, and to demonstrate
the default interword space.
\bigskip

\addfontfeature{ WordSpace = 0.3 }
Some text for our example to take
up some space, and to demonstrate
the default interword space.
\bigskip

\large
Some text for our example to take
up some space, and to demonstrate
the default interword space.
\end{document}
```

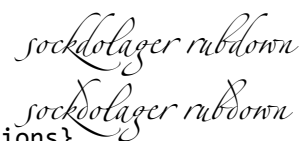
Some text for our example to take up some space, and to demonstrate the default interword space.

Some text for our example to take up some space, and to demonstrate the default interword space.

Sometextforourexampletotakeupsomespace,and to demonstrate the default interword space.

## 29 Test X-new-font-feature

```
\documentclass{testsuite}
\usepackage{fontspec}
\begin{document}
\newfontfeature{AvoidD}{Special=Avoid d-collisions}
\newfontfeature{NoAvoidD}{Special=!Avoid d-collisions}
\fontspec[AvoidD,Variant=1]{Zapfino}
  sockdolager rubdown
\fontspec[NoAvoidD,Variant=1]{Zapfino}
  sockdolager rubdown
\end{document}
```



sockdolager rubdown

sockdolager rubdown