

LuaTeX and XeTeX

June 28, 2011

1 History

T_EX was written long before the invention of Unicode, and introduced outline fonts before the invention of Type I fonts by Adobe, and the adoption of Type I, Truetype and OpenType fonts by the computing industry. Because it was written too early, ordinary T_EX cannot use the standard system fonts available on your computer.

Over the last several years, several research programs in the T_EX world have been devoted to modifying T_EX so it could accept Unicode input and use your system fonts directly. These developments are particularly important for users writing in non Western scripts like Arabic, Chinese, and others, because the fonts for these scripts are already available on most platforms. Unicode makes it possible to type non Western symbols directly into the editor, including typing from right to left when the language requires it. System fonts then provide the correct Unicode glyphs in the typeset output.

The first of these research projects to mature was X_YT_EX, written by Jonathan Kew. Many users have switched to it for commercial use. Ordinary T_EX documents typeset as usual in X_YT_EX, but additional commands are available to switch fonts.

The other significant project is LuaT_EX, by Hans Hagen, Hartmut Henkel, and Taco Hoekwater. It is just now reaching the point where it can be used for serious work.

ℒT_EX is an extensive set of macros living on top of T_EX and pdfT_EX. Will Robertson wrote an important package, *fontspec*, which makes the X_YT_EX font changes extremely easy to use in ℒT_EX; the emergence of this package marked the beginning of acceptance of X_YℒT_EX

in the larger \TeX world. Will Robertson, Khaled Hosny, and Elie Roux have recently extended the *fontspec* package to \LuaTeX , making it easy for \LaTeX users to experiment with \LuaTeX .

This folder contains brief documents explaining how to get started with \XeLaTeX and with \LuaTeX .

2 ConTeXt

Another quite different package is ConTeXt by Hans Hagen, which also works on top of all these engines. The authors of \LuaTeX come from the ConTeXt community.

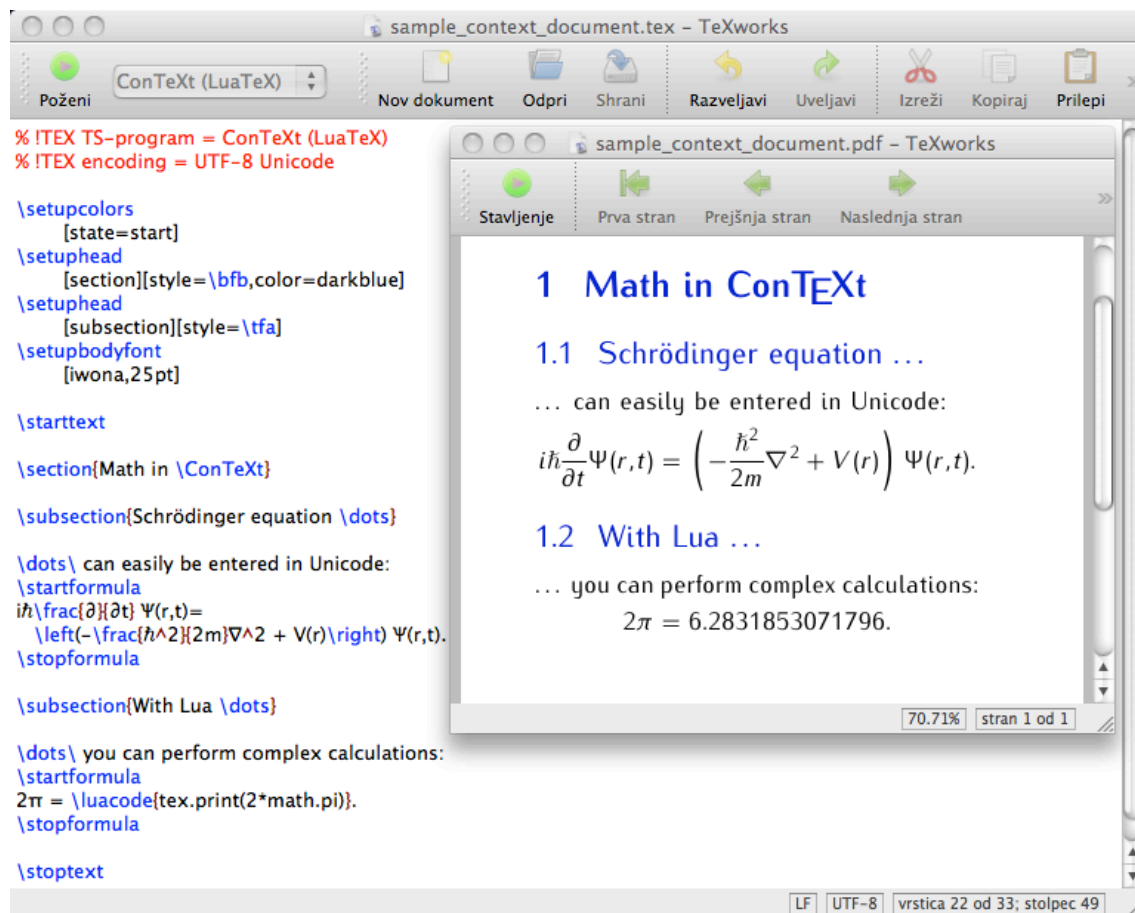


Figure 1: ConTeXt running on TeXworks

Both TeXShop and TeXworks contain engine files to run ConTeXt. These engines are named “ConTeXt (LuaTeX)”, “ConTeXt (XeTeX)”, and “ConTeXt (pdfTeX)”, and typeset ConTeXt on the indicated base. New users should run on top of LuaTeX. TeXShop users may need to move these engine files from `~/Library/TeXShop/Engines/Inactive` to `~/Library/TeXShop/Engines` before using them.

We recommend that ConTeXt source files begin with the magic lines:

```
% !TEX encoding = UTF-8 Unicode
% !TEX TS-program = ConTeXt (LuaTeX)
```

These lines tell the editor to save the source with unicode encoding, and to use the ConTeXt (LuaTeX) engine to typeset.

This folder contains a brief ConTeXt document by Hans Hagen which typesets in LuaTeX.

If you later add new system fonts which you want the program to use, open Terminal in `/Applications/Utilities` and run the command

```
mtxrun --generate
```

You need only do this once.

Users interested in using ConTeXt with LuaTeX should consult:

http://wiki.contextgarden.net/Main_Page

<http://www.pragma-ade.com>

<http://www.luatex.org>