KETCindy
Unification of Dynamic Geometry and High-Quality Printing

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09/09/2016, Targu Mures, Romania

CADGME2016

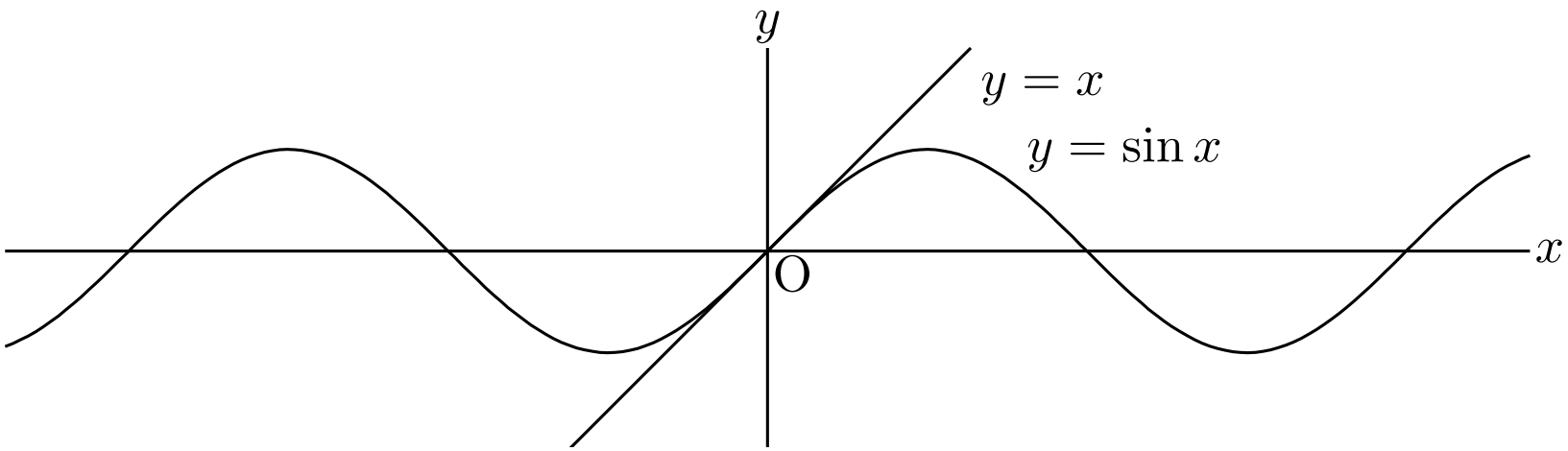
Making Printed Materials

- Many mathematics teachers at collegiate level use printed materials.
- Almost all of them use LaTeX.
- LaTeX can make beautiful scientific formulas.
- However, LaTeX itself is somewhat short to dealing with graphics.

Use of TiKZ

- A few teachers use TiKZ to make figures.
- But it is difficult for ordinary teachers to use it, due to the steep learning curve.
- Moreover, the scripts are not only difficult to write but also difficult to read.

An simple example



Poor readability of TiKZ

```
\begin{TiKZpicture}
  \draw[->, ultra thick, opacity=0.7] (0,2) -- (16,2) node[right] {$x$};
  \draw[->, ultra thick, opacity=0.7] (8,0) -- (8,4) node[above] {$y$};
  \draw[domain=-7.5:7.5, xshift=8cm, yshift=2cm, very thick, samples=80]
      plot[id=sin] function{sin(x)} node[above right] {$y=\sin x$};
  \draw[domain=-2:2, xshift=8cm, yshift=2cm, very thick, samples=80]
       plot[id=x] function{x} node[above right] {$y=x$};
  \node [xshift=8cm, yshift=2cm] (O) at (0,0) [label=225:$O$] {};
  \foreach \x in {-6,-4,-2,2,4,6}
    \fill [radius=1.5pt, xshift=8cm, yshift=2cm] (\x, 0)
       circle node[below] {$\x$};
  \foreach \y in {-1,1}
    \fill [radius=1.5pt, xshift=8cm, yshift=2cm] (0, \y)
       circle node[left] {$\y$};
\end{TiKZpicture}
```

Scripts of KETCindy

```
Fhead="sin";
Texparent="";
Ketinit();
Setax([7,"se"]);
Plotdata("1","sin(x)","x");
Lineplot("1",[[0,0],[1,1]]);
Expr(["A","e","y=\sin x","B","e","y=x"]);
Windispg();
```

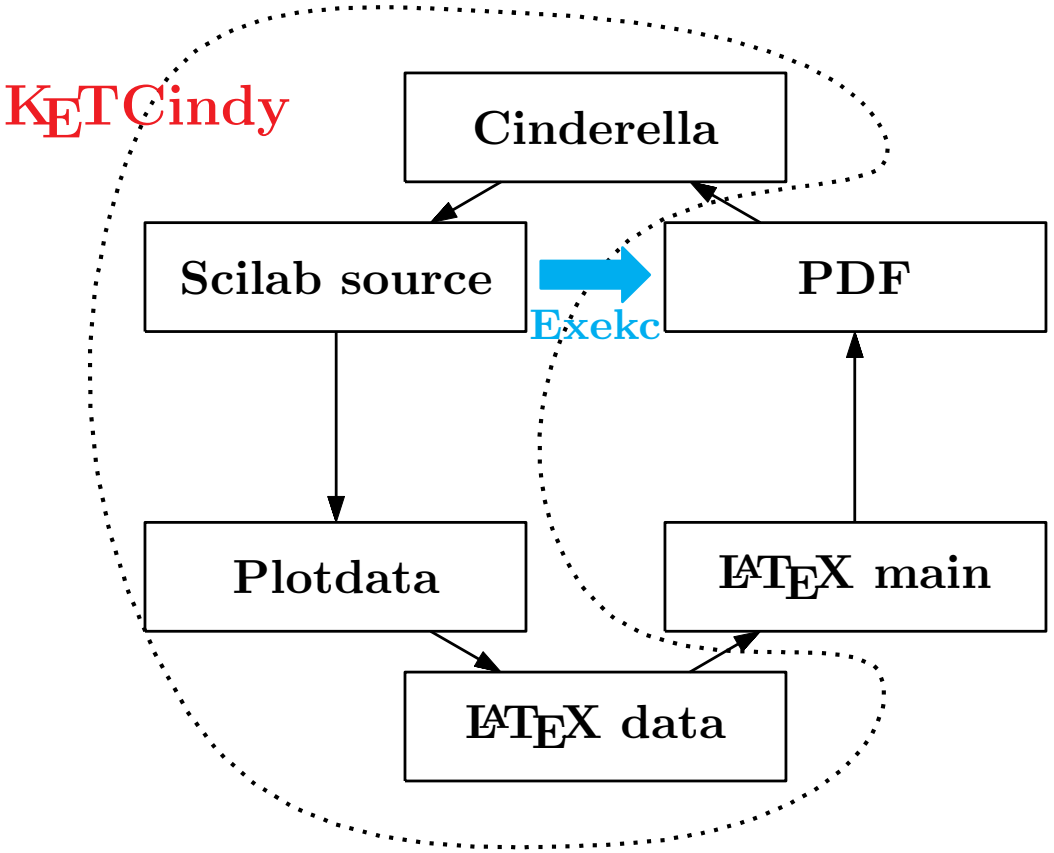
Outline of KETCindy

- We have developed KETpic as a tool to generate and insert figures into materials.
- Cinderella is a DGS package developed by Gebert and Kortenkamp.
- We had been exploring the possibility of using Cinderella.
- The first version of KETCindy was released on September, 2014.

Outline of KETCindy

- Cinderella works as a GUI of KETCindy.
- CindyScript is the programming language of Cinderella.
- It distinguishes Cinderella from other DGSs.
- KETCindy is a macro package of CindyScript.

Flow Chart of KeTCindy



How to Install

- KETCindy uses several free softwares.

  Cinderella, Scilab, LaTeX, PDF viewer
- All installings are easy.
- We have made a package of LaTeX system to be handled easily.
- You can download a package of installers and KETCindy libraries from

  `ketpic.com -> Dropbox - KetInstall`

How to Install

InstallforMac

- kettex
- fricasForMac.dmg
- AsirForKeTCindy.dmg
- Cinderella2b1835.zip
- R-3.2.2.pkg
- R-3.2.1-snowleopard.pkg
- Maxima-5.36.1.dmg
- scilab-5.5.2-x86_64_yosemite.dmg
- scilab-5.5.2-x86_64.dmg
- mi2.1.12r5.dmg
- MeshLabMac_v133.dmg

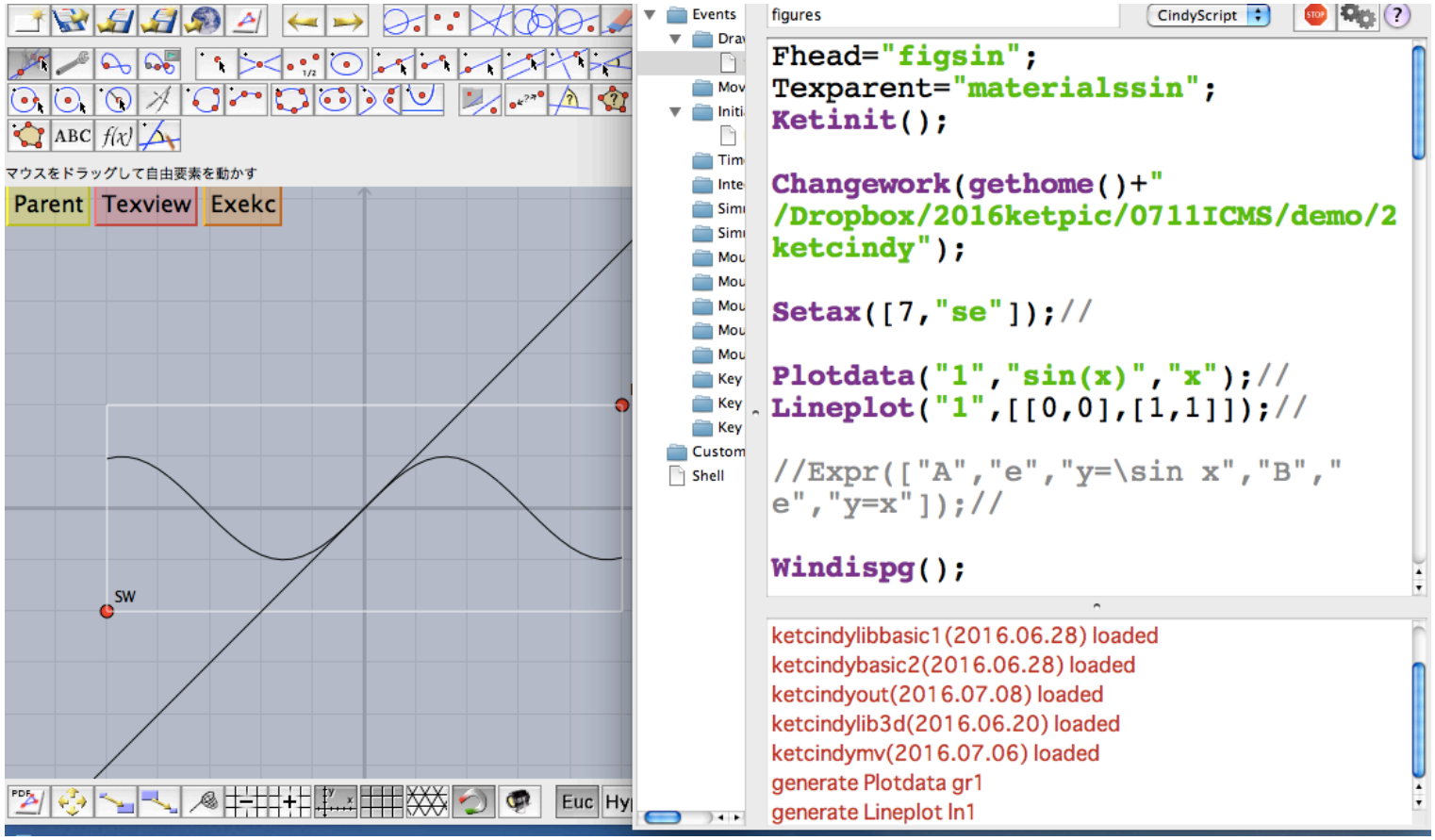
InstallforWin

- asirwin32.msi
- cindyinstall.exe
- FriCAS-1.2.5-i686-cygwin.tar.xz
- kettex.zip
- maxima-clisp-5.37.3.exe
- MeshLab_v133_64bit.exe
- R-3.2.2-win.exe
- scilab-5.5.2_x64.exe
- scilab-5.5.2.exe
- SumatraPDF-3.0-install.exe
- SumatraPDF-3.1.1-64-install.exe
- tpad109.exe

ketcindycontents >ketcindy

- CindyScriptset.txt
- data
- ketbin
- ketjava
- ketlib
- ketmanual
- ketoutset.txt
- ketpicstyle
- ketsample
- ketwork
- LICENSE
- preferencescindy.txt
- setketcindy.txt
- template.cdy
- template3d.cdy
- templatemv.cdy

Screens of Cinderella / KETCindy



First Demo of KeTCindy

Executing Shell(Batch) File

- When pressing Texview button, a scilab source file and kc.sh are generated.
- When pressing Exekc button, kc.sh is executed in Terminal.
- The java program which executes kc.sh/kc.bat plays an important role.

KETCindy can do

s1	Geometric Figure	s8	Calling R
s2	Graph of Function	s9	Surface
s3	Making Table	s10	Calling Maxima
s4	Bézier Curve	s11	Calling Asir
s5	3D Figure	s12	Calling Fricas
s6	Animation	s13	Calling Mesthlab
s7	Slide for Presentation	kepic,ketlayer,ketslide	