Scilab Graphics

Steven F. Bellenot

Department of Mathematics
Florida State University

Math Tech, Valdosta State University, Valdosta, GA,
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The scilab graphics model
Two dimensional plots
Movies and animation
Three dimensional plots
Lessons learned Matlab ⇒ Scilab

- Matlab: **hold on** to prevent clearing [hold off]
- Scilab: **clf** to do clearing [draw now/draw latter]
- Matlab: No paging
- Scilab: **lines(0)** turn off paging.
- Matlab: **pi = 3** changes the value of $\pi$
- Scilab: Allows #, !, $ and ? in variable names
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Scilab Graphics are a moving target

3.0 matlab-like plot
4.1.3 introduced title, xlabel, ylabel
5.1 dump to jpg png pdf
5.1.1 official Mac support (but no tcl)
5.2 latex strings in labels
5.2.1 xs2pdf finally works
Graphics Model

x=1:10;plot(x,x^2,'b-',x,10*x,'r-');
f=gcf(); // Get Current Figure
a = f.children(1); a = gca(); // Get Current Axes
polyline1 = a.children(1).children(1); // blue plot
polyline2 = a.children(1).children(2); // red plot
a=gca(); a.data_bounds=[xmin, xmax, ymin, ymax];
t=0:%pi/20:2*%pi; plot(t,sin(t));
a=gca(); a.tight_limits="on";
Reversing an axis

\[
x=1:10; \text{plot}(x,x);
\]
\[
a=gca(); a.\text{axes_reverse}=\text{["off","on","off"]};
\]
a=gca(); newTicks = a.x_ticks;
newTicks(2)=[0; %pi/2; %pi; 3*%pi/2; 2*%pi];
newTicks(3)=[’0’; ’pi/2’; ’pi’; ’3pi/2’; ’2pi’];
a.x_ticks=newTicks;
Changing Tick Marks II

Starting in Scilab 5.2

newTicks(3)=['$0$'; '$\pi/2$'; '$\pi$'; '$3\pi/2$'; '$2\pi$'];
a.x_ticks=newTicks;
Font Size

Default is 1, there are also font_style and font_color

```plaintext
a=gca(); a.font_size=4;
```
f=gcf(); f.color_map=hotcolormap(32);

autumn, winter, spring, summer, hot, cool, hsv, jet, bone, gray, pink, copper, rainbow, ocean
f=gcf(); f.figure_size=[460,438];
xs2png(0,'output.png');

Also output to pdf, eps, gif, jpg; the pdf was buggy still in version 5.2, but might be ok in 5.2.1
f=gcf(); f.pixmap="on";
for i = 1:n,
    clf;
    plot;
    show_pixmap;
end;
f.pixmap="off";

The clf command clears the figure.
Strangely there is a command clear_pixmap which is useless.
disp('Click at Zoom-in Location');
here = locate(1);  // one click

There is no getframe command, instead you have to save the data as matrix.
Graphics speed and or computation speed could be an issue.
t=0:%pi/20:4*%pi;
param3d(cos(t),sin(t),t/%pi);
e=gce(); e.mark_mode="on"; e.line_mode="off";
a=gca(); a.children(1).mark_mode="on";
a=gca(); a.children(1).line_mode="on";