Create Multi-Column Plot Legends

Posted by **Brett Shoelson**, February 11, 2011

Brett (http://www.mathworks.com/matlabcentral/fileexchange/authors/911)'s Pick this week is "columnlegend," (http://www.mathworks.com/matlabcentral/fileexchange/27389-columnlegend) by Simon Henin (http://www.mathworks.com/matlabcentral/fileexchange/authors/83564).

Today's Pick is another that is an author's first submission to the File Exchange. Simon shared a nice, easy-to-use function to create multi-column figure labels.

MATLAB's built-in legend (http://www.mathworks.com/access/helpdesk/help/releases/R2010b/techdoc/ref/legend.html) command suffices for most cases when there are few objects to differentiate. However, when the number of lines plotted, for instance, gets large, columnlegend shines. It enables one essentially to reshape the default n-by-one legend into a p-by-q one.

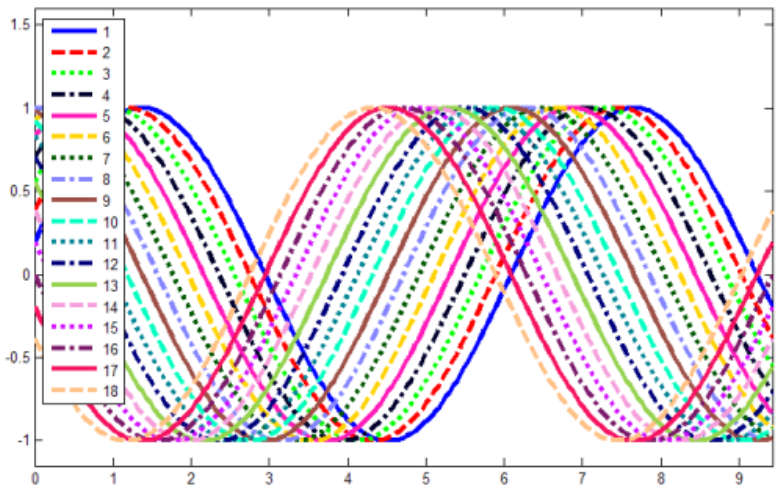
Consider:

```
nLines = 18;
legend_str = cell(nLines,1);

myColors = distinguishable_colors(nLines);
```

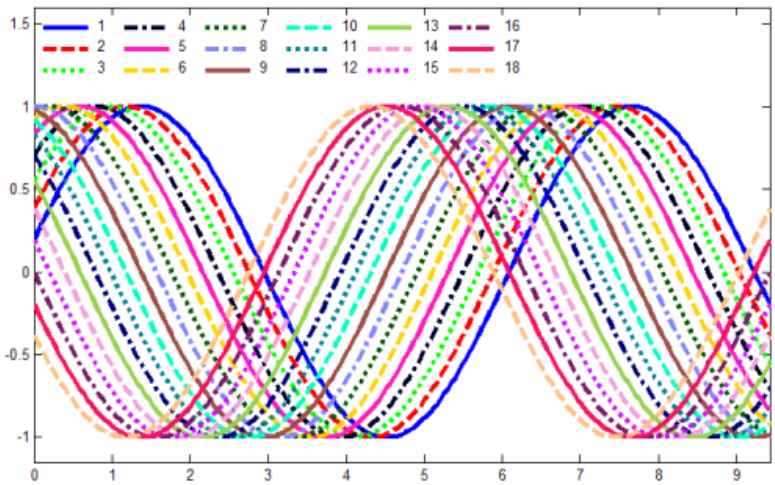
(See my previous post about distinguishable_colors (http://blogs.mathworks.com/pick/2010/12/23/generate-distinct-colors-for-your-matlab-plots/), or comment out the above line, and uncomment the following one.)

```
%myColors = jet(nLines);
t = 0:pi/64:3*pi;
dPhi = pi/16;
lineStyles = {'-', '--', ':', '-.'};
for ii=1:nLines,
    plot(t,sin(t+dPhi*ii),...
        'linestyle', lineStyles{rem(ii-1,numel(lineStyles))+1},...
        'color', myColors(ii,:),...
        'linewidth',3);
    hold on;
    legend_str{ii} = num2str(ii);
end
axis([0 3*pi -1.15 1.6])
legend(legend_str,'location','NorthWest')
```



Now consider how columnlegend improves the situation:

```
for ii=1:nLines,
    plot(t,sin(t+dPhi*ii),...
        'linestyle', lineStyles{rem(ii-1,numel(lineStyles))+1},...
        'color', myColors(ii,:),...
        'linewidth',3);
    hold on;
    legend_str{ii} = num2str(ii);
end
axis([0 3*pi -1.15 1.6])
columnlegend(6,legend_str,'NorthWest');
```



That's better! columnlegend also conveniently provides a handle to the legend-containing axes, allowing you to tweak parameters (like position). Very nice first effort, Simon!

One further note: in a comment (http://www.mathworks.com/matlabcentral/fileexchange/27389-columnlegend#Comments) on his submission page, Simon mentioned that he had fixed an issue with plot markers. As of this writing, that modification is still pending; it should be available shortly.

Let us know what you think (http://blogs.mathworks.com/pick/?p=2645#respond), or leave a comment for Simon here (http://www.mathworks.com/matlabcentral/fileexchange/27389-columnlegend#Comments).

Get the MATLAB code

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