function ColorSet=varycolor(NumberOfPlots)

% VARYCOLOR Produces colors with maximum variation on plots with multiple

% lines.

%

% VARYCOLOR(X) returns a matrix of dimension X by 3. The matrix may be

% used in conjunction with the plot command option 'color' to vary the

% color of lines.

%

% Yellow and White colors were not used because of their poor

% translation to presentations.

%

% Example Usage:

% NumberOfPlots=50;

%

% ColorSet=varycolor(NumberOfPlots);

%

% figure

% hold on;

%

% for m=1:NumberOfPlots

% plot(ones(20,1)\*m,'Color',ColorSet(m,:))

% end

%Created by Daniel Helmick 8/12/2008

error(nargchk(1,1,nargin))%correct number of input arguements??

error(nargoutchk(0, 1, nargout))%correct number of output arguements??

%Take care of the anomolies

if NumberOfPlots<1

ColorSet=[];

elseif NumberOfPlots==1

ColorSet=[0 1 0];

elseif NumberOfPlots==2

ColorSet=[0 1 0; 0 1 1];

elseif NumberOfPlots==3

ColorSet=[0 1 0; 0 1 1; 0 0 1];

elseif NumberOfPlots==4

ColorSet=[0 1 0; 0 1 1; 0 0 1; 1 0 1];

elseif NumberOfPlots==5

ColorSet=[0 1 0; 0 1 1; 0 0 1; 1 0 1; 1 0 0];

elseif NumberOfPlots==6

ColorSet=[0 1 0; 0 1 1; 0 0 1; 1 0 1; 1 0 0; 0 0 0];

else %default and where this function has an actual advantage

%we have 5 segments to distribute the plots

EachSec=floor(NumberOfPlots/5);

%how many extra lines are there?

ExtraPlots=mod(NumberOfPlots,5);

%initialize our vector

ColorSet=zeros(NumberOfPlots,3);

%This is to deal with the extra plots that don't fit nicely into the

%segments

Adjust=zeros(1,5);

for m=1:ExtraPlots

Adjust(m)=1;

end

SecOne =EachSec+Adjust(1);

SecTwo =EachSec+Adjust(2);

SecThree =EachSec+Adjust(3);

SecFour =EachSec+Adjust(4);

SecFive =EachSec;

for m=1:SecOne

ColorSet(m,:)=[0 1 (m-1)/(SecOne-1)];

end

for m=1:SecTwo

ColorSet(m+SecOne,:)=[0 (SecTwo-m)/(SecTwo) 1];

end

for m=1:SecThree

ColorSet(m+SecOne+SecTwo,:)=[(m)/(SecThree) 0 1];

end

for m=1:SecFour

ColorSet(m+SecOne+SecTwo+SecThree,:)=[1 0 (SecFour-m)/(SecFour)];

end

for m=1:SecFive

ColorSet(m+SecOne+SecTwo+SecThree+SecFour,:)=[(SecFive-m)/(SecFive) 0 0];

end

end