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