%FNLocator program locates the False Negatives and outputs the closest two

%cells in the PCP list

%NOTE: False Negative is a true optimal changepoint that does not appear

%in the PCP list.

%inputs:

%TrueOP=the true optimal changepoint vector

%PCPlist= the possible changepoint list vector

%NOTE: a display function is included to further explain what is

%happening, just in case there is confusion

function [summary]=FNLocator(TrueOP,PCPlist)

FN\_list=[];

%Obtains False Negative locations

for i=1:length(TrueOP)

check=0;

for j=1:length(PCPlist)

if TrueOP(i)==PCPlist(j)

check=1;

end

end

if check==0

FN\_list=[FN\_list TrueOP(i)];

end

end

%Nearest neighbor function

low\_neighbor=[];

high\_neighbor=[];

for i=1:length(FN\_list)

low\_neighbor(i)=1;

high\_neighbor(i)=PCPlist(length(PCPlist));

for j=1:length(PCPlist)

if FN\_list(i)>PCPlist(j)

low\_neighbor(i)=PCPlist(j);

k=j+1;

if k>length(PCPlist)

high\_neighbor(i)=PCPlist(j);

else high\_neighbor(i)=PCPlist(k);

end

end

end

end

summary=[FN\_list; low\_neighbor; high\_neighbor];

%Display Function

Title=['False Negative Point '; 'Closest Lower Neighbor '; 'Closest Higher Neighbor'];

Equal=[' ';'=';' '];

Boundary=[' | ';' | ';' | '];

disp([Boundary Title Boundary Equal Boundary num2str(summary) Boundary])