Subject: Re: Ternary diagram
Posted by robinson.inj on Mon, 03 Sep 2007 15:51:19 GMT
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On Sep 3, 6:13 am, Wox <nom...@hotmail.com> wrote:
> On Sat, 01 Sep 2007 18:23:07 -0000, robinson....@gmail.com wrote:
>> Dear all,
>> Does someone can show me (or point me out a link) how to generate
>> ternary diagrams/plots in IDL?
>> I will really appreciate your assistance.
>> Robinson
>
> There is nothing out there that I know of that generates ternary
> diagrams. I tried to make something myself ones. Maybe it'll get you
> started:
>

```
> function NormToTriangle,Anorm,Bnorm,Cnorm,AP,BP,CP
>
> ; equation line : y=(x-x1).(y2-y1)/(x2-x1)+y1 (2 points)
> ;                          y=(x-x1).r+y1 (rico+point)
>
> sqrt3=sqrt(3)
> n=n_elements(Anorm)
>
> PAx=CP[0]-0.5*Anorm
> PAy=CP[1]+(sqrt3*0.5)*Anorm
> ;rC = 0
>
> PBx=AP[0]-0.5*Bnorm
> PBy=AP[1]-(sqrt3*0.5)*Bnorm
> ;rA = -sqrt3
>
> PCx=BP[0]+Cnorm
> PCy=BP[1]*replicate(1,n)
> ;rB = sqrt3
>
> ; find point where these three lines cross
> ; (bad code, just checked two lines)
> Px=(-PAy+sqrt3*PBx+PBy)/sqrt3
> Py=(PBx-Px)*sqrt3+PBy
>
> return,{x:Px,y:Py}
> end;function NormToTriangle
>
;%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%%%%%%%%%%%% %%%%%%%%%%%%%%%%%%%%%%%%%%%%%
>
> pro  TriangleConstr,AP,BP,CP,pfree,R=R,GAP=GAP,ArrowCoord=ArrowCo ord
```

```
>
>  ; AP,BP,CP: corner coordinates
>  ; pfree: procent of window size to leave free on one side of the
>  triangle
>  ; R: vertex length
>  ; GAP: scale the trangle and leave gaps
>  ; ArrowCoord: ArrowCoord
>
>  ;               A
>  ;        / \
>  ;       /   \
>  ;      /     \
>  ;     /       \
>  ;    /         \
>  ;   B___________C
>
>  XS=!d.x_size
>  YS=!d.y_size
>
>  X0=XS/2.
>  Y0=YS/2.
>  XY0=X0<Y0
>  R0=(1-pfree)*XY0
>  R=R0*sqrt(3)
>  Y0=Y0-0.25*R0
>
>  dX=R*0.5
>  dY=R0*0.5
>  AP=[X0,Y0+R0]
>  BP=[X0-dX,Y0-dY]
>  CP=[X0+dX,Y0-dY]
>
>  if keyword_set(GAP) then begin
>         ct=sqrt(3)*0.5
>
>         DR=(1-GAP)*XY0-R0
>         dX=dR*ct
>         dY=dR*0.5
>         dZ=dY*[ct,0.5]
>         dU=dY*[-ct,0.5]
>         dV=[0,-dY]
>
>         ArrowCoord=[[BP+dV],[CP+dV],[CP+dZ],$
>         [AP+dZ],[AP+dU],[BP+dU]]
>  endif
>
>  end;pro TriangleConstr
>
```

```
;%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%%%%%%%%%%% %%%%%%%%%%%%%%%%%%%%%%%%%
>
> pro
>  TernaryDiagram,Ain,Bin,Cin,ATitle=ATitle,BTitle=BTitle,CTitl e=CTitle
>
> ; ----Check primary parameters----
> if not keyword_set(ATitle) then ATitle='A'
> if not keyword_set(BTitle) then BTitle='B'
> if not keyword_set(CTitle) then CTitle='C'
>
> nA=n_elements(Ain)
> nB=n_elements(Bin)
> nC=n_elements(Cin)
>
> if (nA eq 0) or (nB eq 0) or (nC eq 0) or (nA ne nB) or (nA ne nC)
> then $
>       message,'A,B,C dimensions are wrong.'
>
> ; ----Construct diagram----
> pfree=0.02
> gap=-0.1
> gap2=-0.2
> TriangleConstr,AP,BP,CP,pfree,R=R,GAP=gap,ArrowCoord=AC
> TriangleConstr,APl,BPl,CPl,gap,GAP=gap2,ArrowCoord=AC2
>
> plots,[BP[0],CP[0]],[BP[1],CP[1]],/device,thick=2
> plots,[CP[0],AP[0]],[CP[1],AP[1]],/device,thick=2
> plots,[AP[0],BP[0]],[AP[1],BP[1]],/device,thick=2
> xyouts,BPl[0],BPl[1],BTitle,/device
> xyouts,CPl[0],CPl[1],CTitle,/device
> xyouts,APl[0],APl[1],ATitle,/device
> arrow,AC[0,0],AC[1,0],AC[0,1],AC[1,1]
> arrow,AC[0,2],AC[1,2],AC[0,3],AC[1,3]
> arrow,AC[0,4],AC[1,4],AC[0,5],AC[1,5]
>
> xyouts,(AC2[0,4]+AC2[0,5])/2,(AC2[1,4]+AC2[1,5])/2,BTitle+'
> %',/device,ORIENTATION=60
> xyouts,(AC2[0,0]+AC2[0,1])/2,(AC2[1,0]+AC2[1,1])/2,CTitle+'
> %',/device,ORIENTATION=0
> xyouts,(AC2[0,2]+AC2[0,3])/2,(AC2[1,2]+AC2[1,3])/2,ATitle+'
> %',/device,ORIENTATION=-60
>
> ; ----Derive coordinates----
>
> ; sum must be 1, then scale between 0-R
> sum=float(Ain+Bin+Cin)
> Anorm=Ain/sum*R
```

```
> Bnorm=Bin/sum*R
> Cnorm=Cin/sum*R
>
> data=NormToTriangle(Anorm,Bnorm,Cnorm,AP,BP,CP)
> plots,data.x,data.y,psym=2,/device
>
> ; ----Grid----
> n=10
> m=n-1
> ind=(indgen(1,m)+1.)/n
> rind=reverse(ind,2)
> zero=replicate(0.,1,m)
>
> ;CA
> Anorm=[zero,ind]*R
> Bnorm=[ind,zero]*R
> Cnorm=[rind,rind]*R
> data=NormToTriangle(Anorm,Bnorm,Cnorm,AP,BP,CP)
> for i=0,m-1 do $
>       plots,data.x[*,i],data.y[*,i],linestyle=1,/device
>
> ;AB
> Anorm=[ind,ind]*R
> Bnorm=[zero,rind]*R
> Cnorm=[rind,zero]*R
> data=NormToTriangle(Anorm,Bnorm,Cnorm,AP,BP,CP)
> for i=0,m-1 do $
>       plots,data.x[*,i],data.y[*,i],linestyle=1,/device
>
> ;BC
> Anorm=[rind,zero]*R
> Bnorm=[ind,ind]*R
> Cnorm=[zero,rind]*R
> data=NormToTriangle(Anorm,Bnorm,Cnorm,AP,BP,CP)
> for i=0,m-1 do $
>       plots,data.x[*,i],data.y[*,i],linestyle=1,/device
>
> end;pro TernaryDiagram
>
;%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%%%%%%%%%%%%% %%%%%%%%%%%%%%%%%%%%%%%%%%%%%
>
> pro example
>
> window
> A=[20,50,25,20]
> B=[30,0,25,70]
> C=[50,50,50,10]
```

>
> TernaryDiagram,A,B,C
>
> end;pro example

Dear Wox, I knew that wouldnt be easy. As you showed :-O Thank you very much.
Robinson
