Subject: Re: Polygon filling oddities
Posted by Craig Markwardt on Thu, 04 Oct 2001 01:18:42 GMT
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Hi Mark--

I can verify that your program works as you describe for the following cases:

option = 1: IDL 5.0, 5.1, 5.2, 5,3
option = 3: 5.2, 5.3 (ROI object didn't exist in 5.1)

I can see your gripe, and the polygons should probably be clipped

convince RSI that this is so :-)

Craig

"Mark Hadfield" <m.hadfield@niwa.cri.nz> writes:

> Hello all
>
> I have been experimenting with different methods of generating images
> representing filled polygons. (My motivation comes from attempts at drawing
> filled coastlines on various devices.) I have found some oddities when using
> the POLYFILLV routine and the IDLanROI object. Before I take this issue to
> RSI tech support I thought I'd show it to the group and ask whether what I
> am doing makes sense.
>
> The procedure below (and attached) illustrates the problem. It displays a
> 500 x 500 image with a centred circle of radius 300 using several methods,
> controlled by the option argument:
>
> 0 Call POLYFILL directly to window
> 1 Use POLYFILLV to create an image then display image
> 2 Use POLYFILL to create the image in a Z buffer then display image
> 3 Create an IDLanROI object and use its ComputeMask method to create an
> image, then display image.
>
> These all seem to work and to give identical results, except perhaps for
> some minor differences around the edge of the polygon.
>
> The routine also accepts a SHIFT keyword that lets the caller shift the
> circle around on the image plane. With options 0 and 2 this works exactly as
> expected: as SHIFT is increased the circle moves to the edge of the window
> and eventually disappears. But with options 1 and 3 the results are
> unexpected: as SHIFT is made more negative the circle vanishes abruptly when

> it passes a threshold.
>
> For example "mgh_test_polyfill, 1, -143" (using POLYFILLV) produces a circle
> with its edge not quite touching the lower left corner of the image and
> "mgh_test_polyfill, 1, -144" produces a blank image. Similarly
> "mgh_test_polyfill, 3, -101" (using IDLanROI::ComputeMask) produces a circle
> with its edges touching the bottom and left sides of the image and
> "mgh_test_polyfill, 3, -101" produces a blank image.
>
> I guess POLYFILLV and IDLanROI are intended for dealing with regions of
> interest on images and it is anticipated that the vertices of the ROI will
> be in the positive quarter-plane. But I don't see any reason why they
> shouldn't be able to work with negative vertex coordinates.
>
> So is what I've found a bug or a feature? Can others reproduce my results?
> (I've been using IDL 5.4.)
>
> ---
> Mark Hadfield
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>
> ------ mgh_test_polyfill -----------
>
> ; Testing various methods of polygon filling
>
> pro mgh_test_polyfill, option, SHIFT=shift
>
>  compile_opt IDL2
>
>  if n_elements(option) eq 0 then option = 0
>
>  if n_elements(shift) eq 0 then shift = 0
>  if n_elements(shift) eq 1 then shift = [shift,shift]
>
>  ; Create a window dimensioned [500,500]
>
>  window, XSIZE=500, YSIZE=500
>
>  ; Set up coordinates defining a circle, radius 150, centred at 250
>
>  n_vert = 50
>
>  angle = 2.*!pi*findgen(n_vert+1)/float(n_vert)
>
>  x = 250 + 150*sin(angle)
>  y = 250 + 150*cos(angle)
>

```
>     ; Shift the circle
>
>     x = x + shift[0]
>     y = y + shift[1]
>
>     ; Generate & display and image using different methods depending on
>  option argument
>
>     case option of
>
>        0: polyfill, x, y, /DEVICE
>
>        1: begin
>           image = replicate(0B, 500, 500)
>           p = polyfillv(x, y, 500, 500)
>           if min(p) gt 0 then image[p] = 255B
>           tv, image
>        end
>
>        2: begin
>           dname = !d.name
>           set_plot, 'Z'
>           device, SET_RESOLUTION=[500,500]
>           erase
>           polyfill, x, y, /DEVICE
>           image = tvrd()
>           set_plot, dname
>           tv, image
>        end
>
>        3: begin
>           roi = obj_new('IDLanROI', x, y)
>           image = roi->ComputeMask(DIMENSIONS=[500,500])
>           obj_destroy, roi
>           tv, image
>        end
>
>     endcase
>
>  end
>
>
>  --
>  Posted from clam.niwa.cri.nz [202.36.29.1]
>  via Mailgate.ORG Server - http://www.Mailgate.ORG

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