Subject: Re: point inside polygon
Posted by B}rd Krane on Wed, 01 Apr 1998 08:00:00 GMT
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Alex Schuster wrote:
>
> William Connolley wrote:
>
>> In article C0684CDB@oma.be, Philippe Peeters <philp@oma.be> writes:
>>> Does anybody knows of an IDL function to test whether a given point is
>>> inside a polygon?
>>
>> I needed to solve this recently (in a mapping context). The solution I came up
>> with works but its not elegant: use poly_fill to actually draw your polygon
>> (in a pixmap not the screen window if you prefer), then read off the pixel value
>> of your point to see if its in or out.
>>
>> This is grotesquely inelegant, but its very simple and it works. I can
>> post the code if you're interested. A better solution
>> would be to look at polyfill and see how it does the fill... but sadly
>> polyfill seems to be one of the few routines not written in IDL.
>

This function determines if a point is inside a polygon or not. If you
have
several points I believe you are better off with the polyfillv approach.
Baard

```
FUNCTION inside, x, y, px, py

   sx = size(px)
   sy = size(py)
   IF (sx[0] EQ 1) THEN NX=sx[1] ELSE return,-1    ; error if px not a
vector
   IF (sy[0] EQ 1) THEN NY=sy[1] ELSE return,-1    ; error if py not a
vector
   IF (NX EQ NY) THEN N = NX ELSE return,-1       ; Incompatible
dimensions

   tmp_px =  [px, px[0]]                    ; Close Polygon in x
   tmp_py =  [py, py[0]]                    ; Close Polygon in y

   i  = indgen(N)                          ; indices 0...N-1
   ip = indgen(N) + 1                       ; indices 1...N

   X1 = tmp_px(i)  - x &   Y1 = tmp_py(i)  - y
   X2 = tmp_px(ip) - x &   Y2 = tmp_py(ip) - y
```

```
    dp = X1*X2 + Y1*Y2                    ; Dot-product
    cp = X1*Y2 - Y1*X2                    ; Cross-product
    theta = atan(cp,dp)

    IF (abs(total(theta)) GT 1.0E-8) THEN return,1 ELSE return,0
END
```