Subject: Re: A distracting puzzle
Posted by Stein Vidar Hagfors H[1] on Tue, 25 Sep 2001 16:11:10 GMT
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If what's being sought here is only to distinguish which pixels have *some* area inside the polygon and which do not, wouldn't it be sufficient to check the corners? I.e., in a continuum of pixel coordinates, given corners with coordinates [0,0], [1,0], [1,1], [0,1], it can be checked whether each of those are inside versus outside any defined polygon. If one or more of the corners is inside, then some area is also inside..

I have included some simple-minded routines I wrote some years ago to check whether a point is inside or outside a polygon...

Stein Vidar

```
;; $Id: vectorangle.pro,v 1.1 1999/06/02 16:24:14 steinhh Exp $
;;The angle between vector A & B
;; The angle that vector A needs to be rotated (counterclockwise) in order
;; to be parallell to B

FUNCTION vectorangle,x1,y1,x2,y2,zerovalue=zerovalue

  default,zerovalue,0.0

  dp = x1*x2 + y1*y2
  cp = x1*y2 - x2*y1

  ix = where(dp EQ 0 AND cp EQ 0)
  IF ix(0) EQ -1L THEN return,atan(cp,dp)*!radeg

  dp(ix) = 1.0
  res = atan(cp,dp)*!radeg
  res(ix) = zerovalue
  return,res

END
```

```
;; $Id: insidepolygon.pro,v 1.2 1999/06/02 16:25:59 steinhh Exp $
;; Return true if the given point is inside the
;;

;; Poly == [2,N]
```

```
FUNCTION insidepolygon,ip,x,y,$
                edge_is_inside=edge_is_inside

  IF size(ip,/type) NE 4 AND size(ip,/type) NE 5 THEN p = float(ip) $
  ELSE BEGIN
    copyback = 1
    p = temporary(ip)
  END

  np = (size(p))(2)

  x1 = p(0,*)-x
  y1 = p(1,*)-y
  x2 = shift(p(0,*),0,-1)-x
  y2 = shift(p(1,*),0,-1)-y

  zeroval = 1e5
  theta = vectorangle(x1,y1,x2,y2,zerovalue=zeroval)

  ix = where(theta EQ zeroval  $
          OR abs(theta-180.0d) LT 1e-4 $
          OR abs(theta+180.0d) LT 1e-4,count)
  IF count GT 0 THEN BEGIN
    result = keyword_set(edge_is_inside)
    GOTO,finished
  END

  ;; Test for those....

  result = abs(total(theta)) GT 180.0

finished:

  IF copyback THEN ip = temporary(p)

  return,result
END
```