Subject: Does TRIANGULATE return vertices in counter-clockwise order?
Posted by Andrea Spinelli on Wed, 07 Jan 1998 08:00:00 GMT
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Hi everybody!

I am using IDL's TRIANGULATE to generate triangulations (what else?) for
surfaces having an 'upper' and a 'lower' side. I would
be happy to be sure that the triangle vertices are listed in
counter-clockwise order, which may be expressed like that:

```
triangulate, x, y, tri
for i=0,(size(tri))[2] do begin
 ia = tri[0,i]
 ib = tri[1,i]
 ic = tri[2,i]
 a = [x[va],y[va]]
 b = [x[vb],y[vb]]
 c = [x[vc],y[vc]]

     nz = (b-a)[0]*(c-a)[1] - (b-a)[1]*(c-a)[0]

 if nz LT 0 then message, 'failure!'
 ; nz is the z component of the normal to the triangle
 ; the question is:
 ; is (nz GE 0) _ALWAYS_ true ????
endfor
```

I tried with 5000 uniform random points, and had no failure, but who
knows better??
Even if the current IDL implementation supports CCW ordering, maybe the
next will not.
Of course, I can triangulate and then rearrange the vertices (which is
what I currently do), but it is inefficient and inelegant.

The documentation does not state anything useful (do not be fooled by
the optional param
B! B's vertices are guaranteed to be in CCW order, but not Triangles'
vertices).

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