Subject: Re: mesh_volume and tetra_volume
Posted by robertschaefer on Tue, 10 Aug 2004 08:02:33 GMT

"Karl Schultz" <kschultz_no_spam@rsinc.com> wrote in message
news:<10hf9gscqmtdj41@corp.supernews.com>...
> "Robert Schaefer" <robertschaefer@gmx.de> wrote in message
> news:bffaee64.0408090124.5906ed23@posting.google.com...
>> Hello, I want to get the volume out of a 3d object.
>> First i tried with mesh_volume, but the returned values weren't
>> similar to my calculated. I checked with mesh_issolid: return value:1,
>> so it ios solid and should return the volume.
>> When i check with tetra_volume the volume is similar to my calculated
>> volume.
>>
>> Now my question: what is the difference between mesh_volume and
>> tetra_volume?
>
> MESH_VOLUME works by summing:
>
> (a dot (b cross c)) / 6
> for every triangle in the mesh where a, b, and c are the verts of each
> triangle in the mesh. This effectively calculates the signed volume of a
> tetrahedron formed by the origin and the 3 triangle verts for each triangle
> and then adds them up.
>
> TETRA_VOLUME just adds up the volume of all the tets in the mesh using the
> same idea as above.
>
> How big a difference are you seeing? Is there anything strange about your
> mesh, like being self-intersecting? How did you generate both the polygonal
> mesh and the tetrahedral mesh?
>
> Karl

My testobjekt is generated by dilatation of one point. I can not see
any strange about the mesh.
With computemesh i generate the triangles, like D.fanning in his
example (http://www.dfanning.com/graphics_tips/mesh.html). I signed
the calculated values between tetra_volume and mesh_volume are very
differnt:

accord sphere formula : 4./3.*!pi*16.^3 = 17157.3
total (vol) : 17611.0
volume with tetra_volume: 16308.0
mesh_volume : 11988.0

Any idea?

Robert