
Subject: Re: mesh_volume and tetra_volume

Posted by [Karl Schultz](#) on Mon, 09 Aug 2004 16:28:56 GMT

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"Robert Schaefer" <robertschaefer@gmx.de> wrote in message
news:bffae64.0408090124.5906ed23@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 is 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:

$(a \cdot (b \times c)) / 6$

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
