
Subject: questionable display of an IDLgrPolygon Object with some transparency
Posted by [Karsten Rodenacker](#) on Tue, 21 Dec 2004 08:55:00 GMT

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I have a bit surprising display of an IDLgrPolygon object with some transparency using xobjview, which shows under certain directions some rippling (Windows XP SP 2, IDL 6.1.1). A reduced screenshot is stored under http://ibb.gsf.de/homepage/karsten.rodenacker/Misc_WWW/Example.jpg.

The same object I have saved into a VRML File. It does not show this behaviour using the Cortona viewer, although transparency does not come out. It can be found under http://ibb.gsf.de/homepage/karsten.rodenacker/Misc_WWW/Example.wrl. Be patient, it is about 10 MB long!

If there is some experience in the group any hints are appreciated to avoid this rippling.

--

Karsten Rodenacker

----- :-)

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Subject: Re: questionable display of an IDLgrPolygon Object with some transparency

Posted by [Karsten Rodenacker](#) on Tue, 21 Dec 2004 15:30:09 GMT

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On Tue, 21 Dec 2004 08:23:12 -0700, David Fanning <davidf@dfanning.com> wrote:

> Karsten Rodenacker writes:

>

>> I had Hardware rendering, and tried Software but without difference in

>> the

>> displayed result. In

>> http://ibb.gsf.de/homepage/karsten.rodenacker/Misc_WWW/Example1.jpg

>> there

>> is a nice Jalousie effect. Unluckily my objects behind the Jalousie are

>> not so extraordinary...

>

> Humm, well then, following my reading of Sherlock Holmes,

> I would have to conclude this is how it is *suppose* to look!

>
> Cheers,
>
> David
>
> P.S. I think what you are looking at is the "quantum foam"
> I've been reading about in Brian Greene's latest books. If
> you are still shopping for your physics friends, I highly
> recommend both The Elegant Universe and The Fabric of the
> Cosmos. They both confirm my suspicion that the world is
> a mystery. :-)
>

If I translate "quantum foam" into "liberal minded calculational base" (a quite rare thing nowadays) we might speak about the same phenomenon. Thank you for the book recommendation.

--

Karsten Rodenacker

----- :-)
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Subject: Re: questionable display of an IDLgrPolygon Object with some transparency

Posted by [Rick Towler](#) on Tue, 21 Dec 2004 17:11:57 GMT

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Karsten Rodenacker wrote:

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> transparency using xobjview, which shows under certain directions some
> rippling (Windows XP SP 2, IDL 6.1.1). A reduced screenshot is stored
> under http://ibb.gsf.de/homepage/karsten.rodenacker/Misc_WWW/Example.jpg.
>
> If there is some experience in the group any hints are appreciated to
> avoid this rippling.

This looks like the nefarious polygon z-order rendering issue that has been discussed many times before. Google the group for "pimento problems". Robert Schaefer had a similar problem recently so you may want to search for that thread too.

The rippling occurs during rotation as polygon drawing order and their position relative to others in Z get out of whack. IDL uses a simple painters algorithm to render to the screen. For each polygon thrown at it, it looks at the z-buffer to see what is already there and if this poly is semi-transparent, takes that value and uses it to calculate the new z value at that pixel. This works wonderfully if you always draw your polys from back to front. But if you don't, the near polygon is drawn with nothing but space behind it and the far polygon is never drawn since it fails the z-test.

In your case, the banding is caused when some of the triangles are in the correct order and some are not. The areas that are lighter show the far side of the object as well as the near while the darker bands do not show the far side since the near side triangles are rendered before the far side.

There are no easy fixes for your complex object. Karl Shultz played around with some BSP code which re-orders triangles properly in Z for every transformation. I played around with it a bit but found it wasn't robust enough to handle my data. It would be worth a shot though. Check the RSI user contrib site for IDLbspPolygon or something like that.

Also, and I can't stress this enough. Put in a feature request for a new renderer that doesn't have these limitations. Your case is a prime example why this needs to be addressed. The competition doesn't suffer from this limitation...

-Rick

P.S. My news server has been acting up. If this isn't posted to the group, can you forward it on?

Subject: Re: questionable display of an IDLgrPolygon Object with some transparency

Posted by [Karsten Rodenacker](#) on Wed, 22 Dec 2004 08:14:38 GMT

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Rick, thank you for your contribution.

What I don't derive from your explanation is the 'regularity' of the rippling.

In fact I generate the polygons using isosurface. The rippling occurs only in in Z-Direction (so to say I have an x,y,z array (cube) and have rotated it near total projection either to y-z (green-blue axis) or x-z (red-blue axis), in

[http://ibb.gsf.de/homepage/karsten.rodenacker/Misc_WWW/Examp le12.jpg](http://ibb.gsf.de/homepage/karsten.rodenacker/Misc_WWW/Examp%20le12.jpg) the

effect is even doubled). Hence the sequence of faces does play a role, as you state (it comes directly from the way isosurface is calculating them).

However I suspect additionally a truncation or rounding error in the renderer visible only under very small angle differences between the original coordinate system and the viewing coordinate system. And it appears only either for positive or negative differences. Unluckily I don't know how to describe the problem in acceptable and comprehensible terms for the graphics experts.

I will follow your tips since I can easily reproduce the effect.

Best wishes for the coming season
Karsten

On Tue, 21 Dec 2004 09:11:57 -0800, Rick Towler
<rick.towler@nunya.noaa.gov> wrote:

```
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Karsten Rodenacker

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