OpenGL View Transform

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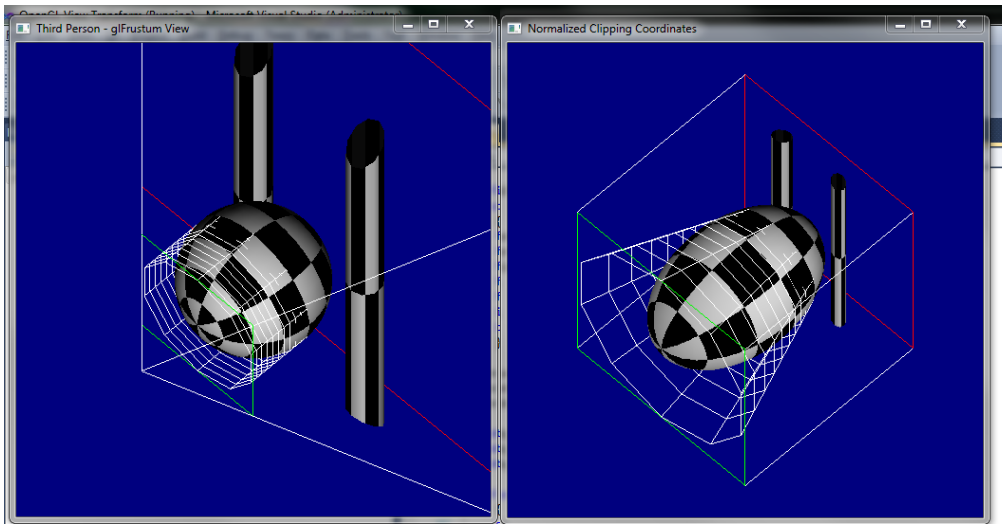
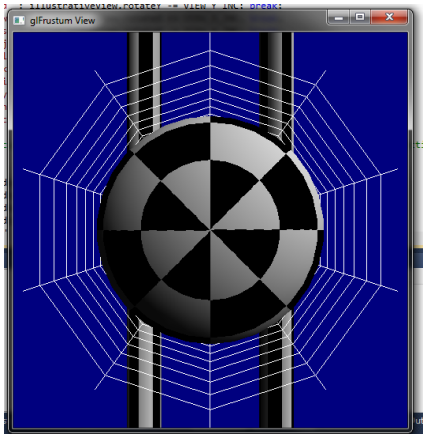
Visual demonstration of the 3D transform that maps a perspective view frustum to the canonical normalized clipping cube. The transform maps 3D to 3D but is a non-affine, projective transform.

In (A) and (B) below the Green Square is the near clipping plane and the red is the far clipping plane.



Third Person View of Perspective View Frustum (A)

Third Person View of Normalized Clipping Cube (B)



Perspective Projection of View Frustum (A)
OR
Parallel Projection of Normalized Clipping Cube (B)
both yield the above image!

Keys Input:

Synchronously adjust third person camera in Window A and B

- a – rotate third person camera around y axis
- d – rotate third person camera around y axis (opposite direction)
- w – rotate third person camera around x axis
- s – rotate third person camera around x axis (opposite direction)

Adjust perspective frustum (Window A)

- j – rotate perspective frustum around y axis
- l – rotate perspective frustum around y axis (opposite direction)
- w – rotate perspective frustum around x axis
- s – rotate perspective frustum around x axis (opposite direction)

- y – translate perspective frustum forward in z
- h – translate perspective frustum backward in z

- c – toggle clipping of scene to perspective frustum [Window A]

Watch how the 3D space is distorted in amusing ways in Normalized Clipping Coordinates.