To move a point by (a_x, a_y, a_z, a_w),

$$\begin{pmatrix} 1 & 0 & 0 & 0 & a_x \\ 0 & 1 & 0 & 0 & a_y \\ 0 & 0 & 1 & 0 & a_z \\ 0 & 0 & 0 & 1 & a_w \\ 0 & 0 & 0 & 0 & 1 \end{pmatrix} \tag{1}$$

To scale an object by (c_x, c_y, c_z, c_w),

$$\begin{pmatrix} c_x & 0 & 0 & 0 & 0 \\ 0 & c_y & 0 & 0 & 0 \\ 0 & 0 & c_z & 0 & 0 \\ 0 & 0 & 0 & c_w & 0 \\ 0 & 0 & 0 & 0 & 1 \end{pmatrix} \tag{2}$$

Assume camera position is (c_x, c_y, c_z, c_w) and the normalized viewing vector is (v_x, v_y, v_z, v_w) and up vectors are $(u_{1x}, u_{1y}, u_{1z}, u_{1w})$, $(u_{2x}, u_{2y}, u_{2z}, u_{2w})$, and assuming each are orthogonal, then the view matrix is

$$\begin{pmatrix} l_x & l_y & l_z & l_w & 0 \\ u_{1x} & u_{2y} & u_{2z} & u_{2w} & 0 \\ u_{2x} & u_{2y} & u_{2z} & u_{2w} & 0 \\ v_x & v_y & v_z & v_w & 0 \\ 0 & 0 & 0 & 0 & 1 \end{pmatrix} \begin{pmatrix} 1 & 0 & 0 & 0 & -c_x \\ 0 & 1 & 0 & 0 & -c_y \\ 0 & 0 & 1 & 0 & -c_z \\ 0 & 0 & 0 & 1 & -c_w \\ 0 & 0 & 0 & 0 & 1 \end{pmatrix} \tag{3}$$

where $(l_x, l_y, l_z, l_w) = \mathrm{cross}(v, u_1, u_2)$.

The orthogonal projection is

$$\begin{pmatrix} 1 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 \end{pmatrix} \tag{4}$$

In other words, $(x, y, z) = \frac{f}{d}(v_x, v_y, v_z)$

Assume the front clipping plane is $w = d$ and for a vertex coordinate after applying ModelView matrix (v_x, v_y, v_z, v_w), let $f = v_w$, then The perspective projection is

$$\begin{pmatrix} \frac{f}{d} & 0 & 0 & 0 & 0 \\ 0 & \frac{f}{d} & 0 & 0 & 0 \\ 0 & 0 & \frac{f}{d} & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 \end{pmatrix} \tag{5}$$

In other words, $(x, y, z) = \frac{f}{d}(v_x, v_y, v_z)$

To do stereographic projection, we first need to push each vertex to the 4d sphere, S^3, so for each vertex v, let $v' = \frac{v}{\|v\|}$.(Assume that $\|v\| \neq 0$.) then

$$(x, y, z) = \left(\frac{x'}{\frac{1}{2} - w'}, \frac{y'}{\frac{1}{2} - w'}, \frac{z'}{\frac{1}{2} - w'}, \right). \tag{6}$$

Note that for our hypercube, it has center as $c = (1/2, 1/2, /1, 2/1, 2)$, so to do correct stereographic projection, we should consider $v' = \frac{v-c}{\|v-c\|}$ and take stereographic projection, and translate it by c in 3D. (in fact, 4D homogeneous coordinate.)