

<http://tiny.cc/ift3355>

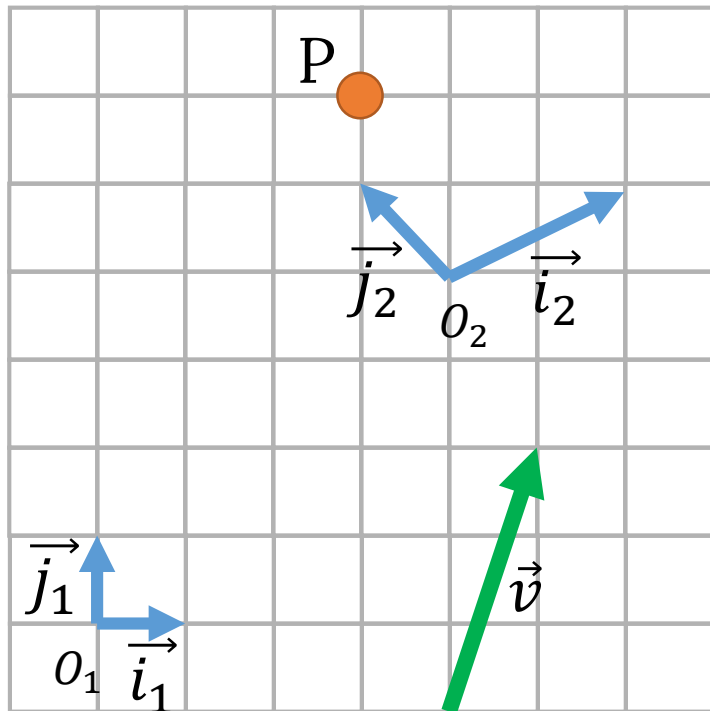
IFT 3355: INFOGRAPHIE LA CAMÉRA

Livre de référence: G:5.1, 5.2; S: 7

Mikhail Bessmeltsev



UN EXEMPLE DE PLUS

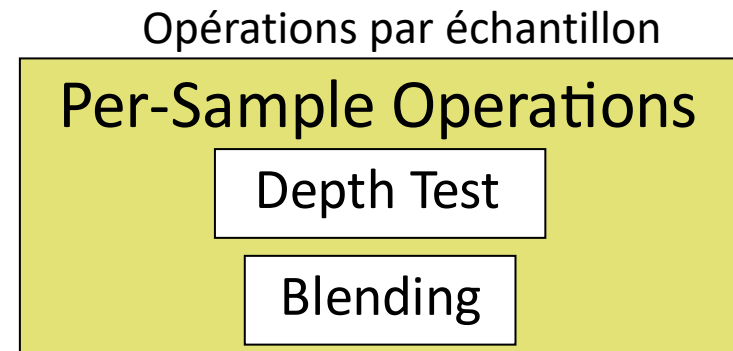
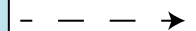
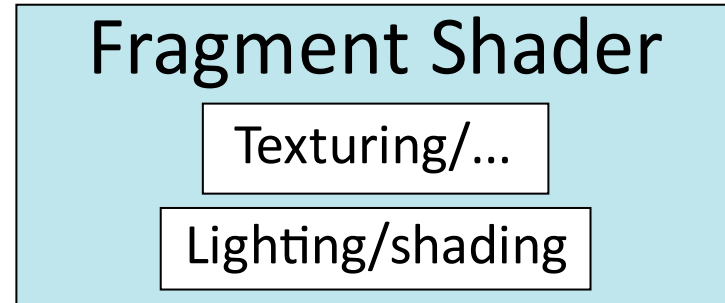
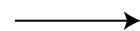
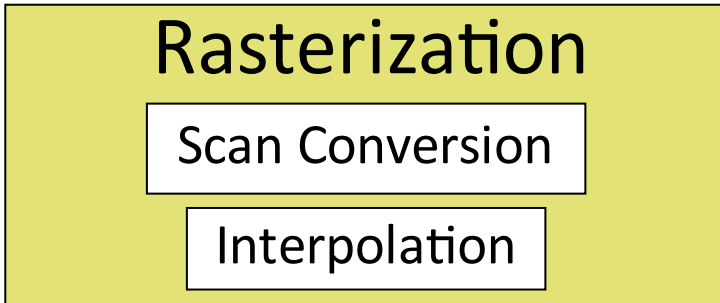
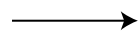
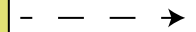
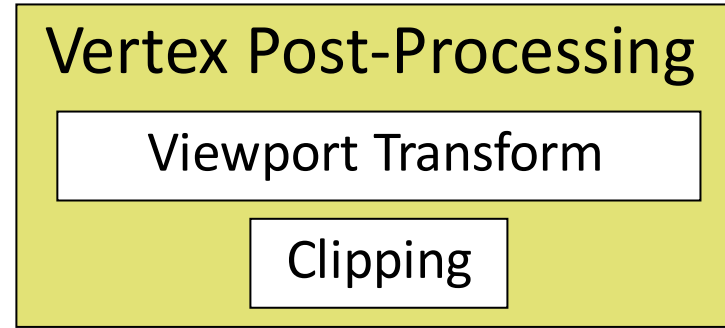
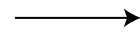
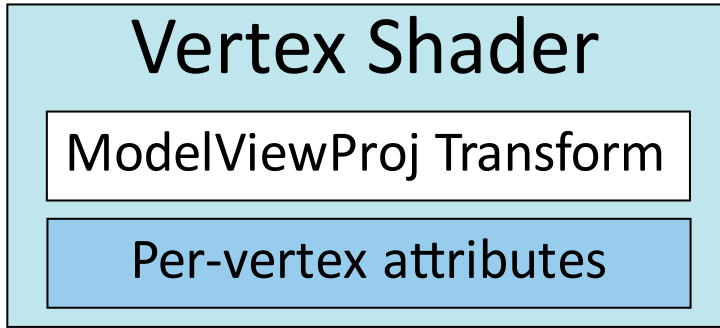
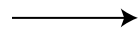


- Trouvez les coordonnées de P et v dans les deux systèmes
- Trouvez la matrice de transformation $1 \rightarrow 2$ et en arrière

(le tableau blanc)

20 MINUTES PLUS TARD...

Sommets
et attributs



Framebuffer

Vertex Shader

ModelViewProj Transform

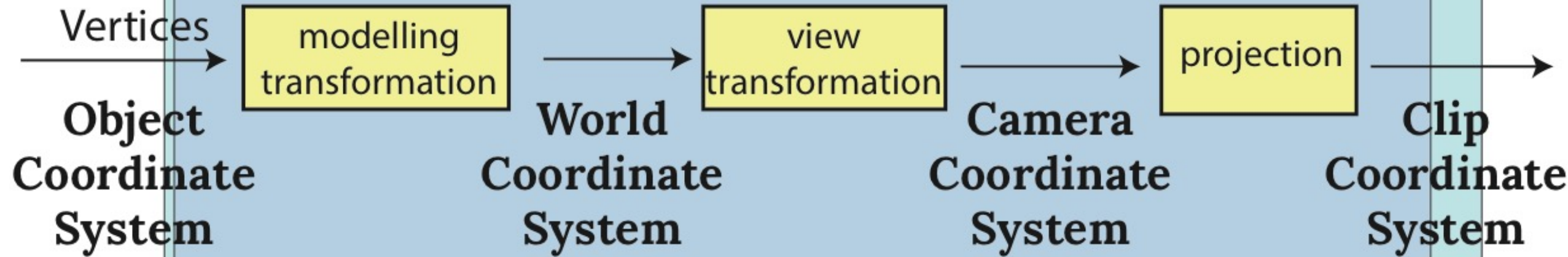
Per-vertex attributes

Sommets
et attributs

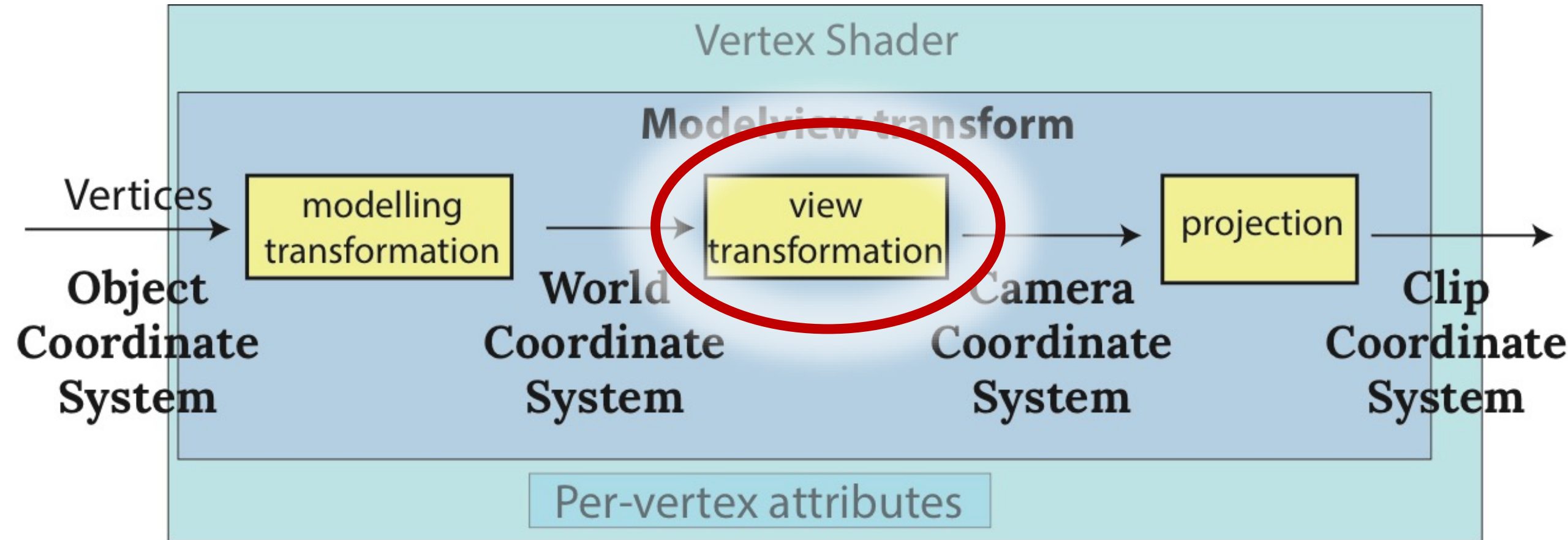


Vertex Shader

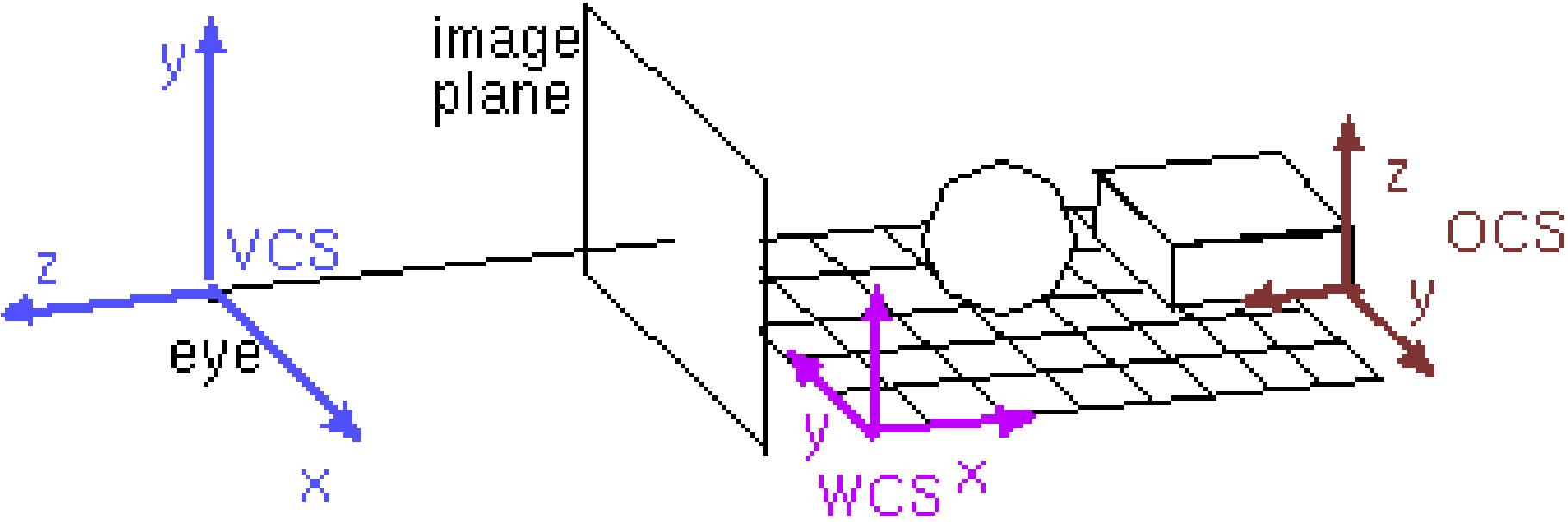
Modelview transform



VERTEX SHADER: REGARDER DE PLUS PRÈS

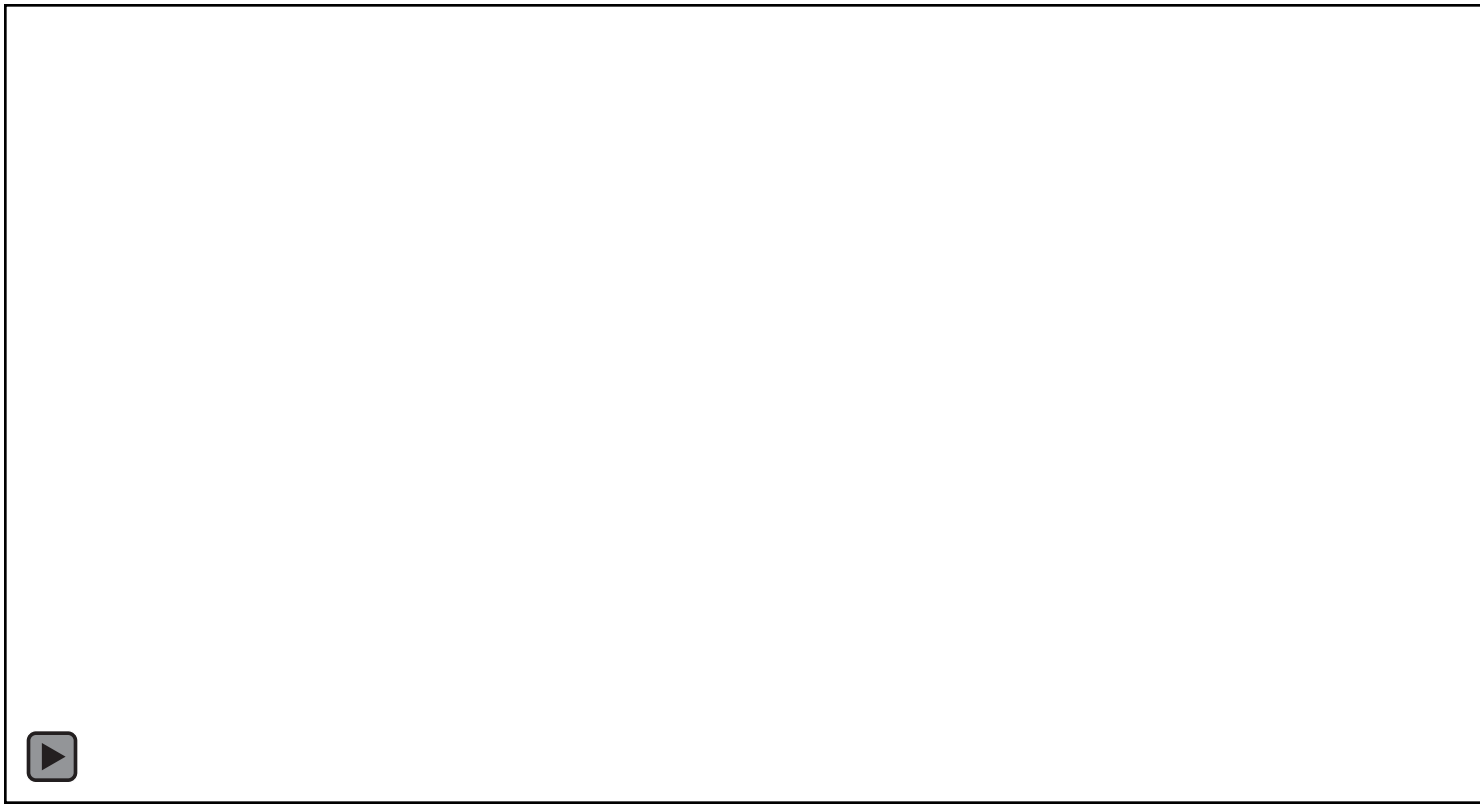


POSITIONNEMENT DE LA CAMÉRA



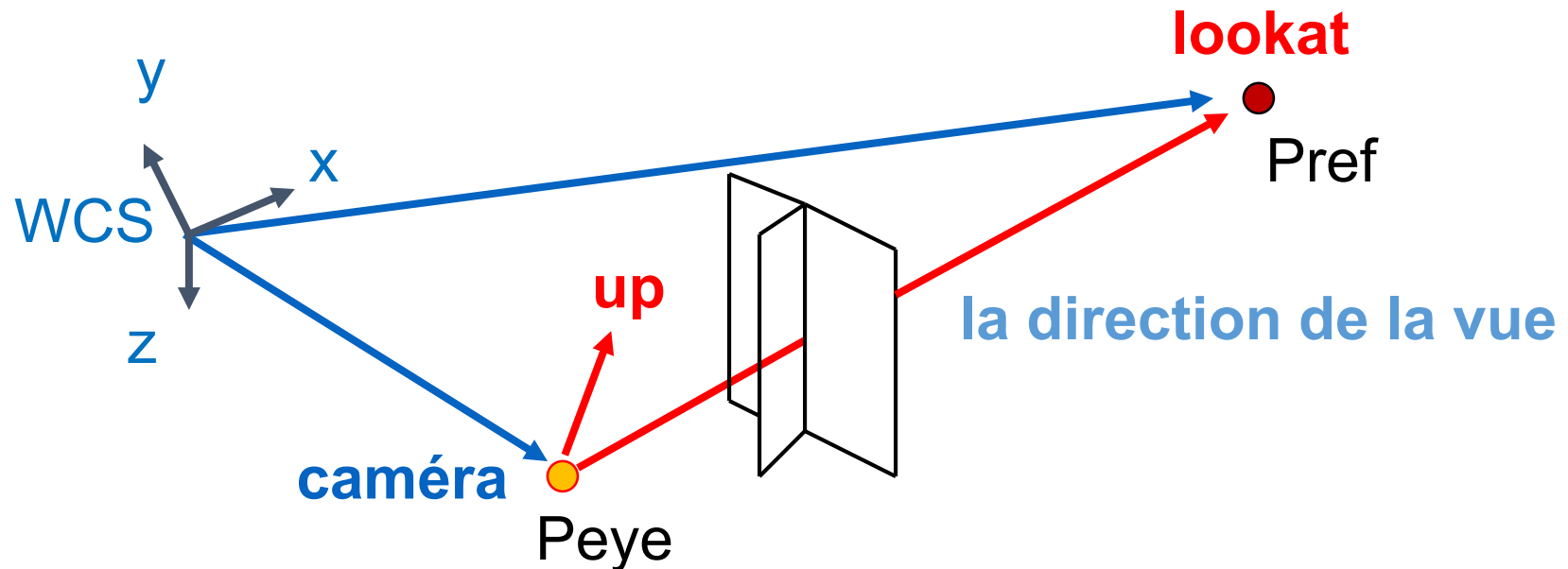
DÉFINITION DE LA CAMÉRA

- Point de l'œil (*où est la caméra?*)
- Point de référence (*quel point regarde-t-elle?*)
- Le vecteur vers le haut (*up vector*)



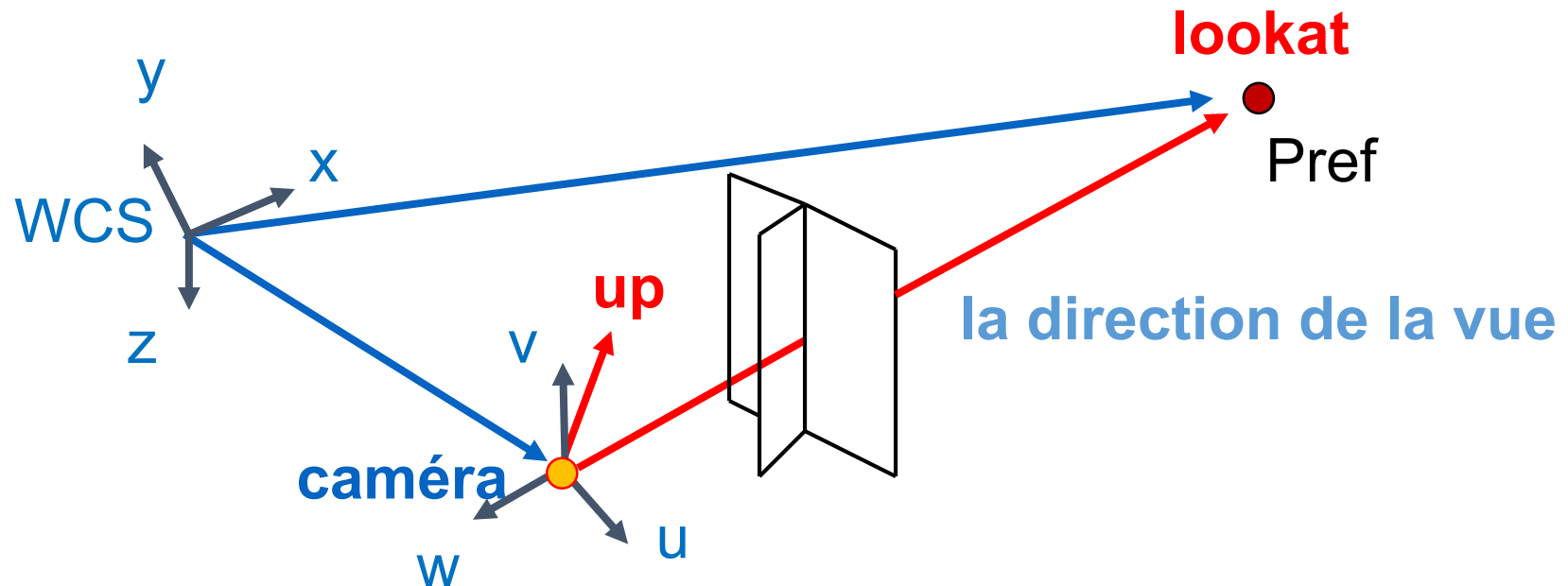
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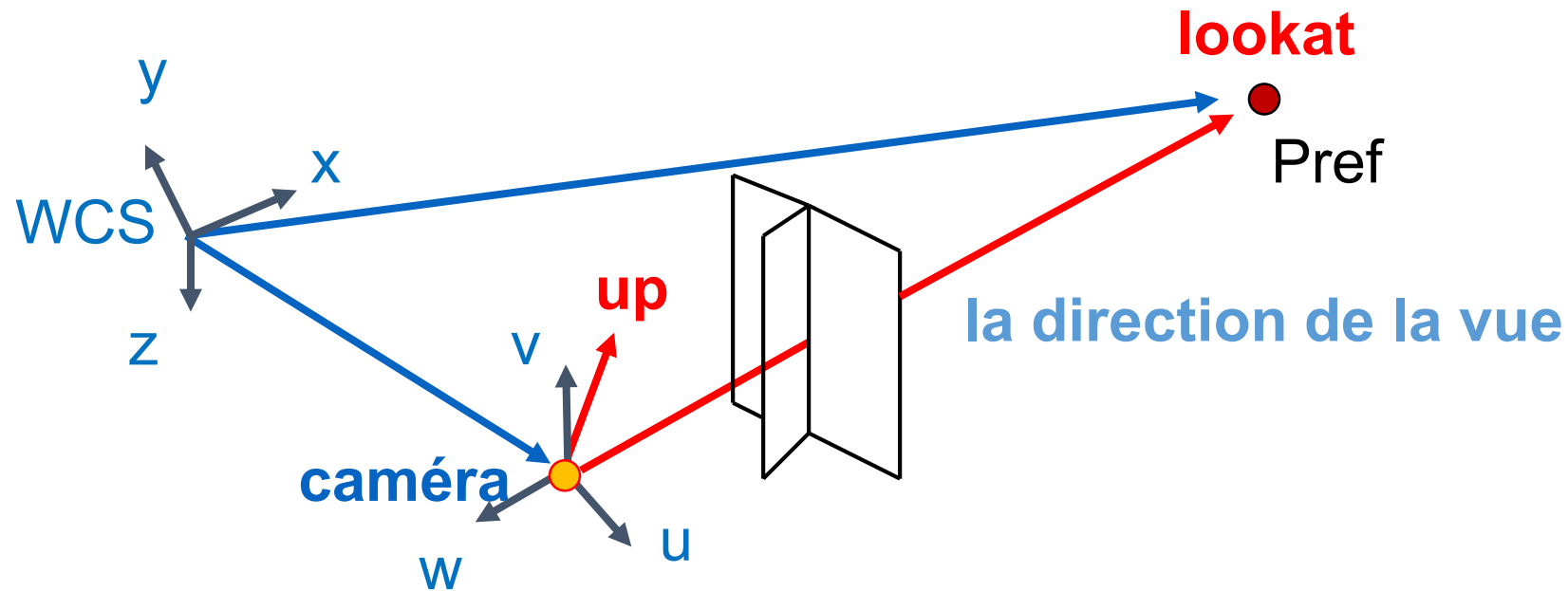


LE SYSTÈME DE COORDONNÉES DE CAMÉRA

- $w = \frac{p_{eye} - p_{pref}}{\|p_{eye} - p_{pref}\|}$

- $u = \frac{v_{up} \times w}{\|v_{up} \times w\|}$

- $v = w \times u$



LA MATRICE DE LA CAMÉRA

$$M_{cam} = \left[\begin{array}{c} \\ \\ \\ \end{array} \right]$$

LA MATRICE DE LA CAMÉRA

$$M_{cam} = \begin{bmatrix} u_x & v_x & w_x & P_x^{eye} \\ u_y & v_y & w_y & P_y^{eye} \\ u_z & v_z & w_z & P_z^{eye} \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

LA MATRICE DE LA CAMÉRA

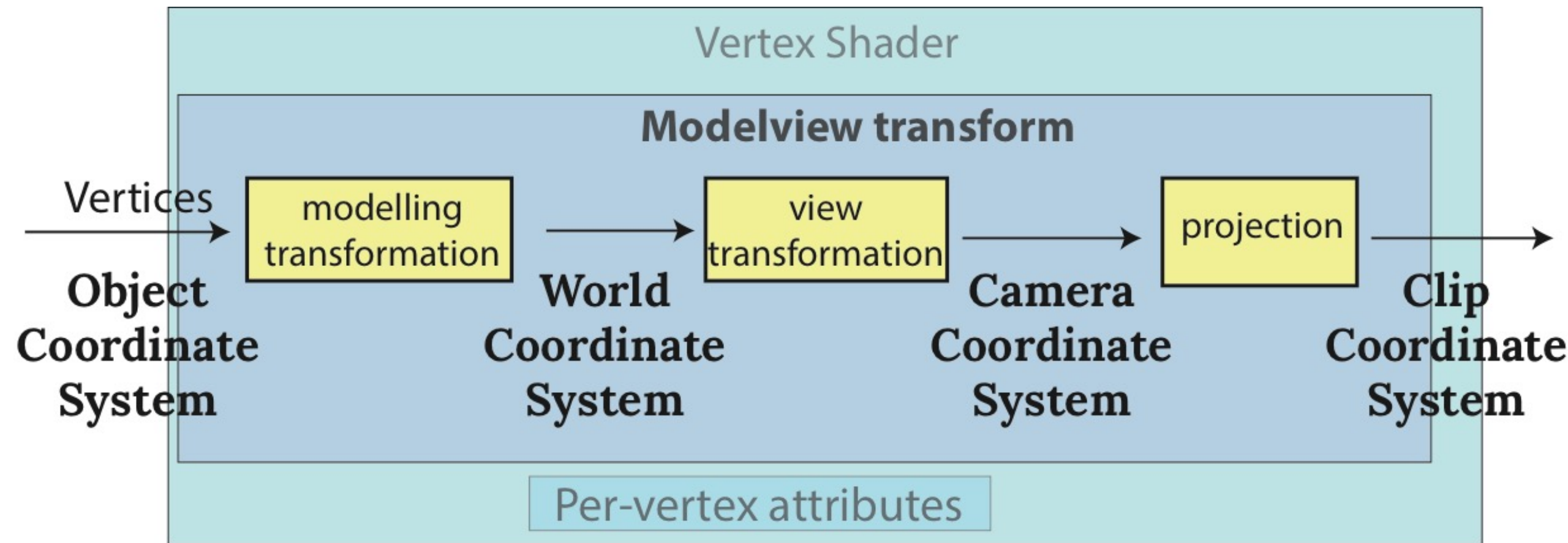
$$M_{cam} = \begin{bmatrix} u_x & v_x & w_x & P_x^{eye} \\ u_y & v_y & w_y & P_y^{eye} \\ u_z & v_z & w_z & P_z^{eye} \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$M_{view} = M_{cam}^{-1} = \dots$$

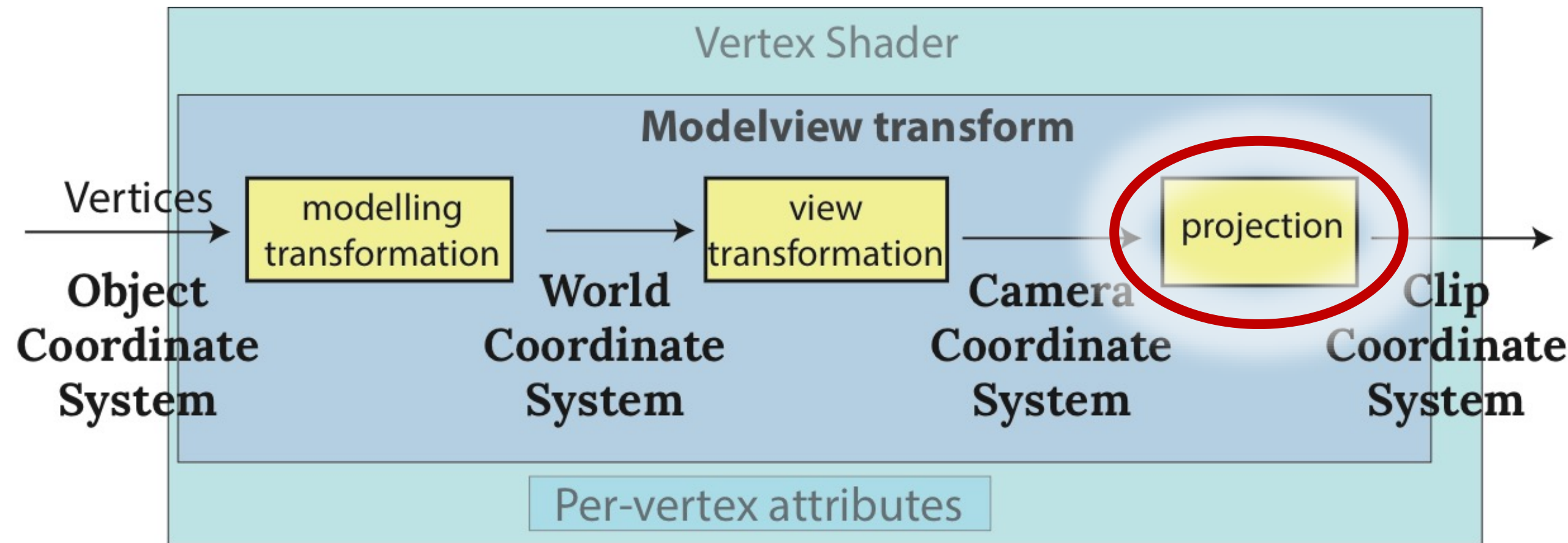
THREE.JS

```
camera = new THREE.OrthographicCamera(/*some parameters*/);  
camera.position.set(30,0,0);  
camera.up = new THREE.Vector3(0,0,1);  
camera.lookAt(new THREE.Vector3(0,0,0));
```

VERTEX SHADER: REGARDER DE PLUS PRÈS



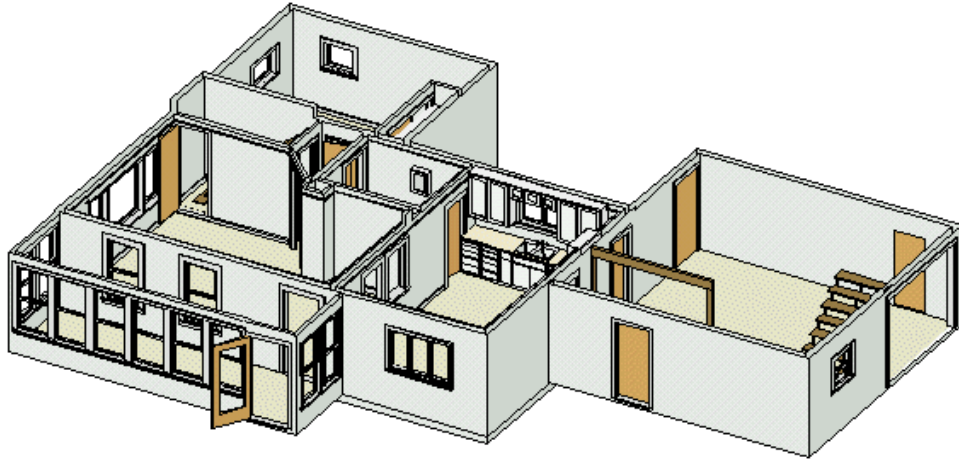
VERTEX SHADER: REGARDER DE PLUS PRÈS



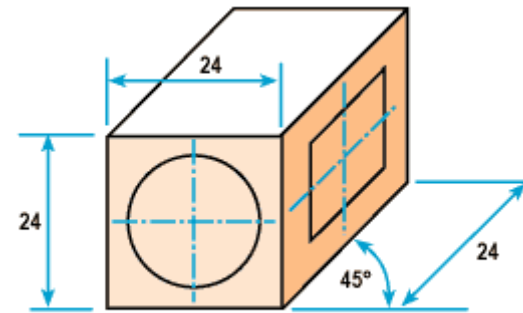
UNE PROJECTION



PLUS DE PROJECTIONS



fortunecity.com



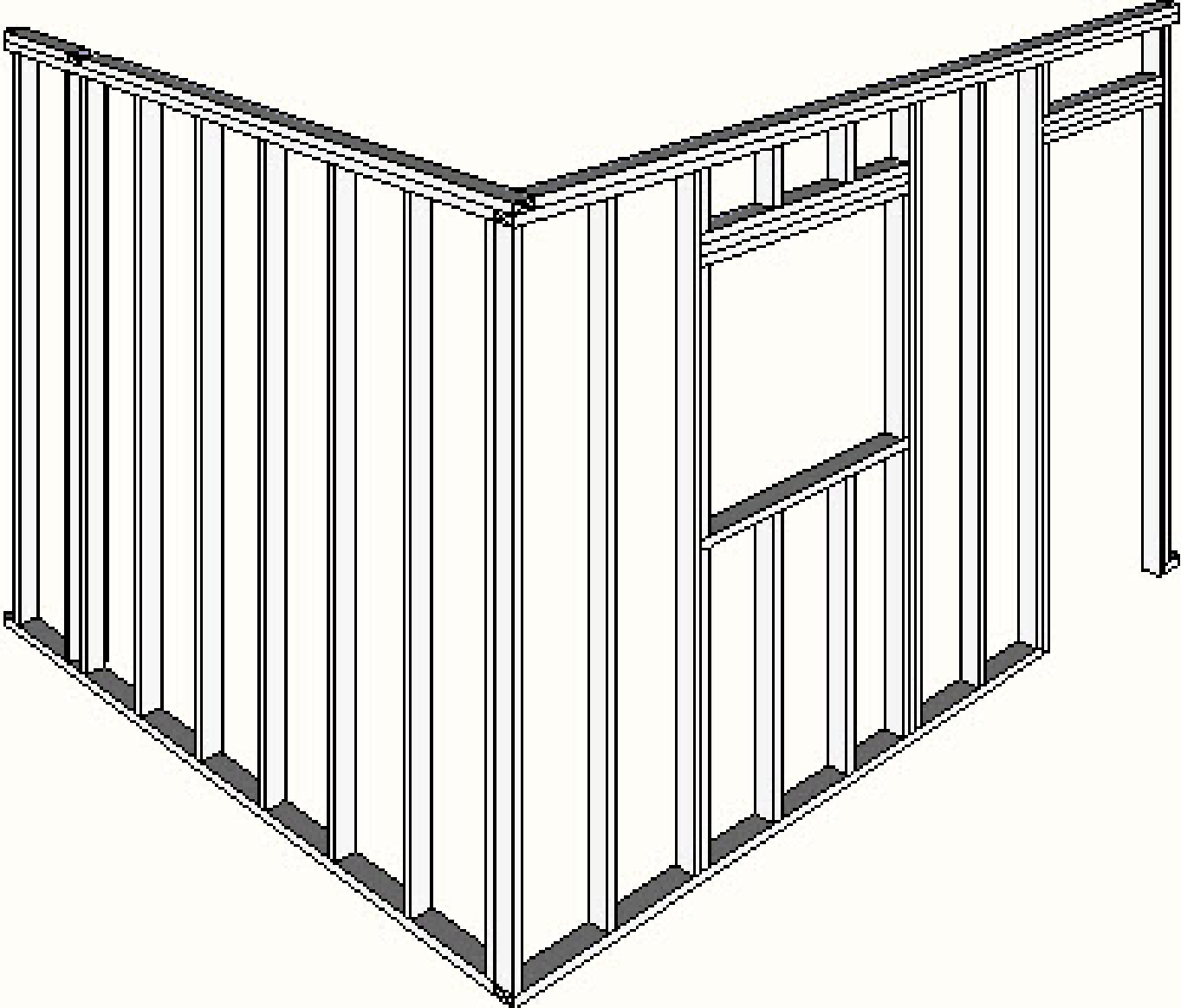
<http://metal.brightcookie.com>



PERSPECTIVE 1-POINT

(1 POINT DE FUITE)

Two Point
Perspective

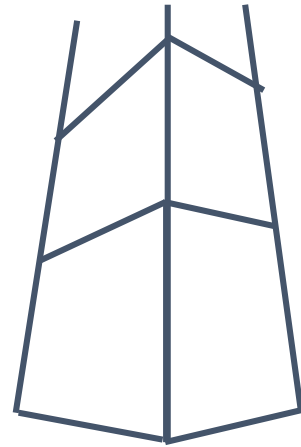
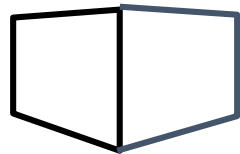
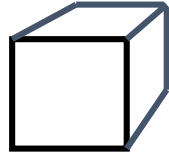


PERSPECTIVE 3-POINT



VN POPOLO DI POETI DI ARTISTI DI EROI
DI SANTI DI PENSATORI DI SCIENZIATI
DI NAVIGATORI DI TRASMIGRATORI

PROJECTIONS



PROJECTIONS

