

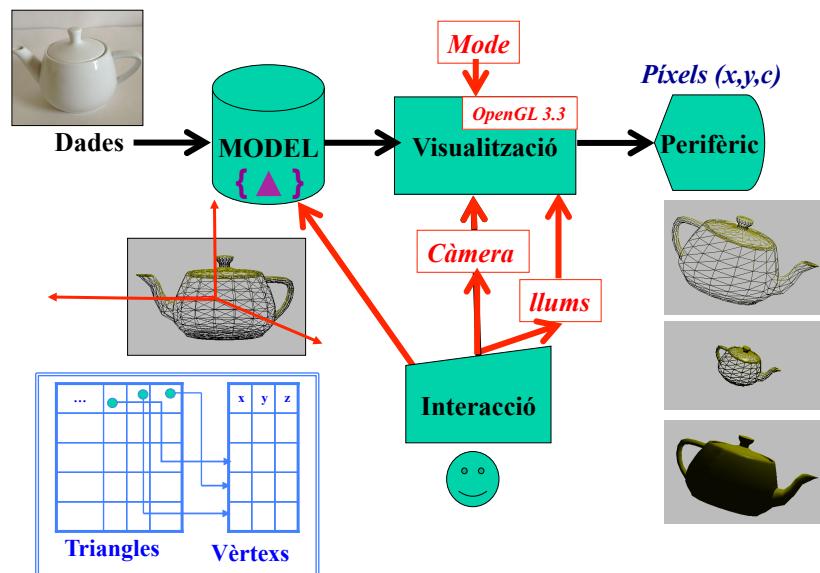
## Classe 2: contingut

- Models geomètrics (2): Escenes
- Breu repàs de TG i primers exercicis de TG
- **Procés de Visualització (1)**

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## Visualització (intro)



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# Com indicar càmera?

The diagram shows a 3D scene with a camera on a tripod. A bounding box labeled "Volum visió" represents the field of view. Inside this volume, a viewer's position (VRP) and orientation (UP vector) are defined relative to a coordinate system ( $x_A$ ,  $y_A$ ,  $z_A$ ). The camera's position is labeled "OBS". A "window" indicates the projection plane. Two coordinate systems are shown: the "Sistema Coordenades Aplicació/món/escena" and the "Sistema Coordenades Observador" ( $x_o$ ,  $y_o$ ,  $z_o$ ).

1. Ubicació respecte SCA: obs, vrp, up
2. Definir Volum de Visió: òptica (window, zNear, zFar)

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The process is divided into four steps:

1. Posició, orientació
2. Òptica
3. Fer la Foto
4. Emmarcar

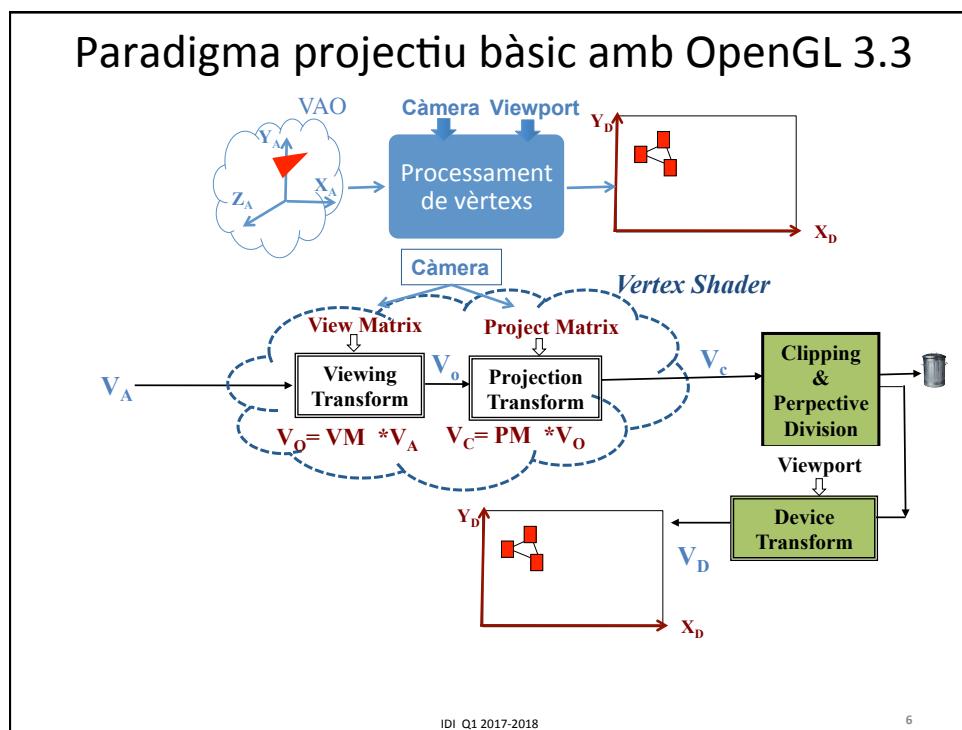
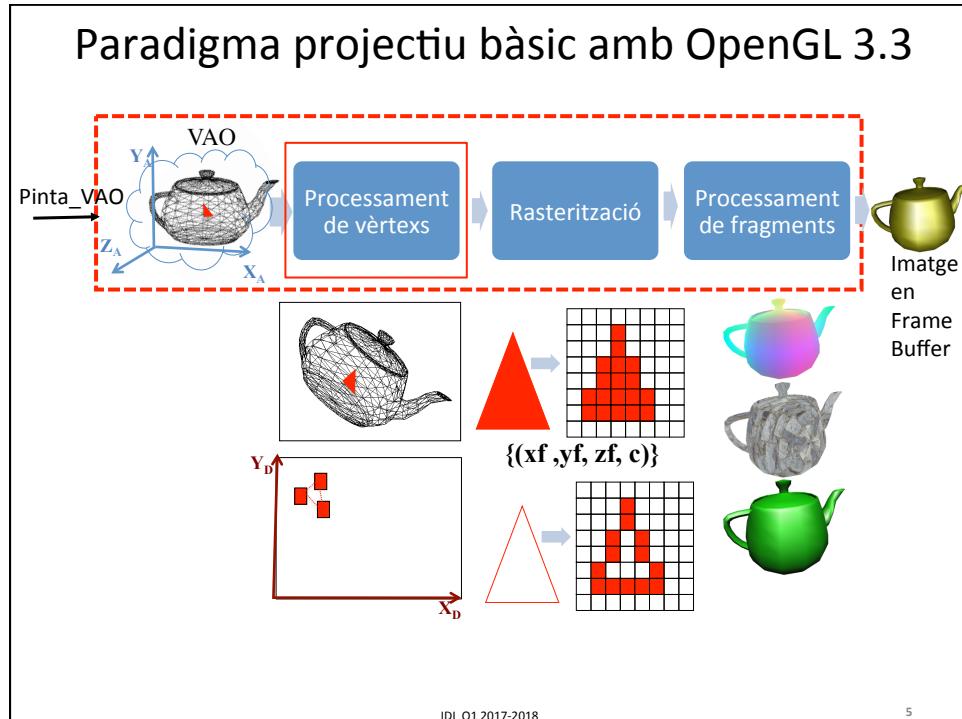
**Finestra OpenGL (Pantalla)**: A diagram shows a yellow speech bubble icon above a red-bordered rectangle representing the OpenGL window. Inside, a smaller image of Albert Einstein is shown, with axes  $x_D$  and  $y_D$  indicating its position. The word "Viewport/Vista" points to the red rectangle.

**Usualment:**

- El viewport és tota la finestra OpenGL
- De moment, no ens preocuparem de si hi ha “deformacions”

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## Paradigma projectiu bàsic amb OpenGL 3.3

### *Vertex Shader*

```
#version 330 core

in vec3 vertex;
uniform mat4 PM;
uniform mat4 VM;

void main() {
    gl_Position = PM*VM*vec4 (vertex, 1.0);
}
```

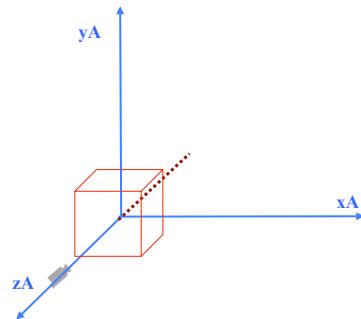
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## Paradigma projectiu bàsic amb OpenGL 3.3

### *Vertex Shader*

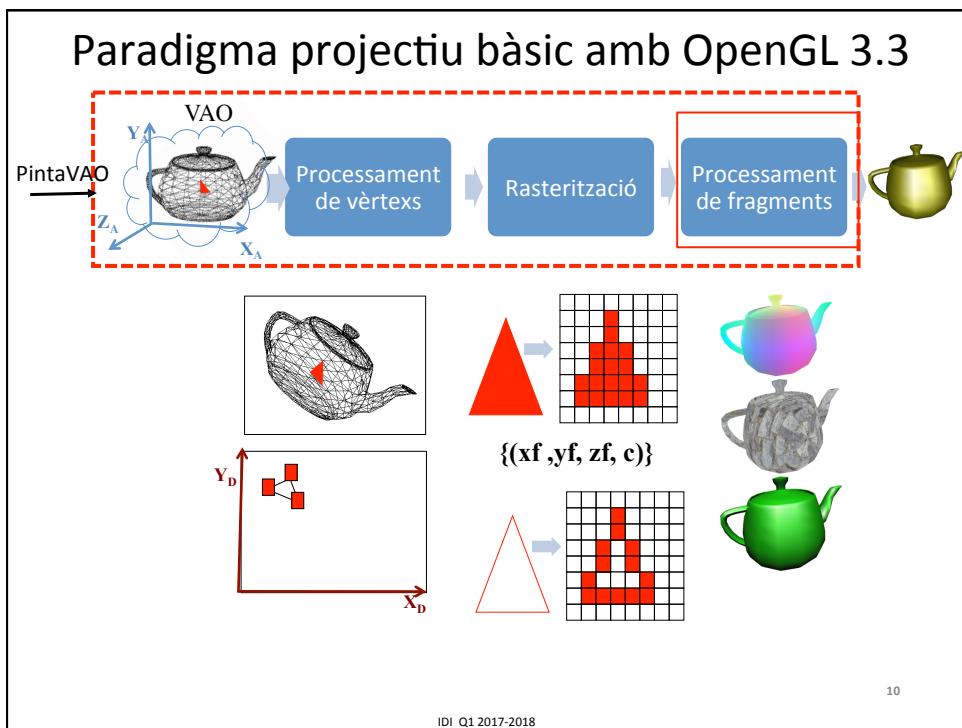
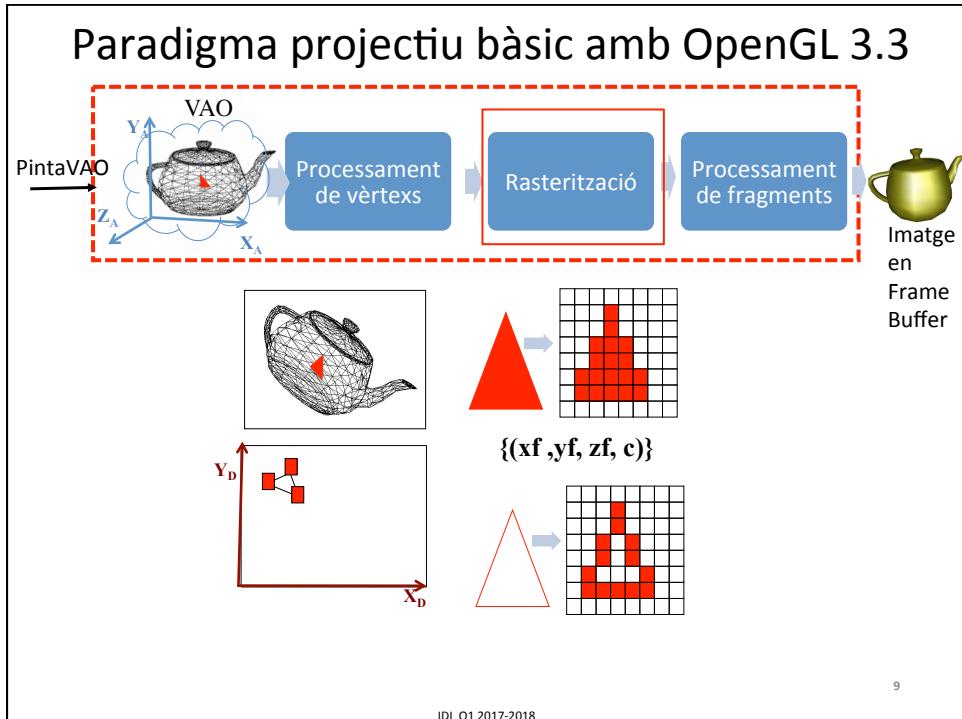
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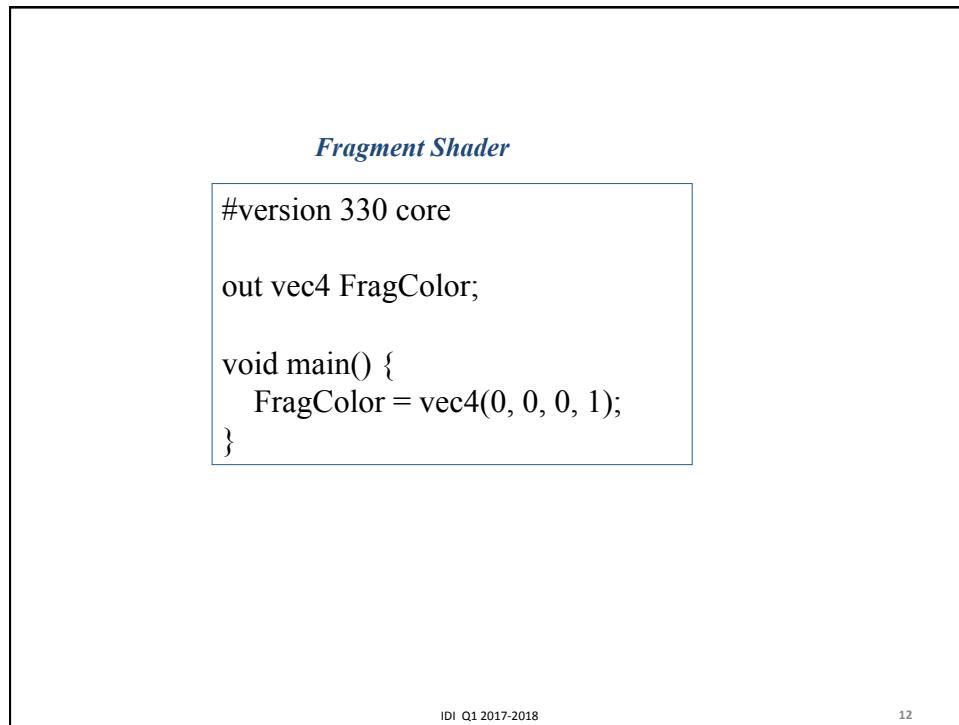
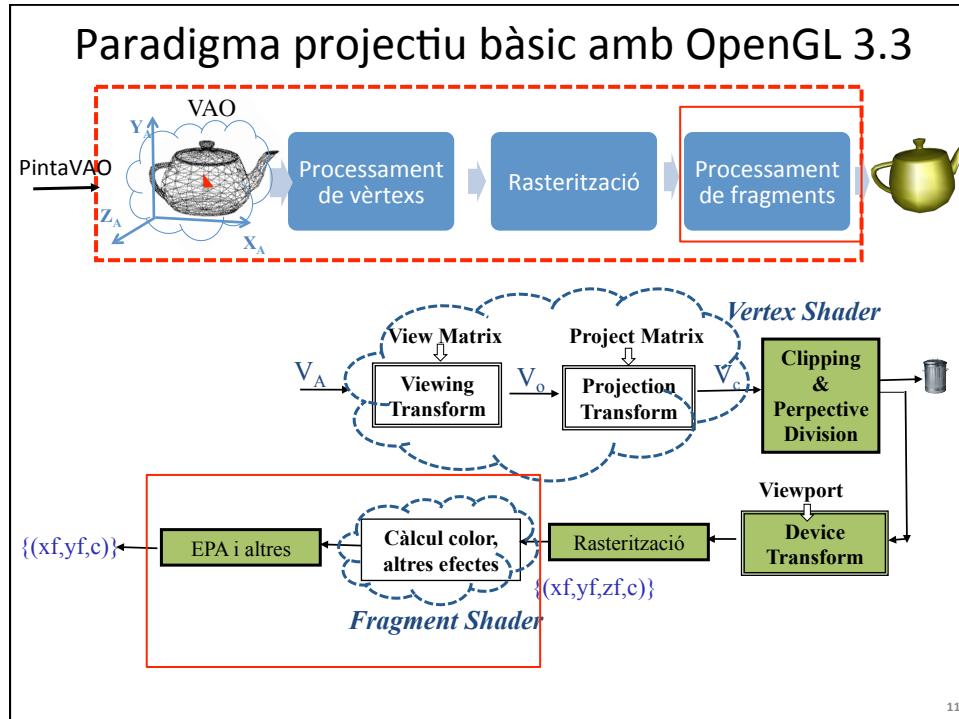


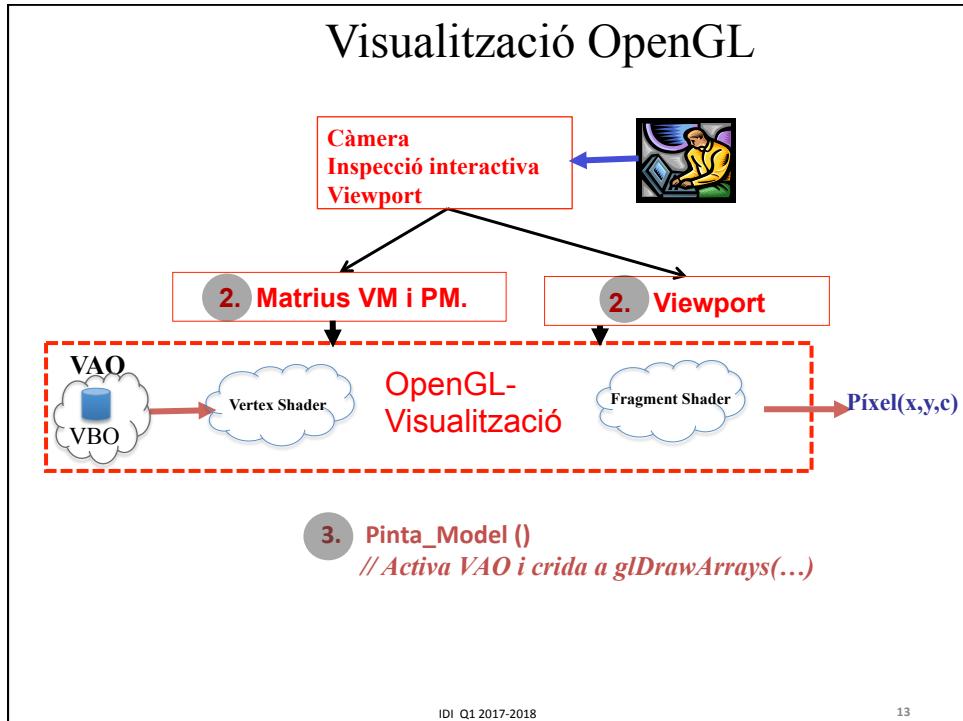
Volum de Visió cub de (-1,-1,-1) a (1,1,1)

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