

**Faculty of German Engineering and
Industrial Management Education - FDIBA**

Introduction to Computer Graphics



The Wireframe Pipeline

Assoc. Prof. Stoyan Maleshkov

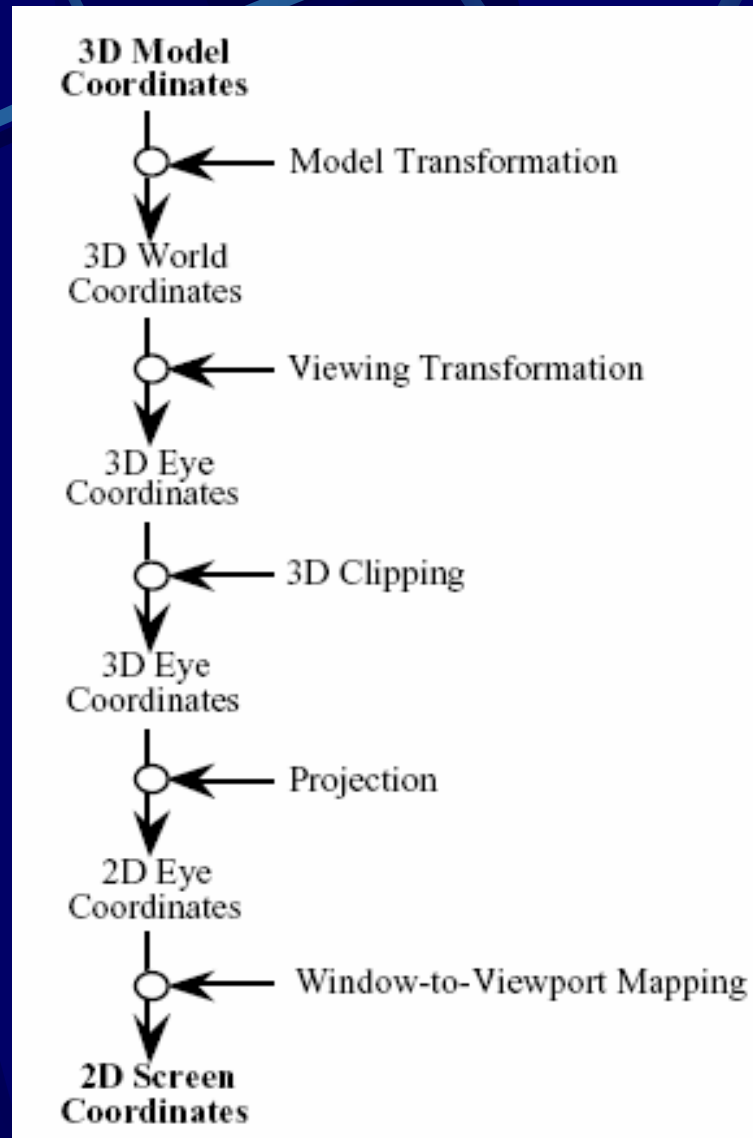
Technical University of Sofia

Processing Lines

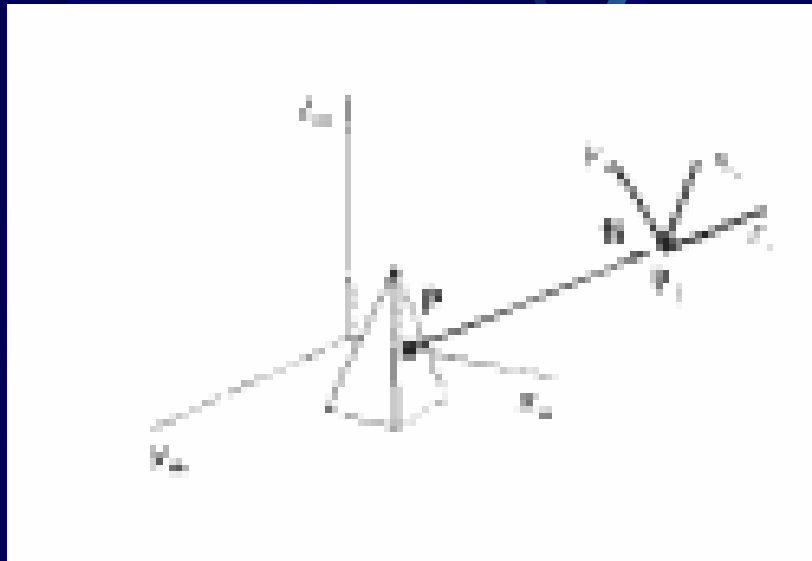
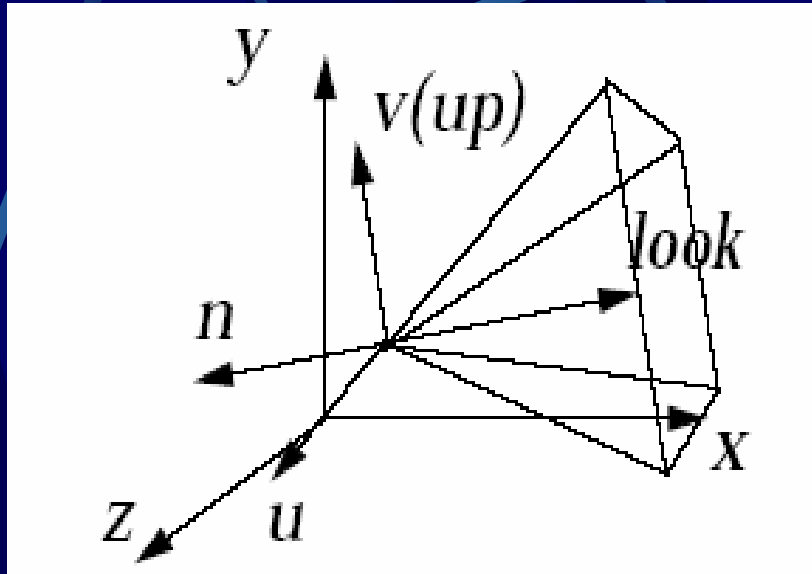
- Model Transformation
- 3D Viewing Transformation
- 3D Clipping
- Projection
- Window to Viewport Transformation



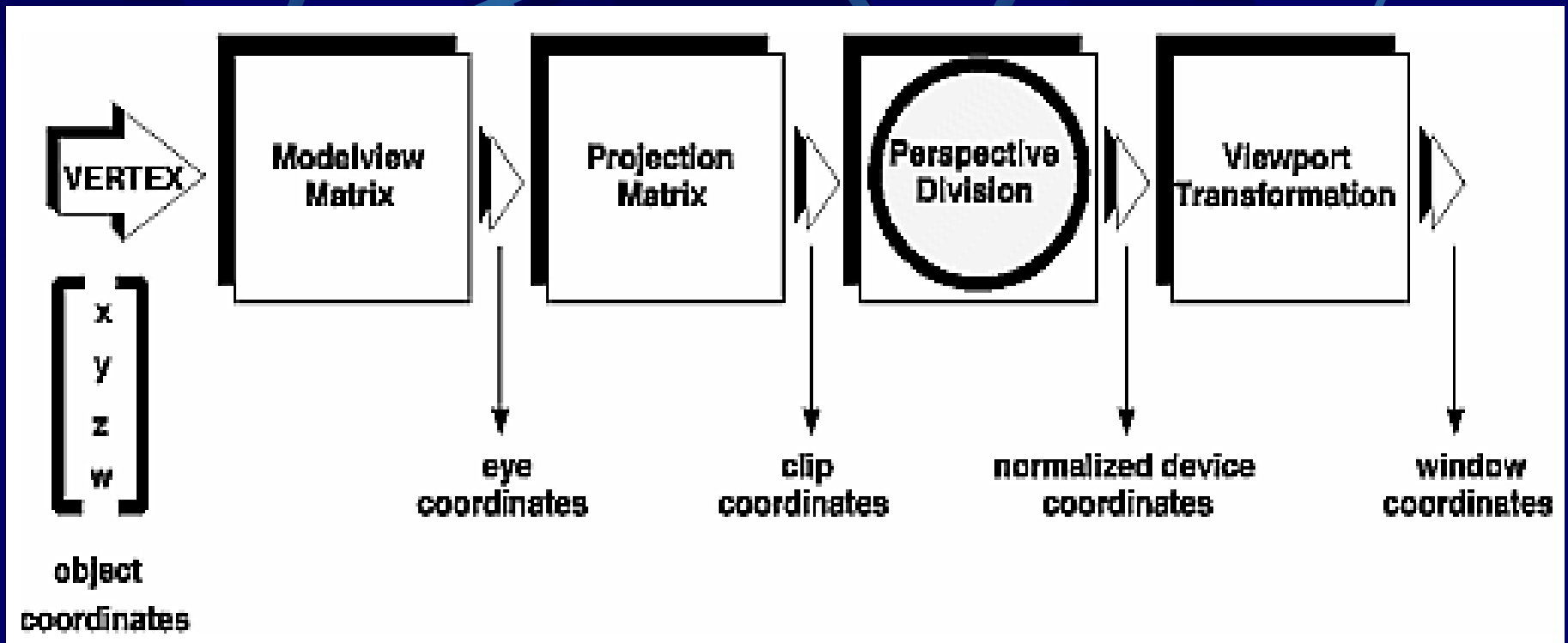
Model Transformation



3D Viewing Transformation



3D Pipeline

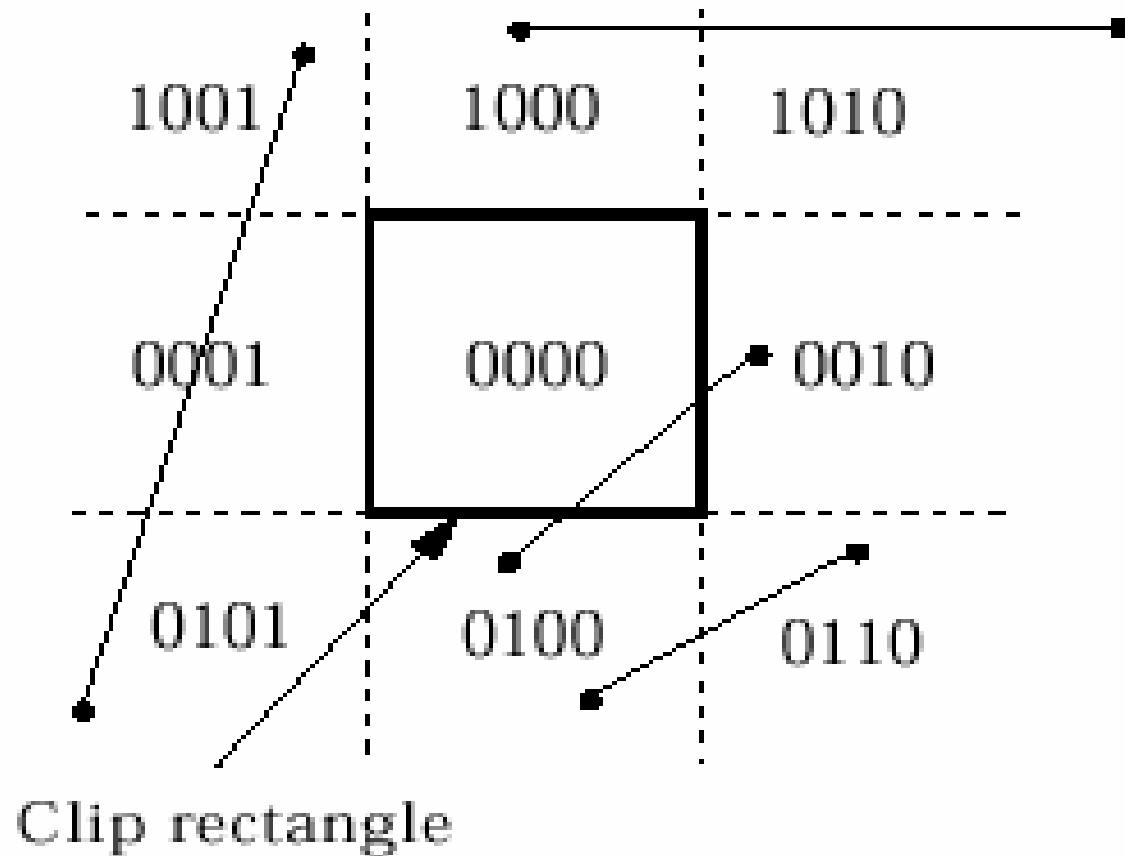


3D Clipping

- Or
- first Z clipping
- After Projection X-Y Clipping

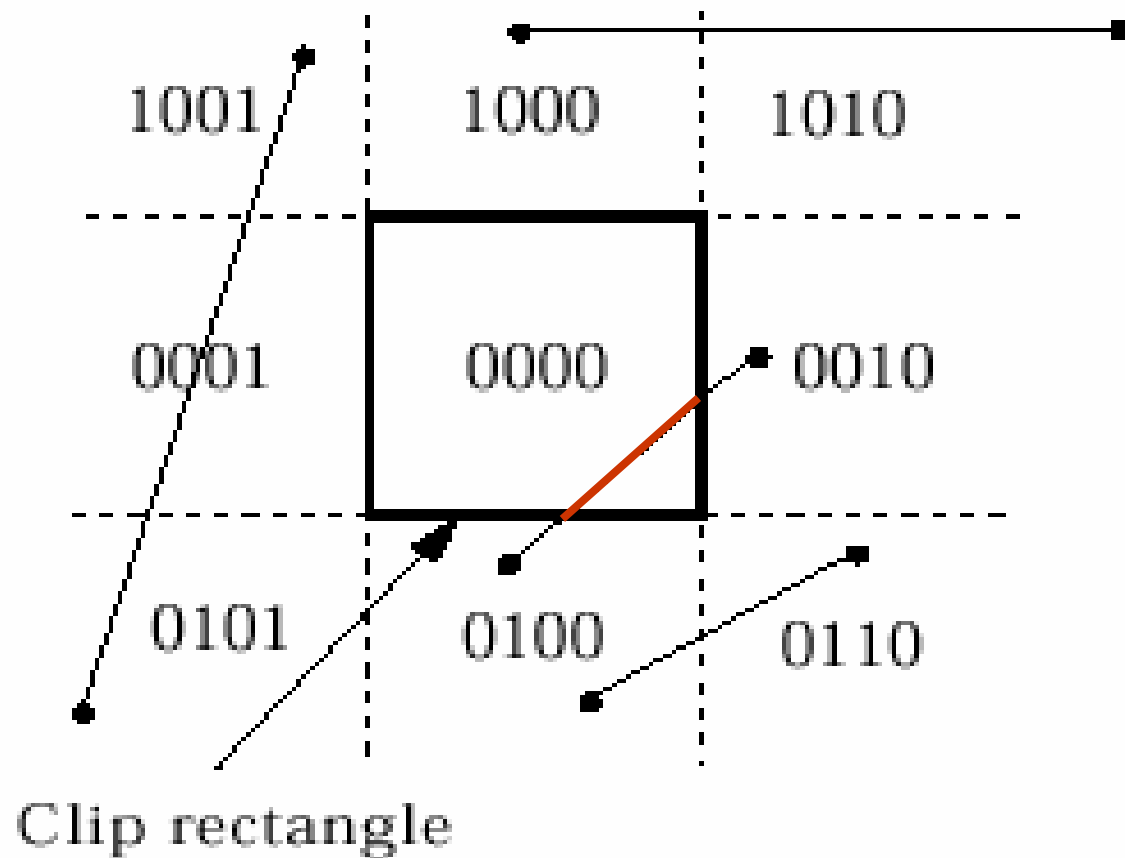
2D Clipping

- Divide plane into 9 regions



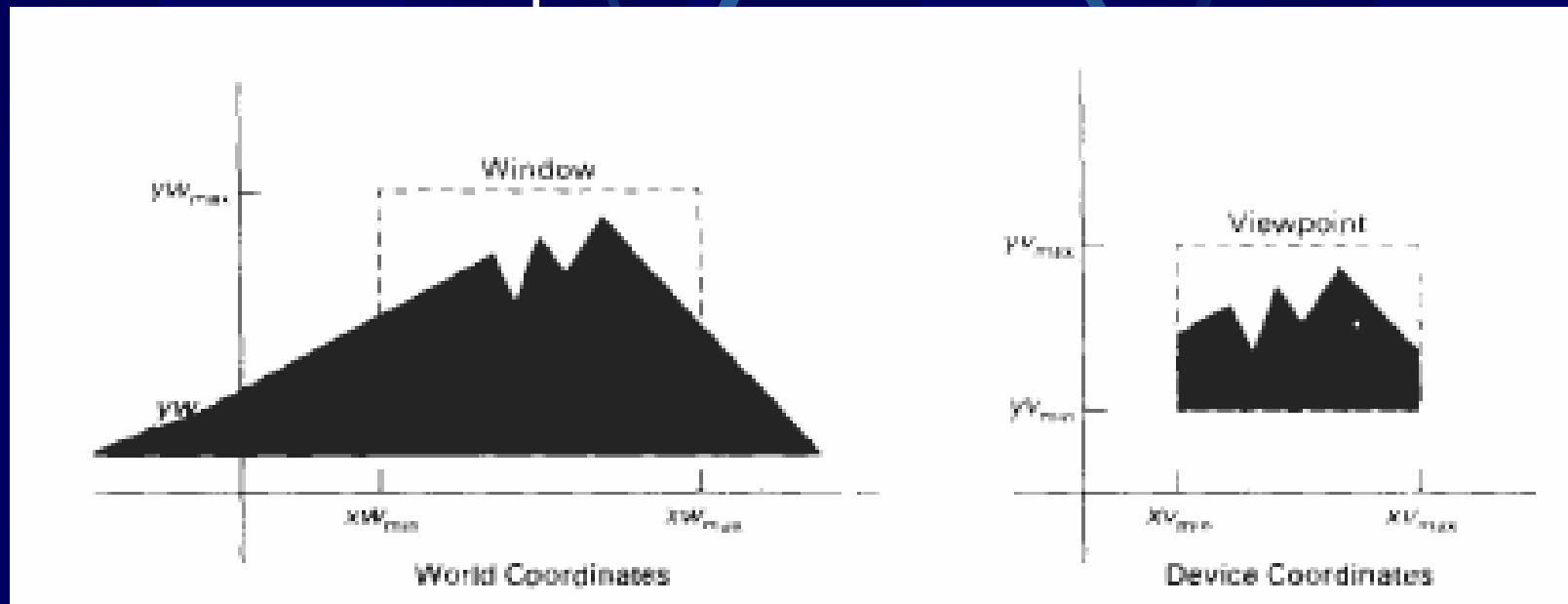
2D Clipping

- Divide plane into 9 regions



Window to Viewport Transformation

- World Coordinate System
- Device Coordinate System
- Window
- Viewport
- Window to Viewport Transformation



Normalized Space Transformation

