MODELING AND SCENE SETTING

Computer Graphics

CS 4300

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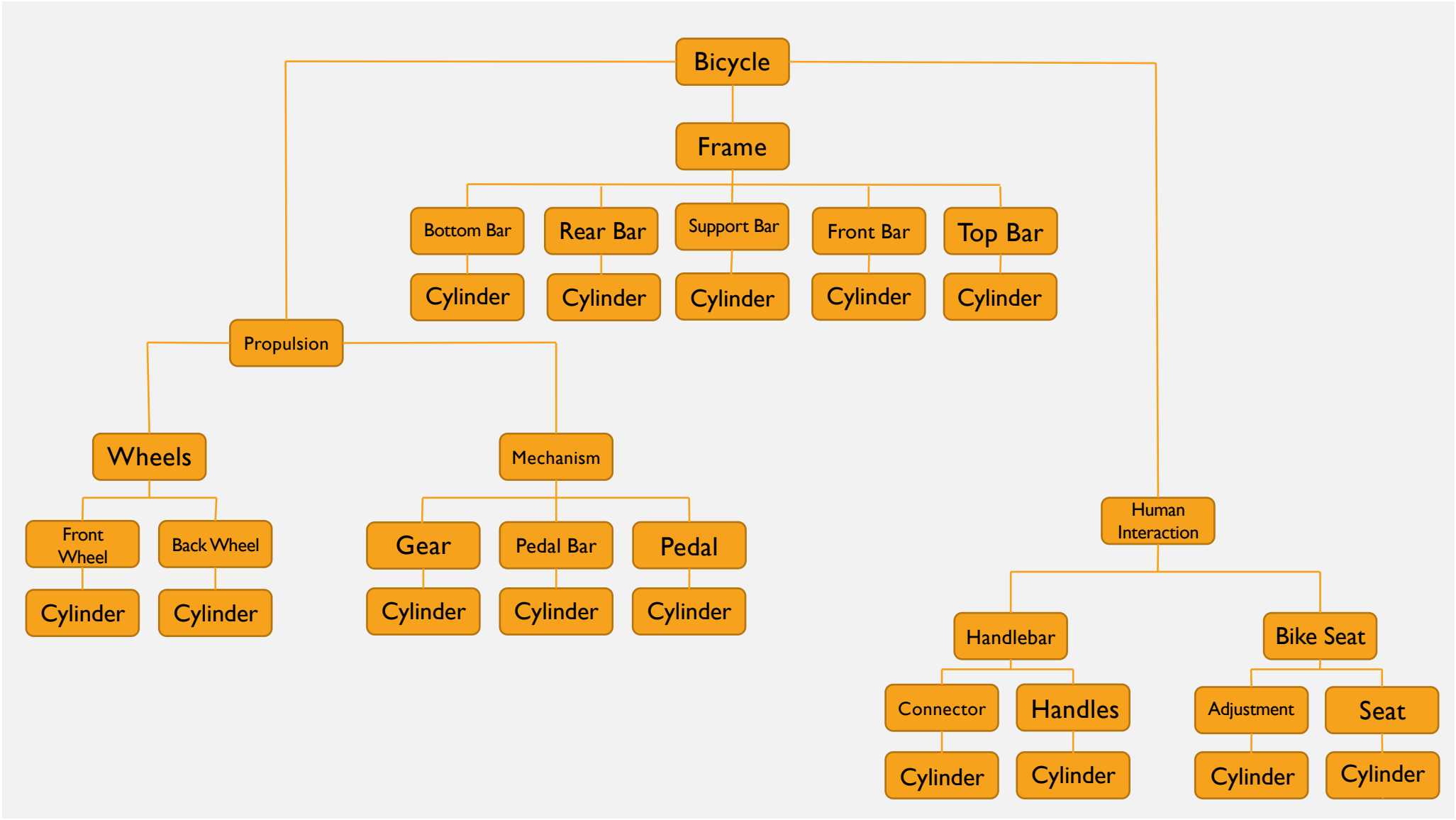
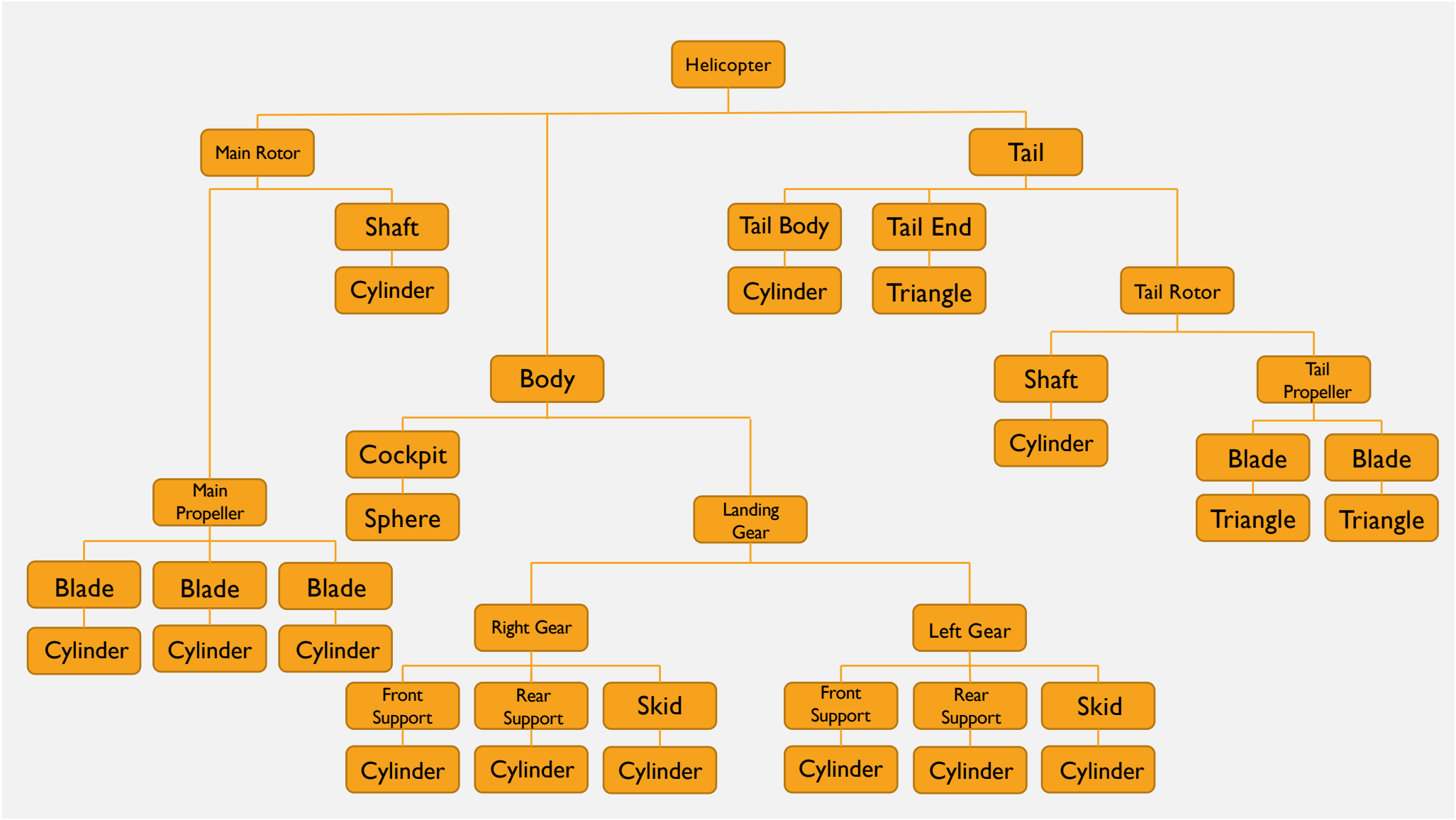
SCENE DESCRIPTION

- First model: Two bicycles
- The bicycles move on the ground recursively. One moves at a large circle in a counterclockwise direction while the other one moves in a smaller circle with a clockwise direction.
- Second model: A helicopter
- The helicopter will hover above the bicycles in the sky rotating in a circle at a speed different than both bicycles
- A fixed camera will view both the bicycles and the helicopter rotating
- Second camera will be positioned on the bottom of the helicopter
  - User can move where the camera is looking with key input but the camera is never able to look higher than parallel with the ground
  - User can toggle between two cameras with different key input

HIERARCHICAL MODEL

- Entire scene will be placed inside a transformation that acts as the camera
- Scene Incorporates:
  - Two Bikes – Scene graph schematic seen on next slide
  - Helicopter – Scene graph schematic on final slide
- Each bike will be incorporated into a transformation to rotate around central point on the ground
- Bikes will have a wheel and pedal motion:
  - Wheel Element : Rotate the two wheels around their centers
  - Pedal Gear Element: Rotate the pedal and attachment around the center of the gear
- Helicopter will have a single transformation that will rotate around a central point in the air
- Helicopter will have two propellers:
  - Triangles that make the the main propeller will rotate around the center of cockpit parallel to the ground
  - Triangles that make up the tail propellers will rotate around the center of the tail perpendicular to the main propellor


Bicycle
Frame
Bottom Bar
Rear Bar
Support Bar
Front Bar
Top Bar
Cylinder
Cylinder
Cylinder
Cylinder
Cylinder
Propulsion
Wheels
Mechanism
Front Wheel
Back Wheel
Gear
Pedal Bar
Pedal
Cylinder
Cylinder
Cylinder
Cylinder
Cylinder
Human Interaction
Handlebar
Bike Seat
Connector
Handles
Adjustment
Seat
Cylinder
Cylinder
Cylinder
Cylinder


Helicopter
Main Rotor
Shaft
Cylinder
Tail
Tail Body
Cylinder
Tail End
Triangle
Tail Rotor
Shaft
Cylinder
Tail Propeller
Blade
Triangle
Blade
Triangle
Body
Cockpit
Sphere
Landing Gear
Main Propeller
Blade
Cylinder
Blade
Cylinder
Blade
Cylinder
Right Gear
Front Support
Cylinder
Rear Support
Cylinder
Skid
Cylinder
Left Gear
Front Support
Cylinder
Rear Support
Cylinder
Skid
Cylinder