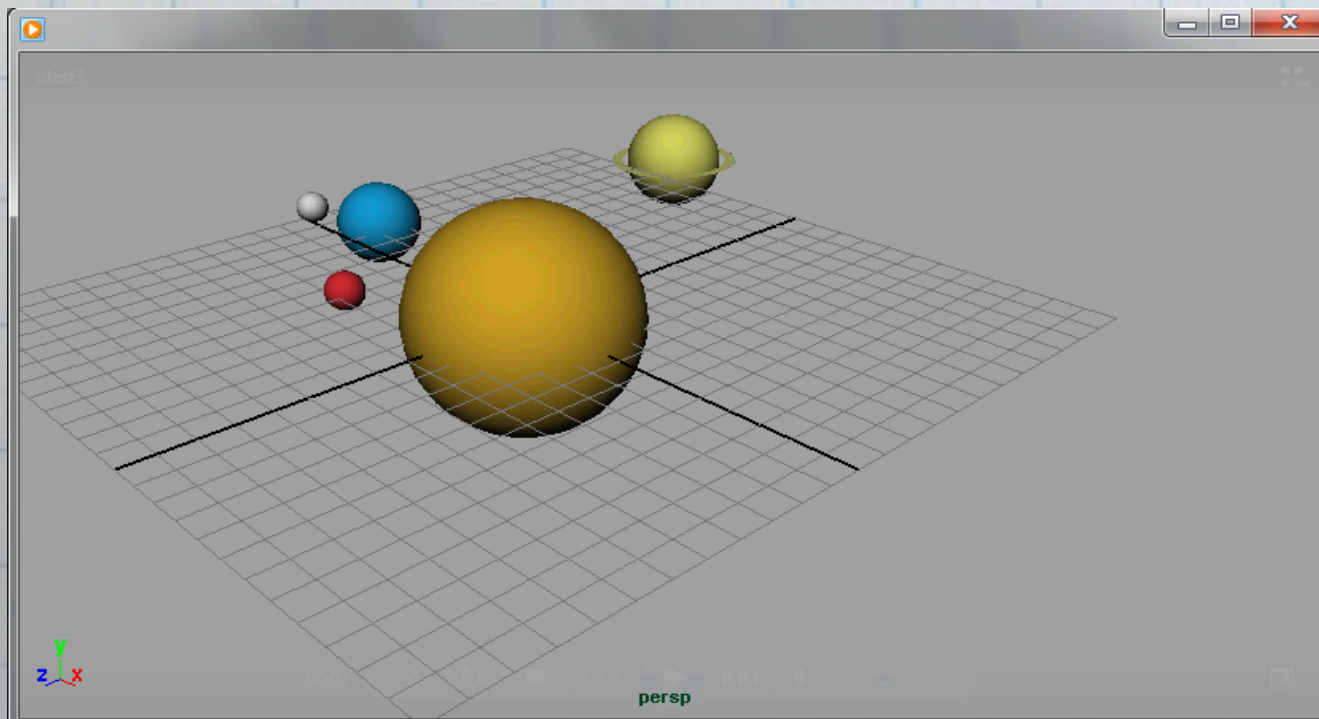


Rendering & Project Management

Dillon Courts
Sandy Natarajan
Spencer Balogh
Do Young Park

PLAYBLAST

- PlayBlast is a short cut to check the time and frame speed of your animation before creating the final animation.
- It doesn't take long because PlayBlast doesn't use the render nodes and its attributes.
- It creates an AVI file that can be opened in Media Player.



PLAYBLAST

Autodesk Maya 2010 x64 - Educational Version: \\nas-d\home\WINDOWS\nataraja\Documents\maya\projects\Solar_System\scenes\ss.mb

File Edit Modify Create Display Window Assets Animate Geometry Cache Create Deformers Edit Deformers Skeleton Skin Constrain Character Muscle Help

Animation | General | Curves | Surfaces | Poly | View | Shading | Lighting | Show

- General Editors
- Rendering Editors
- Animation Editors
- Relationship Editors
- Settings/Preferences
 - Hypergraph: Hierarchy
 - Hypergraph: Connections
 - Paint Effects
 - UV Texture Editor
 - Playblast**
 - View Arrangement
 - Saved Layouts
 - Save Current Layout...
 - Frame All in All Views A
 - Frame Selection in All Views F
 - Minimize Application
 - Raise Main Window
 - Raise Application Windows

Rendering | PaintEffects | Toon | Muscle | Fluids | Fur | Hair | nCloth | Custom

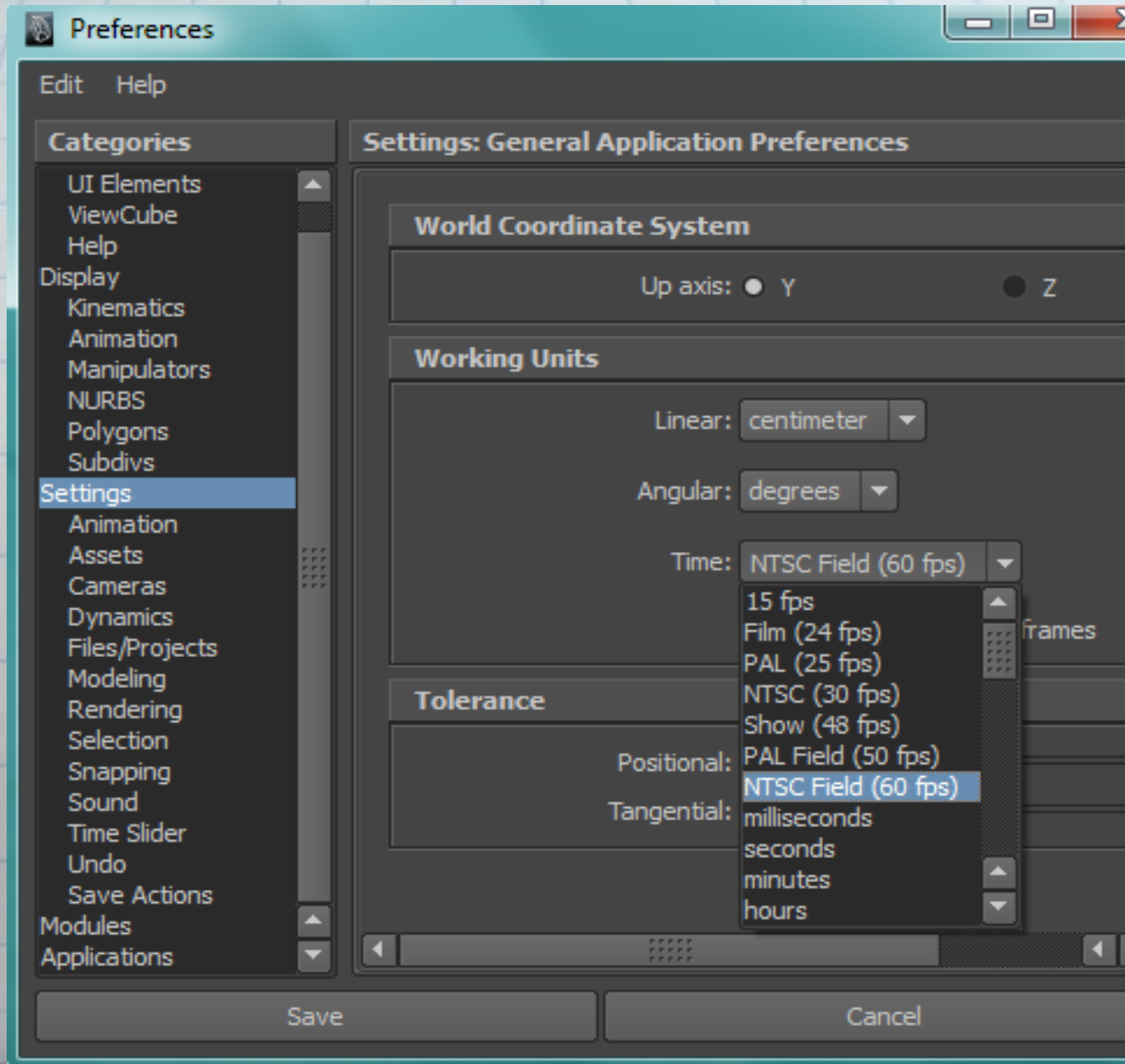
Channels Edit Object Show

Display Render Anim
Layers Options Help

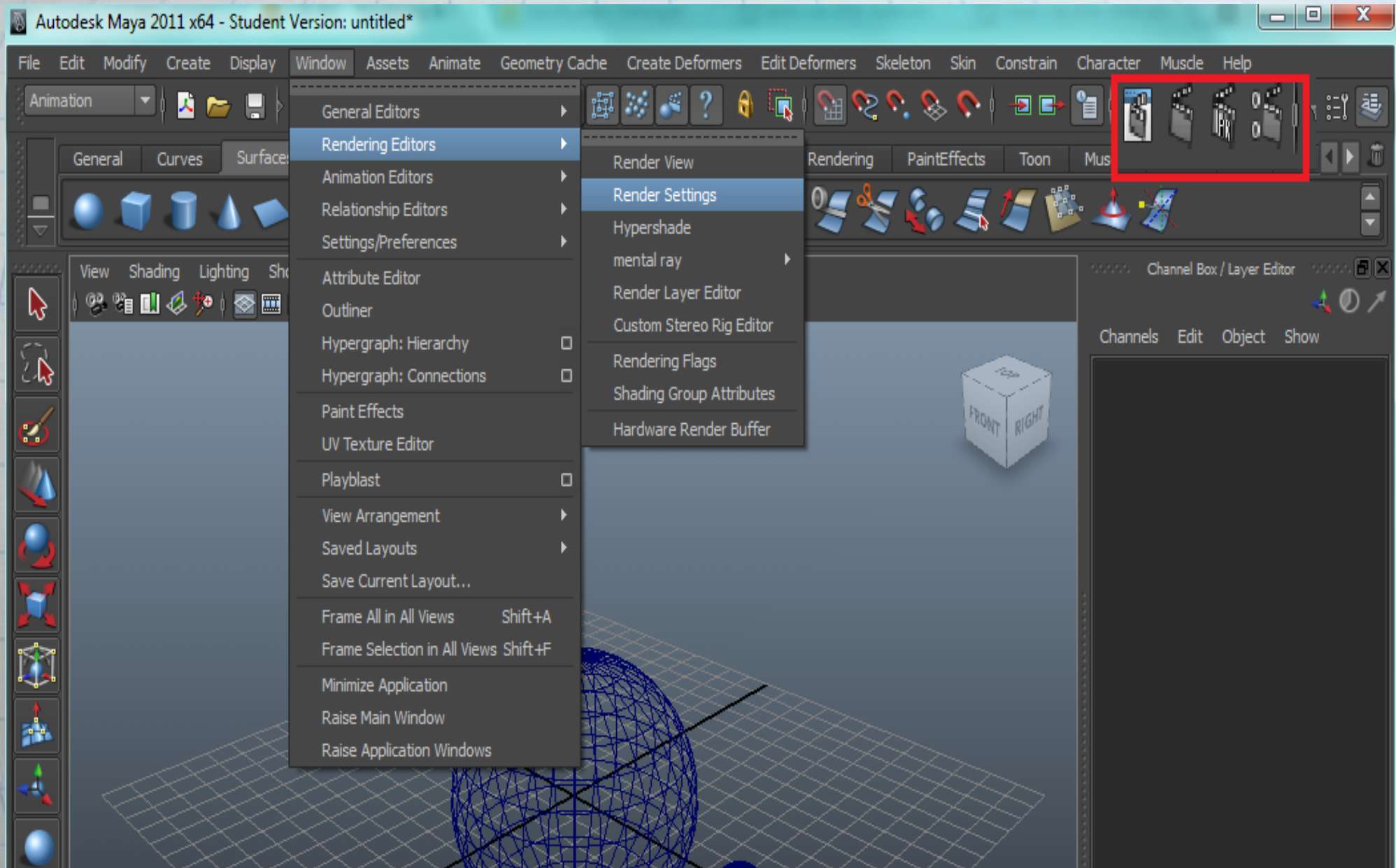
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240
1.00 1.00 MEL Preferences saved. See Script Editor for details. No Anim Layer No Character Set

9:53 AM 1/23/2012

Setting Frame Speed



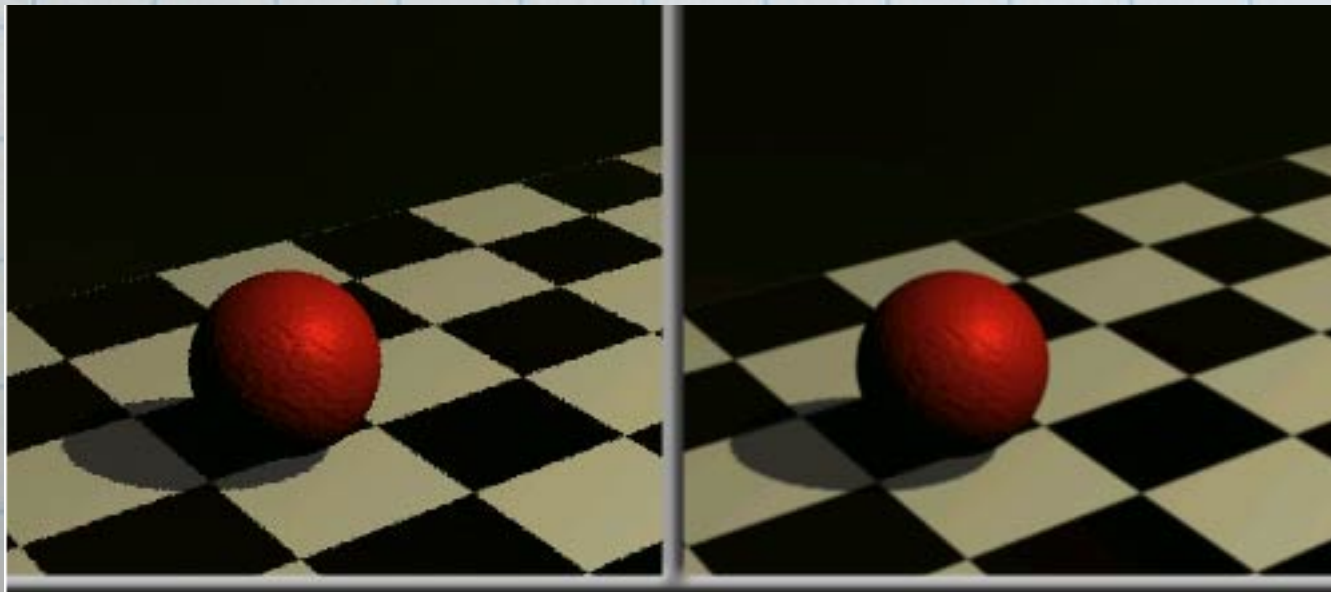
Rendering Quality



Rendering Quality

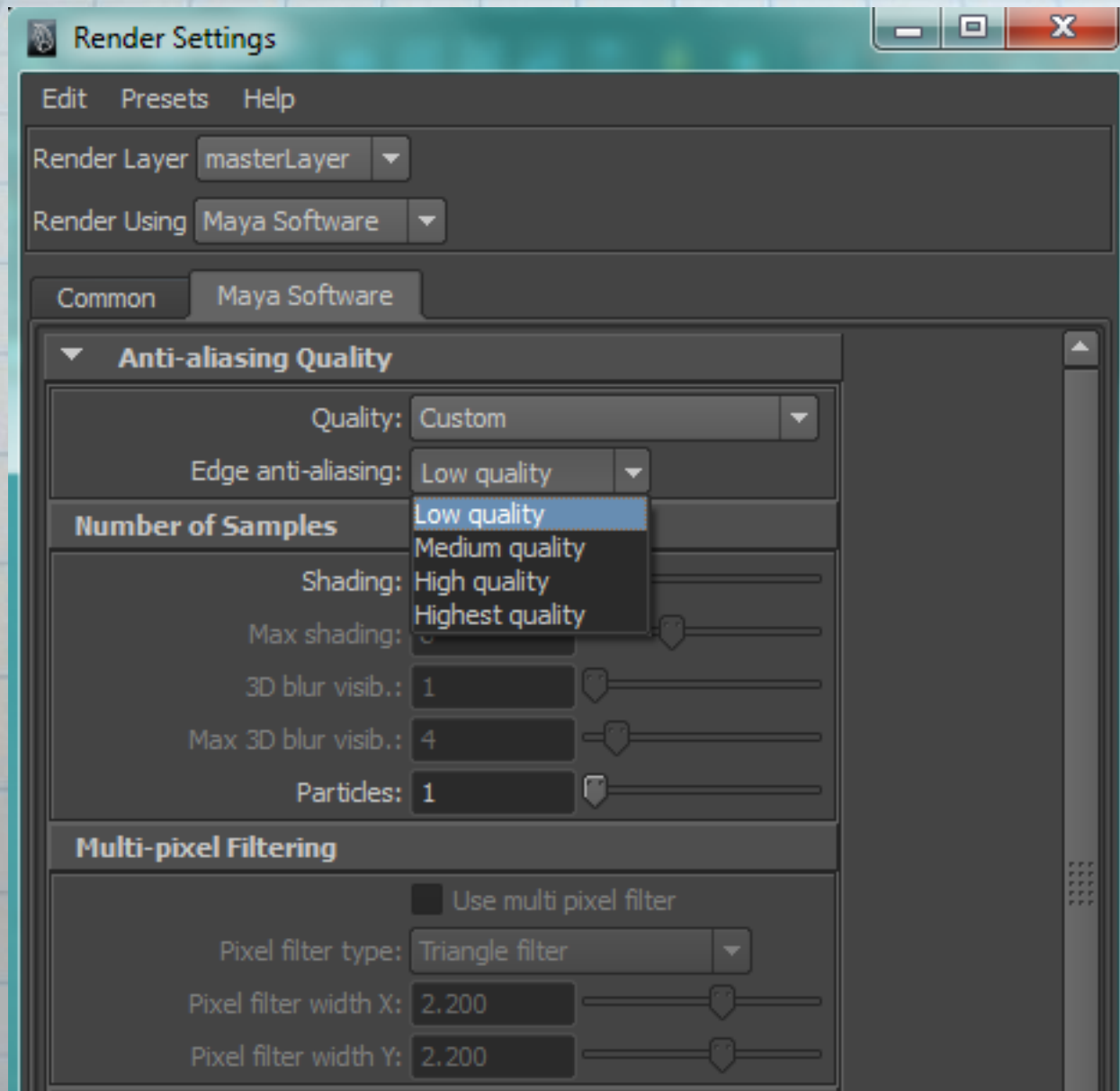
Anti-Aliasing:

- Removes jagged edges.
- Uses supersampling to render images.
- The more samples takes, the slower the render time.

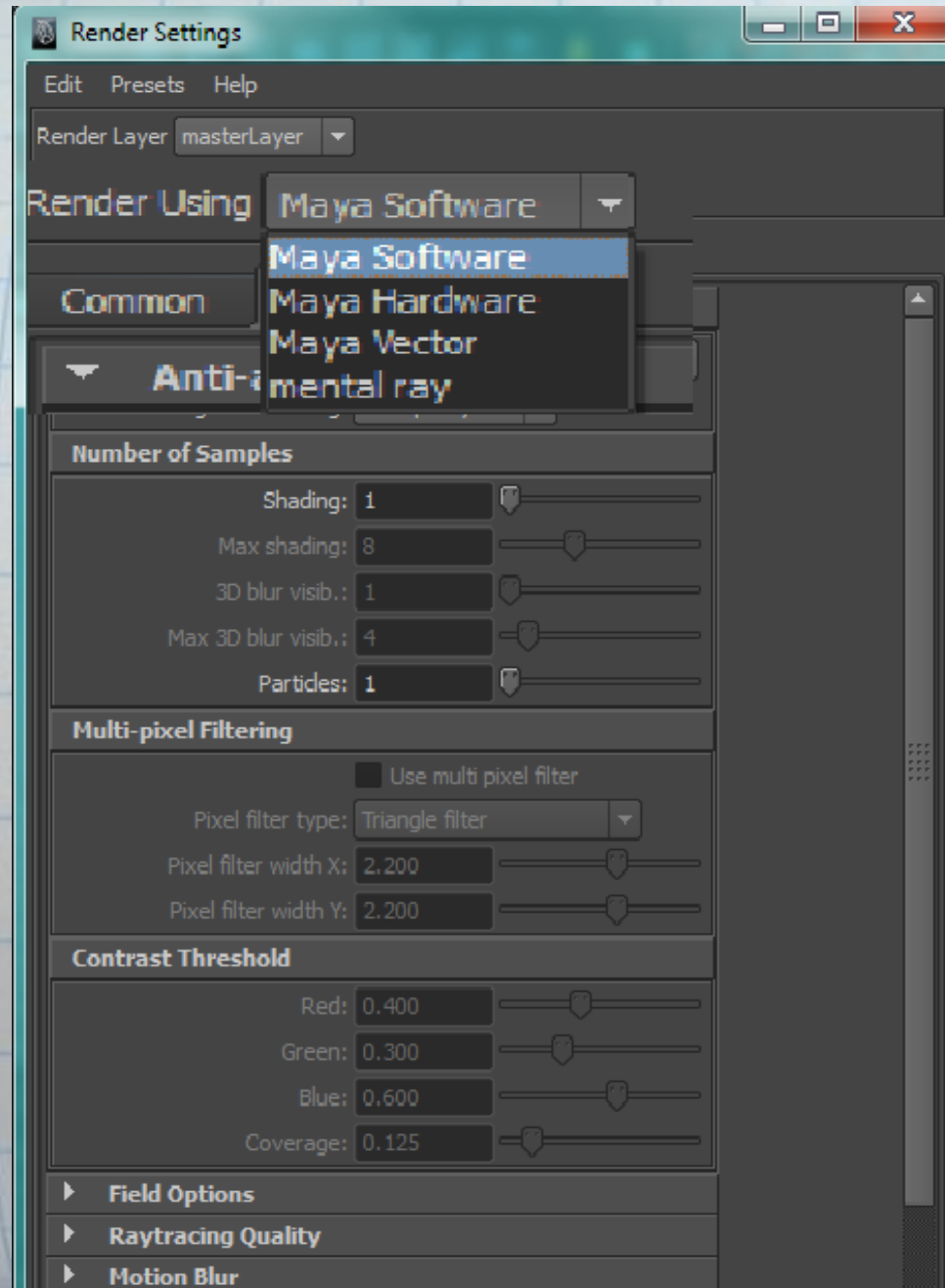


Low-quality Anti-aliasing (left), and production quality anti-aliasing (right)

Anti-Aliasing



Software vs Hardware Rendering



Software vs Hardware Rendering

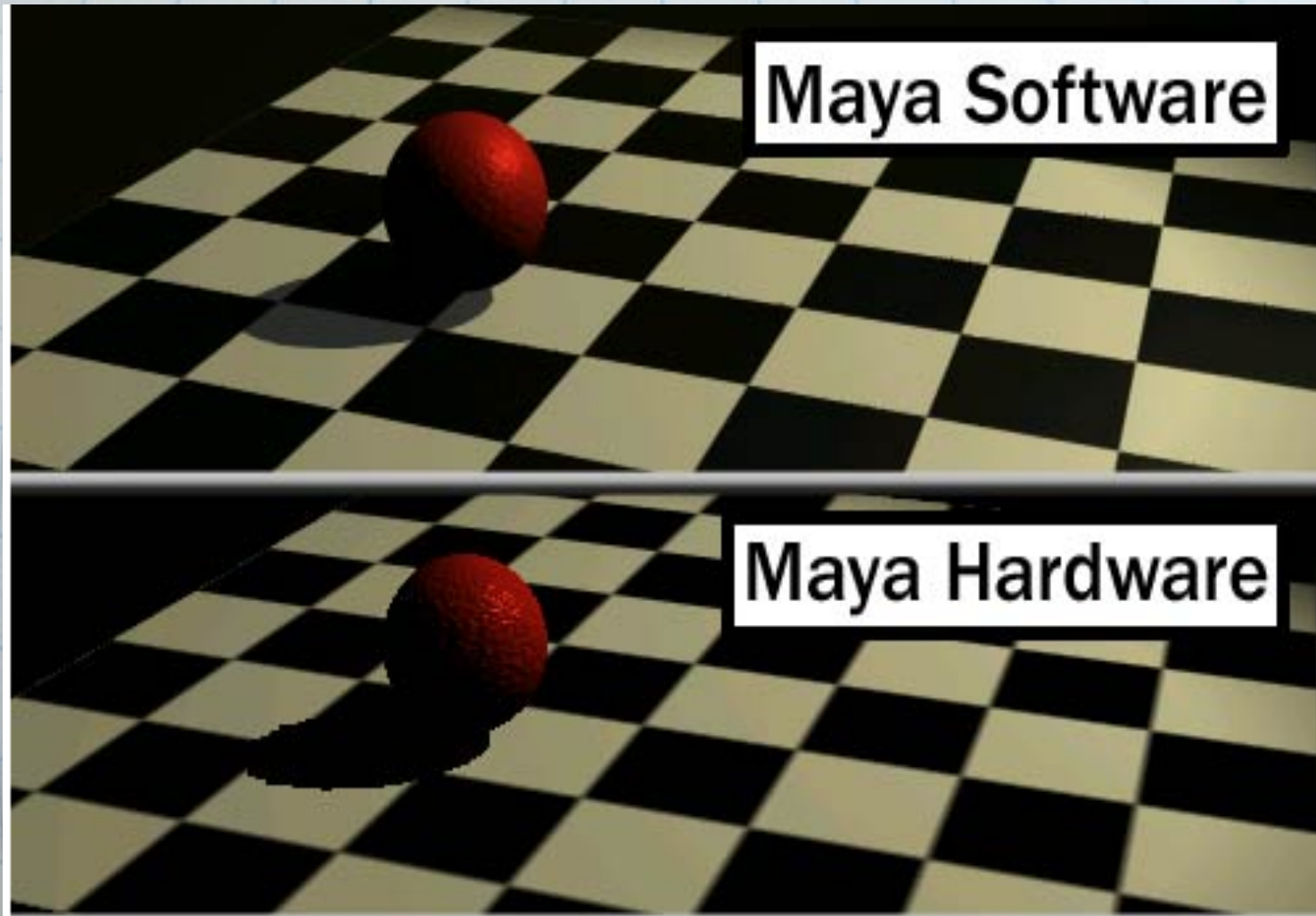
Software

- Uses the CPU
- Produces high-quality images with complex shading networks, including procedural textures and ramps.
- Allows to create more precise results but can take longer to produce each frame or image.

Hardware

- Uses machine's graphic card for computation.
- Batch renders frames more quickly than software rendering.
- Renders specific particle effects not possible through software rendering.
- Uses real-time, Open-GL enabled rendering.

Software vs Hardware Rendering



Render Output

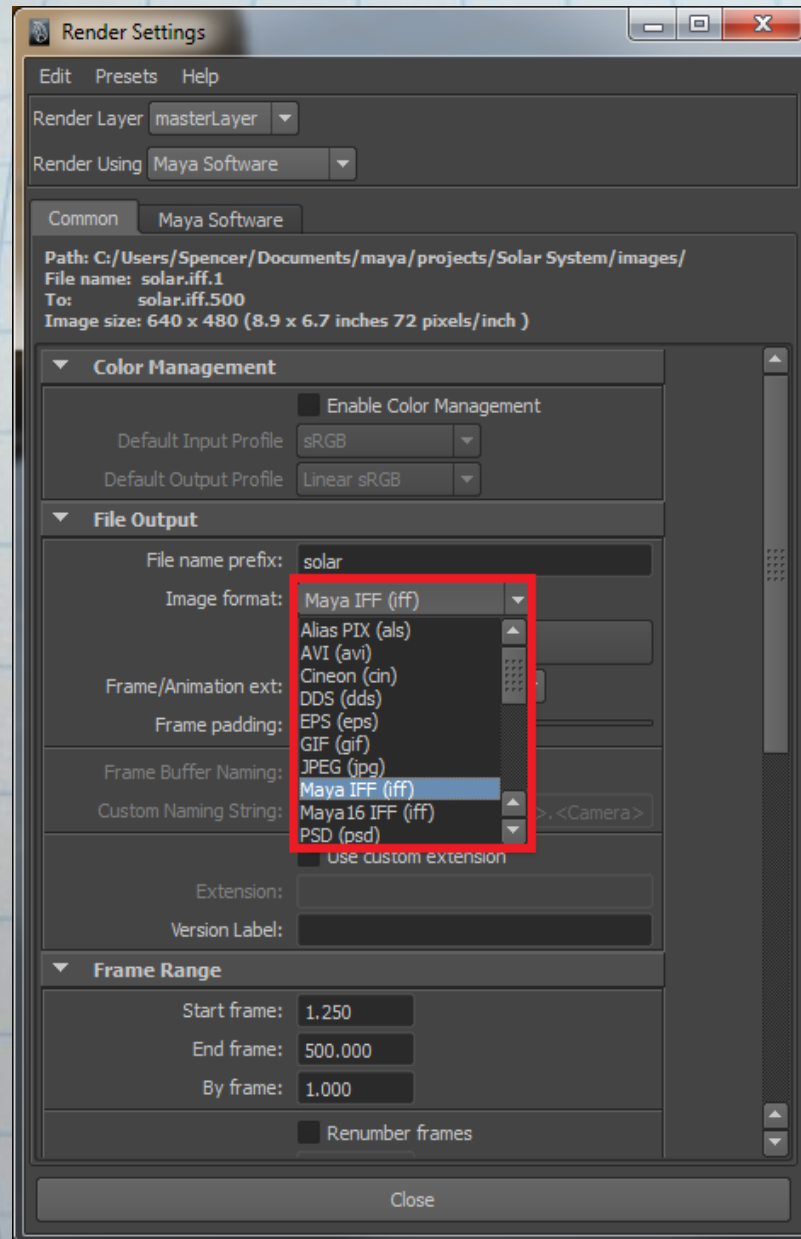
Image Formats:

- Default: Maya Image File Format (IFF)

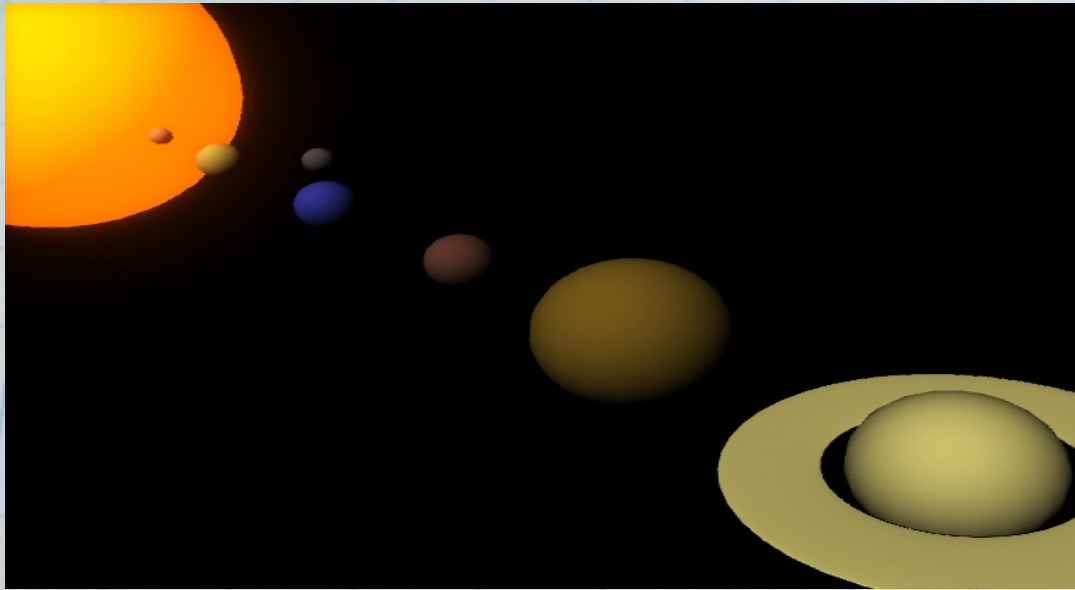
Most other images fit into one of two other types:

- Bitmap types - Defines an image based on individual pixels.
 - Examples: TIFF, GIF, BMP, JPG, etc.
- Vector types - Defines an image based on lines and curves.
 - Examples: SWF, AI, SVG, etc.

Render Output



Bitmap:



Vector:



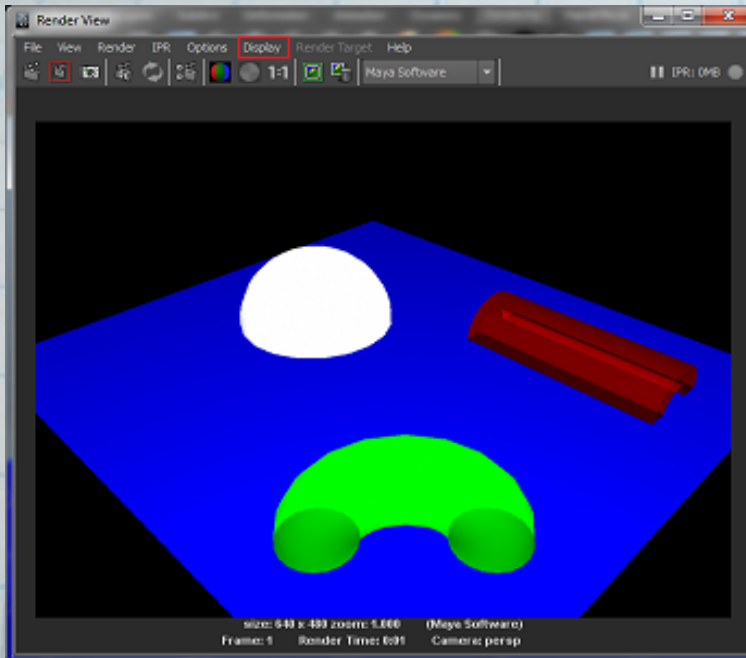
Render Output - Channels

While rendering a bitmap type image, each pixel is defined by several channels:

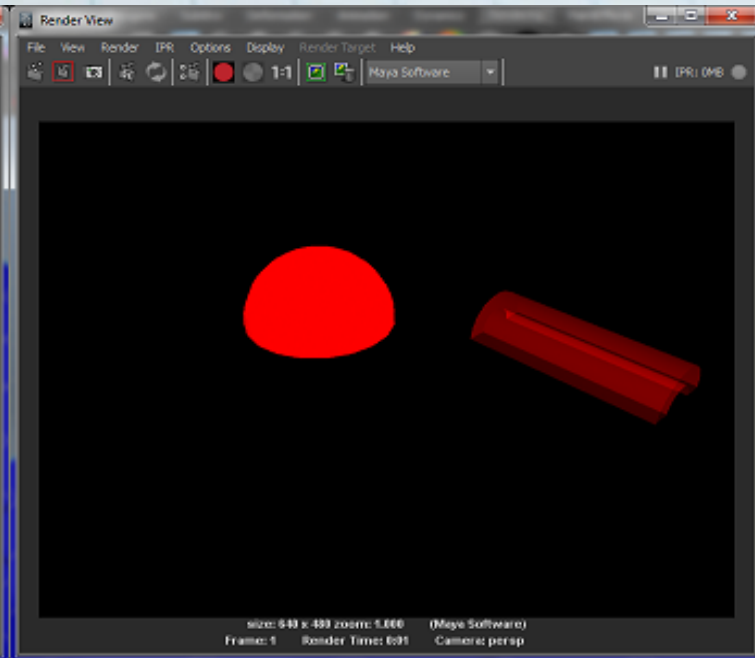
- Three color channels:
 - red, blue, and green
- Mask/Alpha channel: used to achieve transparency.
- Depth channel can be used to represent how far an object is from the camera.

Render Output - Channels

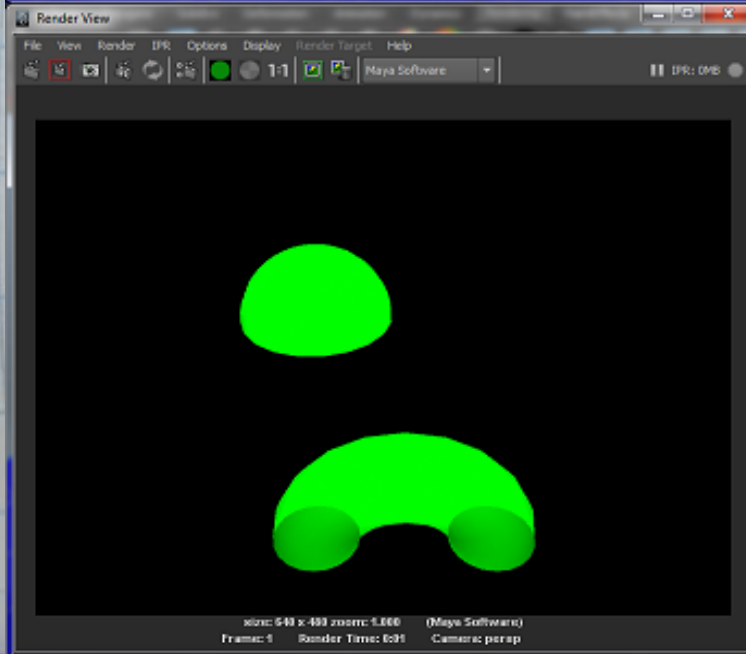
All -



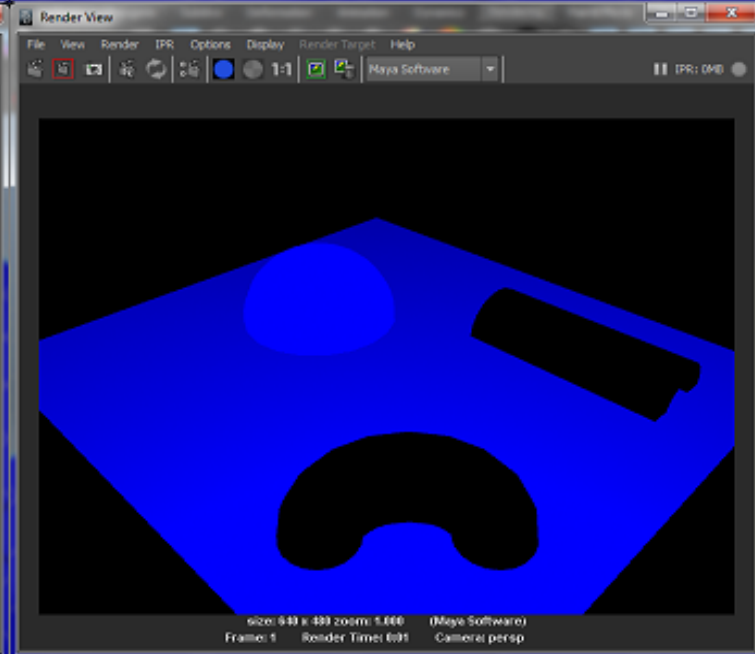
- Red



Green -

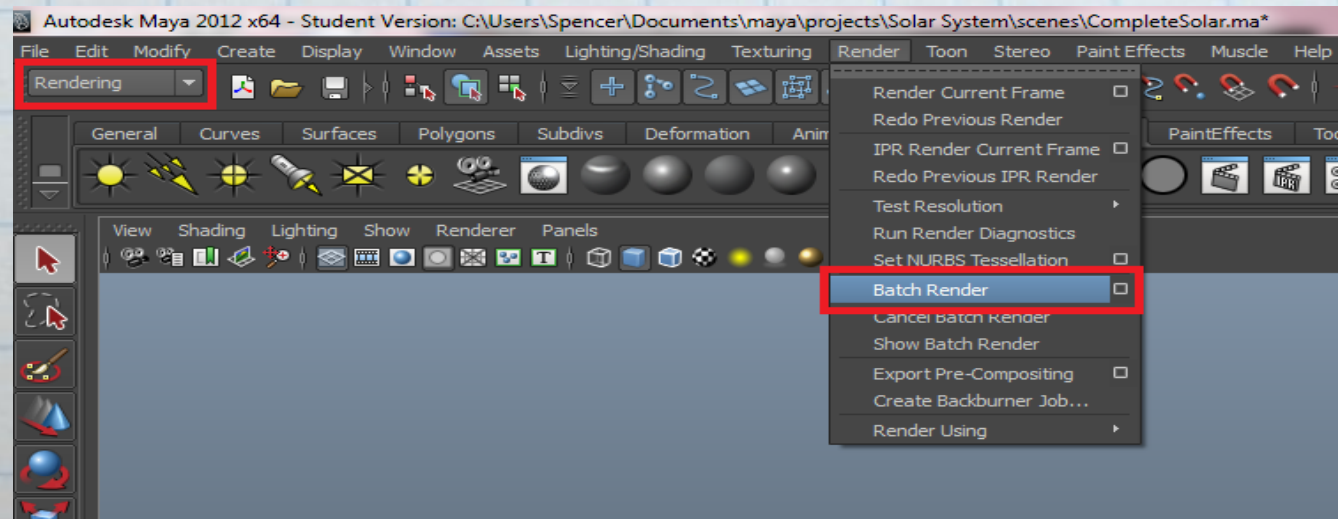
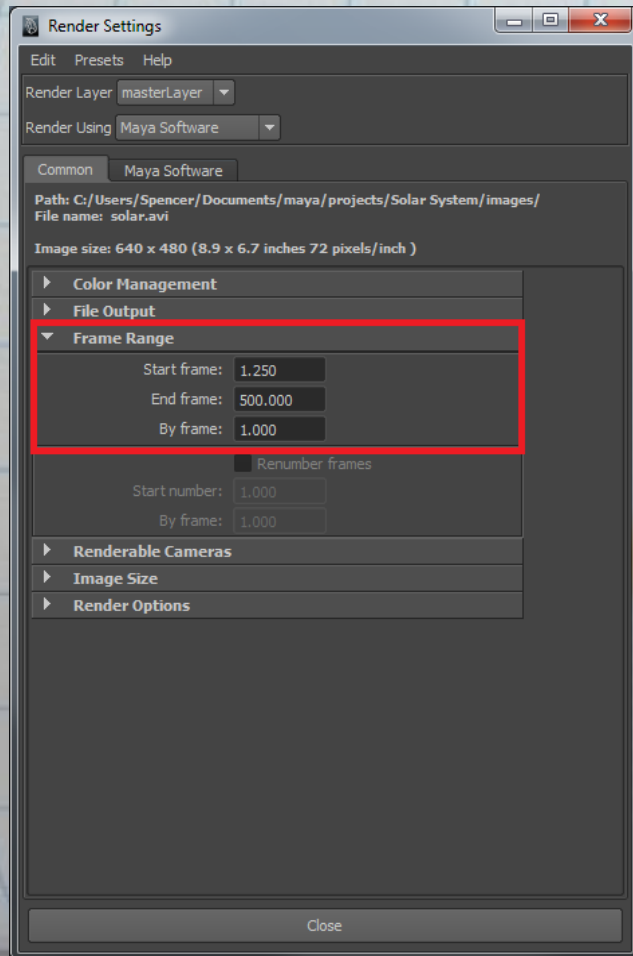


- Blue



Batch Rendering

Batch rendering allows you to render a sequence of frames either as individual images, or as a video (ex: .avi).



Batch rendering progress may be monitored in the script editor.

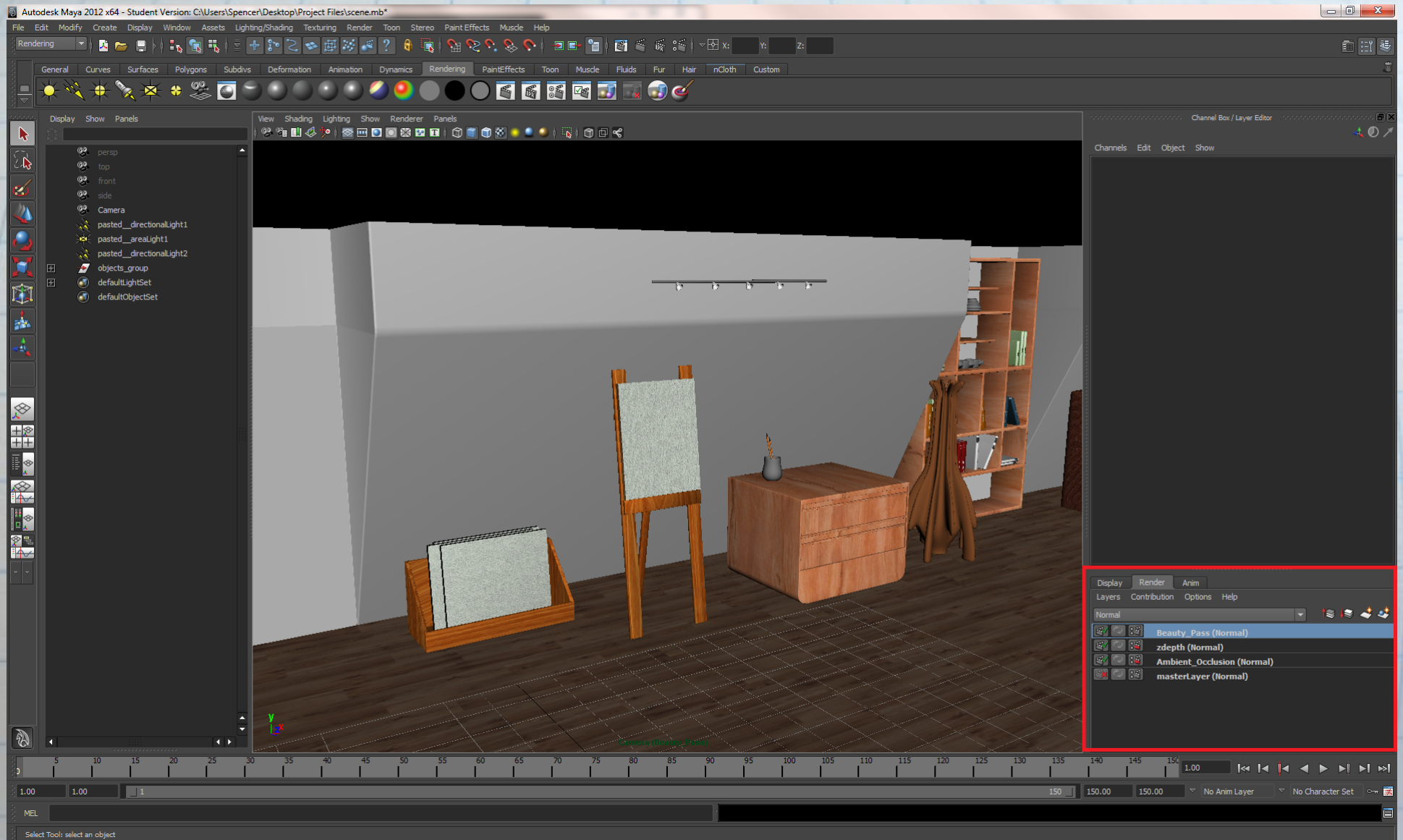
Render Layers

- A scene in maya may be separated into multiple separately rendered layers. Each layer may consist of any number of shading and rendering elements (color, shadow, material properties, etc.). This has several advantages:
 - Different layers may be rendered and displayed separately. This can be useful for inspecting different image elements.
 - Assigning computationally expensive scene elements (soft shadows, etc) to their own layer allows them to be rendered separately. This can reduce the render time for scene modifications substantially.
 - Potentially easier post processing.

Render Layers - Layer Membership

- All objects and effects are members of the Master Layer. This Master Layer exists for all scenes.
- Objects and effects may be members of any number of layers, anywhere from one layer (Master only), or all layers.

Render Layers

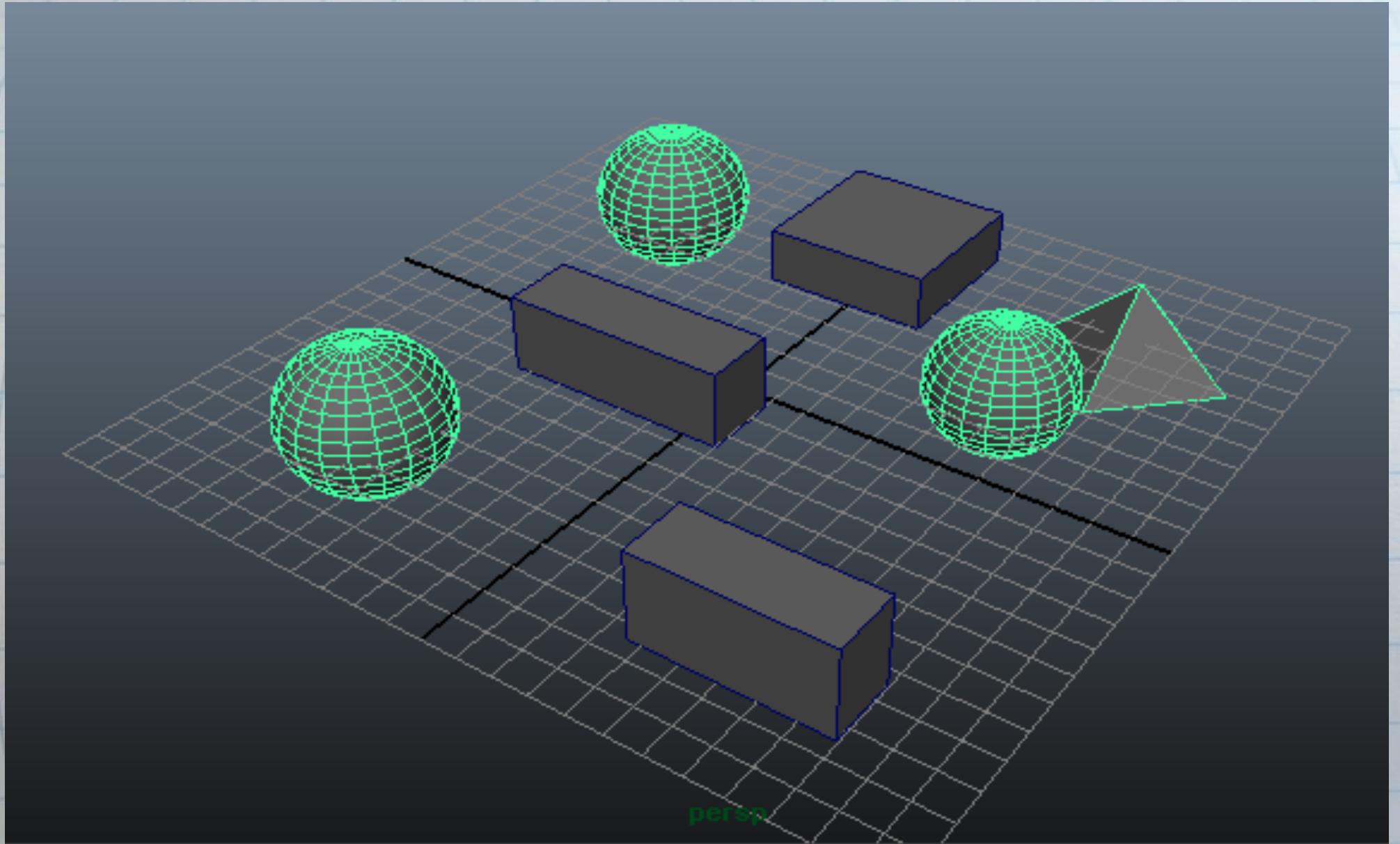


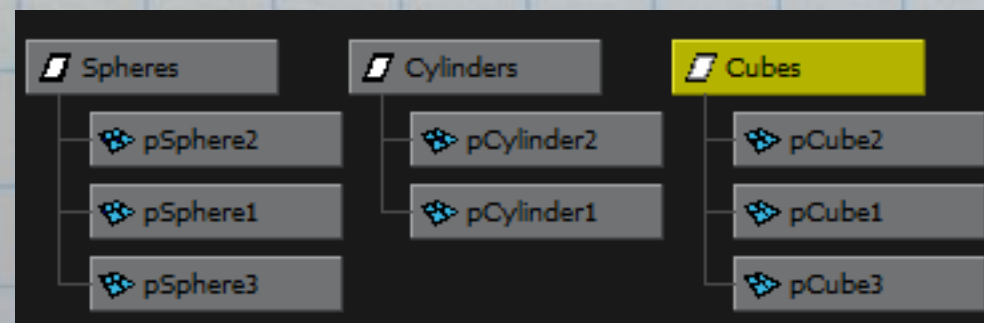
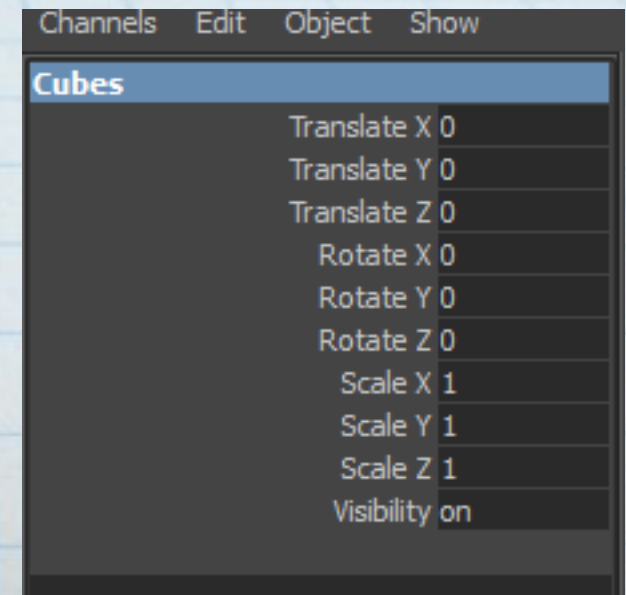
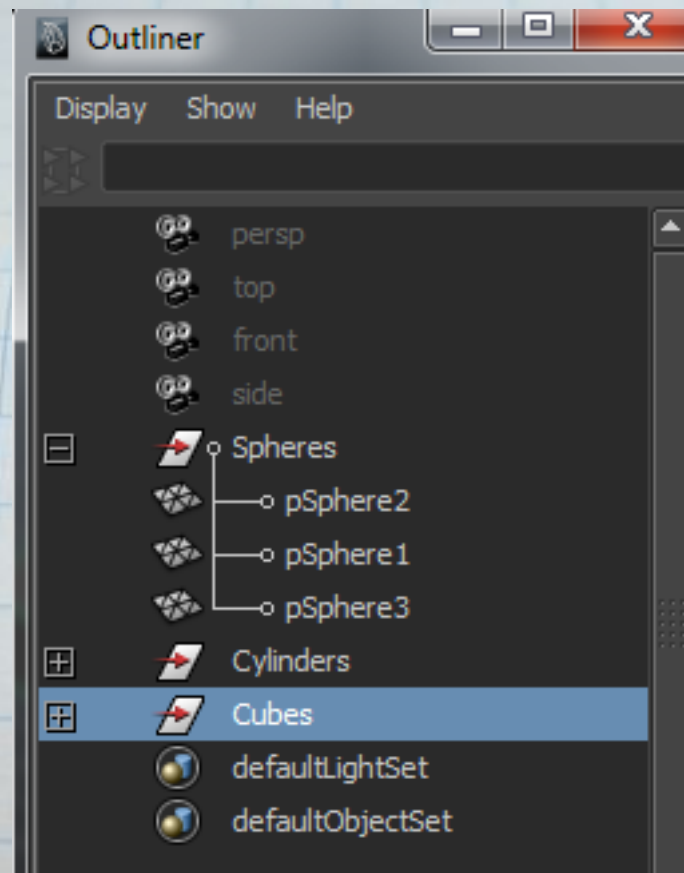
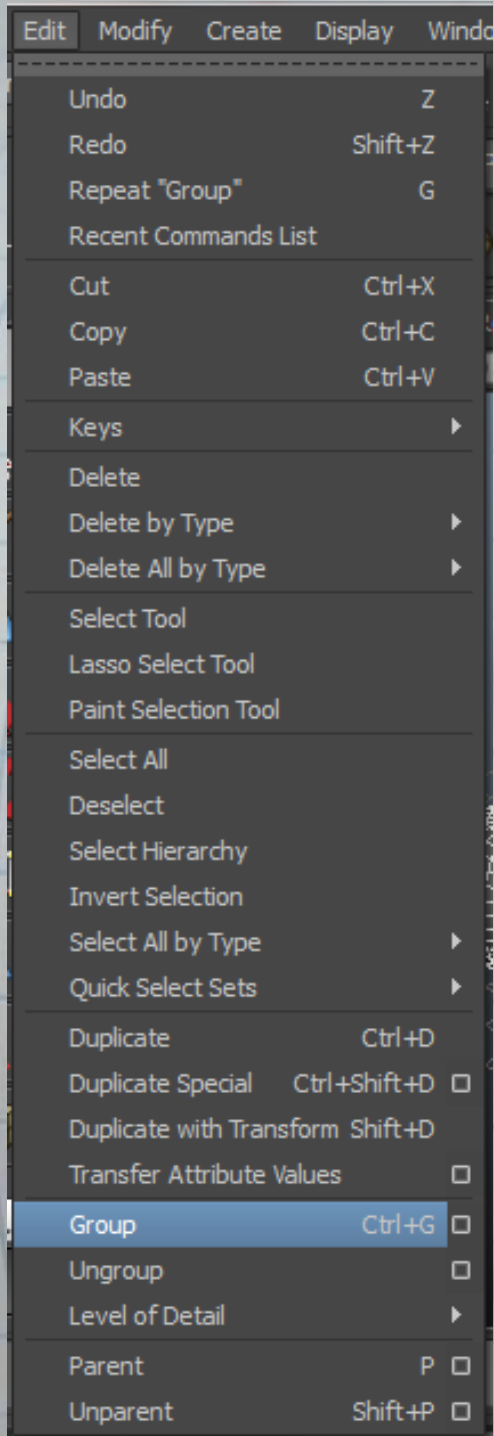
Render Layers



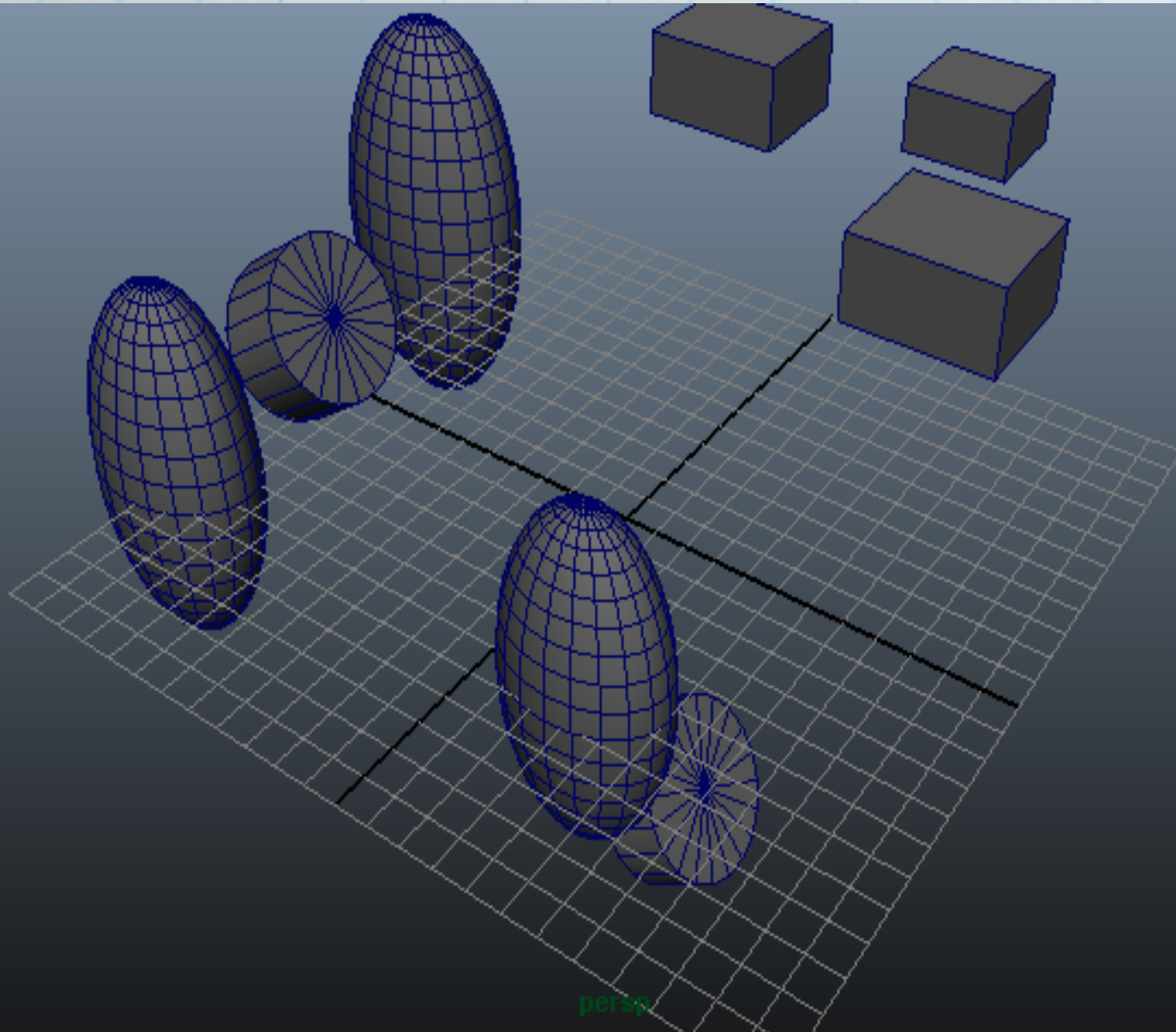
Image Source: <http://cg.tutsplus.com/tutorials/autodesk-maya/achieving-realism-and-depth-using-render-layers-in-maya/>

Groups



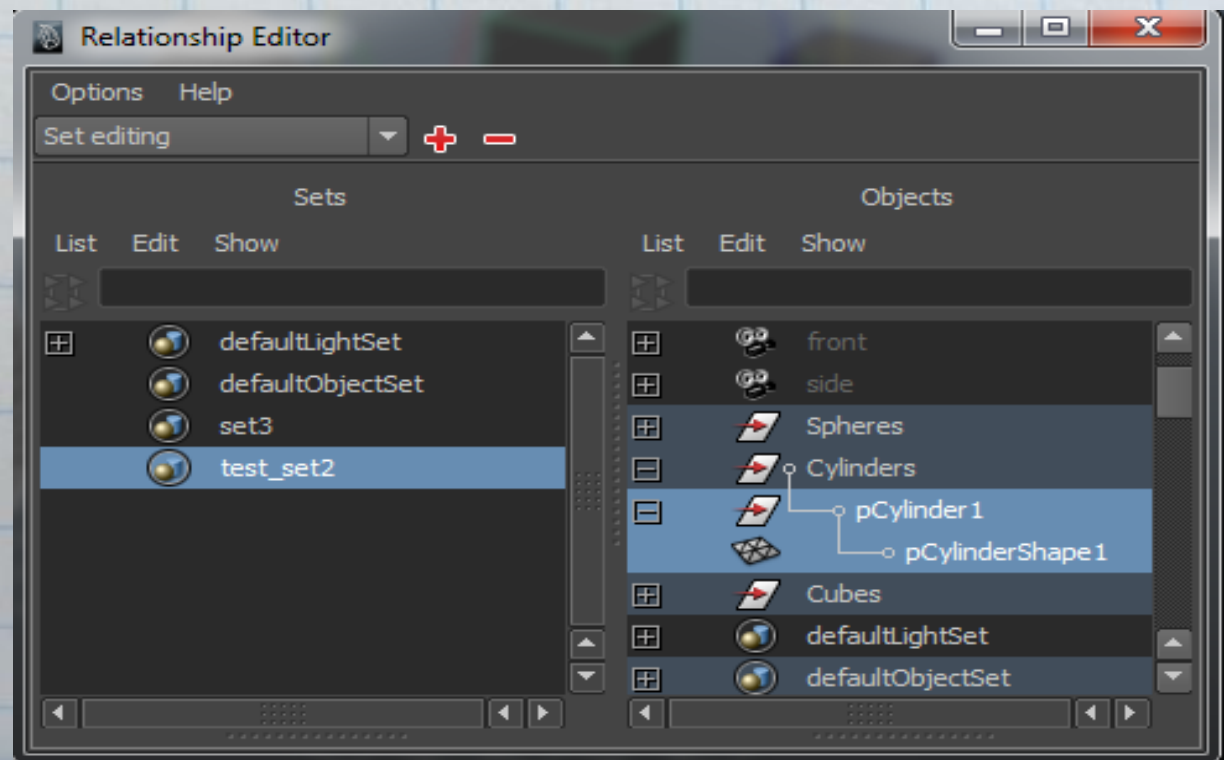
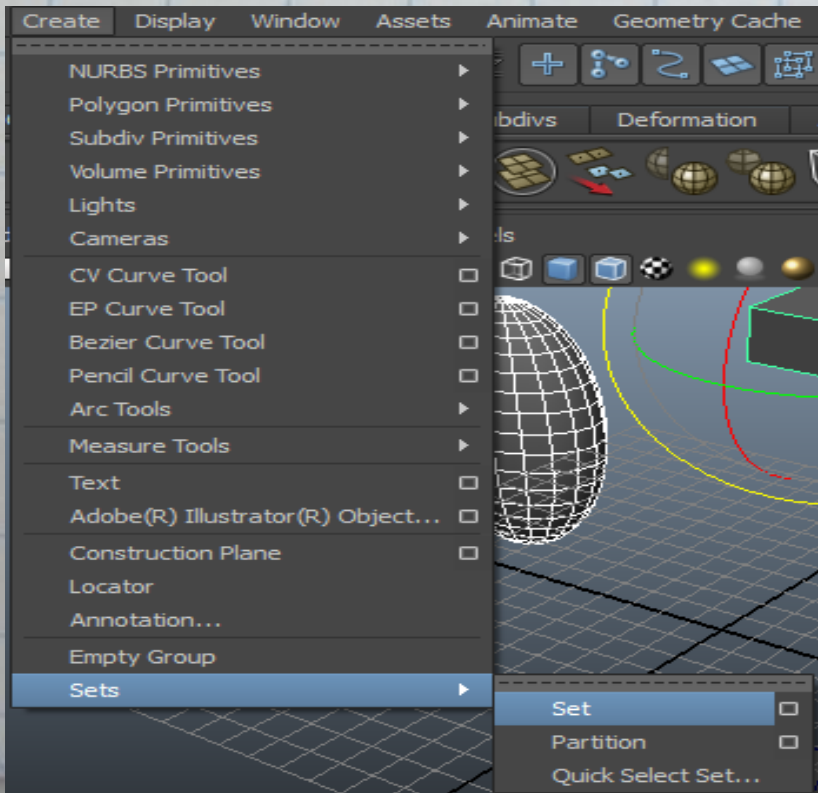


Scale, Rotate, Transform as a Group



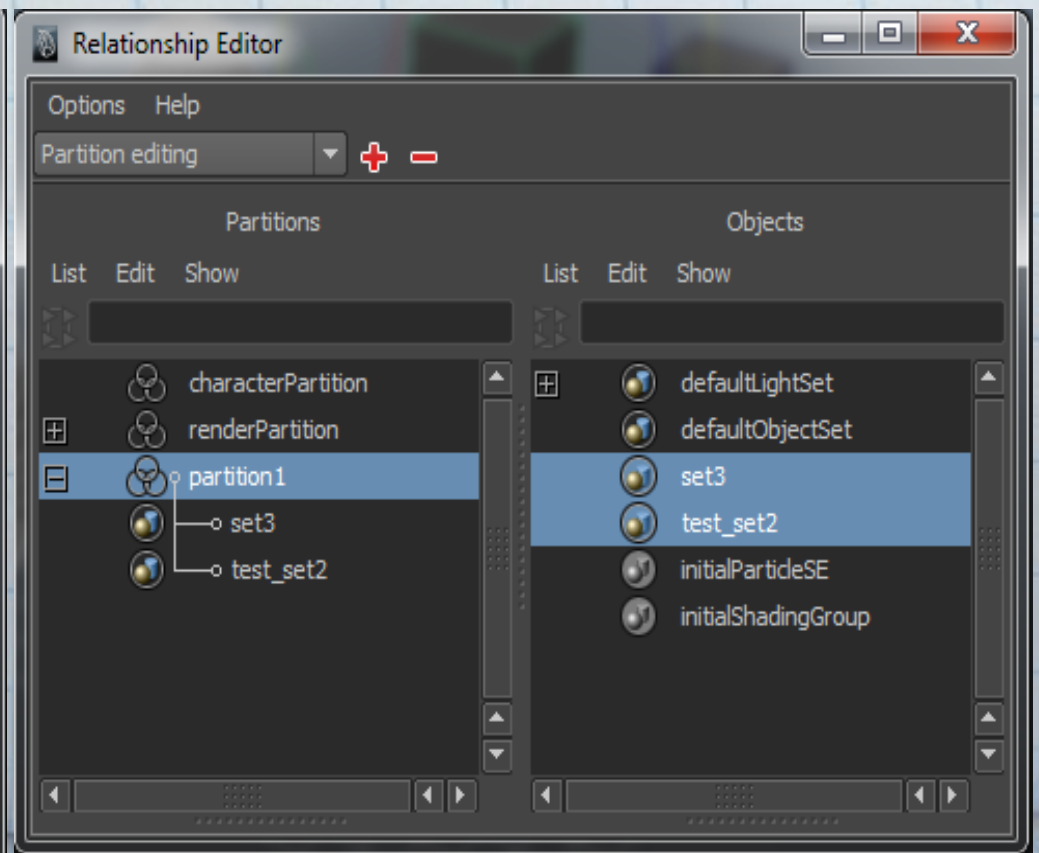
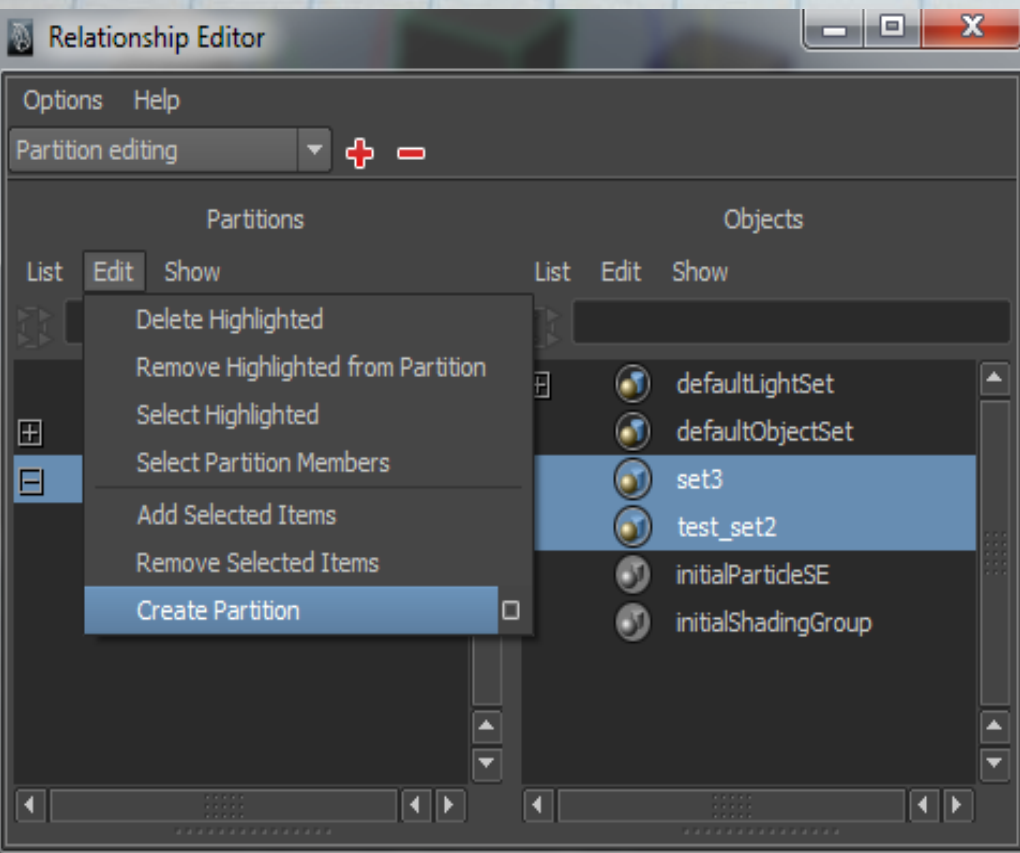
Sets

- A set is a collection of objects or components.
- The set exists as a separate object representing the collection.
- Unlike groups, sets do not alter the hierarchy of the scene.



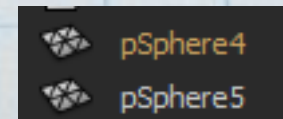
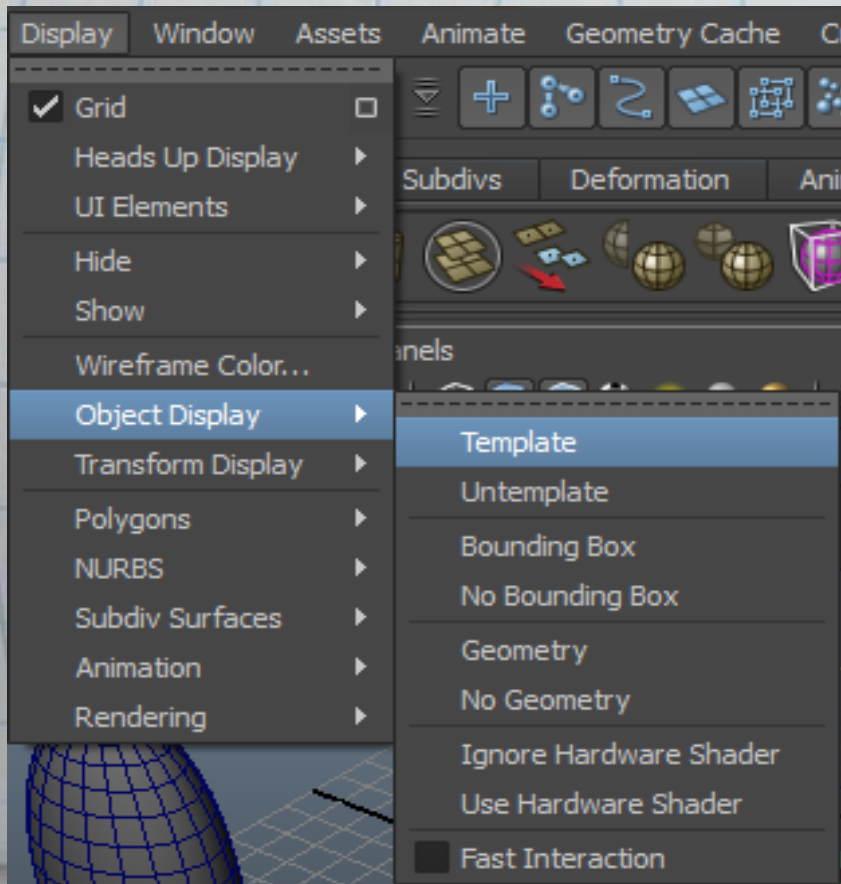
Partitions

- Collection of Sets with no overlapping members.
- Will automatically remove duplicates between sets.
- Create->Sets->Partition



Templates

- Selecting a single object in a complex scene can be difficult.
- You can make objects around the desired object unselectable by templating them.

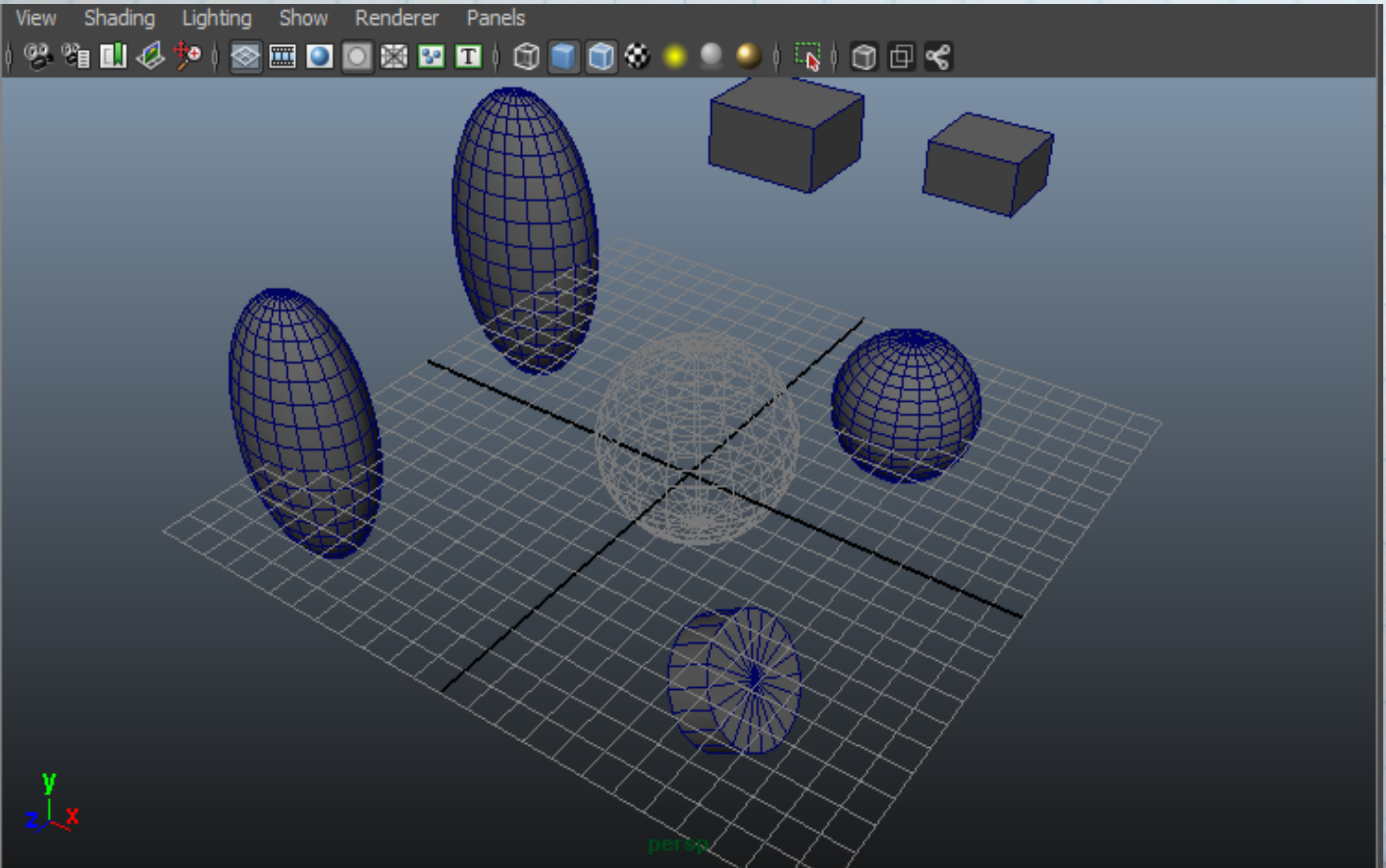


templated objects appear orange in outliner



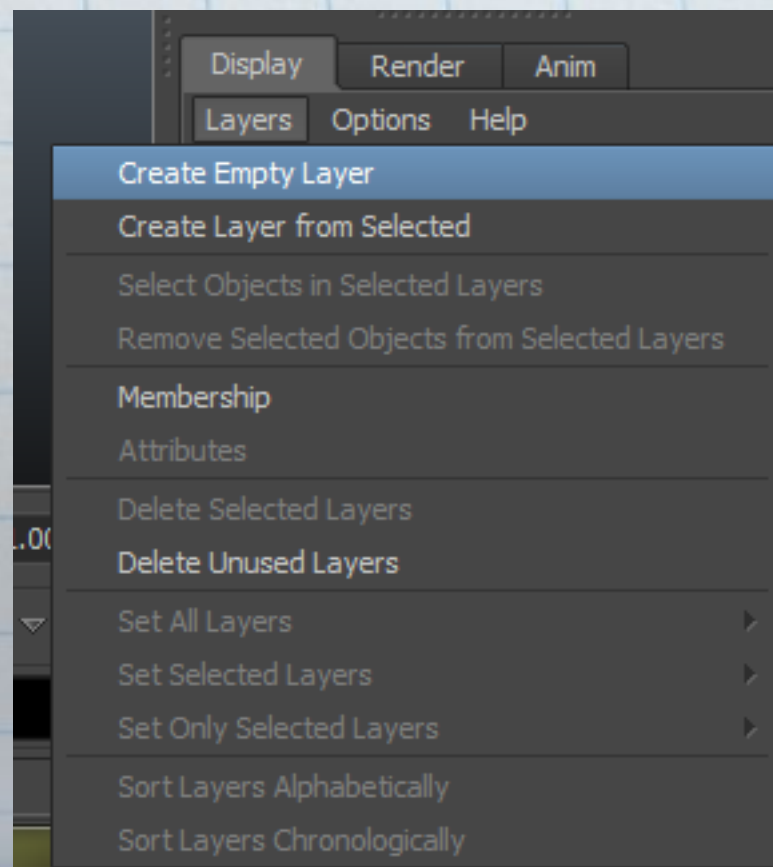
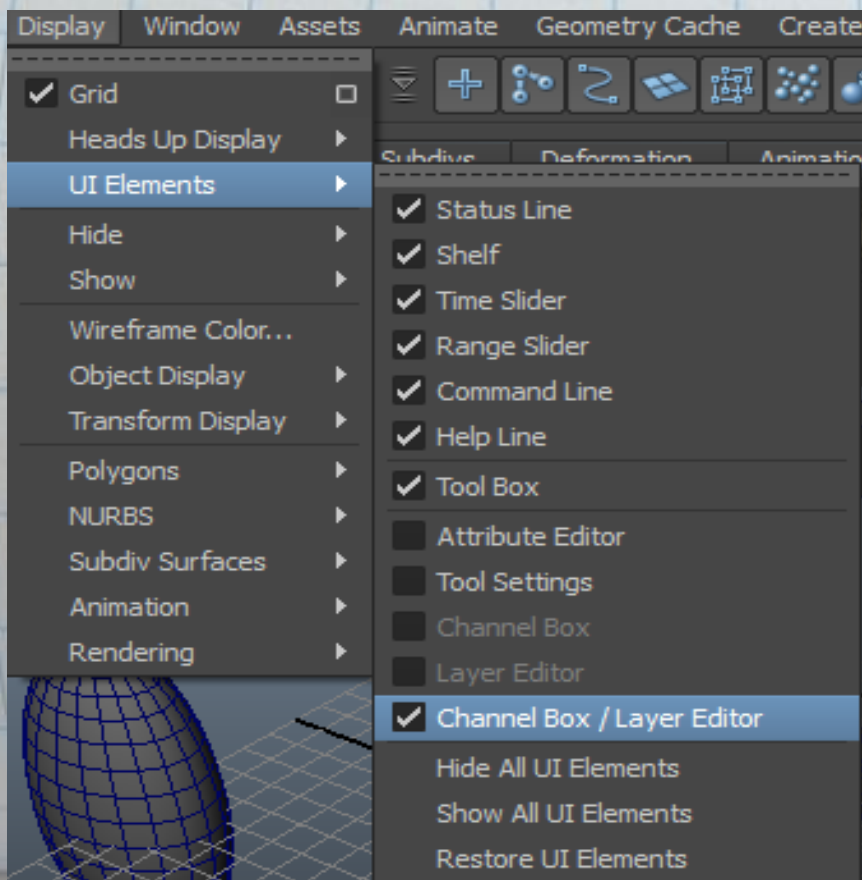
templated objects appear orange in hypergraph

Templated Object



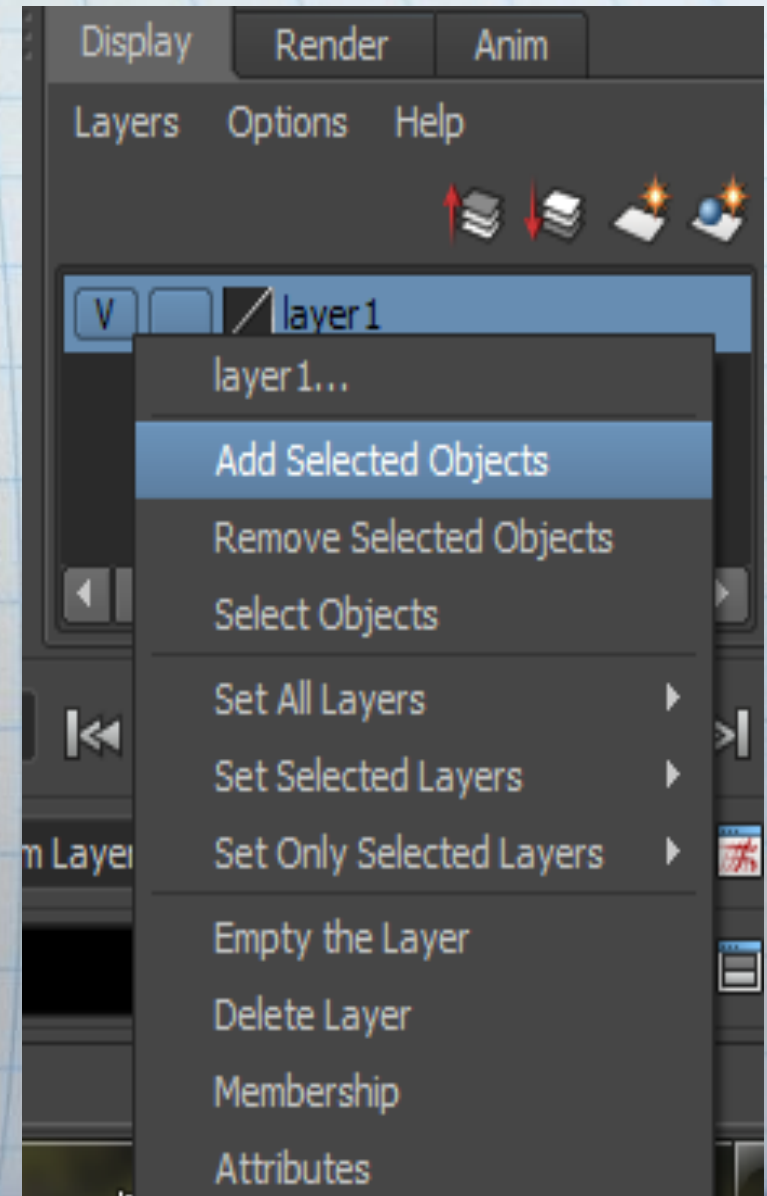
Display Layers

- Organize objects on separate display layers
- Show channel box/layer editor box
 - Display->UI Elements->channel box/layer editor



Display Layers

- Toggle Visibility of layer
 - This effects rendering as well
- Toggle Display Mode
 - Normal
 - Template
 - Reference
- Layer Color



Display Types

Normal - Displays normally

Template - Cannot select, doesn't render, and cannot snap to

Reference - Cannot select, does render, and can snap to

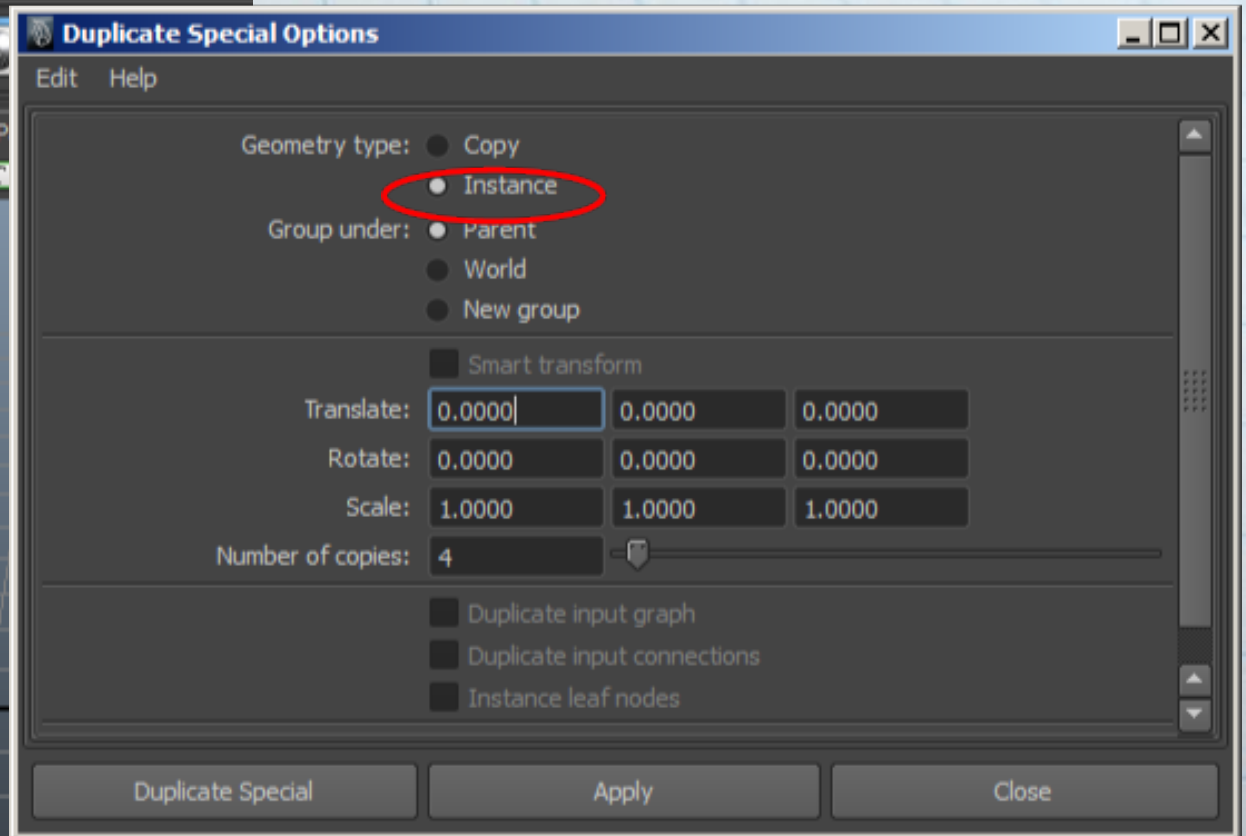
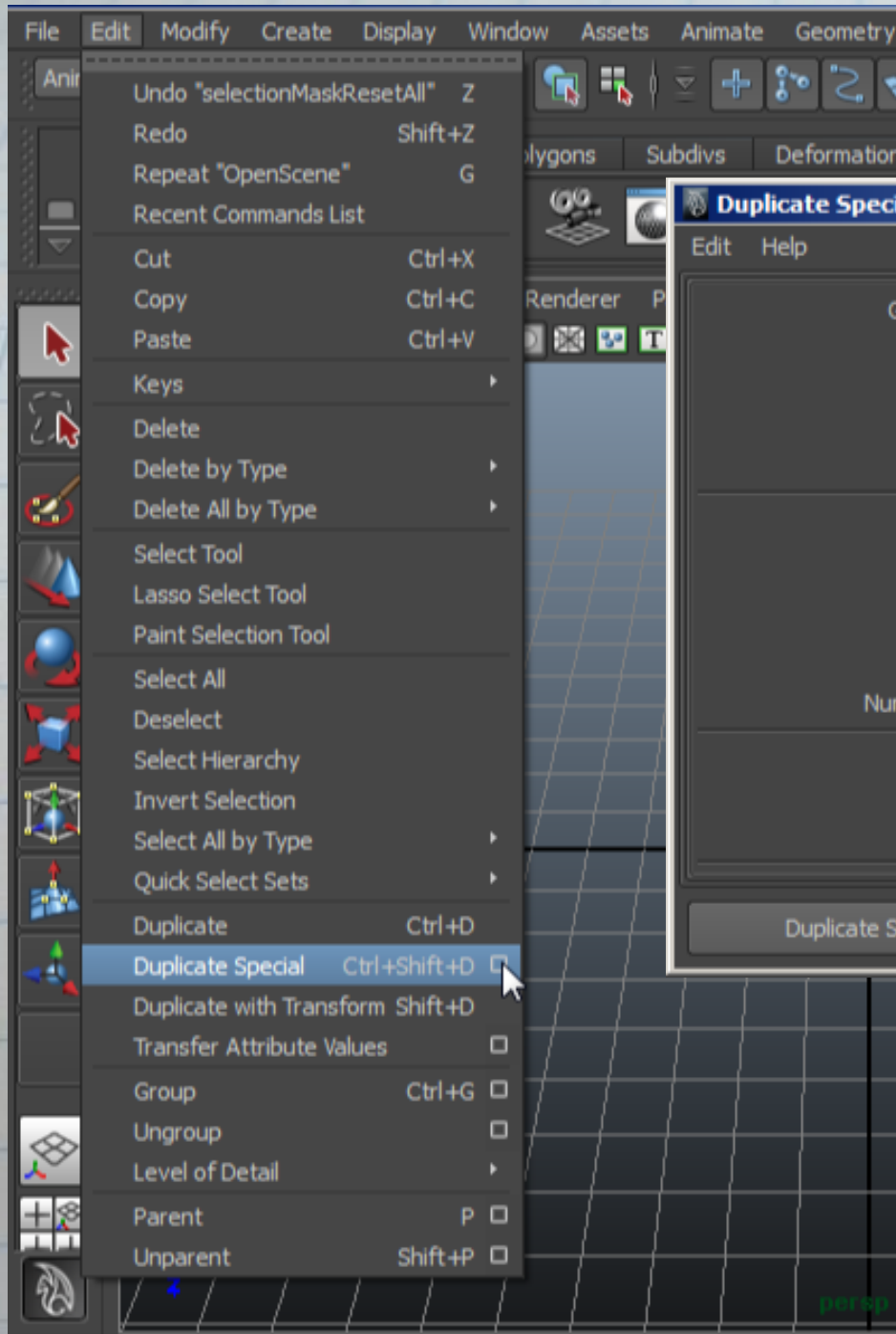
Copies vs. Instances

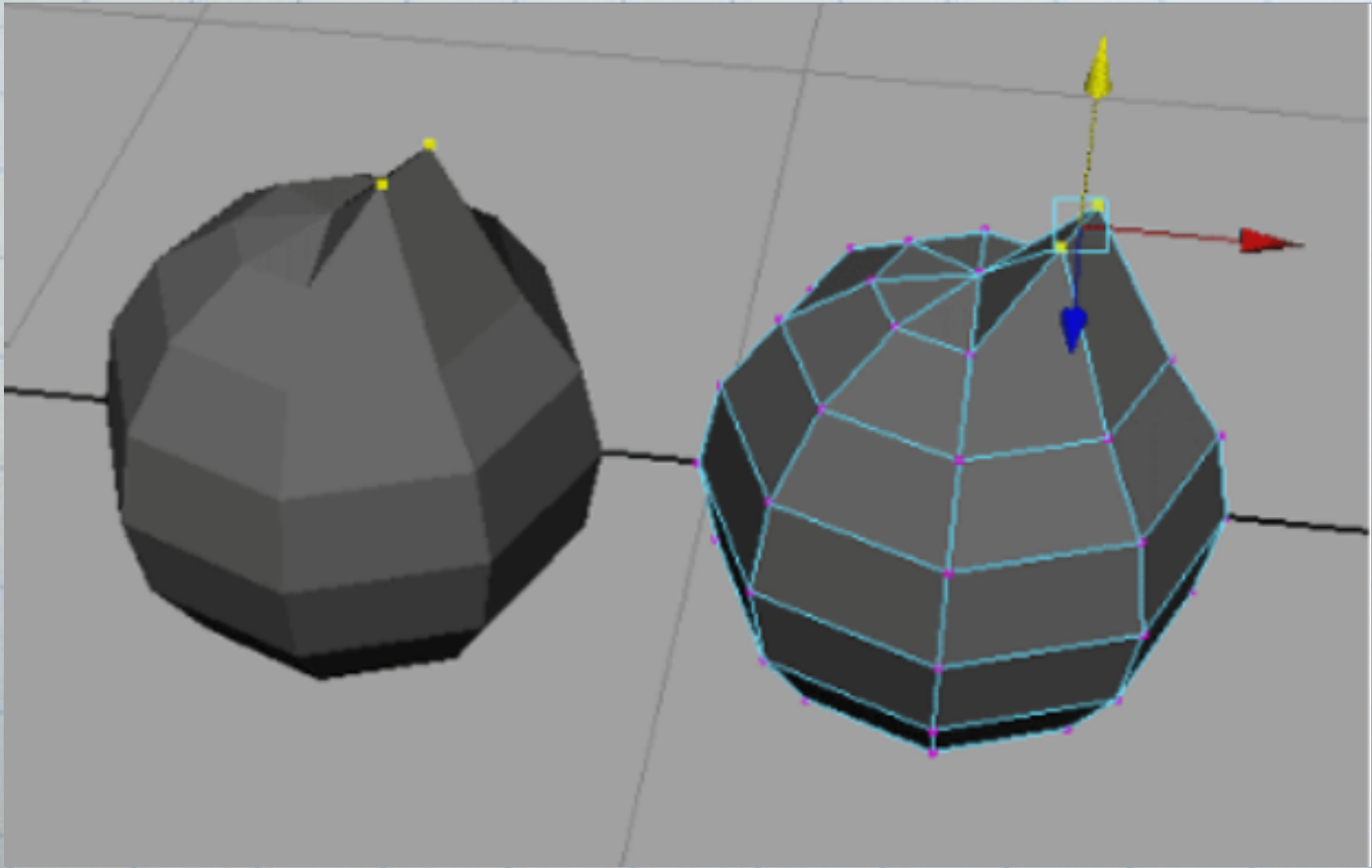
- Copy

- Common way to make duplicate of objects
- Separate object from the original object

- Instance

- A copy of the object that has exactly the same shape as the original (as does any other copy),
- but, reflect changes to the original.
- However, changes made to the instance won't have any affect on the original.





File Referencing

- With the file referencing function, we can assemble multiple objects (such as shading material, and animation, in a scene) into the scene without importing the files.
 - The contents in the scene can be read from pre-existing files which are separate and unopened.
 - Empowers you with collaborative production in situations where multiple users need to work concurrently by segmenting scenes.

File Referencing

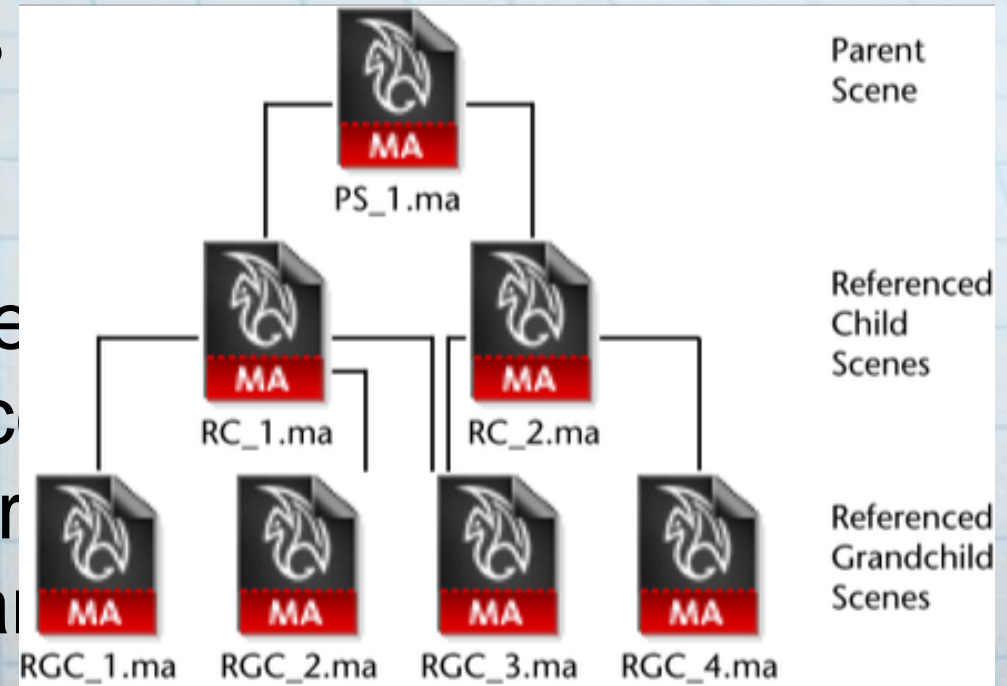
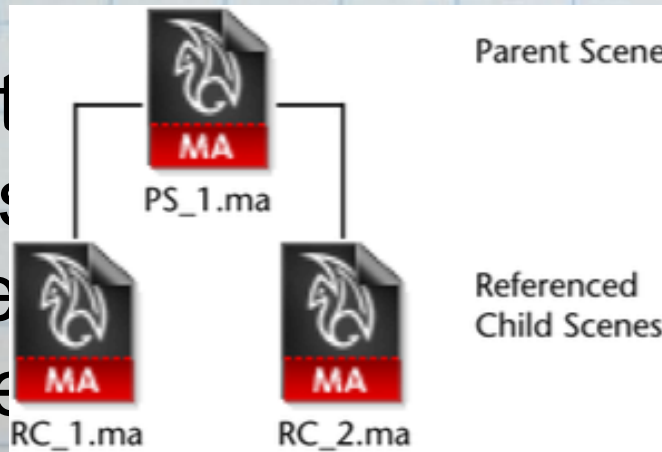
- Reference hierarchies

- Parent scenes

- A parent scene can be a referenced scene (level referencing)

level referencing)

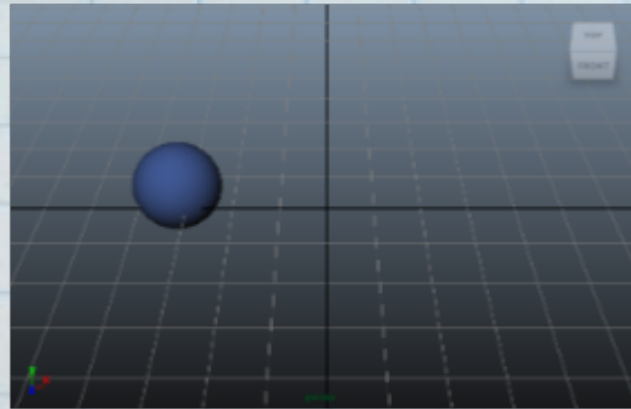
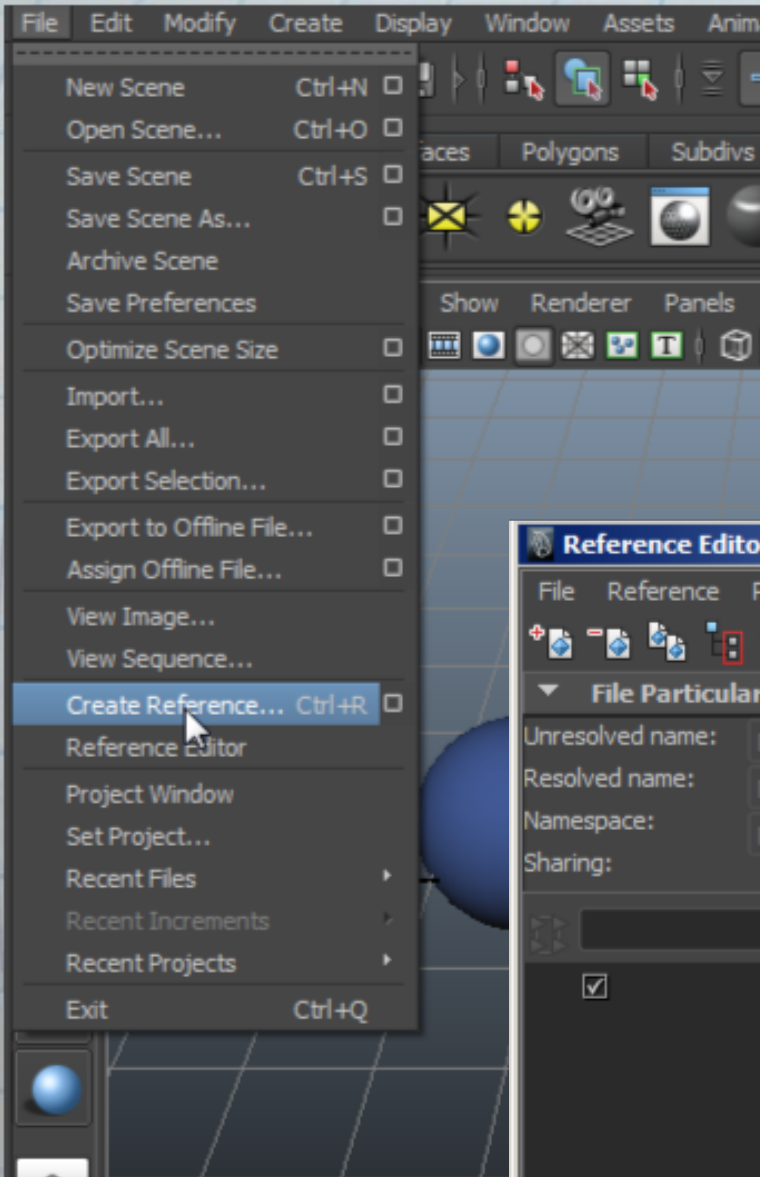
- the child scene becomes a grand child scene file.



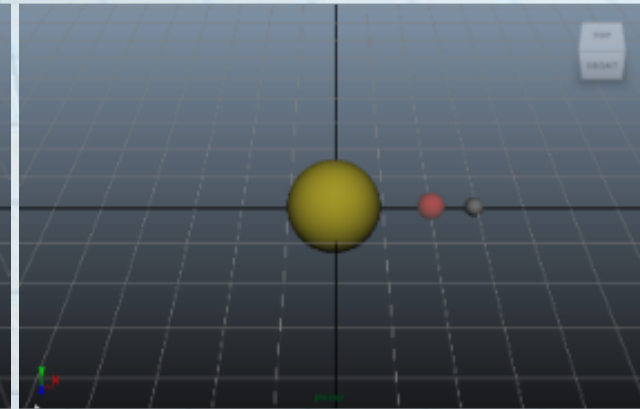
File Referencing

- Multi-level references
 - One method for segmenting various components and levels of display complexity with a complex scene.
 - Constructed from the bottom up.

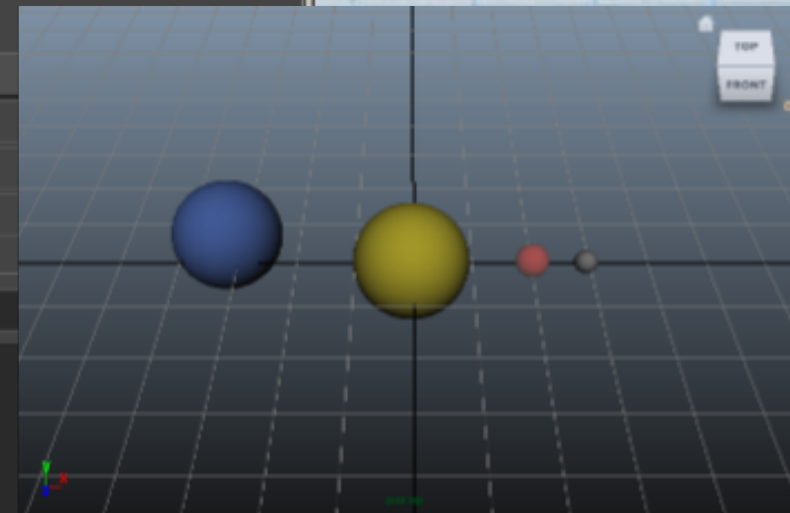
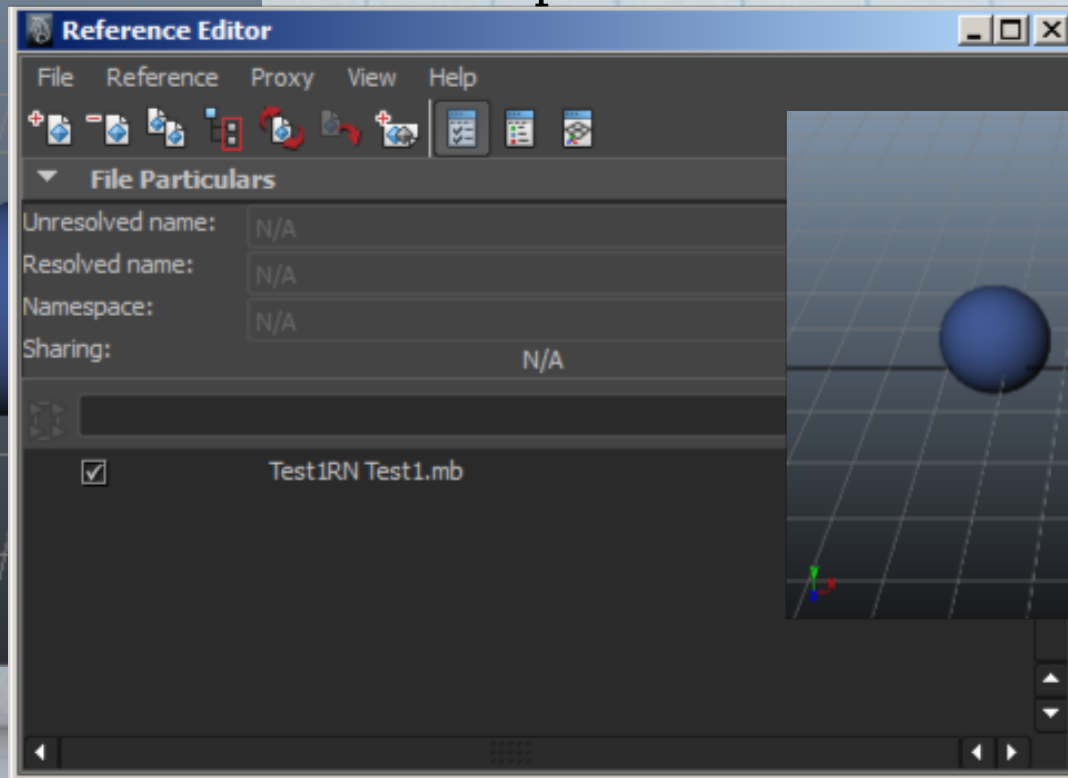
File Referencing



paren

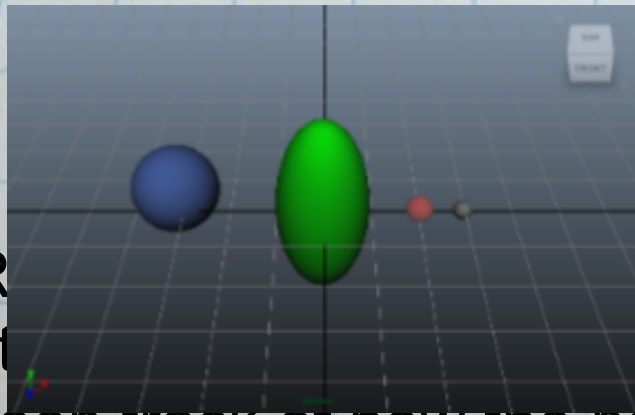


child

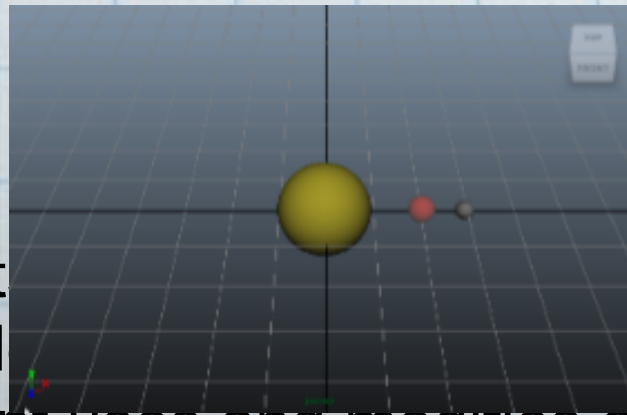


File Referencing

- When applying edits to the referenced objects in the open parent scene, the original referenced child scene is not modified.



paren
t

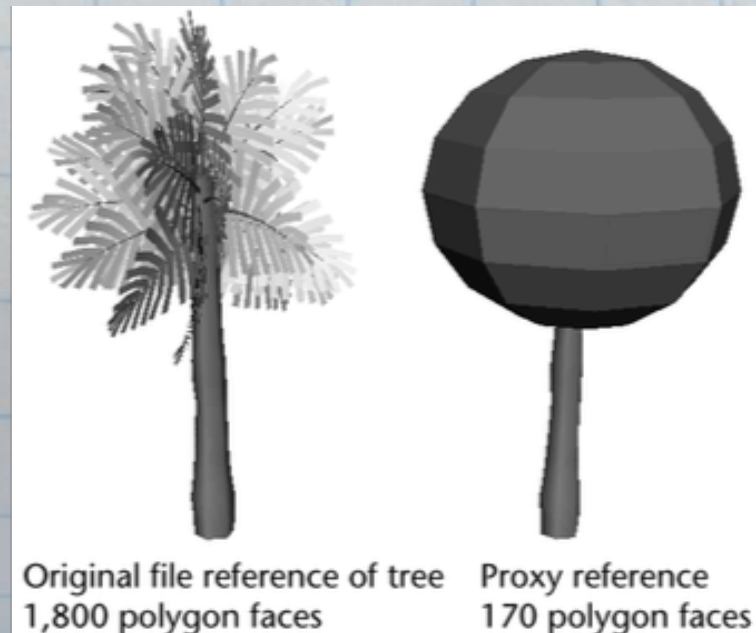


chil
d

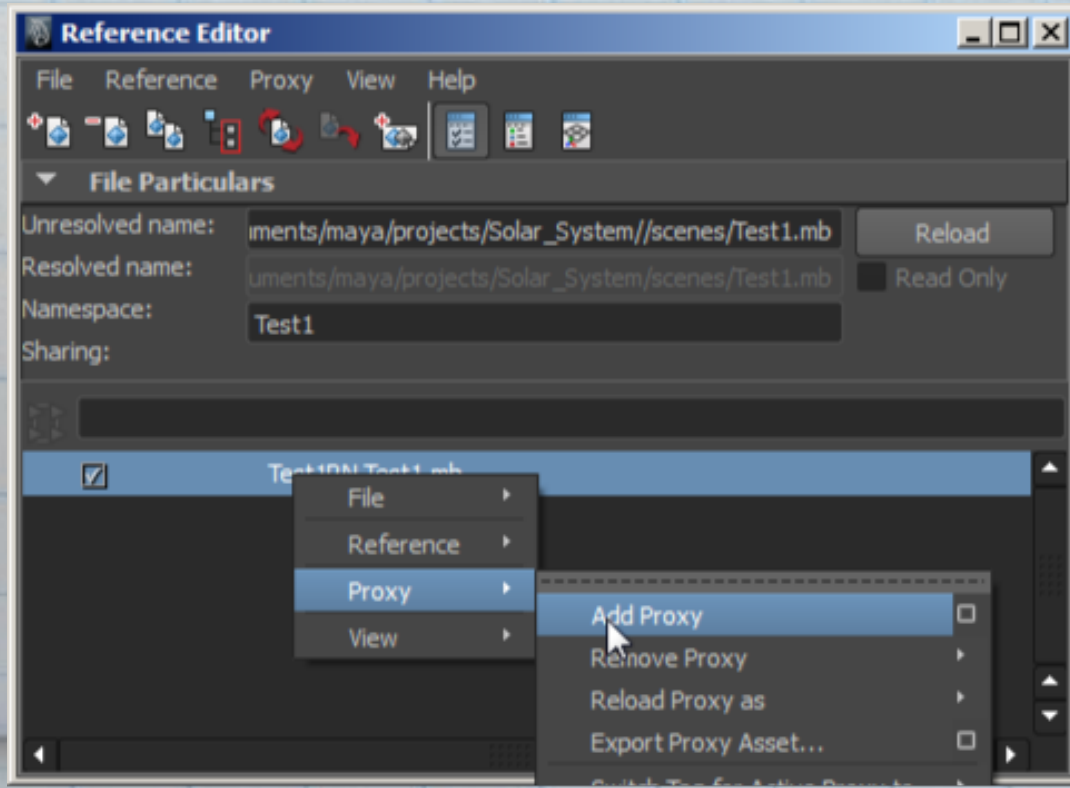
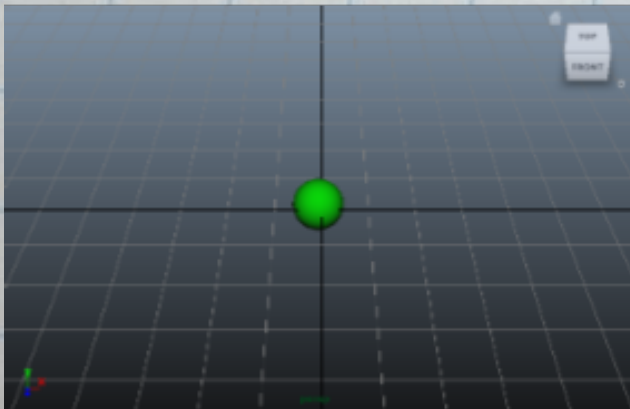
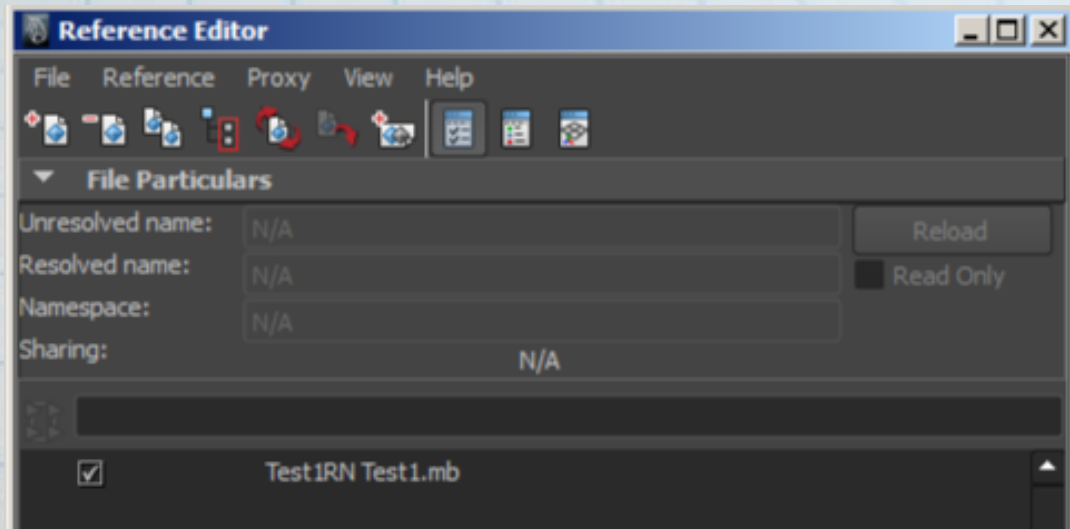
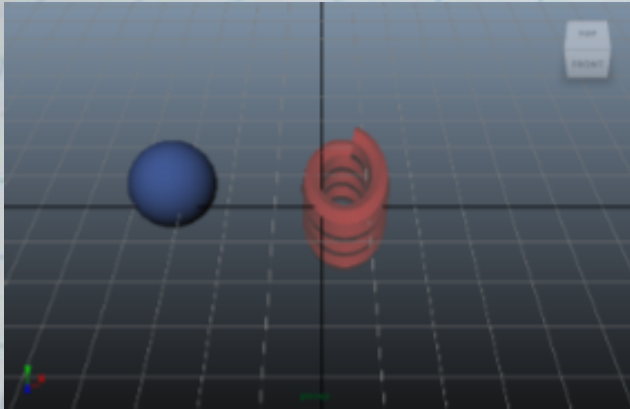
- Remember, when editing referenced objects in the parent scene, the original referenced objects are not modified. □
keep track of how the parent uses and modifies objects in a child.

Proxy Referencing

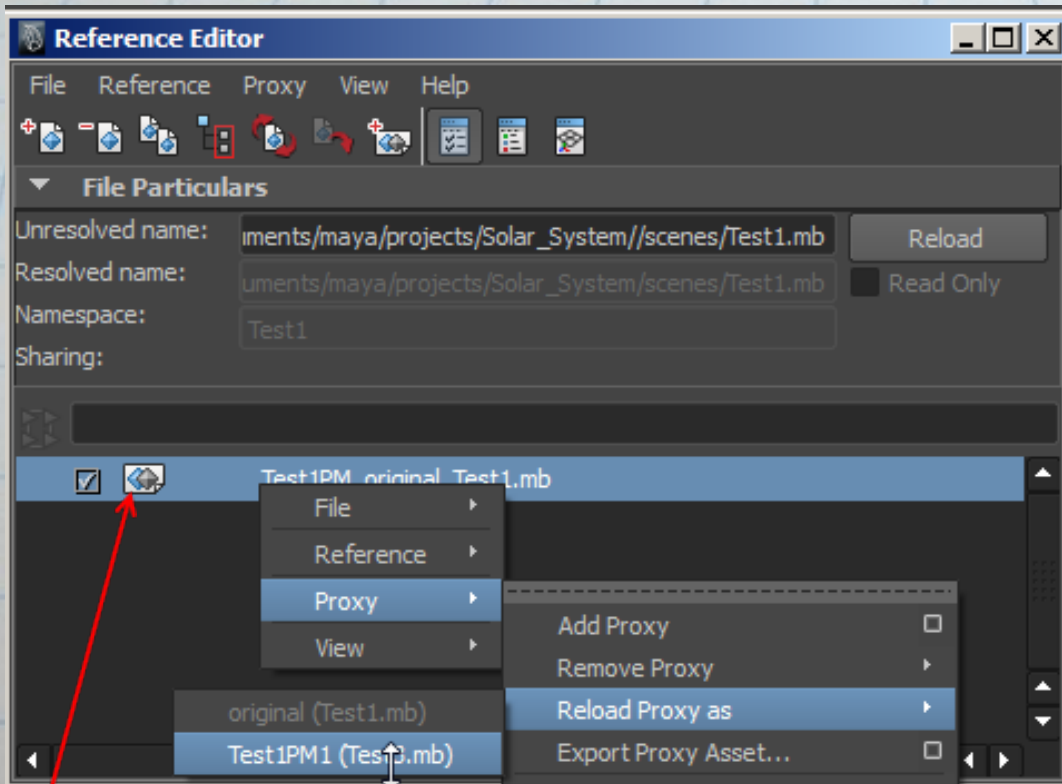
- Let you replace one or more file references by a set of possible substitute references (proxies).
- In most case, is used to temporarily simplify complex scene by substituting simpler versions of the objects into the scene.
- By substituting a simple primitive-based proxy version, we can obtain better interactive performance.
- A proxy cannot exist by itself □ can only be created for an existing file reference.



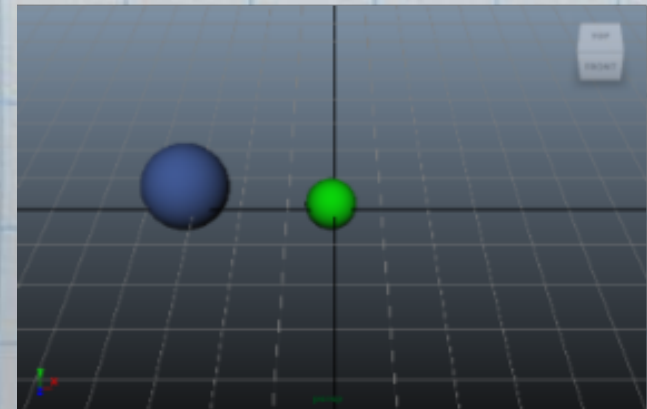
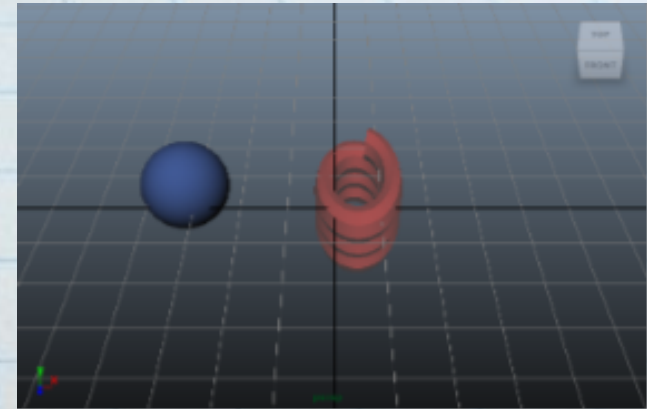
Proxy Referencing



Proxy Referencing



Means that proxy reference exist !



Thank you