

Art 384: Introduction to 3D Animation

mcdo@umbc.edu

Lecture 16

Schedule

- rigging review
- even more rigging
- practice with Fred/Rikki
- thoughts on integration

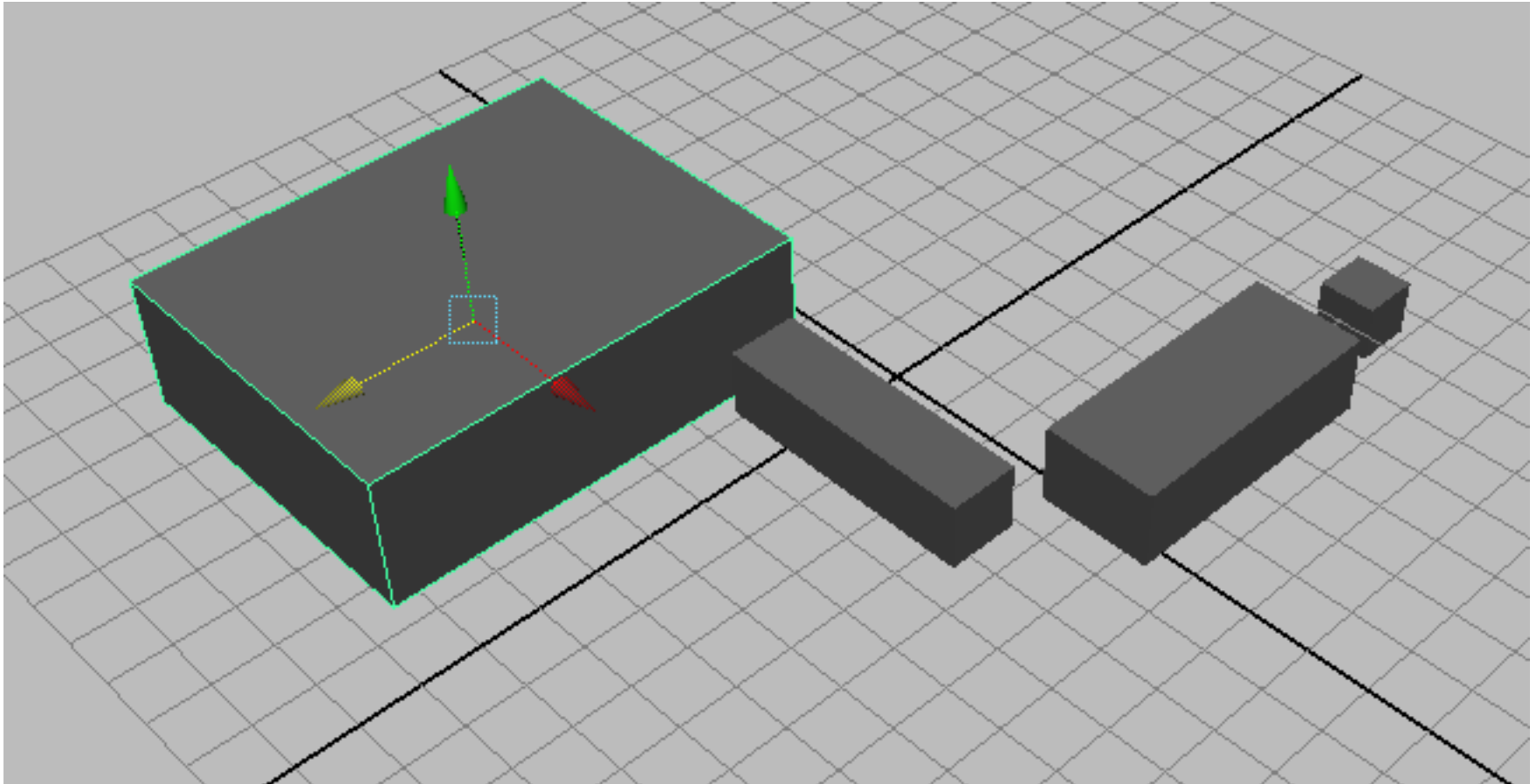
Rigging Review

- There are groups; they let you position stuff
- Groups have pivots; you can move the pivots
 - affects rotate, scale
 - insert button toggles manipulator

Hierarchies

- Groups can stack up
- Middle-mouse drag in outliner

Practice: make the arm again



Trouble with hierarchies

- non-1 scale affects all children
 - use "freeze transformations" OUTSIDE of rig
 - make the shapes the right shape, then group
- double rotations
 - don't select both a group and its children

Making joints

- Joints are groups with a little extra
 - different underlying code
 - allows the use of IK
 - looks different
- Use the "joint" tool; draw a line
- The balls are the joints
 - ball centers = pivot
- The hierarchy of the joints is represented by the cones

Making IK

- Make a line of 4 joints
- Get the IK tool
- click on the second and last joint
- you get a new controller
- use it to move all the joints
- IK = Inverse Kinematics
 - instead of moving from root to leaf, (FK)
 - move the leaf, and the groups above it follow

Rigging, Advanced

- Rigging is in three layers
 - control
 - skeleton: groups, joints, IK
 - model: polygons, NURBS, whatever
- Instructions (animation keys) flow down:
control -> skeleton -> model

Adv. Rigging

- Control layer is just interface
 - don't render it
 - use it to control the skeleton
 - be careful that the controls don't fight
 - hard to do
- control layer can look like anything, can do anything
 - design it for ease of use
 - helps to know how it will be used...
 - controls can control other controls!

Skeleton Layer

- Skeleton layer = groups
- Controls are attached to the skeleton by *constraints*
- The constraints move the groups
 - IK seems controll-ish, but it has a specific interface that is generally superceded by more controls
- The groups are the parents of the parts of the model

why all these layers?

- Don't just move the model!
 - breaks the model
 - use groups!
- Groups are a mess
 - digging through the hierarchy to get to the part you want
 - maybe getting the wrong part
- Controls protect groups and models from improper manipulation
 - they can also make animation a lot easier

Practice

- Make Rikki wave her arm
- Make Fred pick up a gun
- Make Rikki and Fred high-five

Building a scene for Rikki

- Rikki will not scale
 - messes up the IK/FK
- Make sure you're building on HER scale