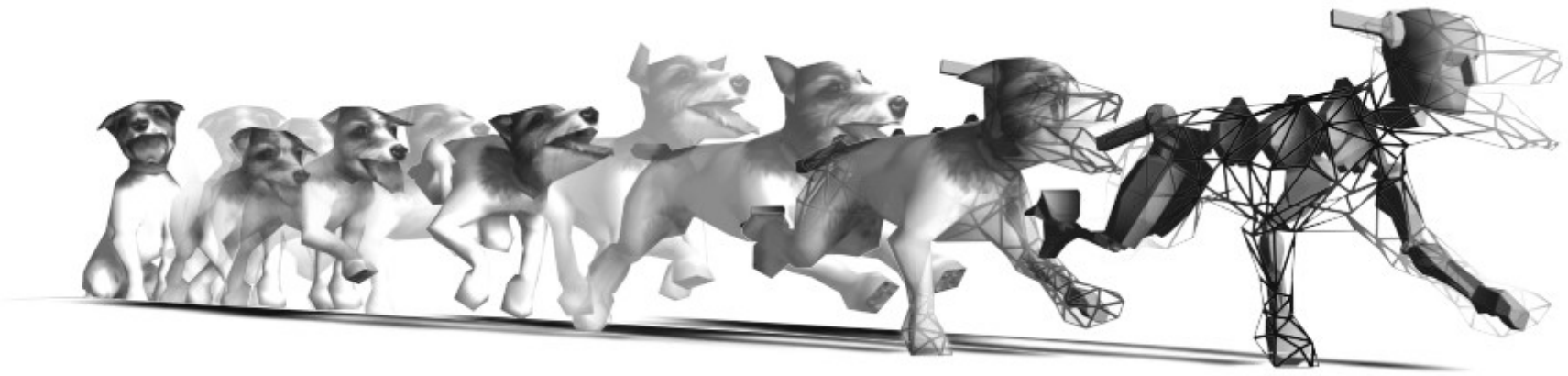
Chapter 6.7
Animation



Overview

- When to use animation
  - Feedback to player about interaction with UI and in-game action
  - Communicating environmental conditions
  - Conveying emotion and expression in player characters and NPC
  - For visual appeal and dynamic interest

About the Animator

- Responsibilities
  - Hand animate simple and complex objects and characters
  - Set up character rigs (skeletons)
  - Export, test, and revise motions
  - Work with motion capture data
- Expectation
  - Understand animation principles
  - Design custom, often specialized moves that "read"

2D Versus 3D Animation

- Borrow from traditional 2D animation

Image courtesy of George T. Henion.

- Understand the limitations of what can be done for real-time games
- Designing 3D motions to be viewed from more than one camera angle
- Pace motion to match game genre

Production Workflow

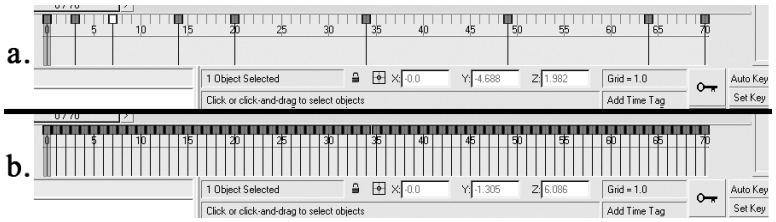
- Modeling and texturing objects to move
  - Mesh design to support bending
  - Single mesh vs. segmented mesh design
- Setting up a skeletal system
  - Proper placement of bones and joints
  - IK vs. FK systems
  - Setting up controls - pros and cons
- Binding the mesh to the skeleton

Binding a Mesh to a Rig

- Vertex weighting
  - How to assign and define bone influence
  - Adjusting envelops
- Testing and trouble shooting
  - How to revise vertex weight values to address problems
  - Finer single vertex control

Keyframed Animation

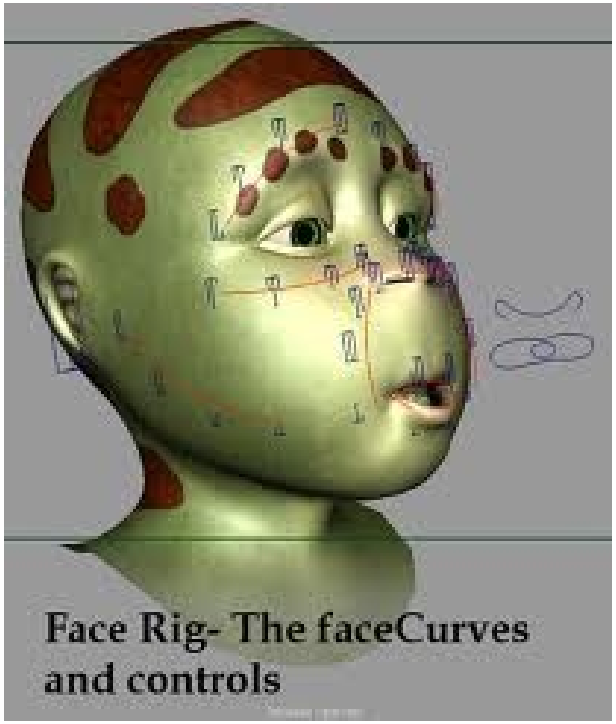
- The timeline
  - Creating and adjusting keys
  - Adjusting playback speed
- Pose-to-pose approach
  - Extreme poses
  - In-between motion
- Kinematics systems
  - Forwards kinematics (FK)
  - Inverse kinematics (IK)

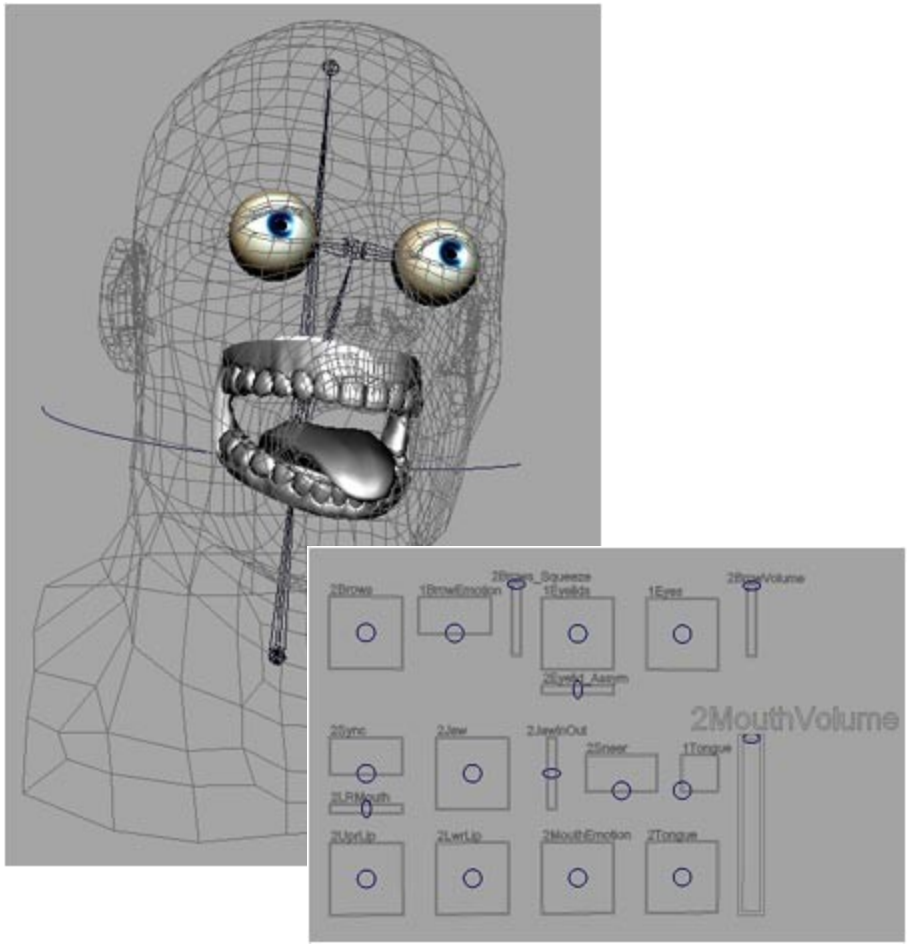


Facial Animation

- When to consider using
- Systems commonly used for setting up
  - Morph target set up
  - Skeletal rig system
- Trade offs of each
  - Realism
  - Controls
  - support

Facial Animation





Motion Capture

- When to consider using *mocap*
  - Style considerations
  - Specialized moves
  - Cost effectiveness
- Technical understanding of data
- Preplanning for a “shoot”
  - Creating a well planned Move or Shot List
  - Knowing the pipeline to be used
  - Finding and directing skilled talent

Motion Capture