Introduction to Computer Animation

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Lecture 3

Planning an Animation

- Put your ideas onto paper first
  - Write down what you intend/want to do
- Rough Storyboard
  - Drawings (normally done by hand) of key points in the film
  - Textual descriptions of action in a scene
- Three types of storyboard…

Storyboards

- Drawings of key scenes used to guide the animators/sell the project!
- Conceptual
  - Basic visual ideas
  - Camera positions
  - Abbreviated notes
- Production
- Presentation
  - Highly detailed
  - Show key scenes/action
  - More descriptive notes – not too technical

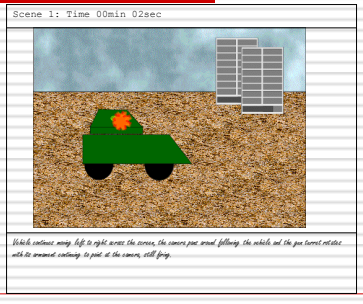
Production Storyboard

- Guides production of the animation
- Very detailed
  - Precise information on camera angles, character placement, lighting etc…
- Written information
  - Information on movement within the scene, cameras, characters
  - Important points for rendering
  - Timing and transition information

Production Storyboard (2)

- Timing
  - Scene-and-shot numbers
  - Elapsed time
- Sound track information
- Dialog (Character/voiceover)

Storyboard example



Animation

Timing

Timing is…

- The accurate portrayal of movement, giving an illusion of life
- Developed through study of movement
- An absolute requirement for good animation
- Obvious when it goes wrong
- Not noticed when it goes right

Realistic Motion

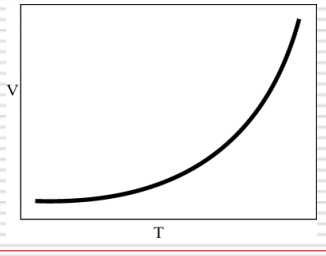
- Inertia
  - Objects have to overcome inertia
  - a property of matter by which it remains at rest or in uniform motion in the same straight line unless acted upon by some external force
- Momentum
  - a property of a moving body that determines the length of time required to bring it to rest when under the action of a constant force

Easing-in/Easing-out

- Animation requires realistic/believable movement
- Few things stop/start abruptly
  - A car doesn't go from 70kph to 0kph over the course of 1 second – or from 0-70kph in the same time period

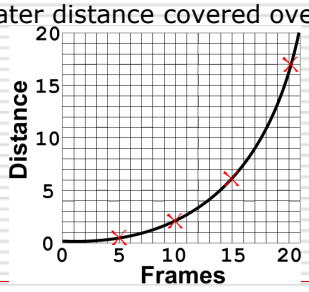
Easing-out

- Gradual increase in velocity



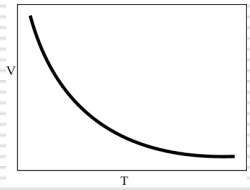
Ease-out (2)

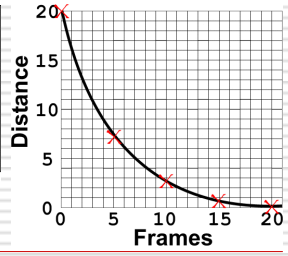
- Greater distance covered over time



Ease-in

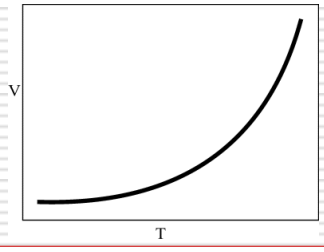
- Opposite of ease-out



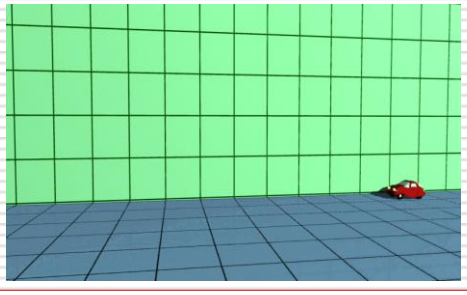


Examples

- Ease-out

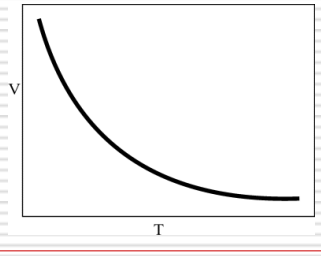


Ease-Out

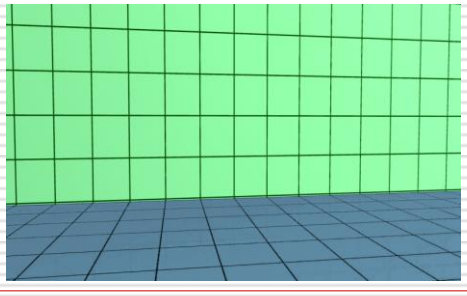


Example

- Ease-in



Ease-In

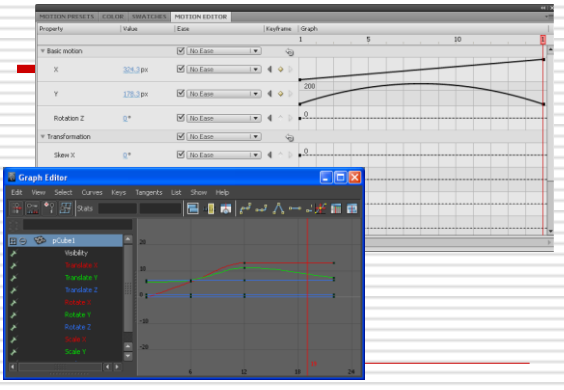


Easing - How do we do it?

- Traditional animation
  - Add more frames for the same amount of action
    - Works with some things like cars slowing down
    - Not so good for character animation where gestures may change as characters change speed and different parts of a character slow down at different rates

Easing on the computer

- Computer animation
  - More powerful software comes with tools for ease-in and ease-out at the start and end of animated sequences
    - Flash – options with tweening and curve editing
    - 3D Applications uses a graph editor with more sophisticated options (more about this in a later lecture)



Today's Lab

- Easing