LET US ENTER INTO THE MAGICAL WORLD OF ANIMATION

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Computer Animation

What is Animation?

Make objects change over time according to scripted actions

What is Simulation?

Predict how objects change over time according to physical laws

Introduction

•**Computer animation** is the process used for generating animated images (moving images) using computer graphics.

• **Animators** are artists who specialize in the creation of animation.

•From Latin **animātiō**, "the act of bringing to life"; from *animō* ("to animate" or "give life to") and *-ātiō* ("the act of").

2D ANIMATION

3D ANIMATION

APPLICATIONS

Video games

cartoon

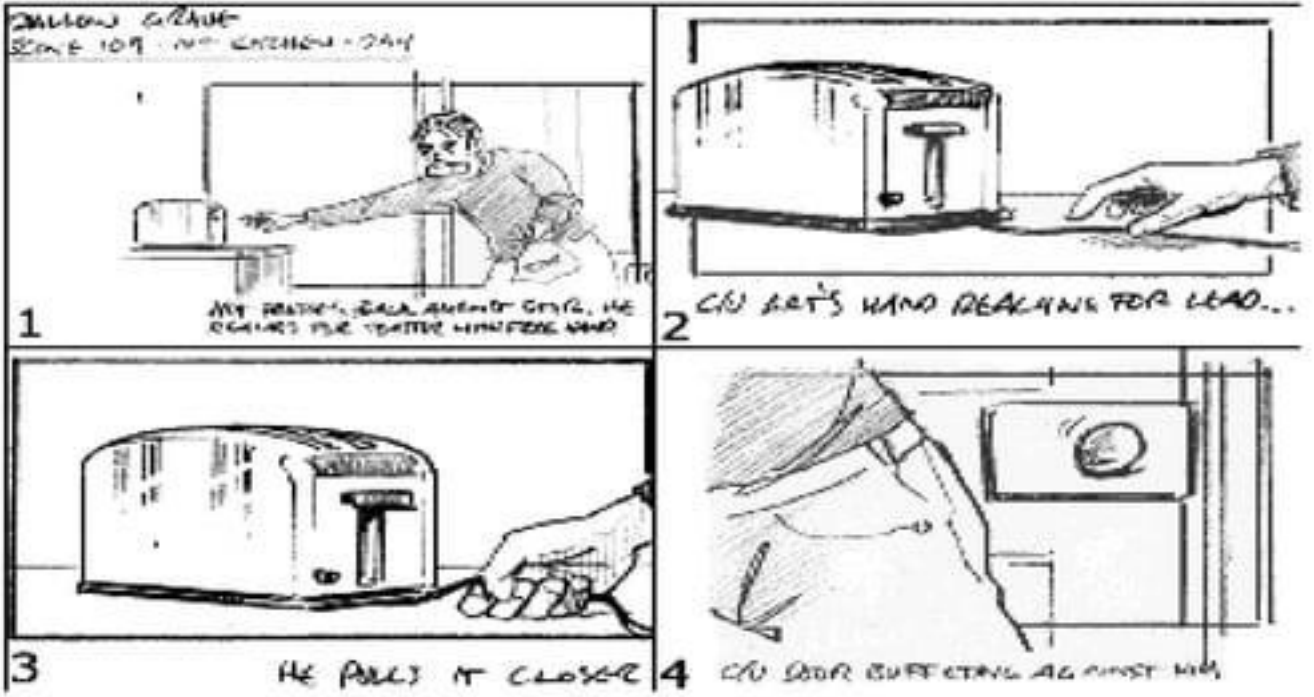
Mobile phones

Design Of Animation Sequences

•Steps for designing animation sequences.

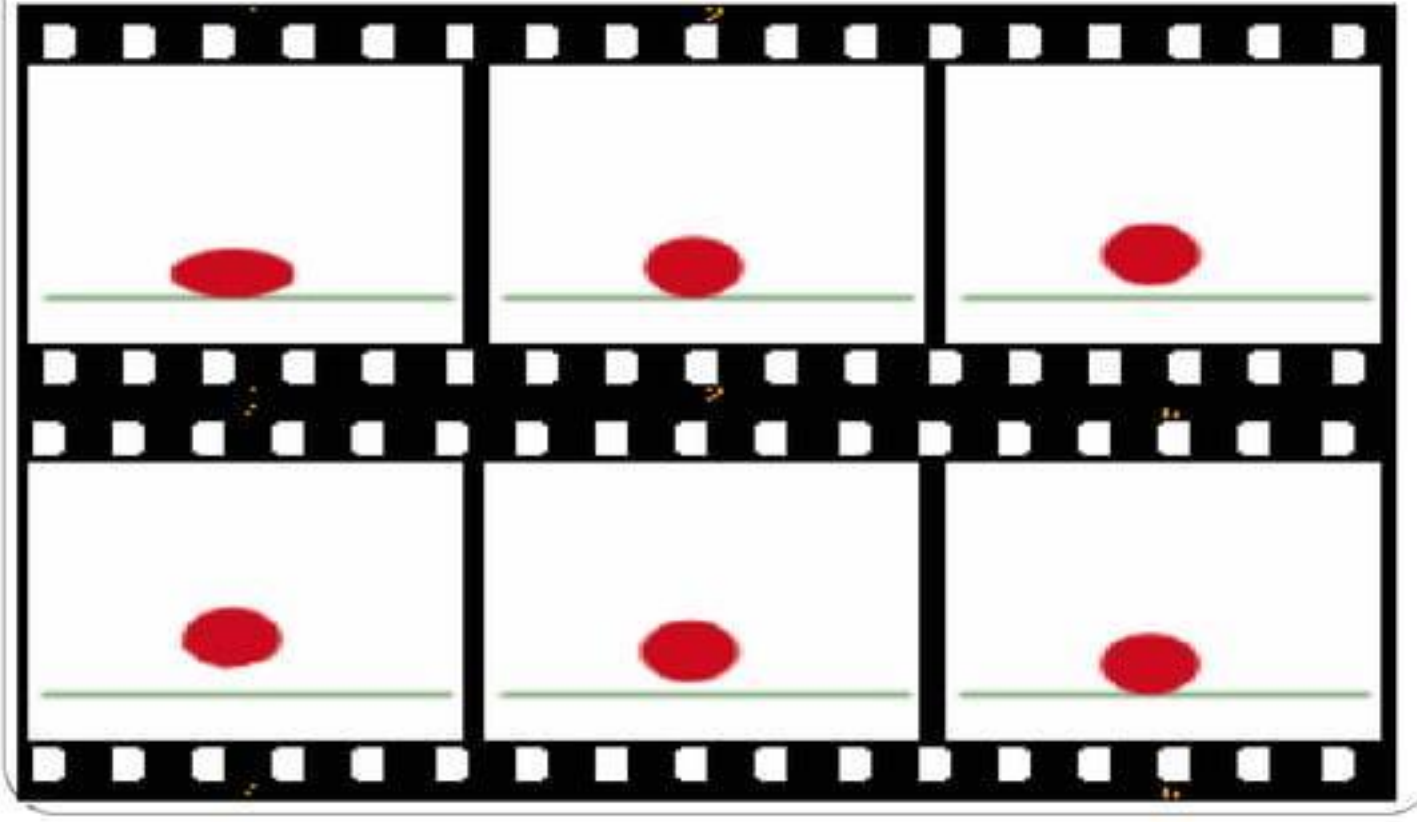
1. Storyboard Layout
2. Object definitions
3. Key frame specifications
4. Generation of in-between frames

Storyboard Layout



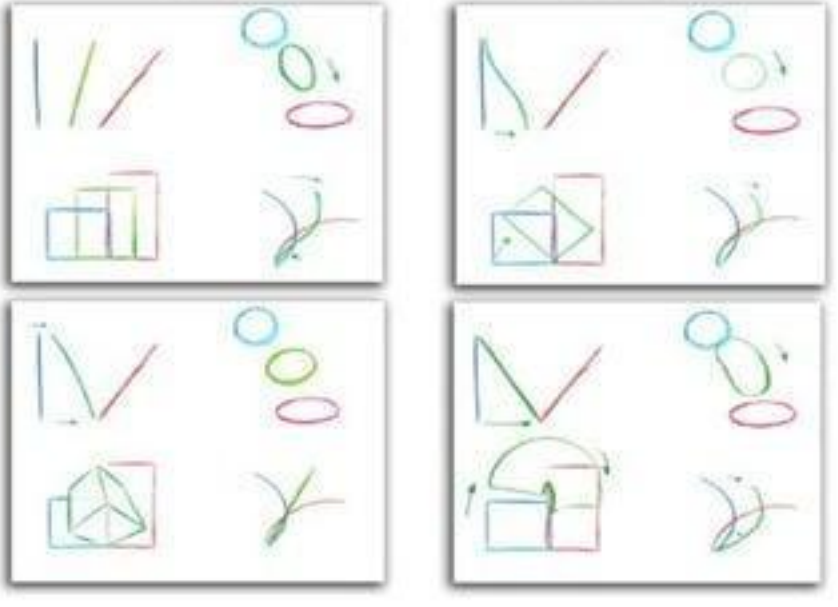
Object Definitions

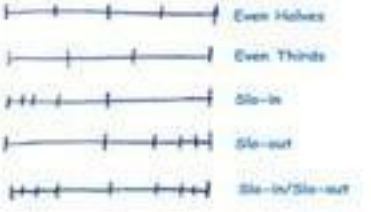
Key frame Specifications

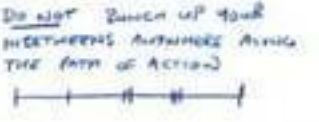


In-between frames

Inbetweening

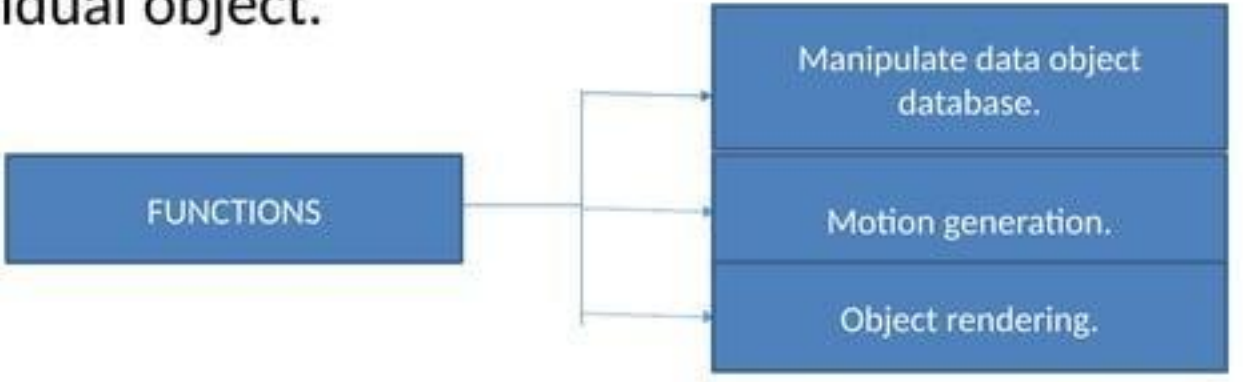


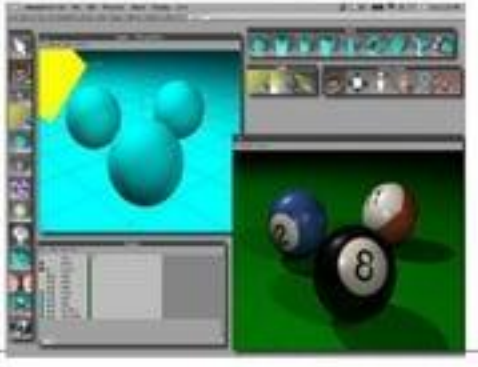




Inbetweening is the fine art of knowing how and where to draw the line so that the action intended is clearly understood by the viewer. A good inbetween is not just half way between two lines.

- Animation software provide basic functions to create animation and process the individual object.



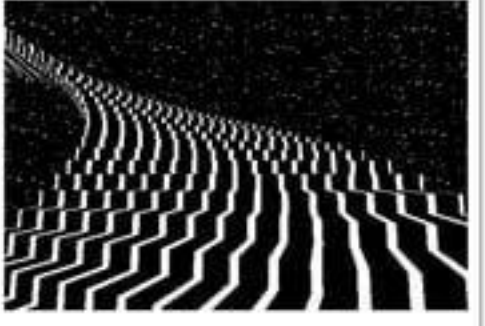


Amorphium

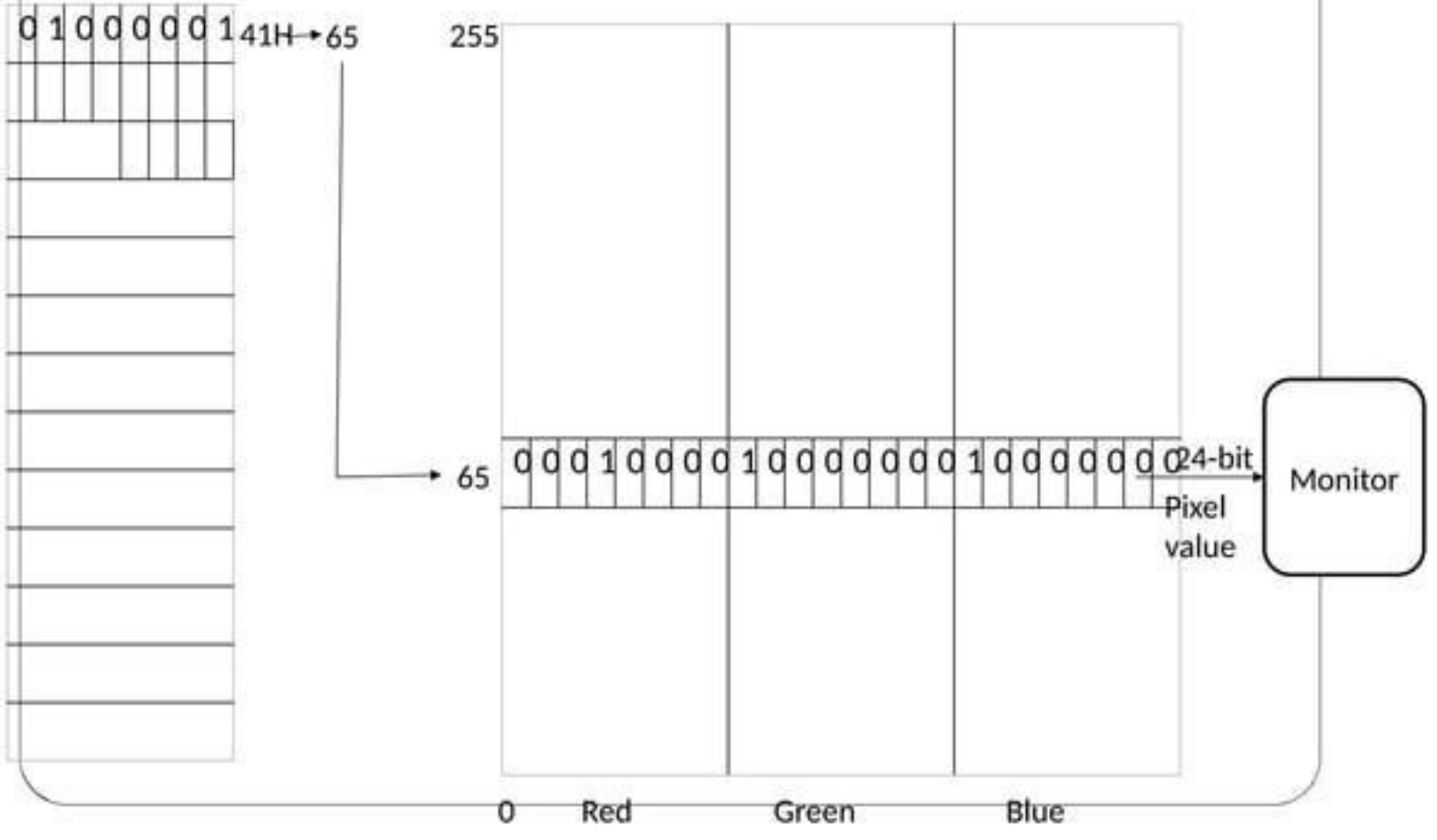
Art of illusion

Raster Animations

Real-time animations can be generated using raster operations.



ORGANISATION OF A VIDEO COLOUR TABLE



Computer Animation Languages

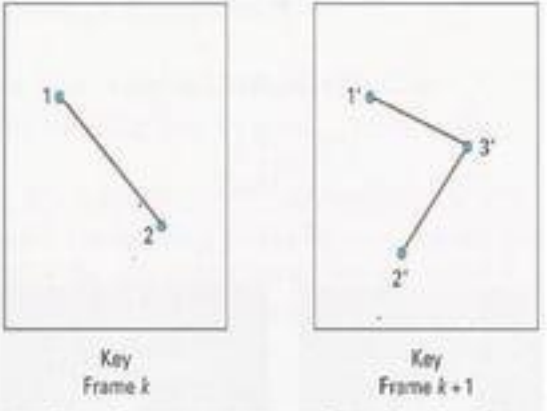
•**GENERAL PURPOSE LANGUAGES:**

- C,C++,Pascal, or Lisp(control animation sequences).

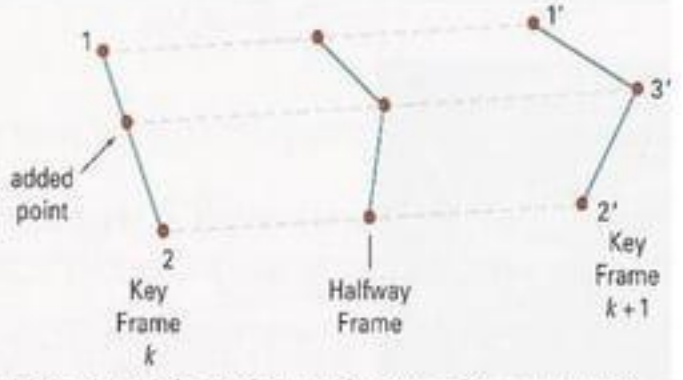
SPECIALIZED ANIMATION LANGUAGES

- Key frame systems
- Parameterized systems
- Scripting systems

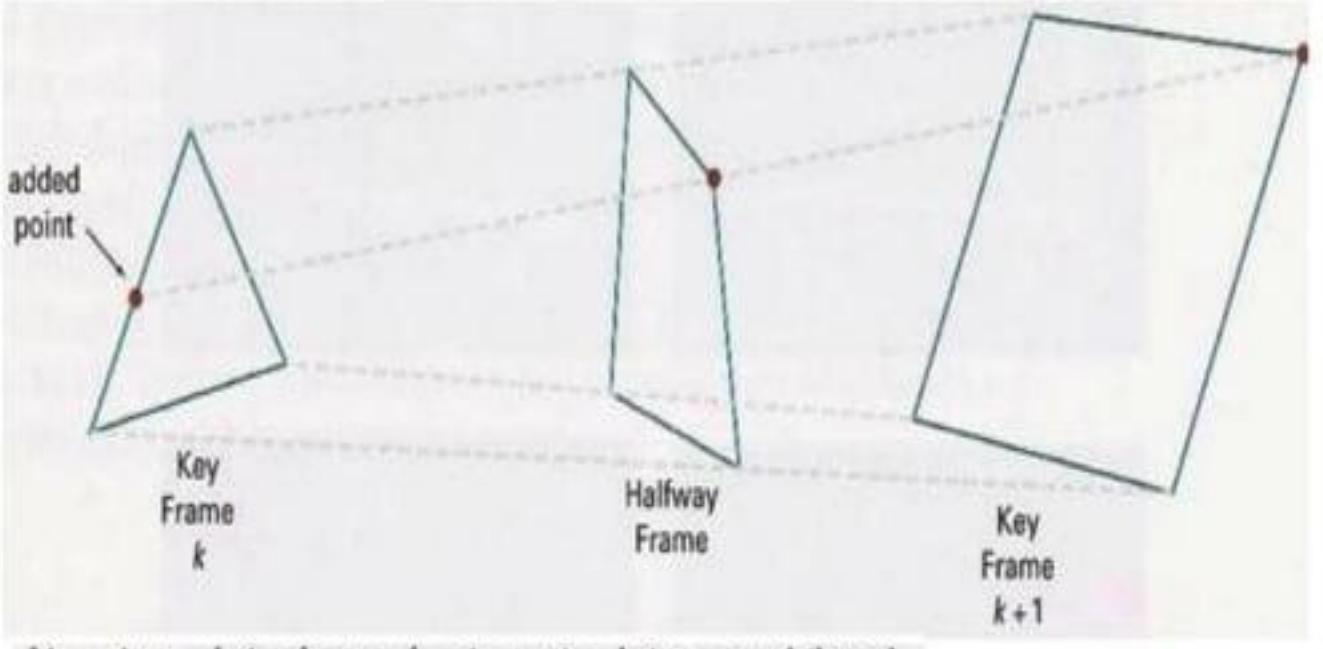
Key frame Systems



An edge with vertex positions 1 and 2 in key frame k evolves into two connected edges in key frame $k + 1$.



Linear interpolation for transforming a line segment in key frame k into two connected line segments in key frame $k + 1$.



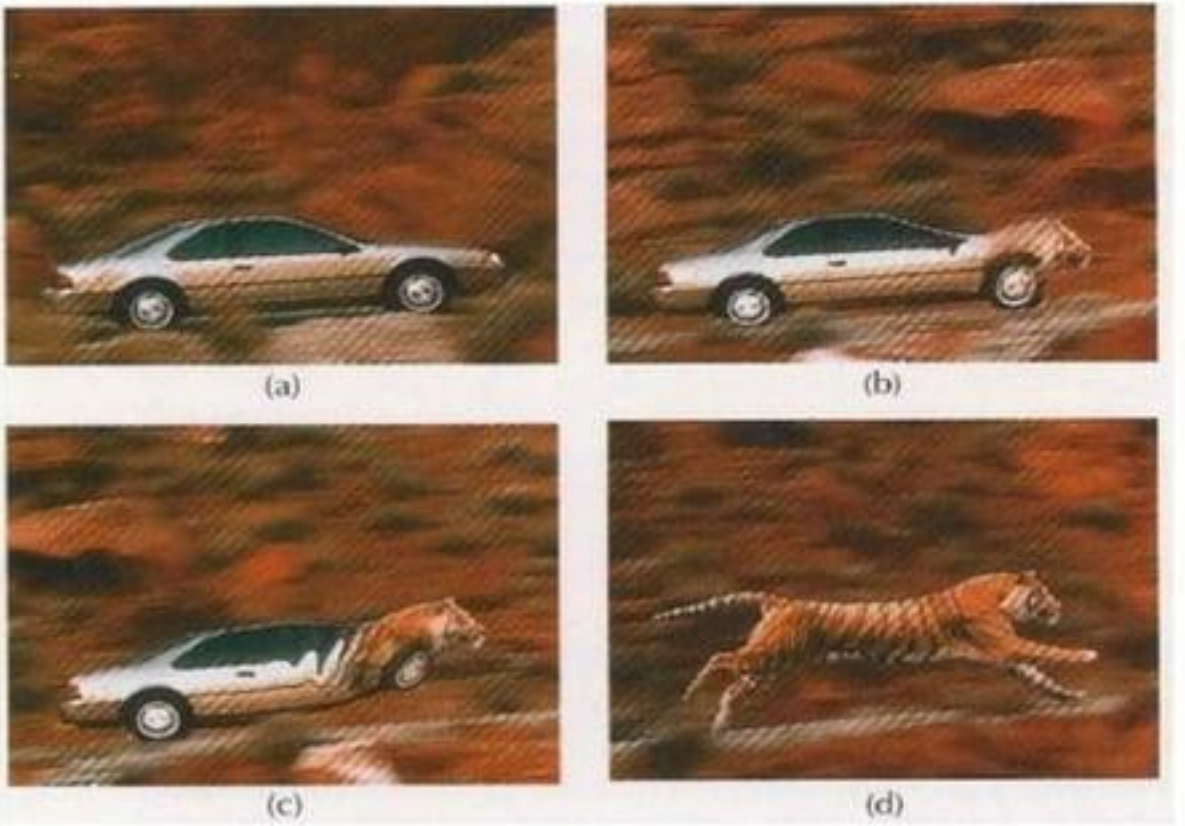
Linear interpolation for transforming a triangle into a quadrilateral.

Motion Specifications

•Various ways in which motions of objects ca be specified as:

- Direct Motion Specification.
- Goal-Directed Systems.
- Kinematics and Dynamics.

Direct Motion Specification



Goal Directed System