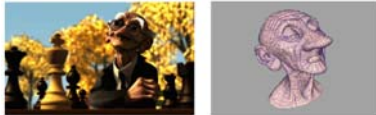


# Computer Graphics

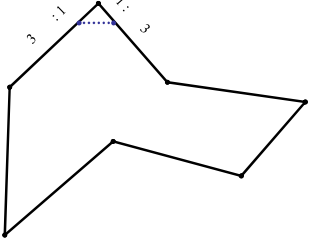
# Geometric Modeling

Chapter 15

Geometric Modeling:  
Subdivision

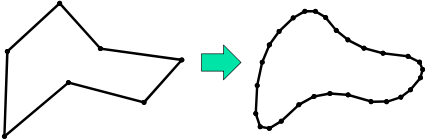


Corner Cutting

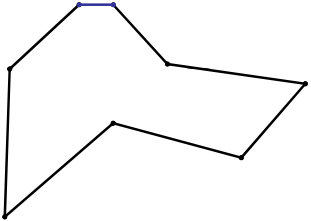


Subdivision Curves

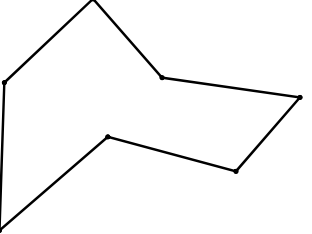
- Represent smooth curve by approximating polyline
- At the limit = curve
- Recursive refinement - Each iteration add new points (~double)



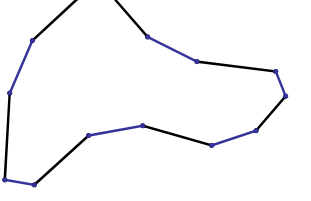
Corner Cutting



Approximating: Corner Cutting

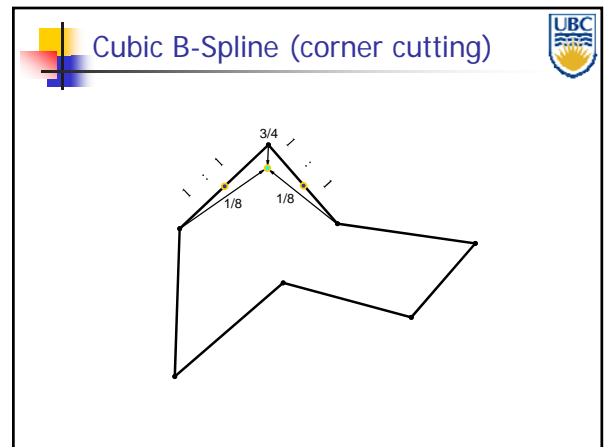
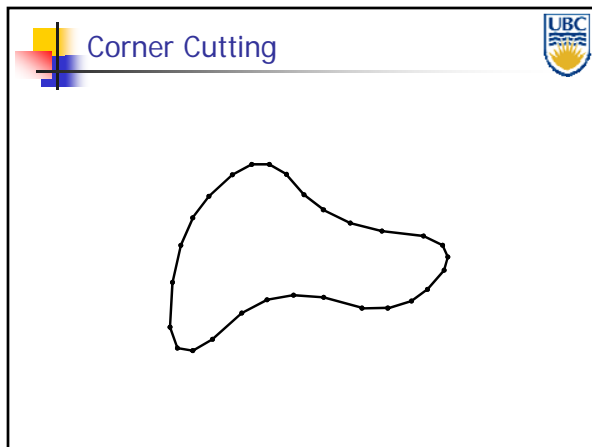
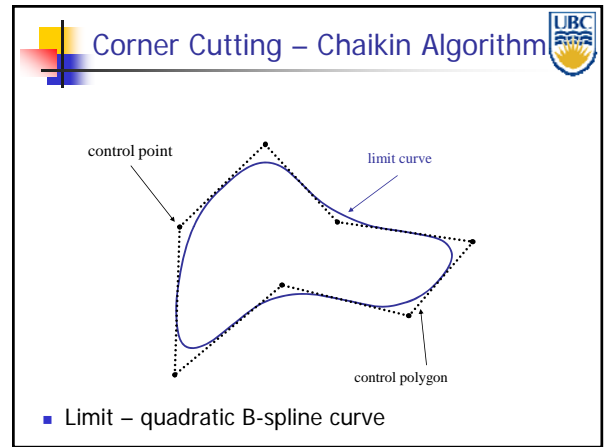
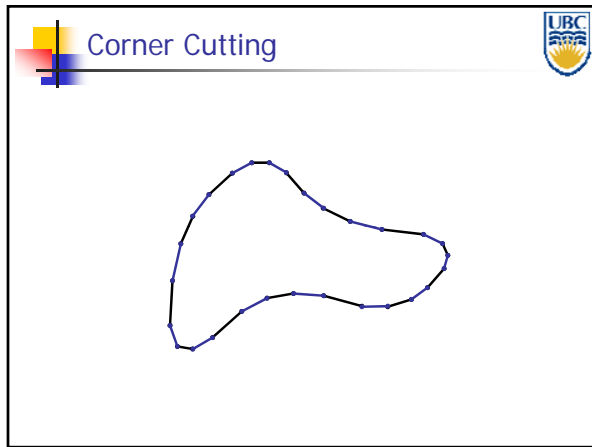
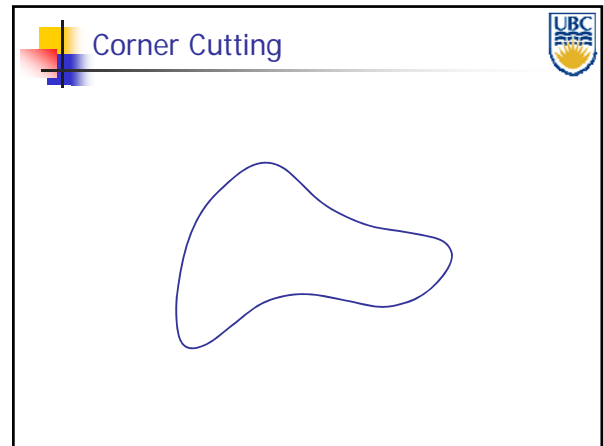
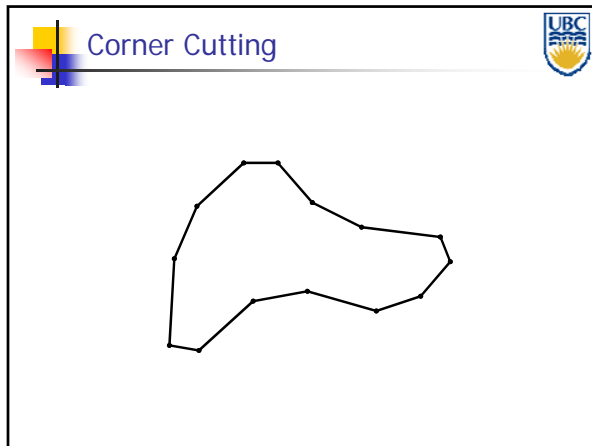


Corner Cutting



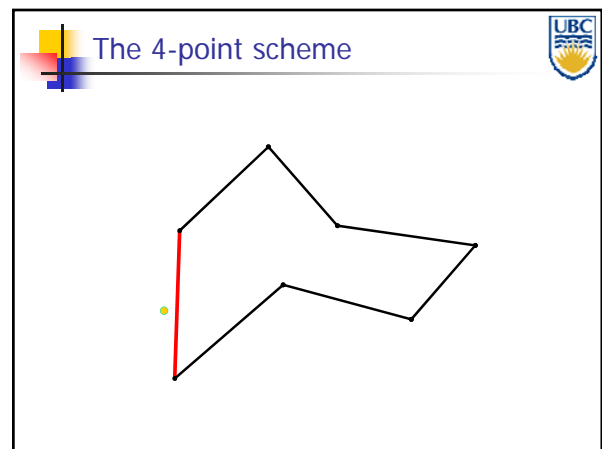
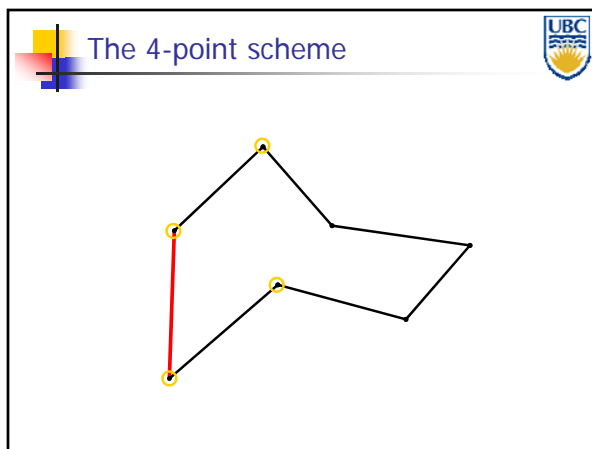
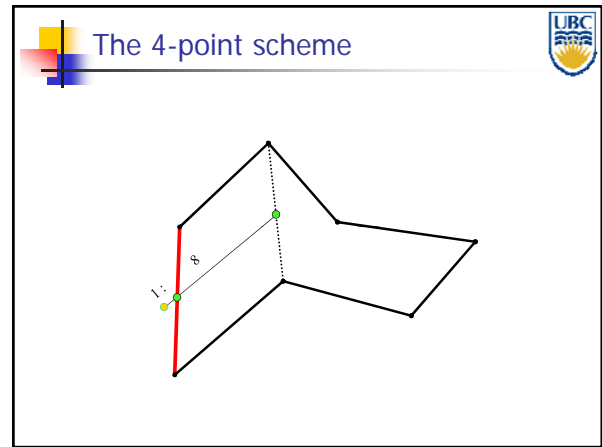
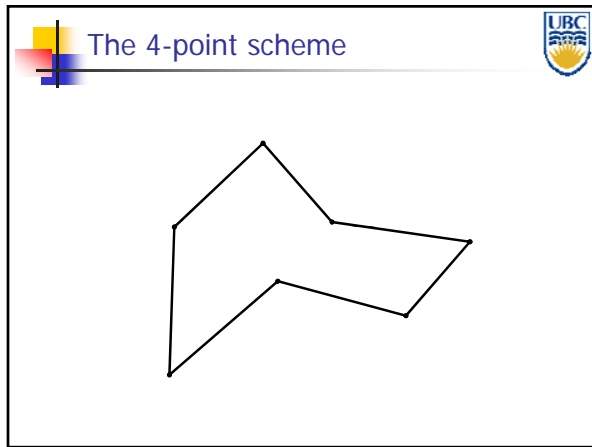
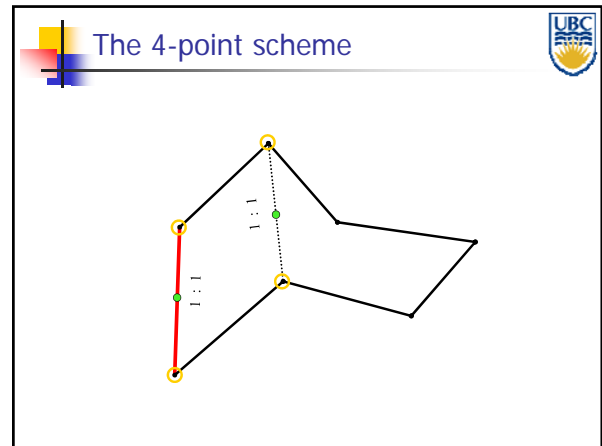
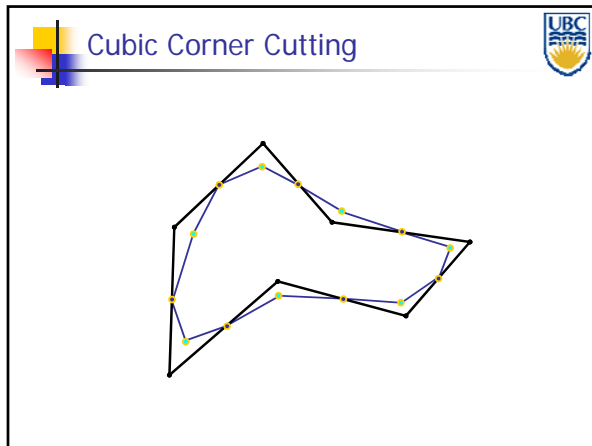
# Computer Graphics

# Geometric Modeling



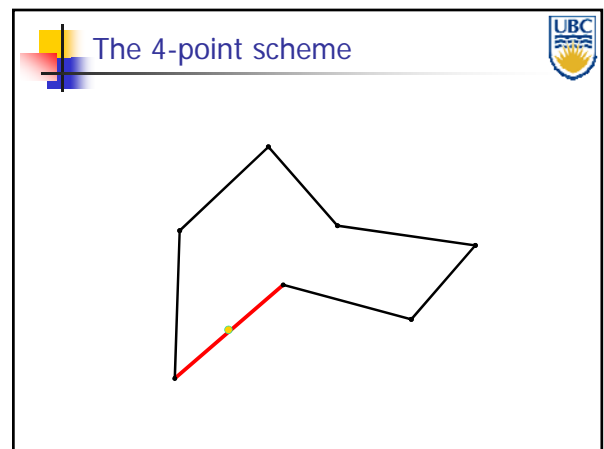
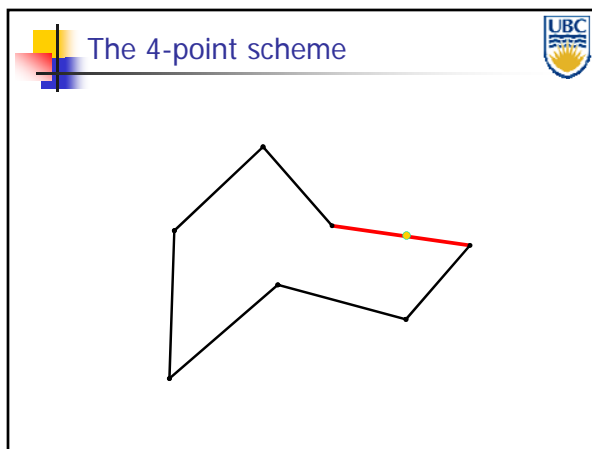
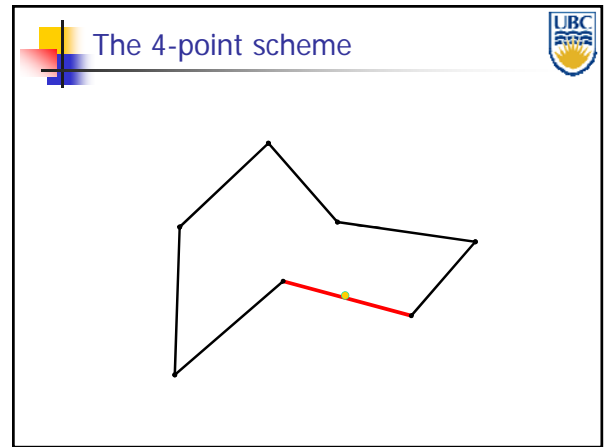
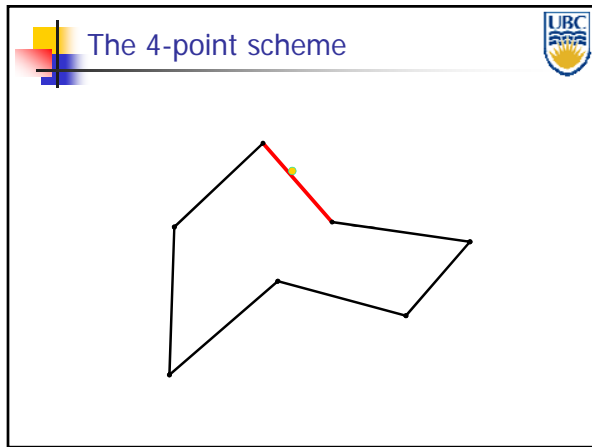
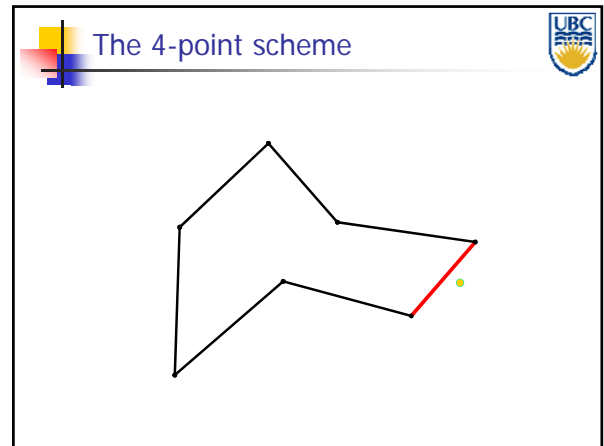
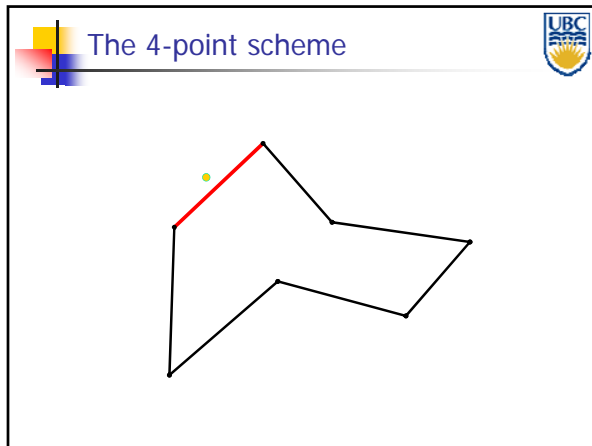
# Computer Graphics

# Geometric Modeling



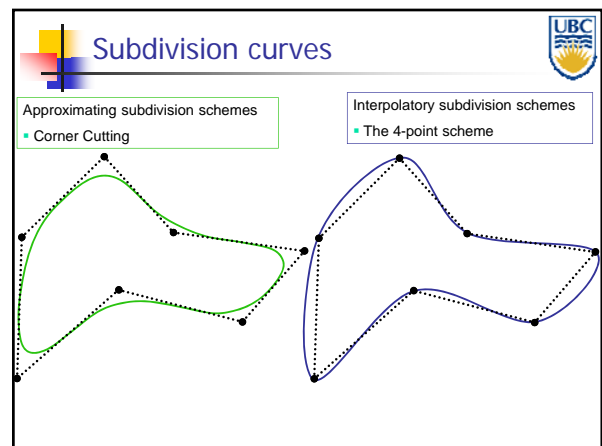
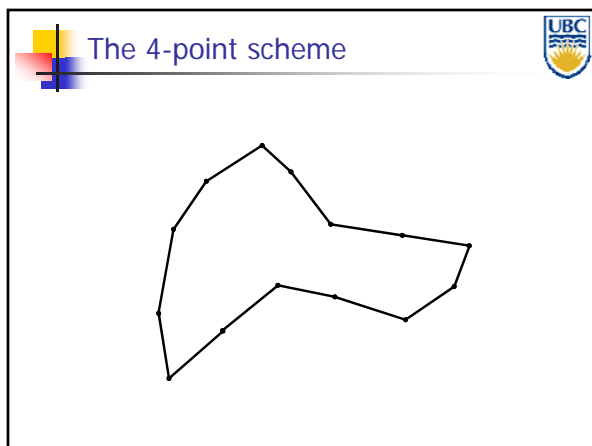
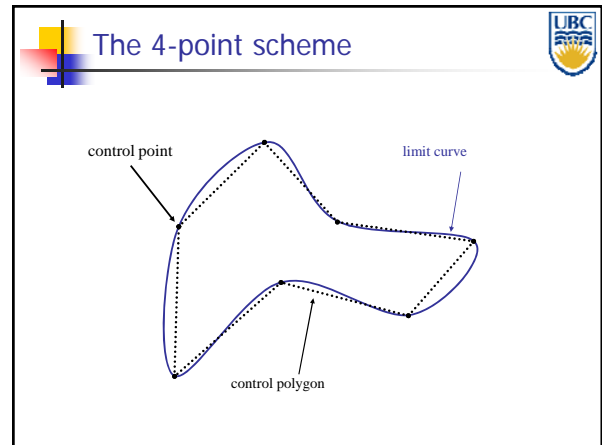
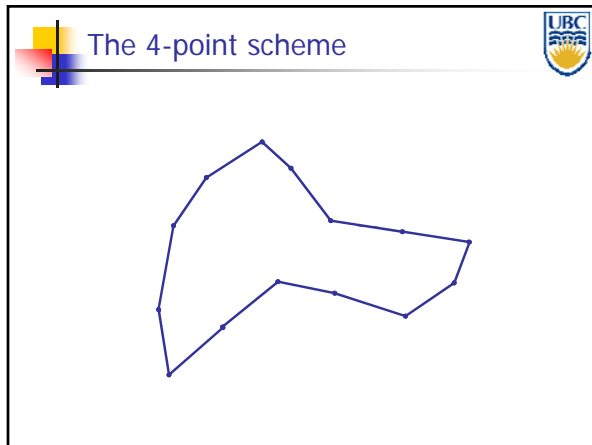
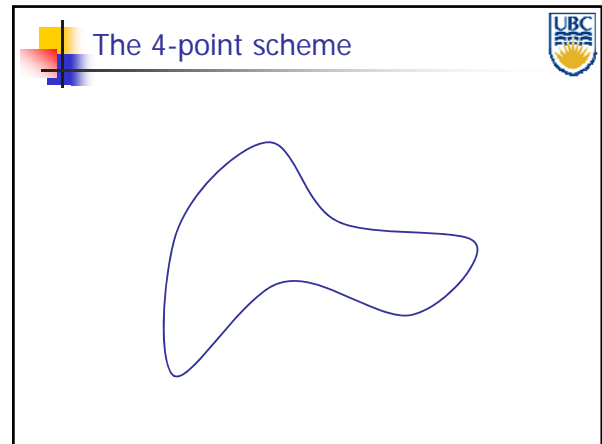
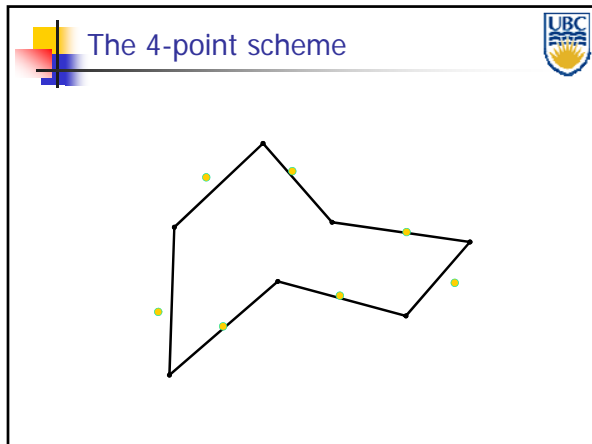
# Computer Graphics



# Geometric Modeling




# Computer Graphics

# Geometric Modeling



 Continuity 

- Continuity
  - Visual "smoothness"
  - Formal: continuity of function + derivatives
    - $C_i$  – where  $i$  corresponds to  $i$ 's derivative
- Continuity of subdivision limit curve
  - Corner cutting–  $C_{inf}$  nearly everywhere,  $C_2$  at a finite number of points
  - Four-point scheme –  $C_1$  everywhere

 Subdivision surfaces: 

