

Ch3

- Deadlock definition
  - Difference from starvation
- Conditions for Deadlock
  - Exclusive access
  - Hold & Wait
  - Non Preemption
  - Circular Wait
- Handled by prevention, detection, avoidance

# Models of Deadlock

- Single Unit Request
- And Model
- Or Model
- And/Or Model
- P out of Q model
- Resource Models
  - Reusable
  - Consumable

# Graph Theoretic Models

- Set of processes, set of resources (can be partitioned into disjoint set of consumable and reusable)
- Reusable resources have a count, consumable resources have a set of producers

# General Resource Graph

- Bipartite (why?) directed graph with processes and resources as nodes
- Request edge directed from process to resource
- Assignment edge from reusable resource to process
- Producer edge from consumable resource to process