

# Non Goals : Starvation

**Starvation** is when a thread is prevented from making progress because some other thread has the resource it requires (could be CPU or a lock)

- ➡ Starvation is usually a side effect of the scheduling algorithm
  - e.g a high priority thread always prevents a low priority thread from running
- ➡ Starvation can be a side effect of synchronization (forthcoming lecture)
  - e.g constant supply of readers always blocks out writers

# Scheduling Criteria

- **Throughput** – # of threads that complete per unit time  
 $\# \text{ jobs/time}$  (Higher is better)
  - **Turnaround time** – time for each thread to complete  
 $T_{\text{finish}} - T_{\text{start}}$  (Lower is better)
  - **Response time** – time from request to first response ()  
i.e. time between waiting to ready transition and ready to running transition  
 $T_{\text{response}} - T_{\text{request}}$  (Lower is better)
- ➔ Above criteria are affected by secondary criteria
- CPU utilization – %CPU fraction of time CPU doing productive work
  - Waiting time –  $\text{Avg}(T_{\text{wait}})$  time each thread waits in the ready queue