

# Causal Ordering

- Multicasts whose send events are causally related, must be received in the same causality-obeying order at all receivers
- Formally
  - *If  $\text{multicast}(g,m) \rightarrow \text{multicast}(g,m')$  then any correct process that delivers  $m'$  would already have delivered  $m$ .*
  - *( $\rightarrow$  is Lamport's happens-before)*