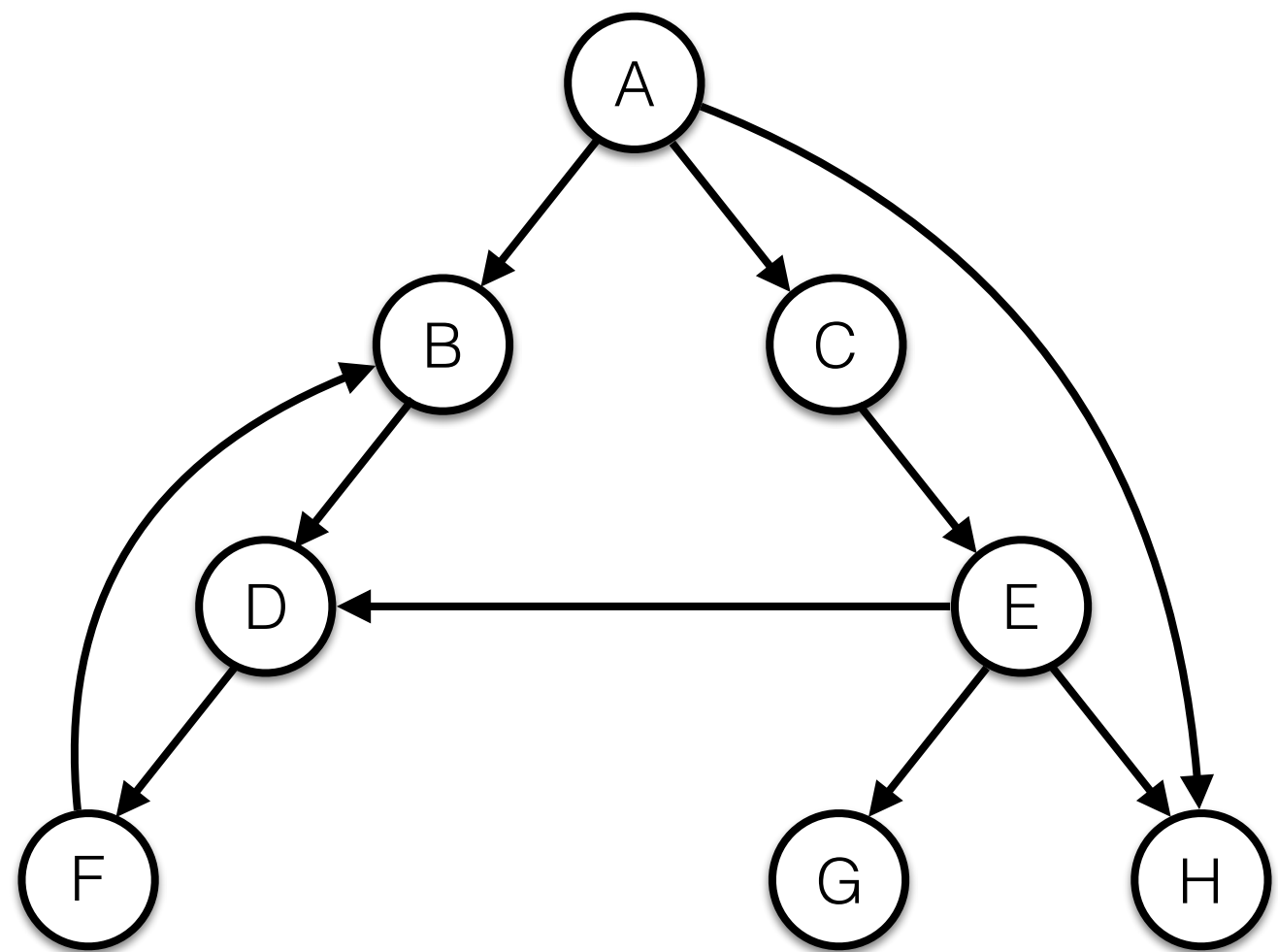
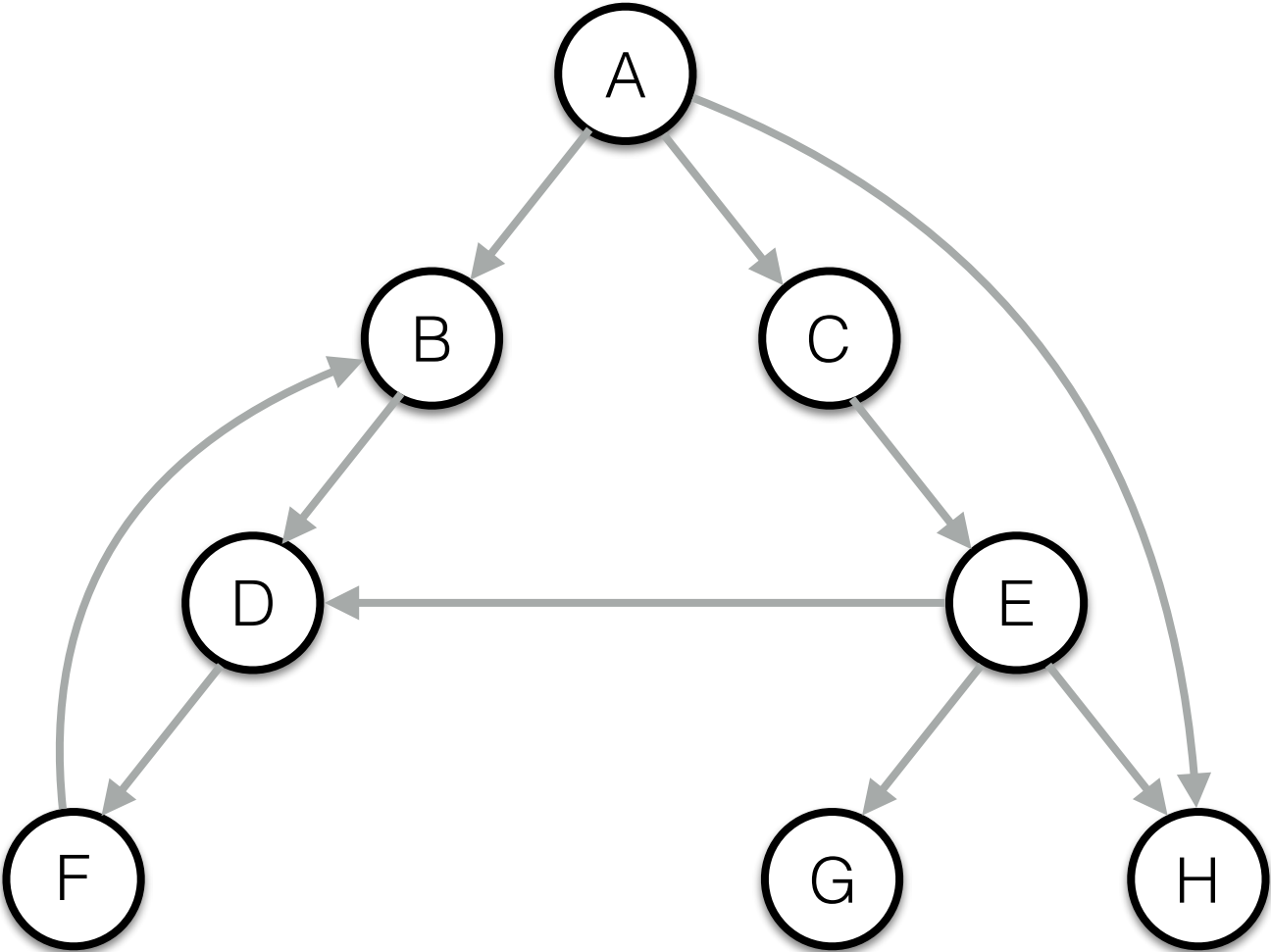


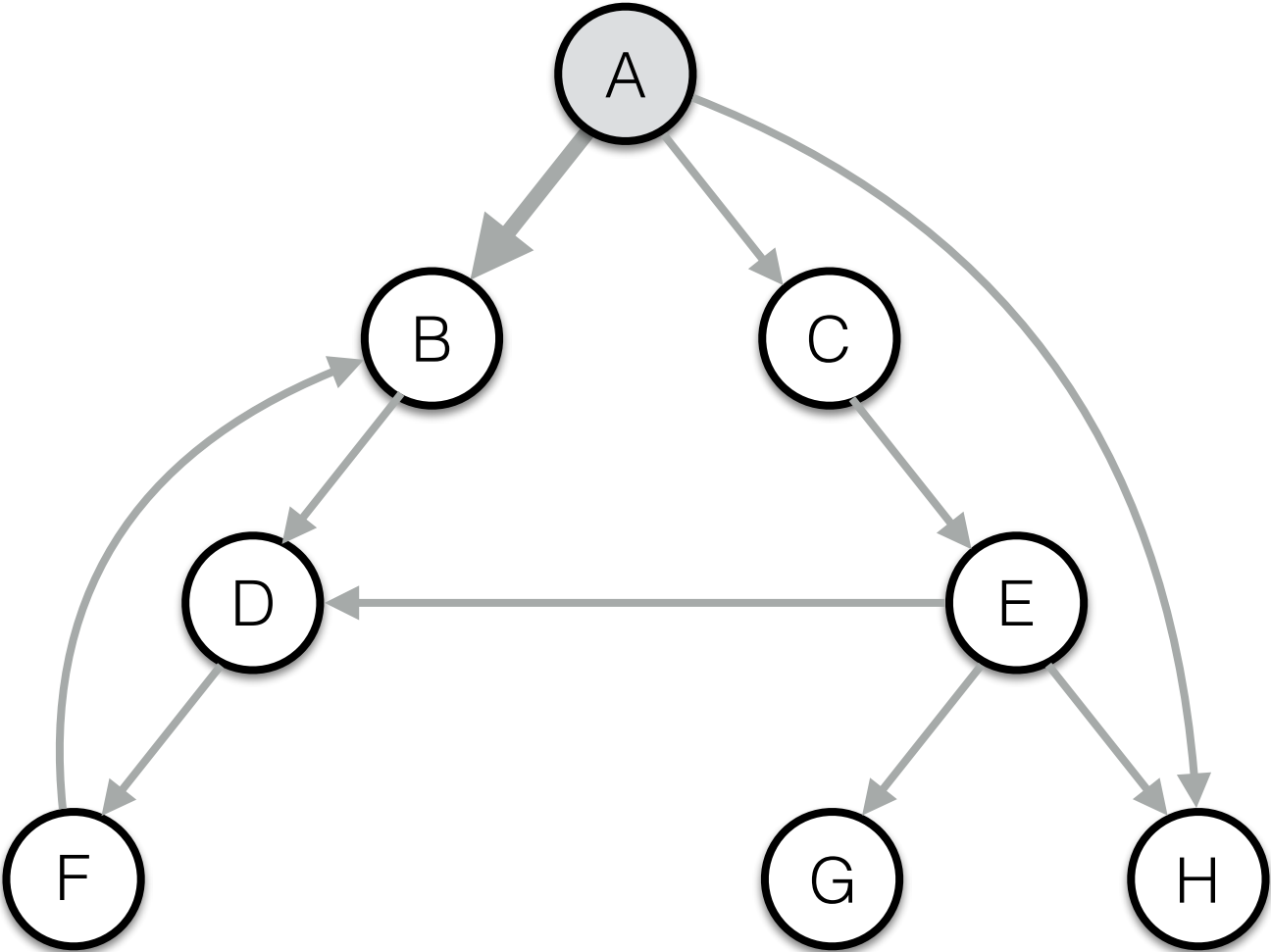
# Classification of Edges

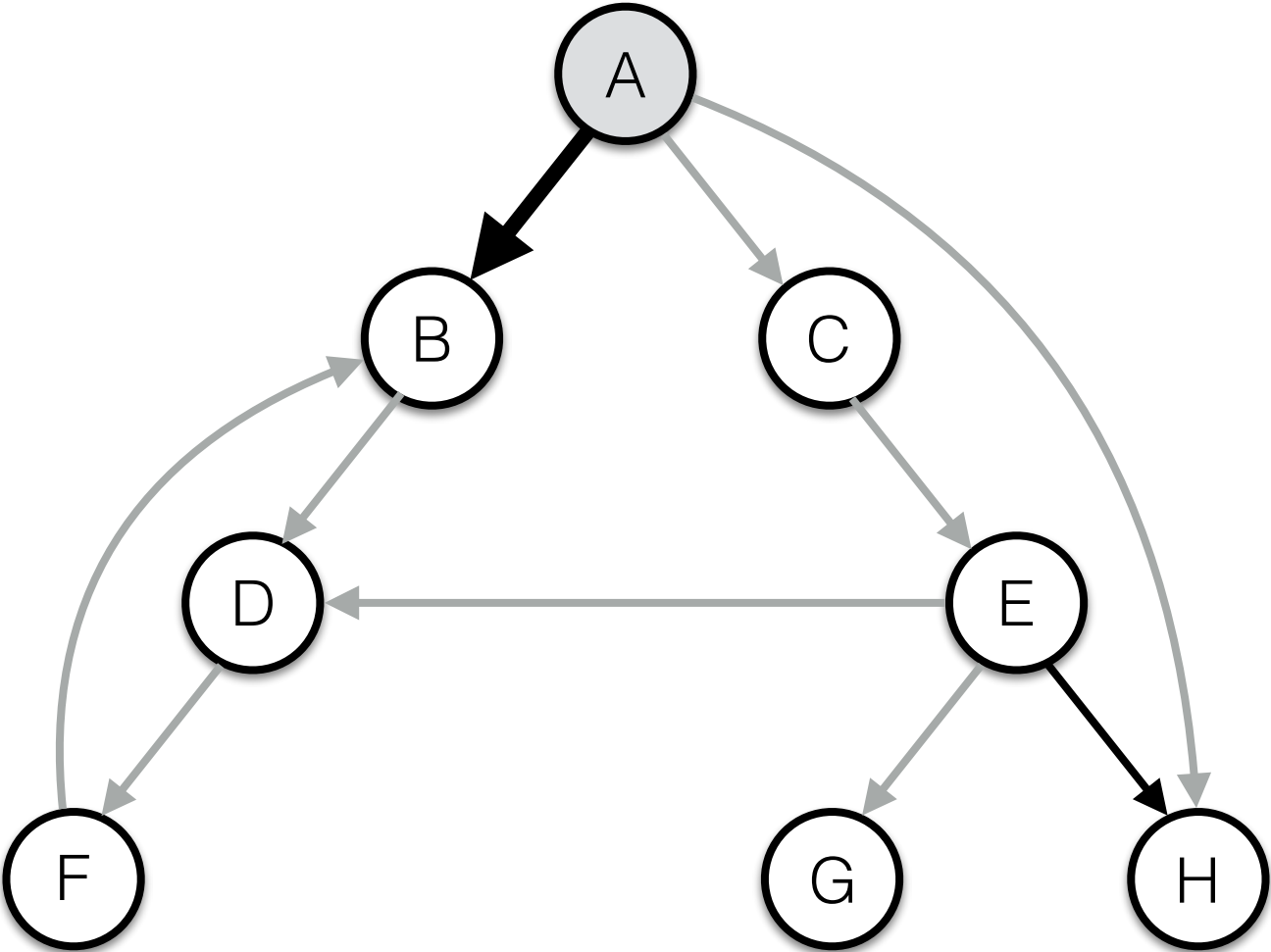
# Edge Types

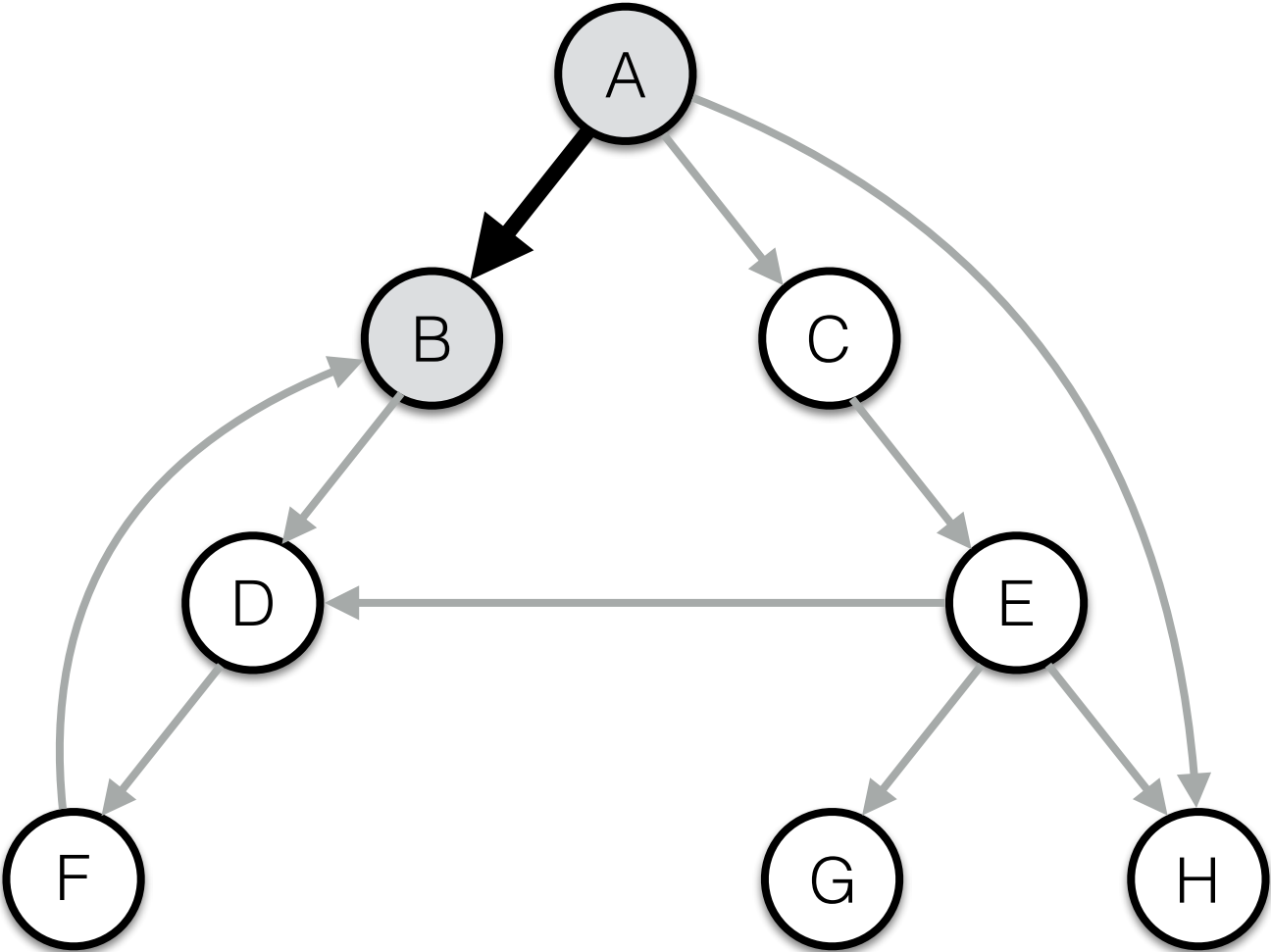
1. Tree edges
2. Back edges: from descendant to ancestor
3. Forward edges: from ancestor to descendant
4. Cross edges: all others

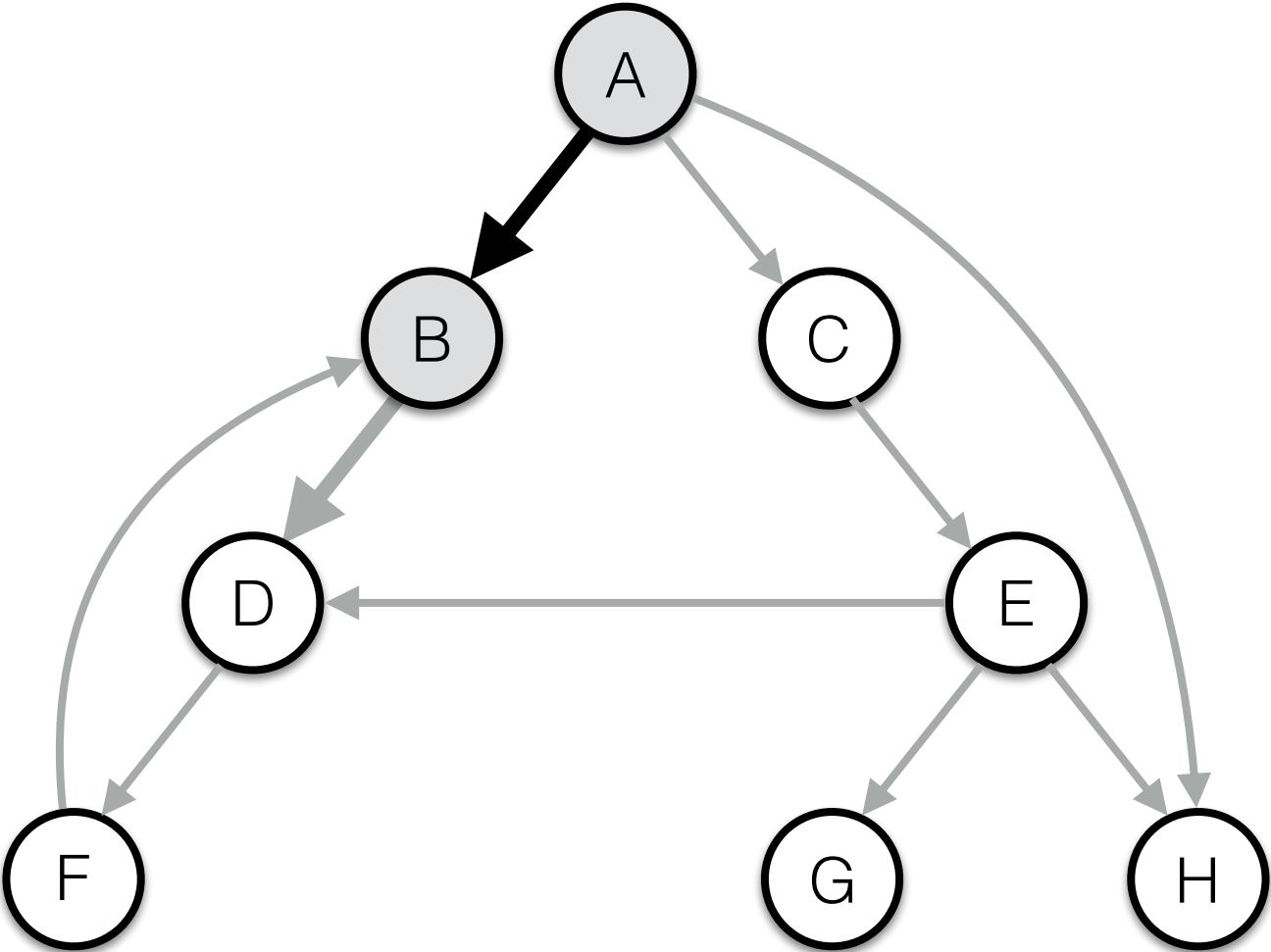




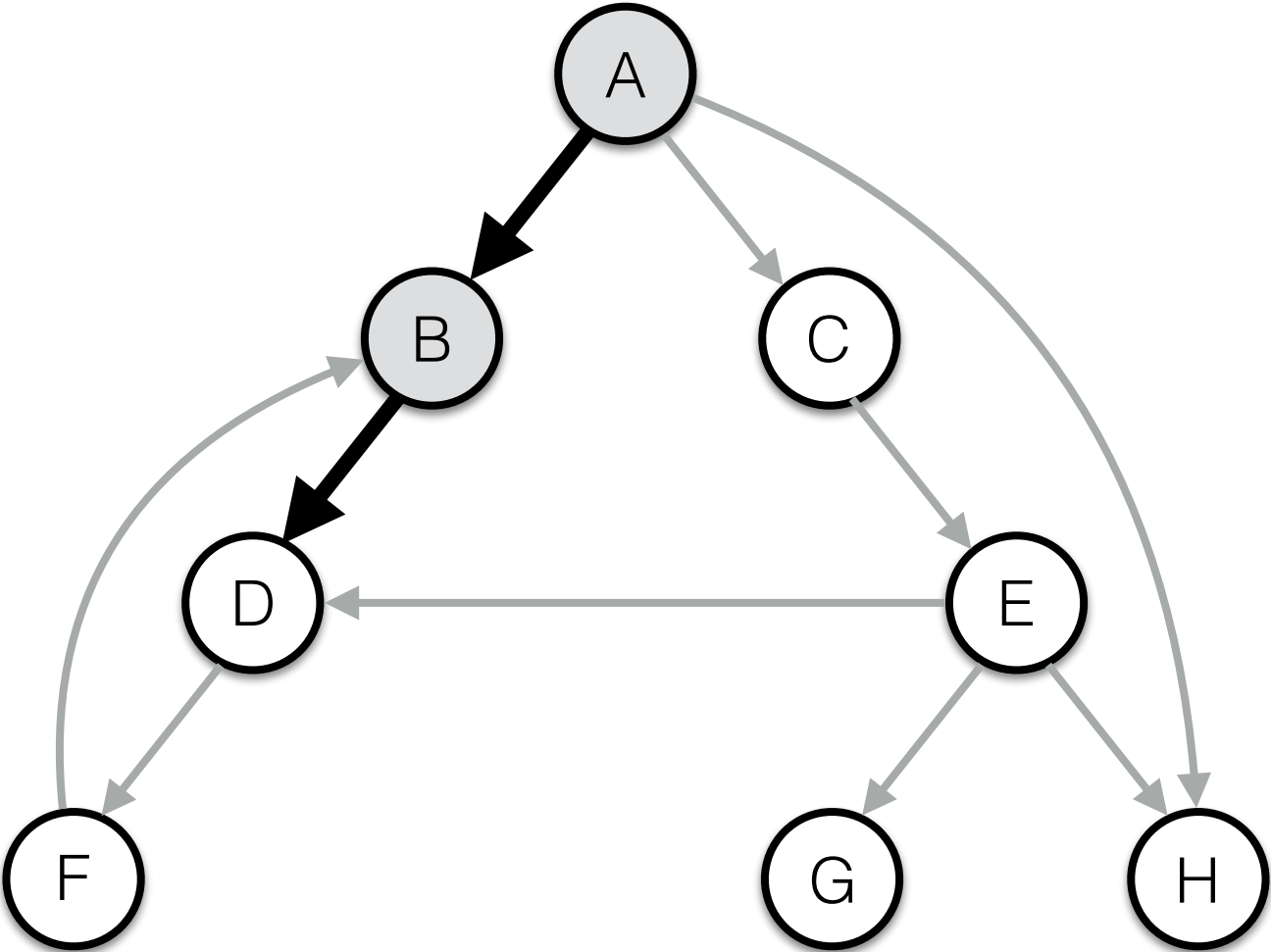


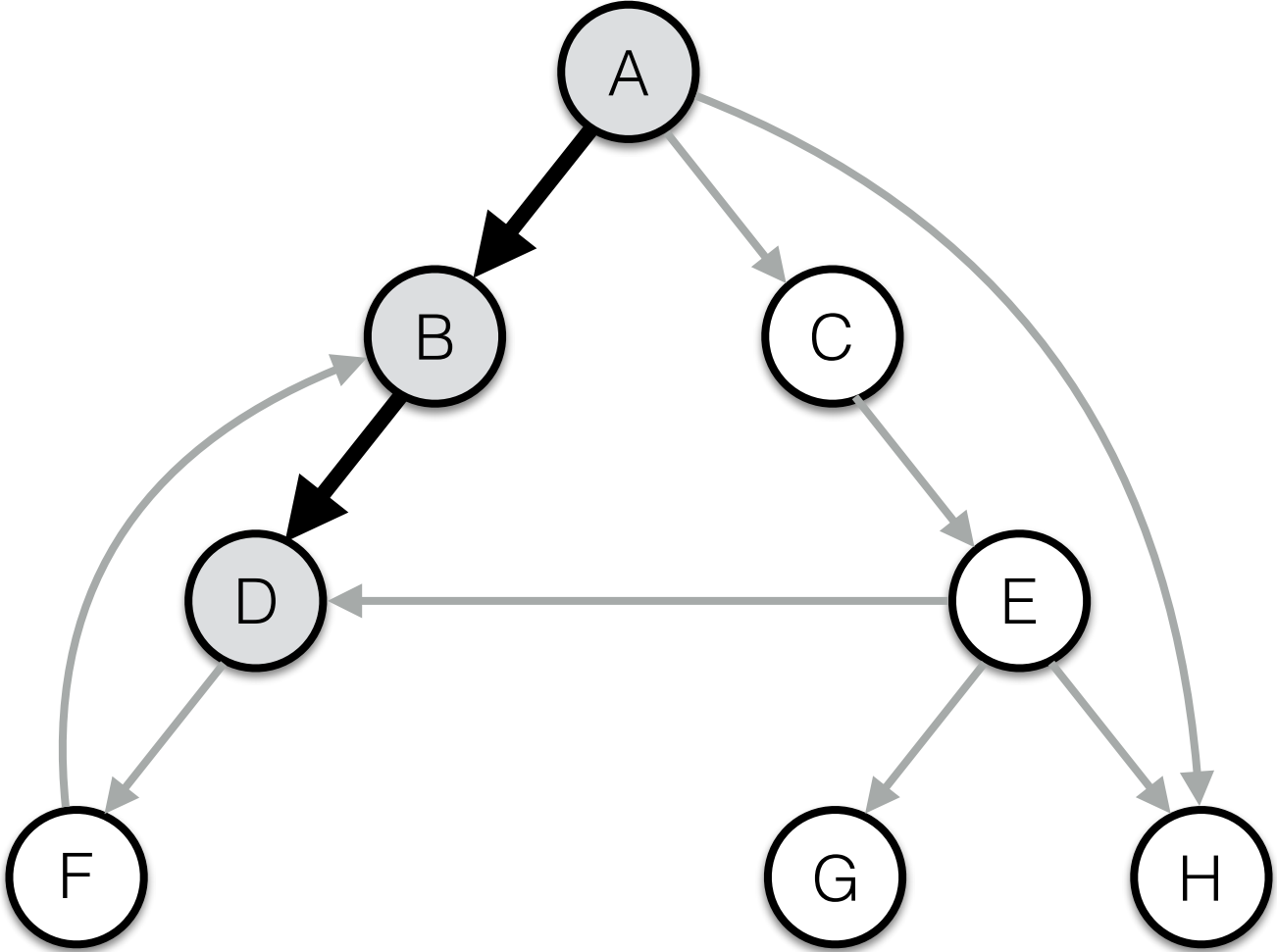


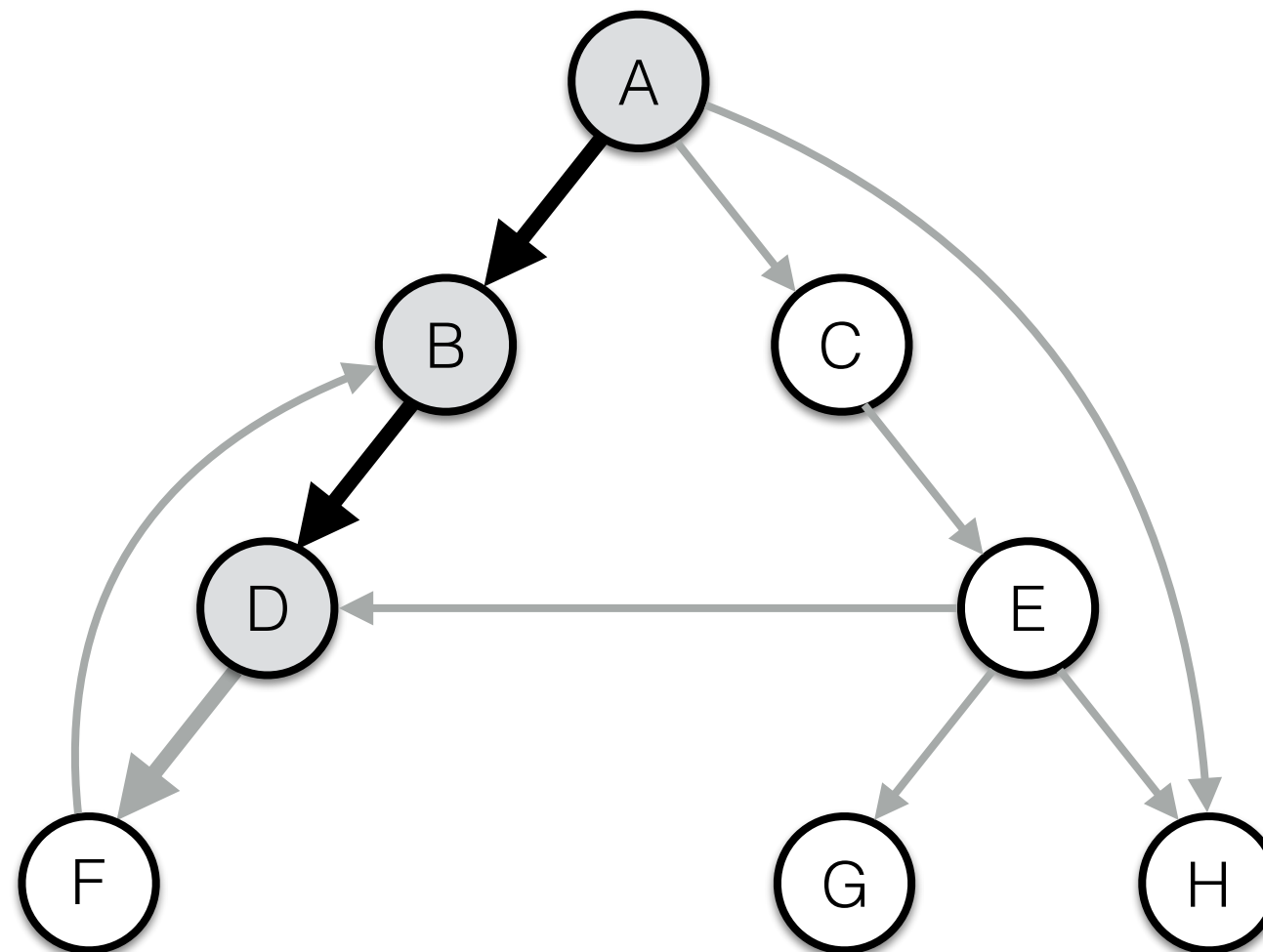


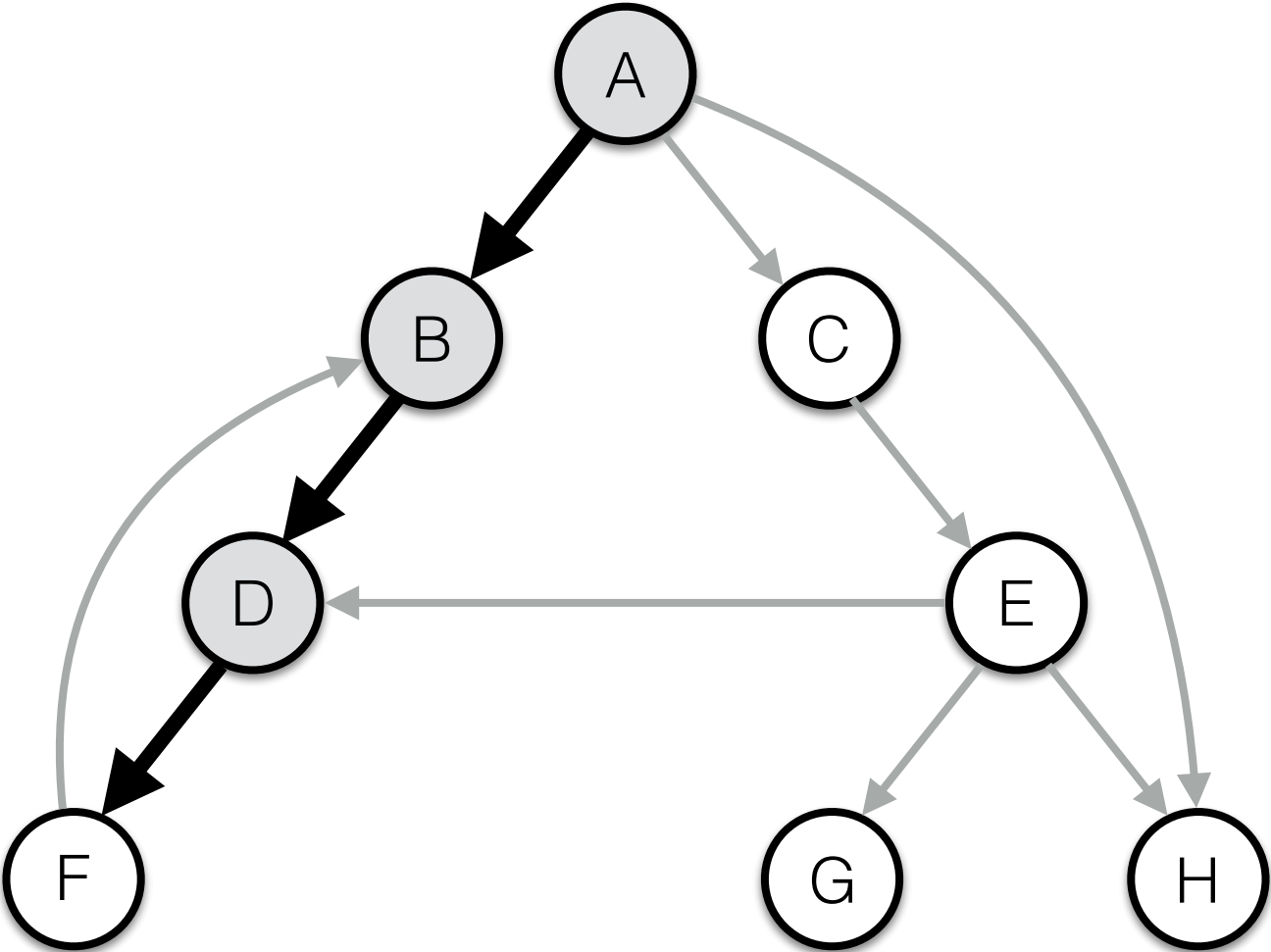


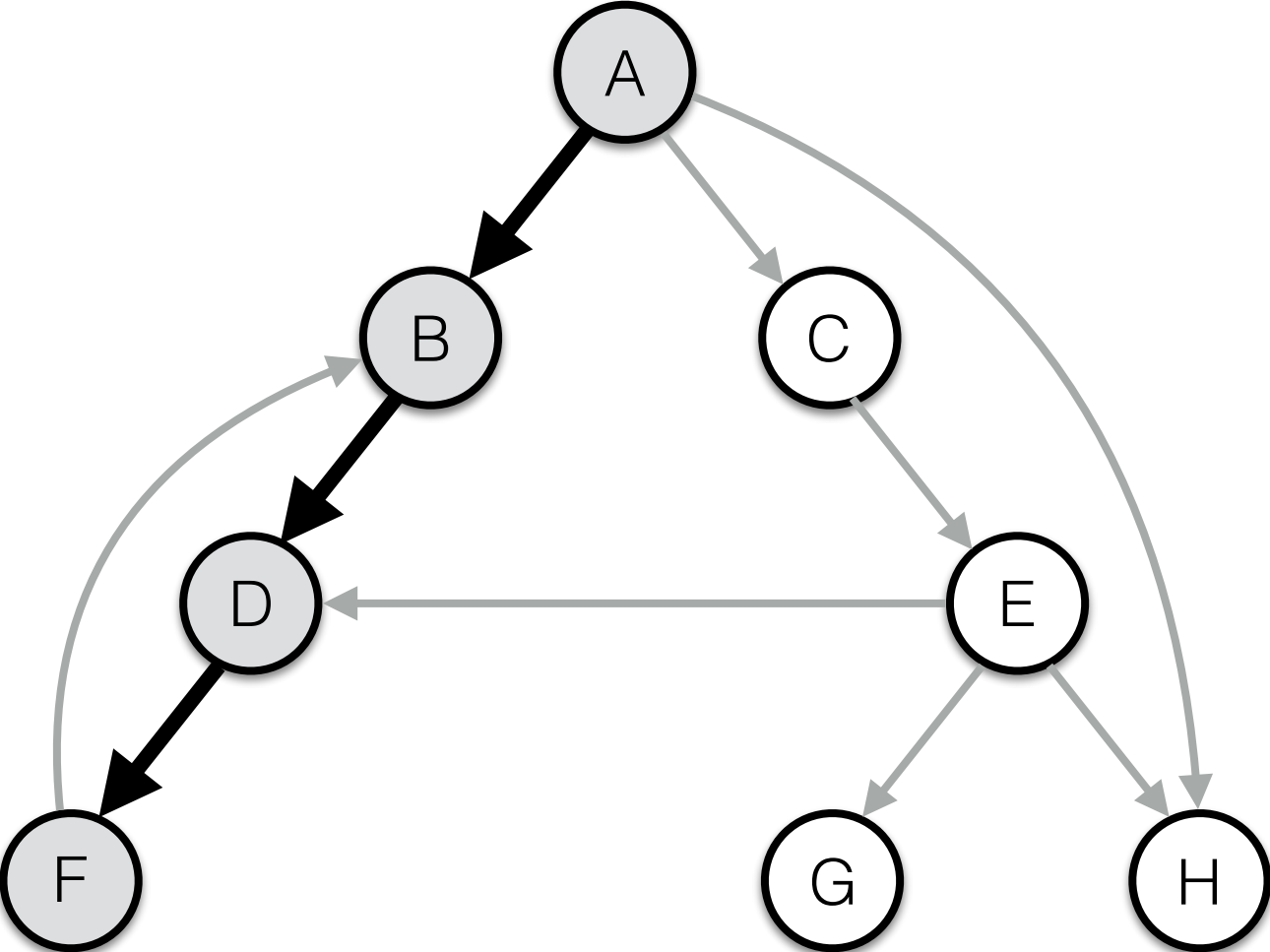


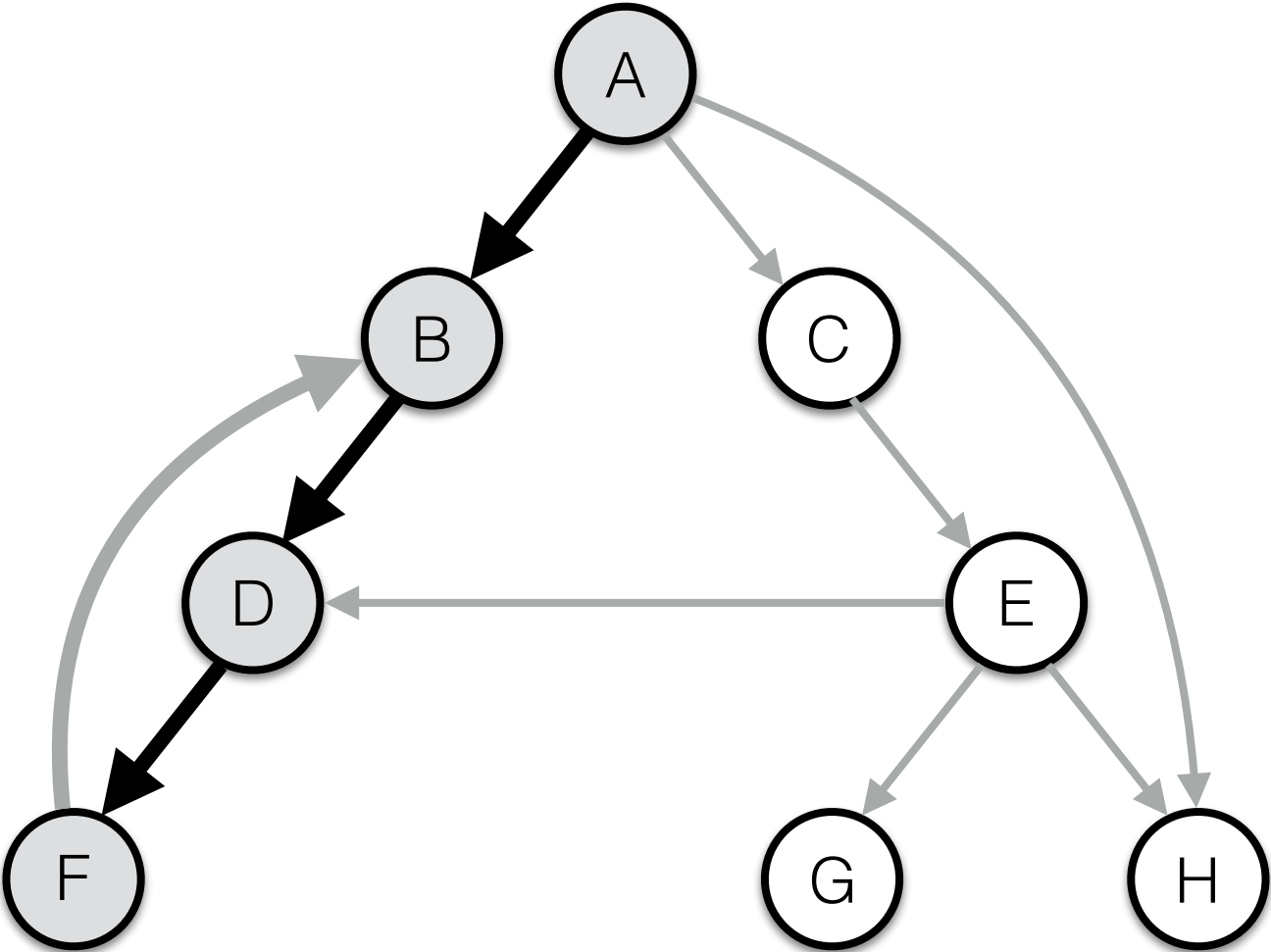


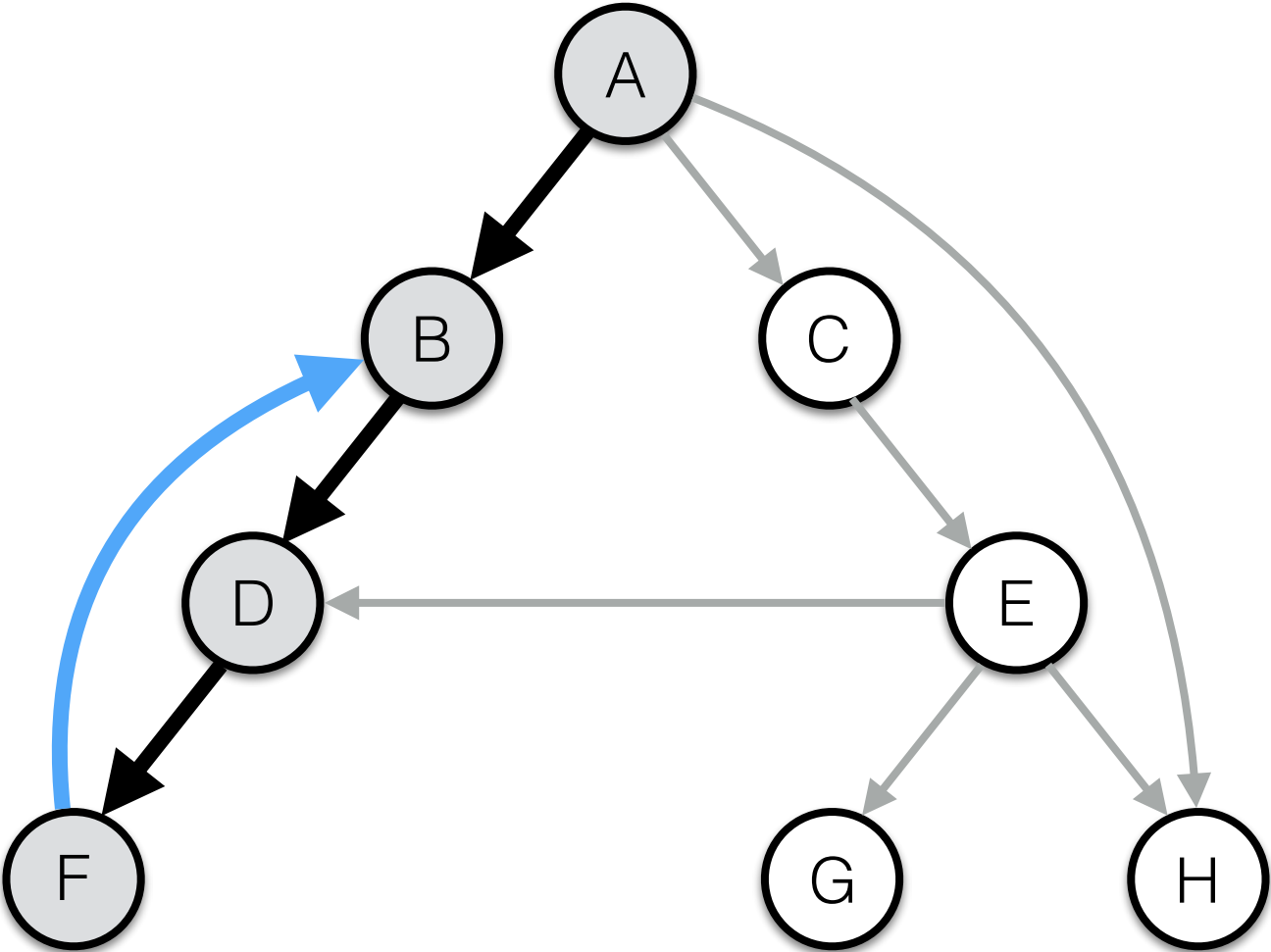


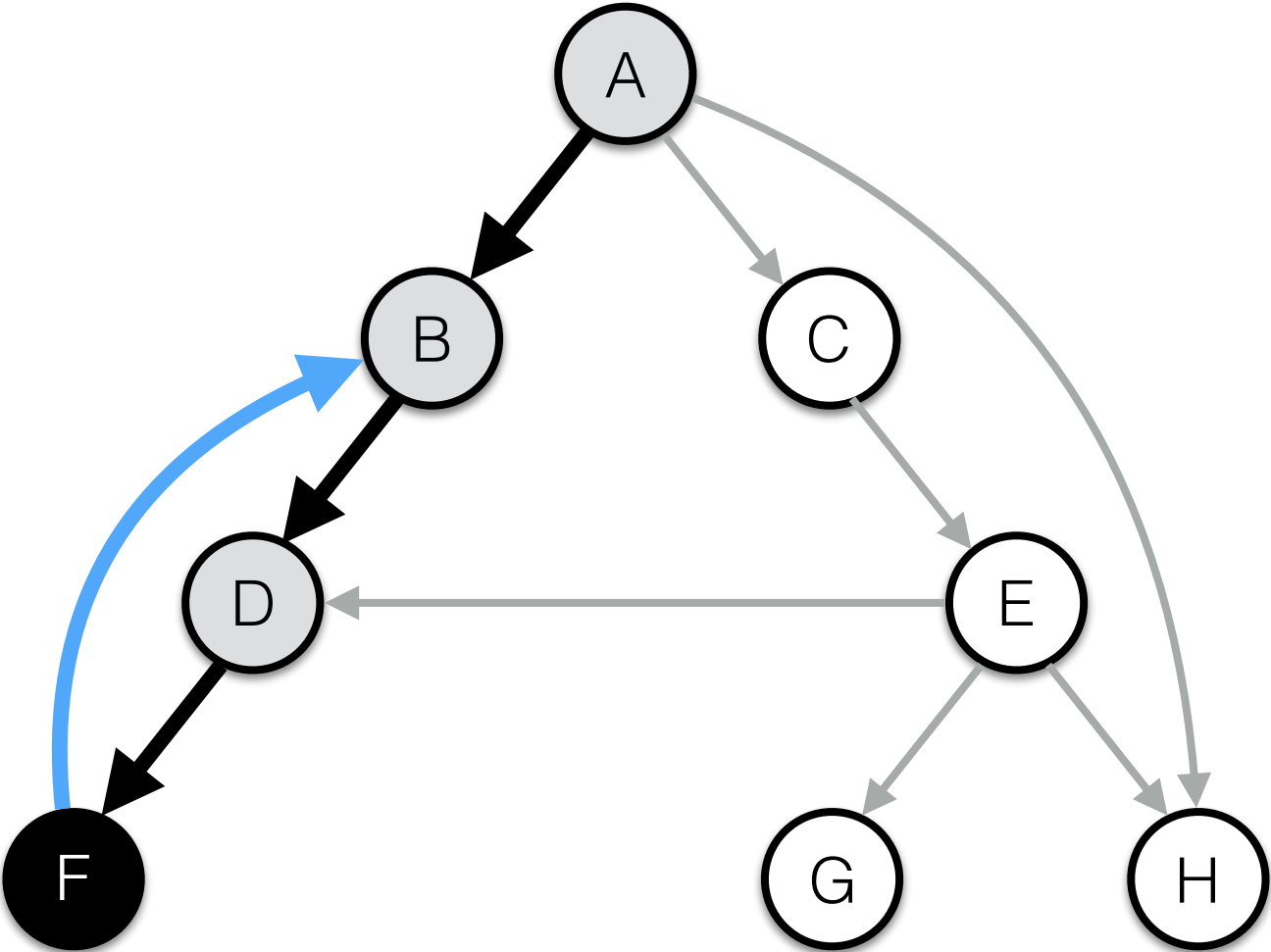




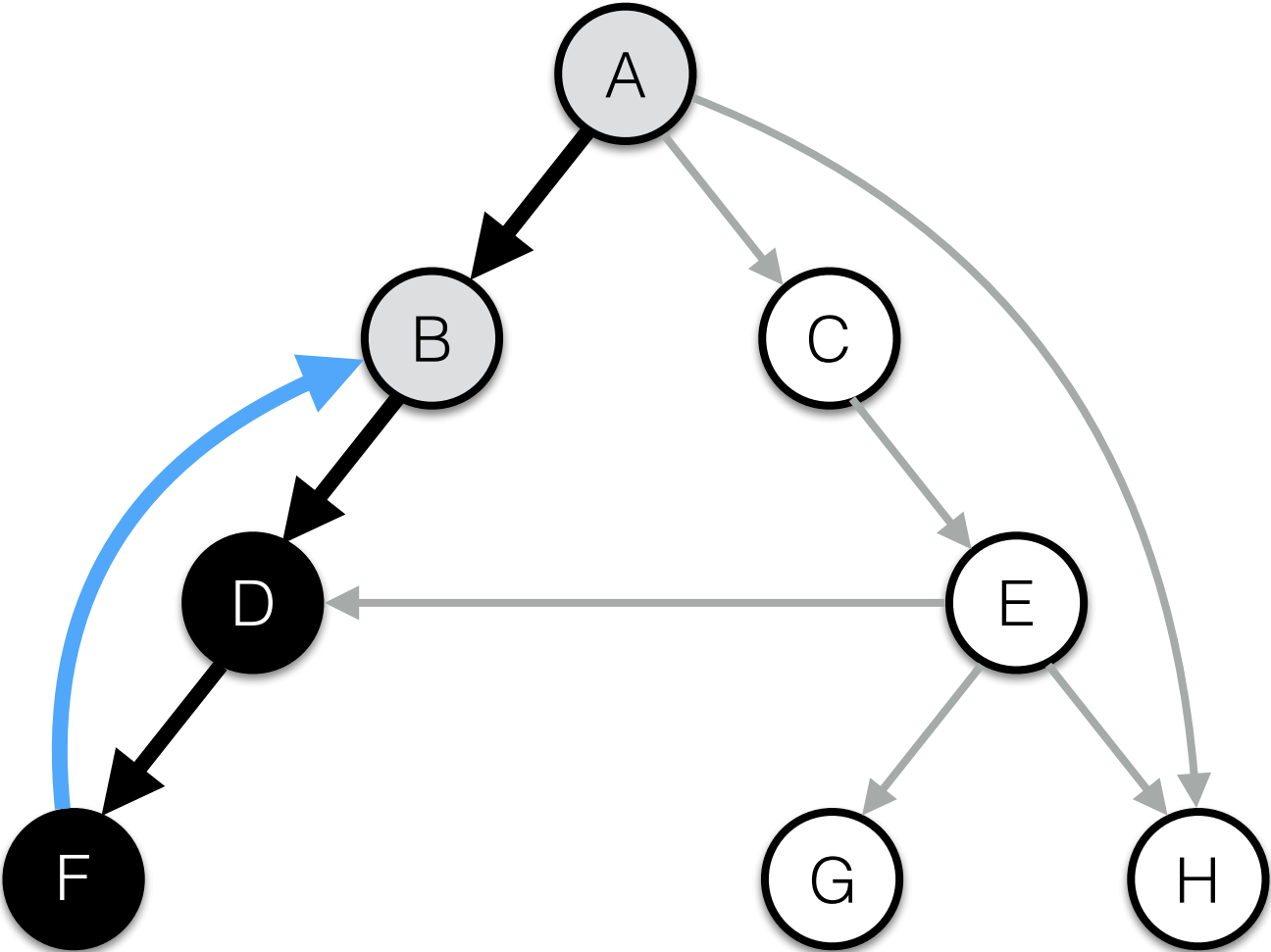


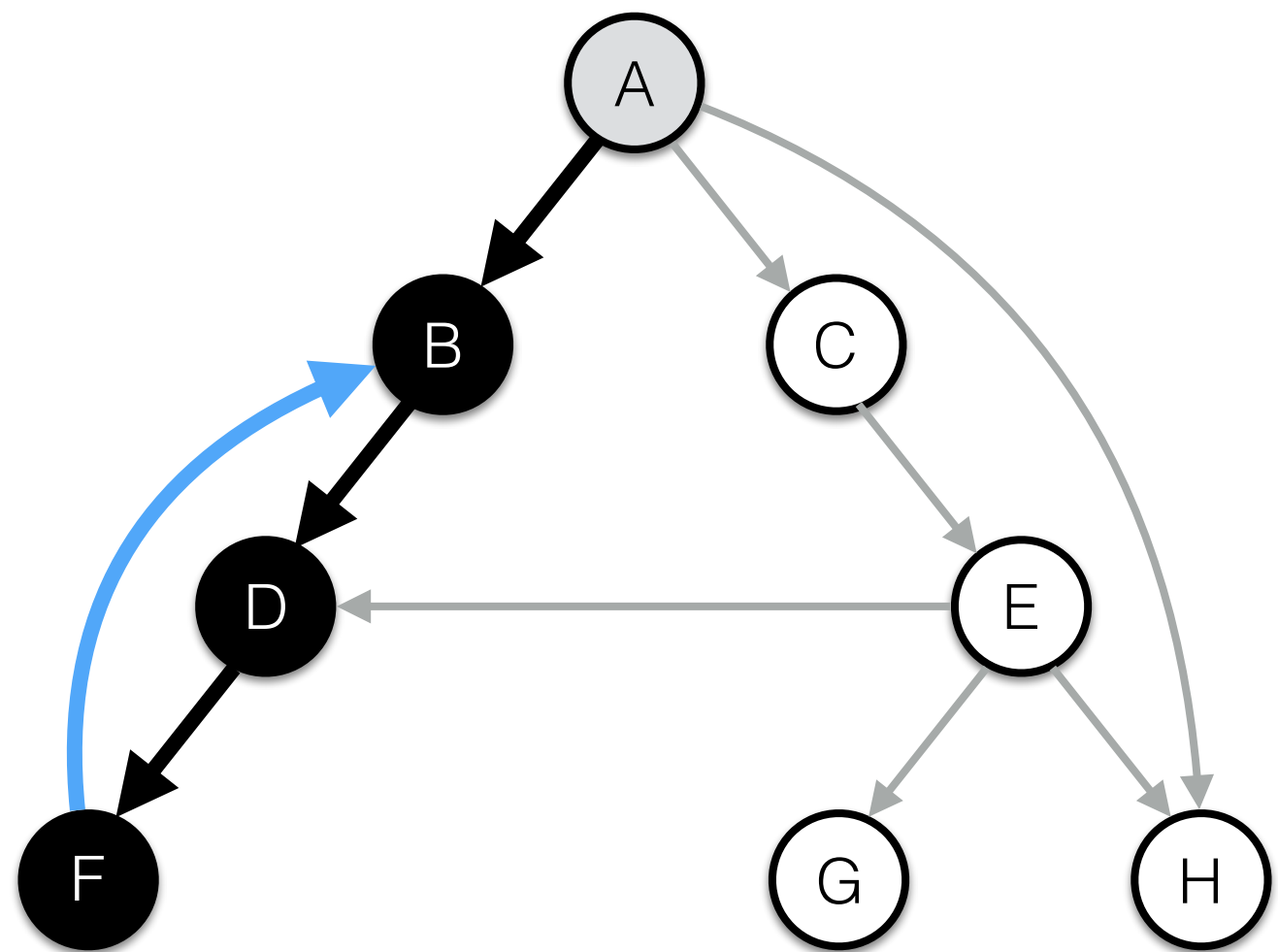


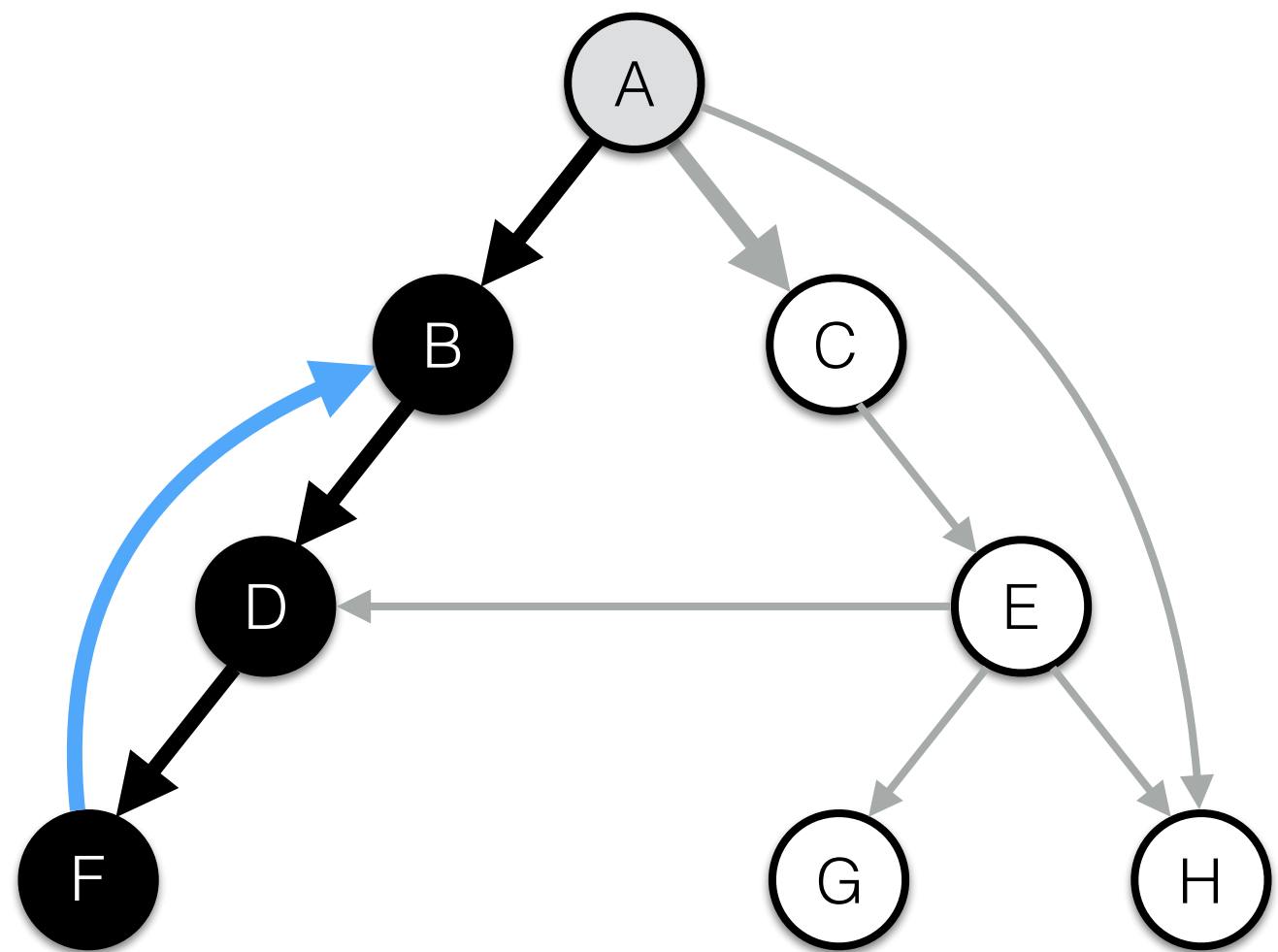


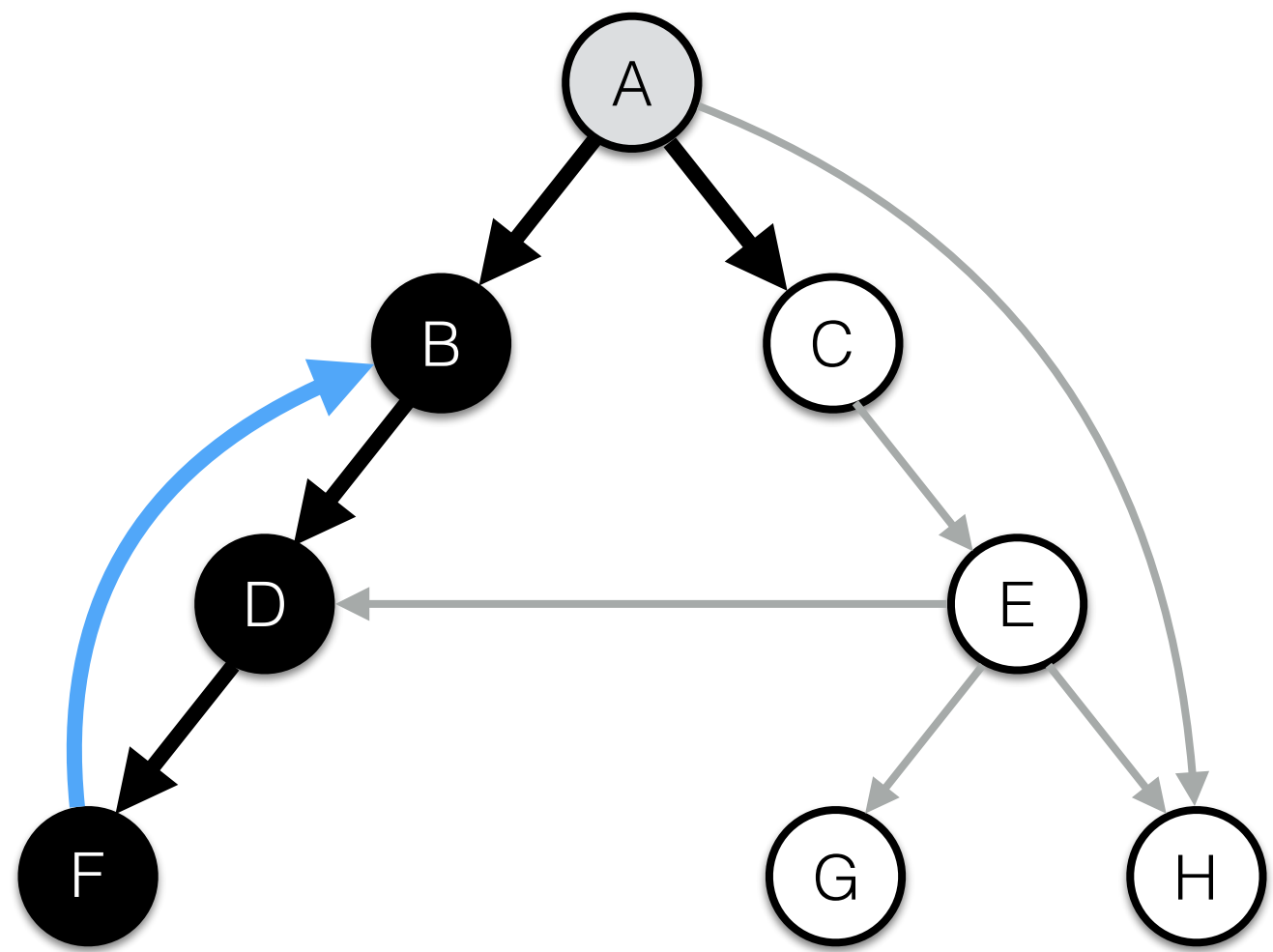


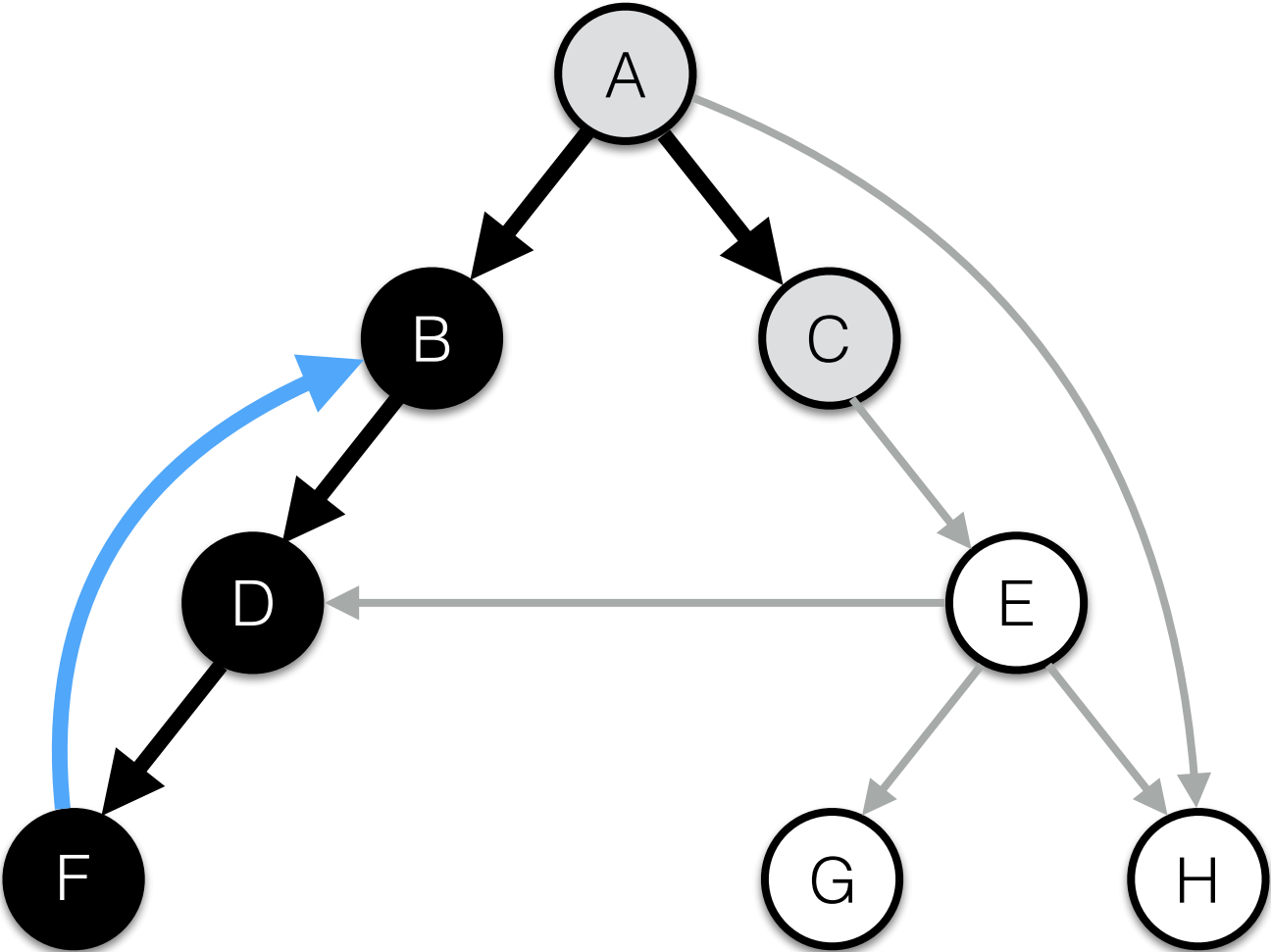


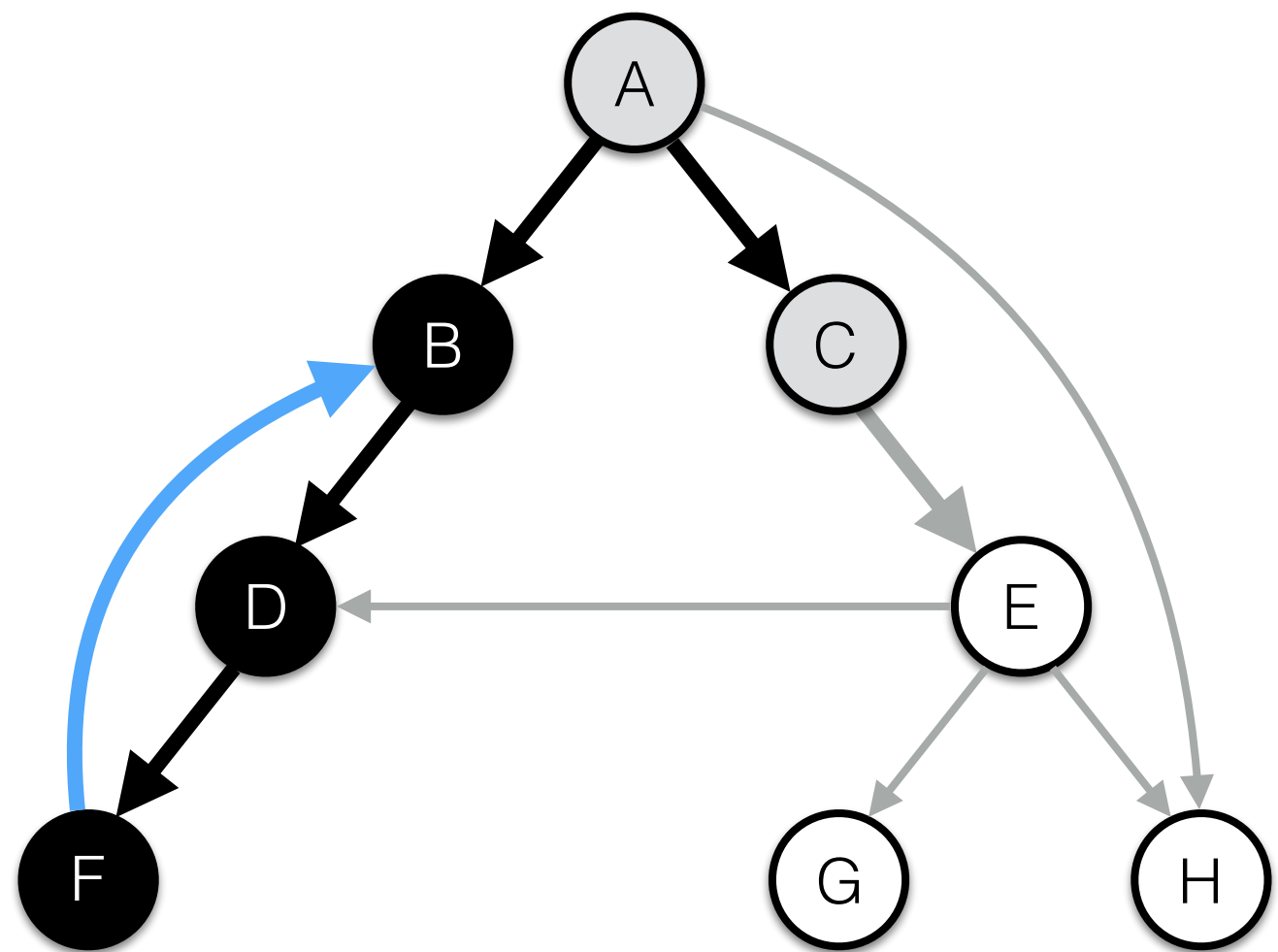


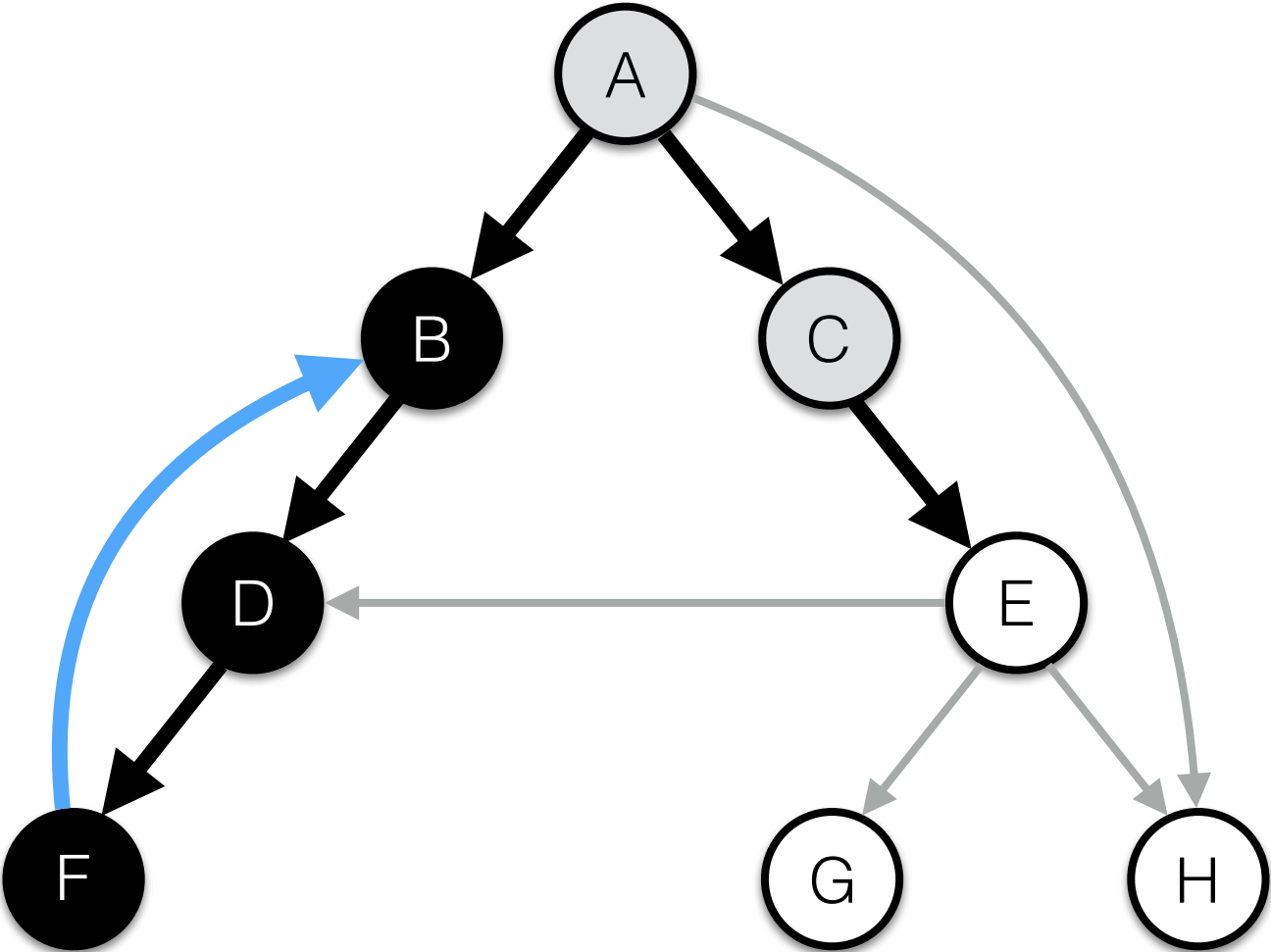


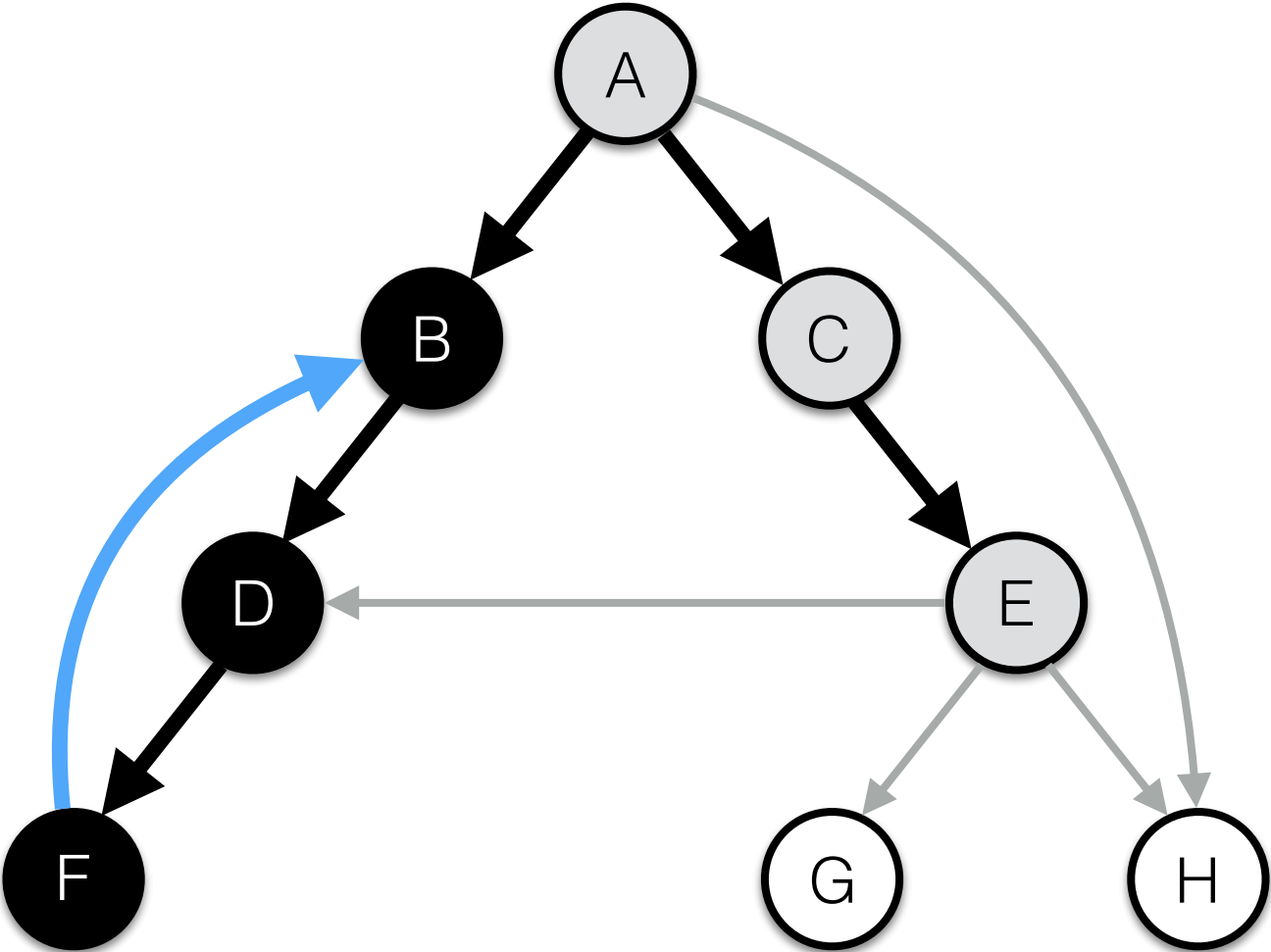




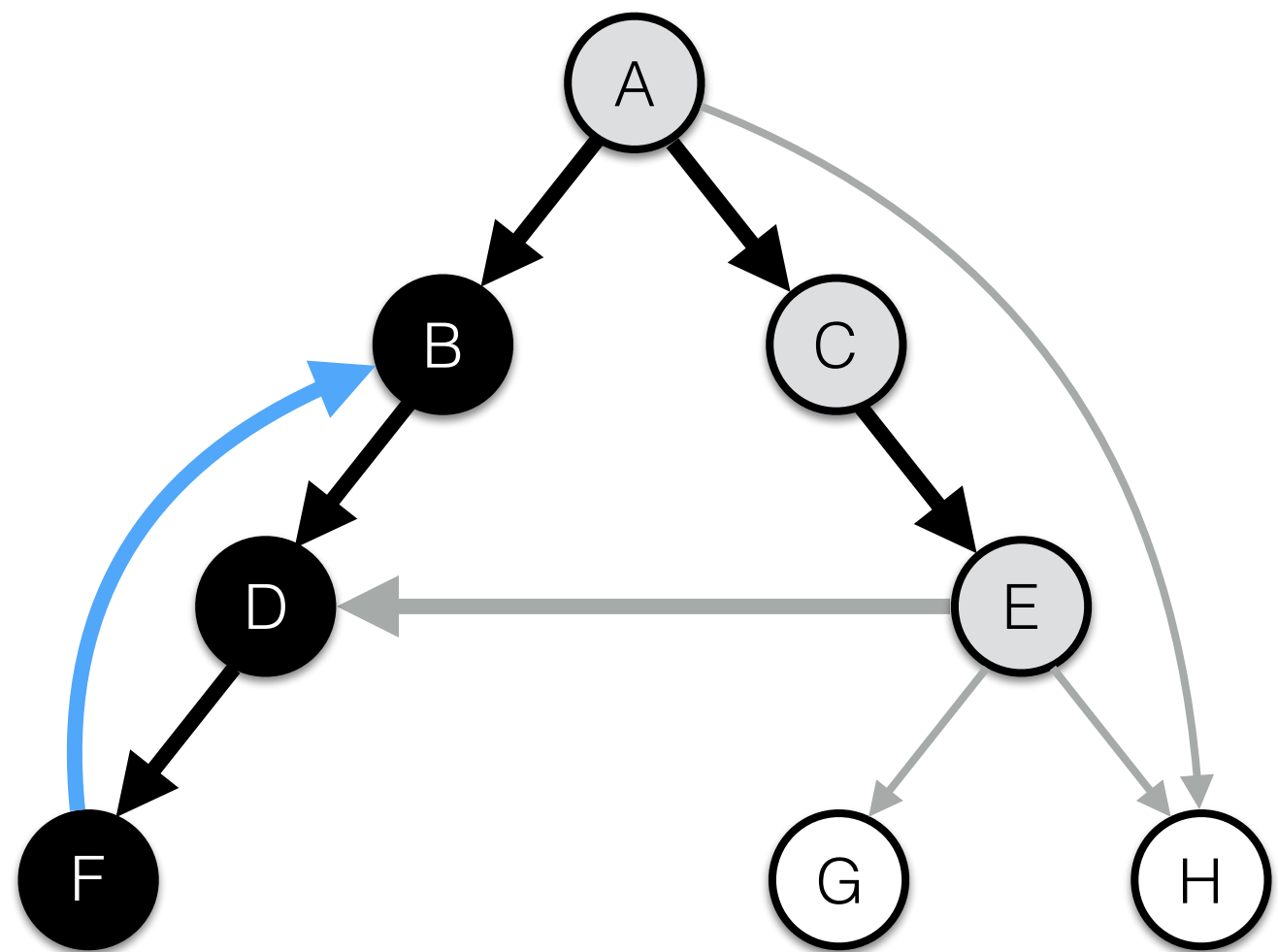


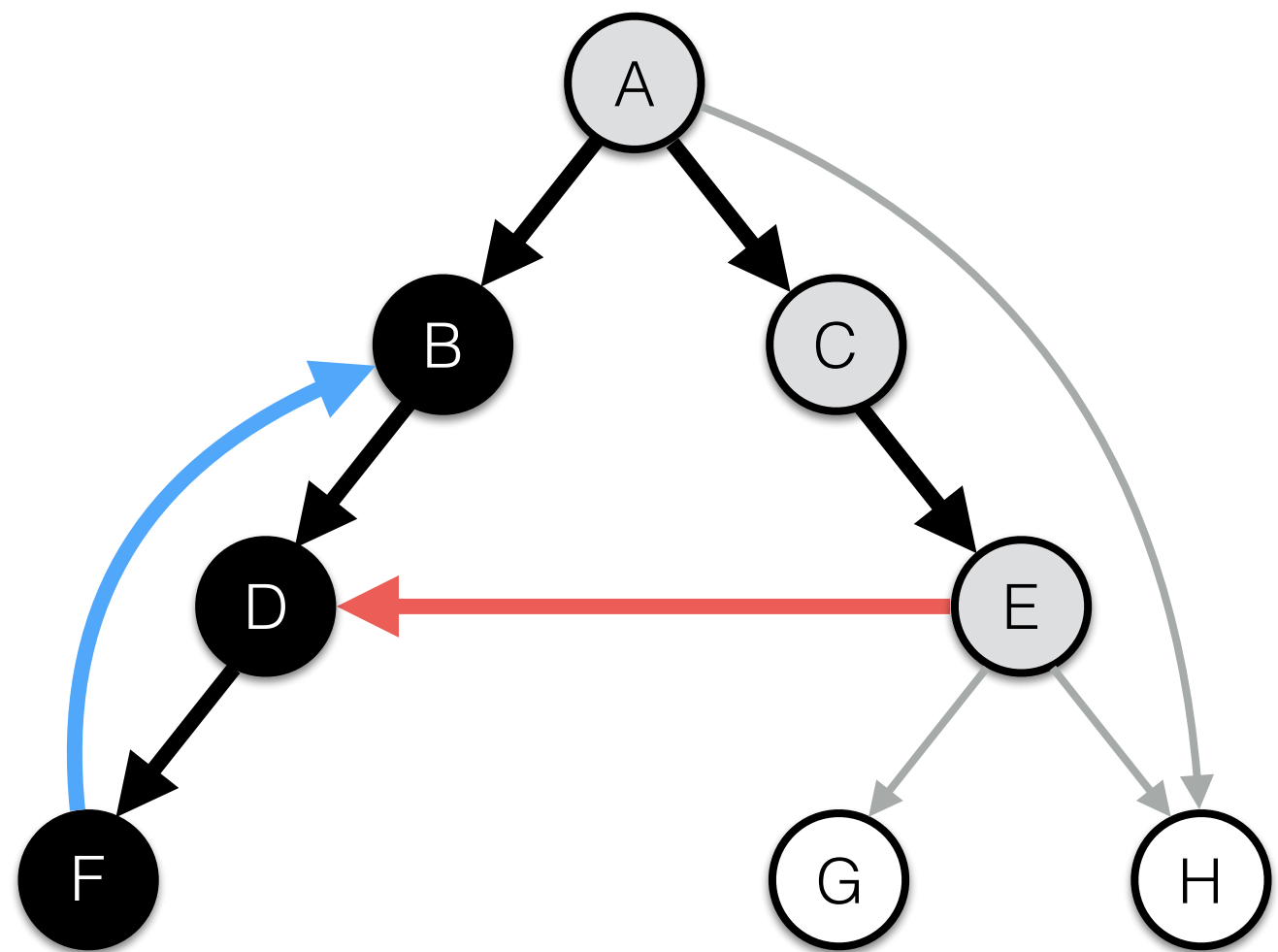


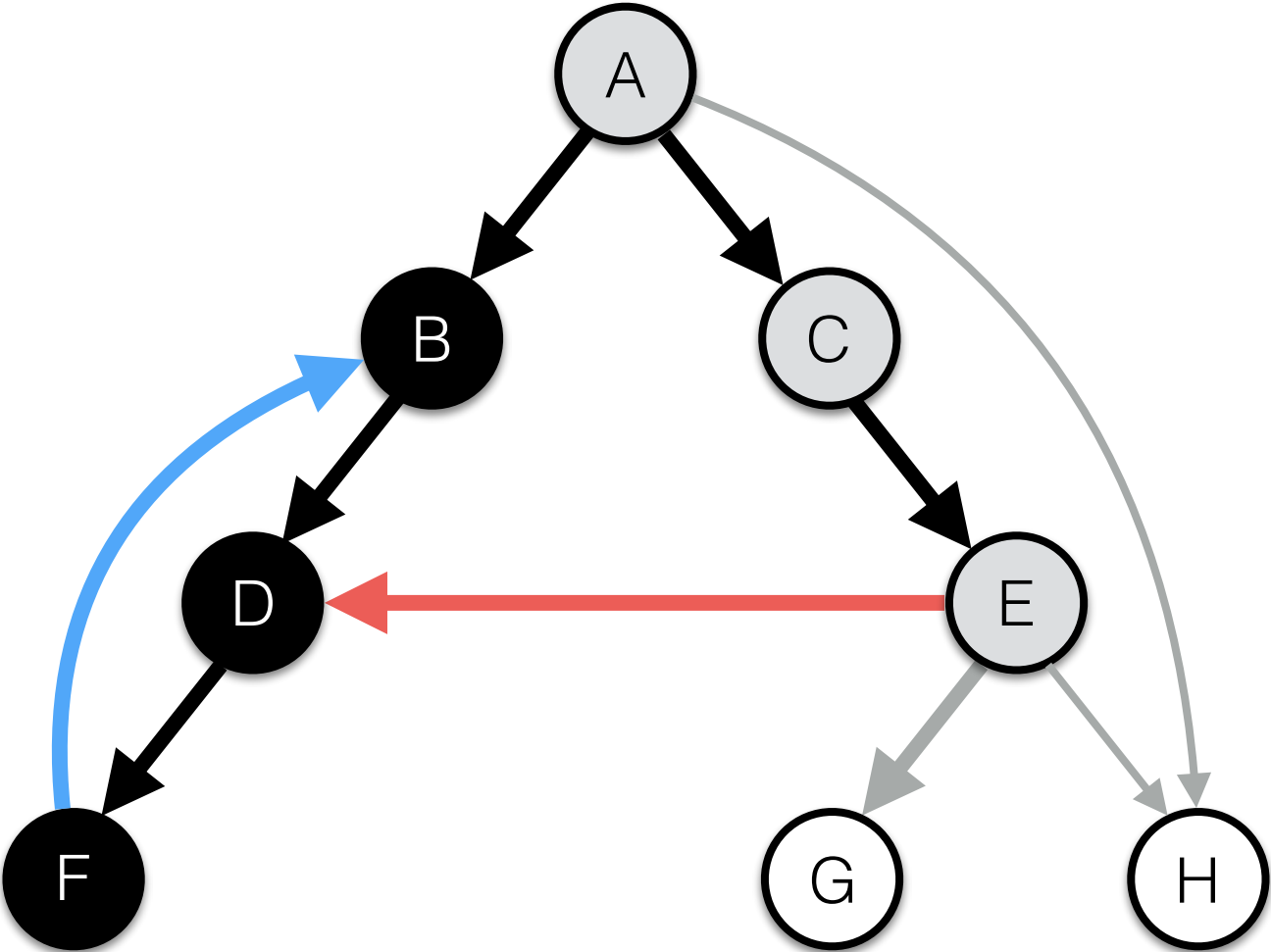


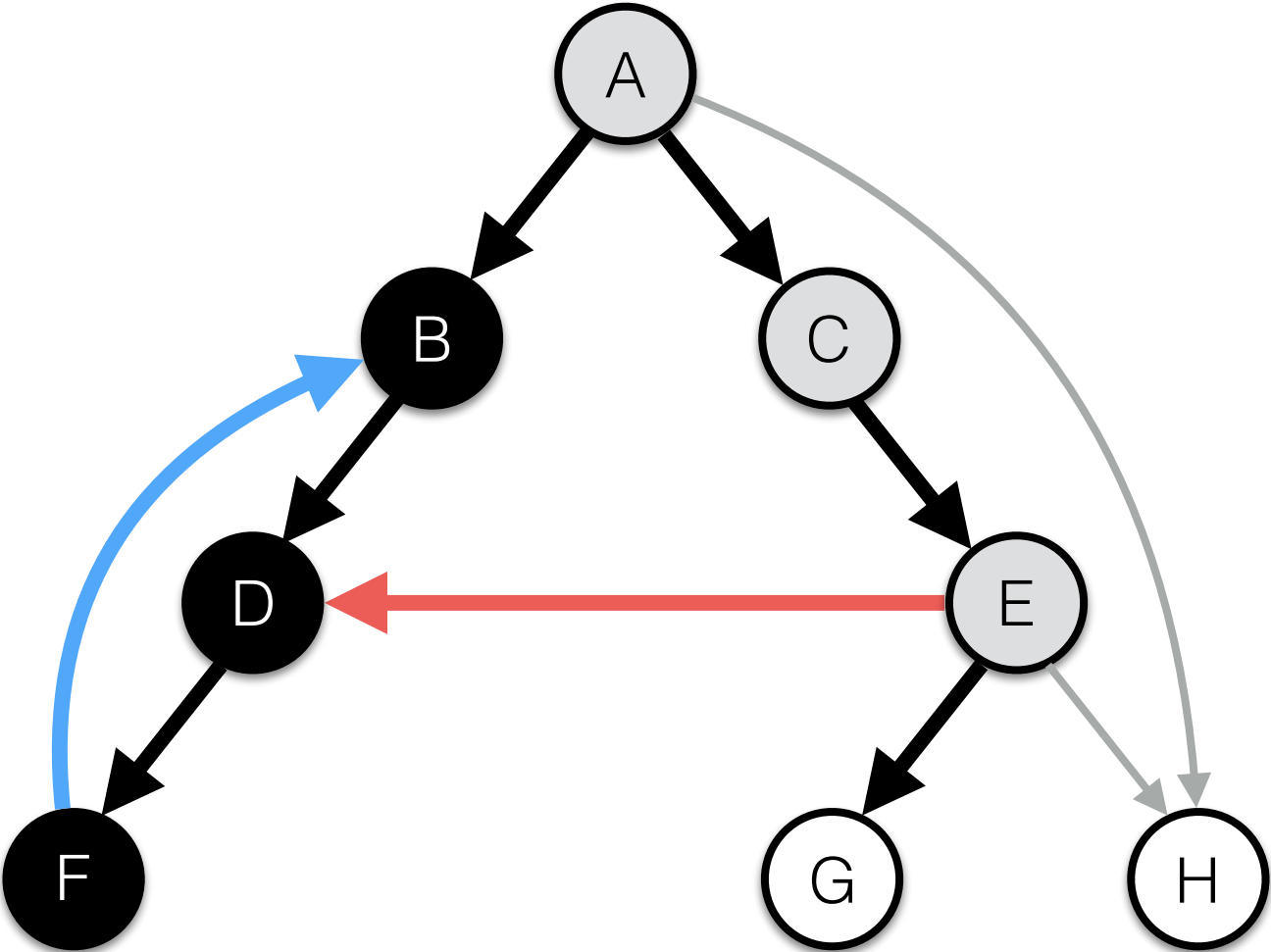


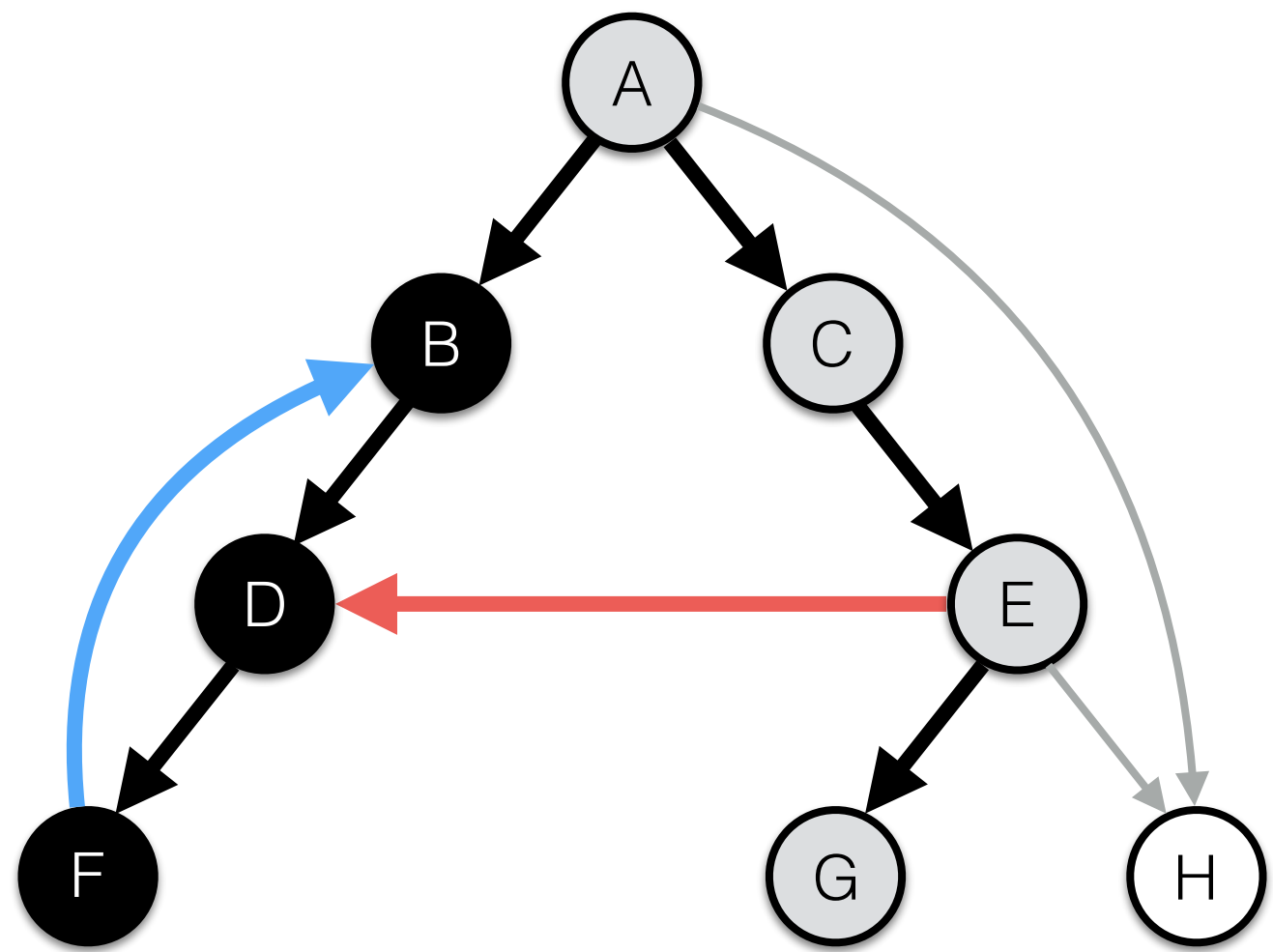


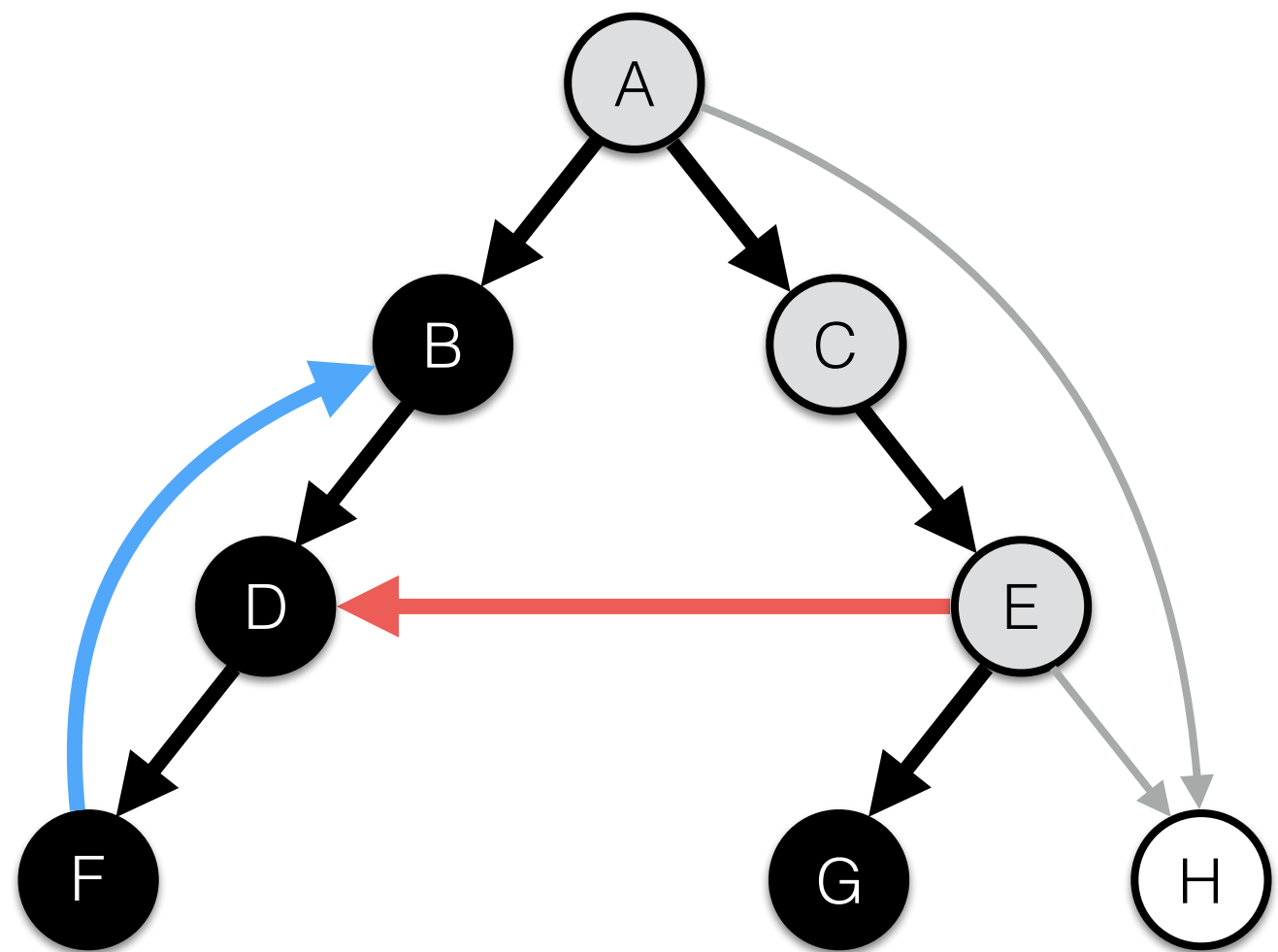


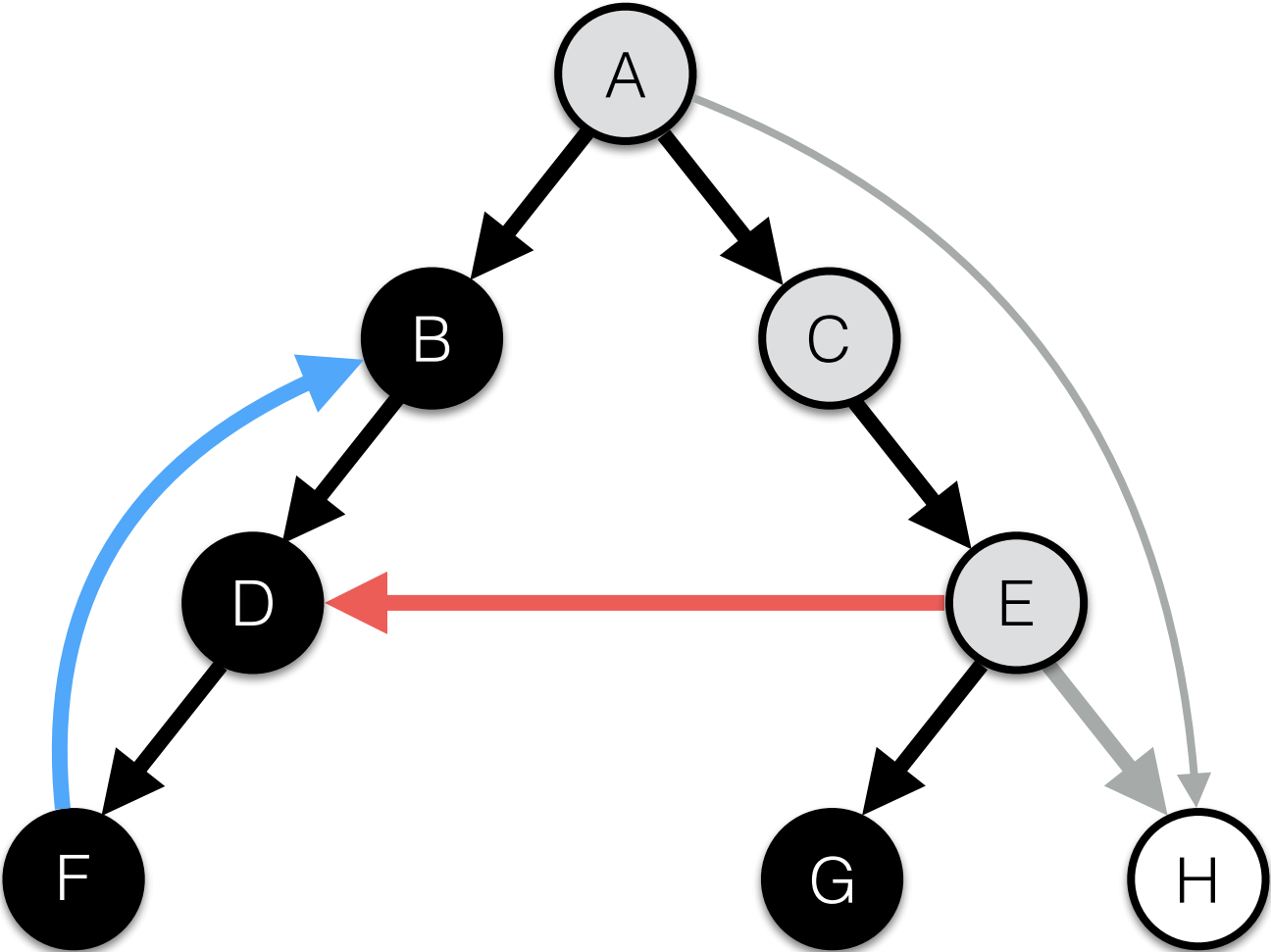


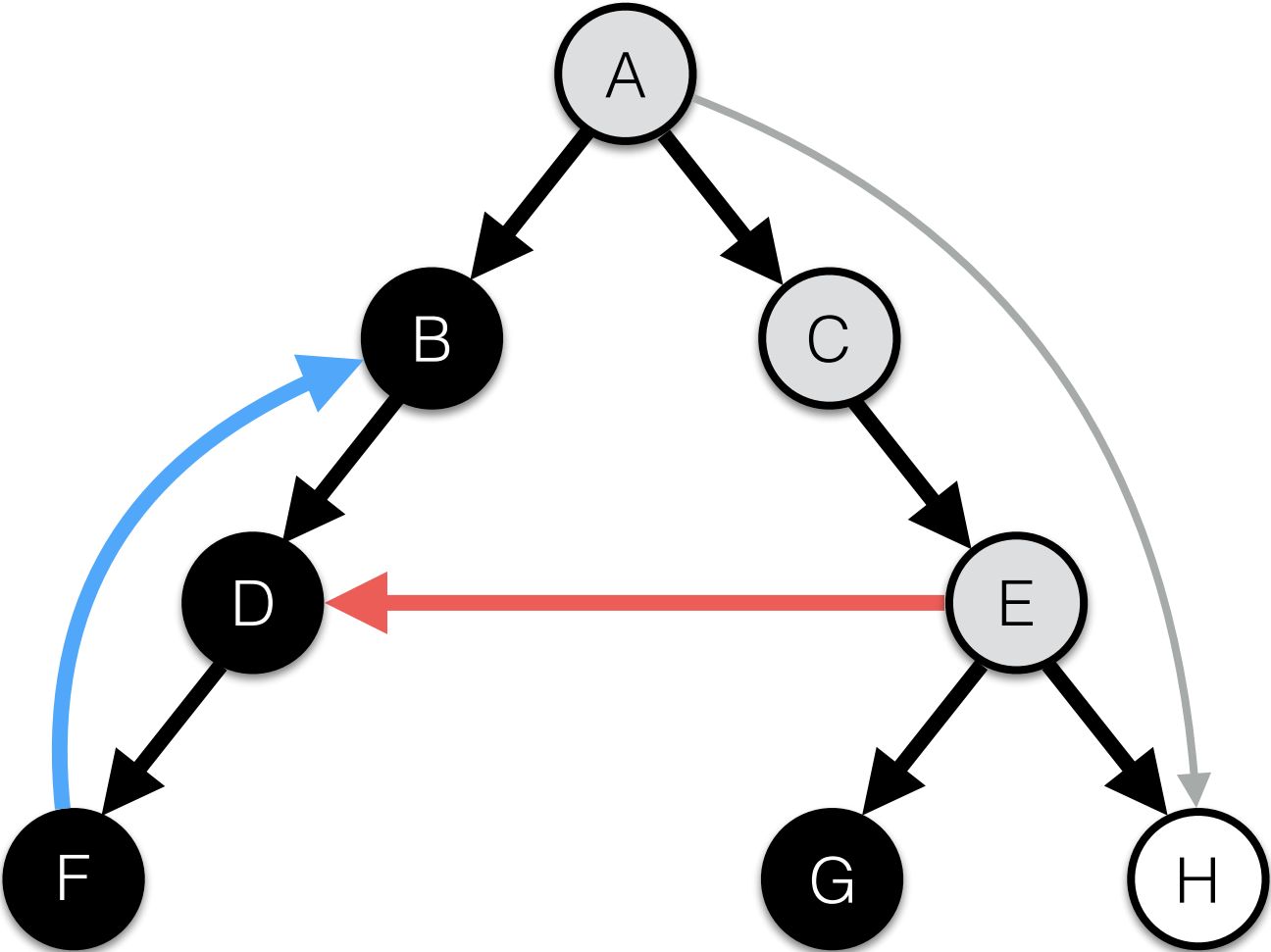




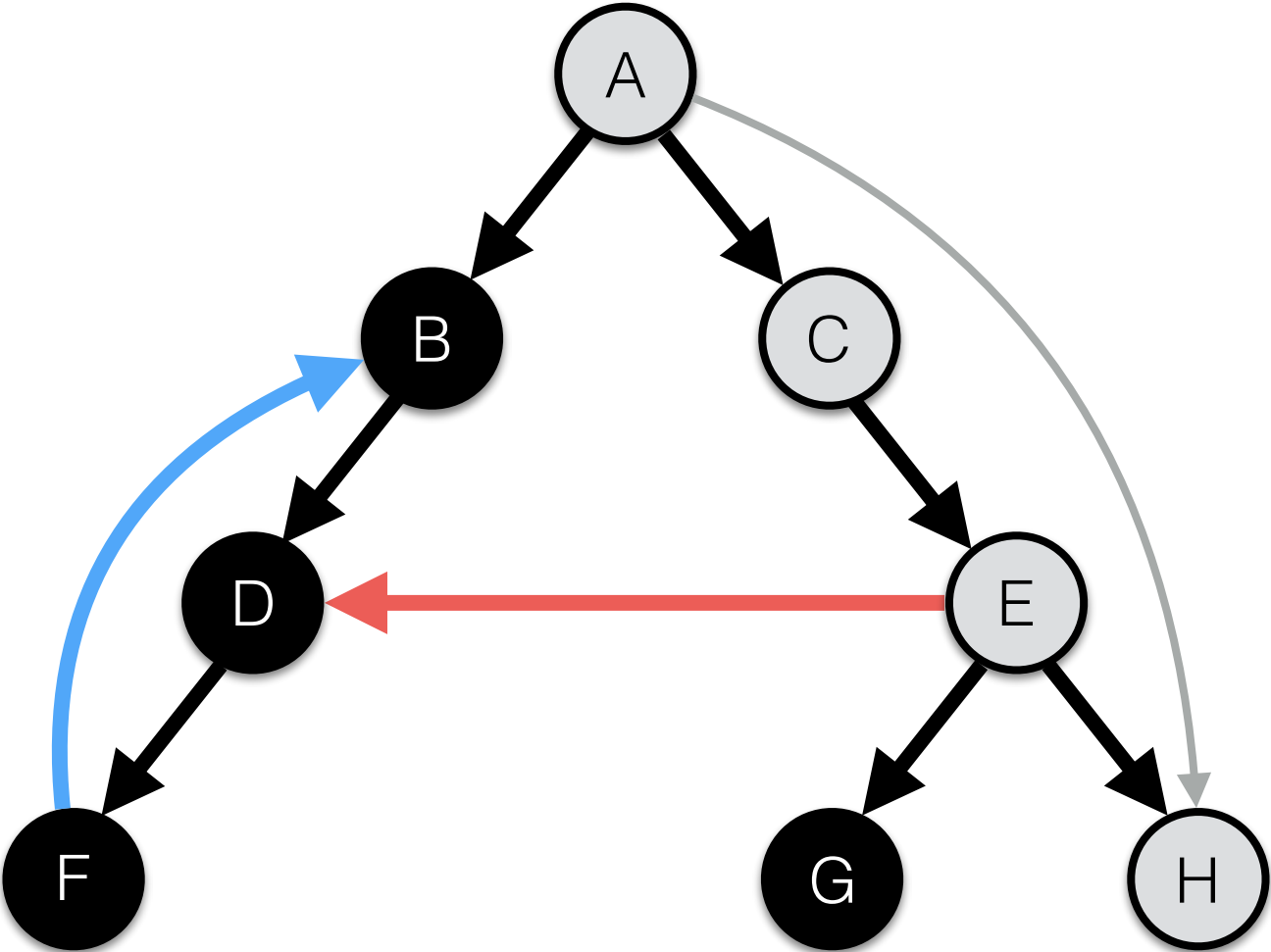


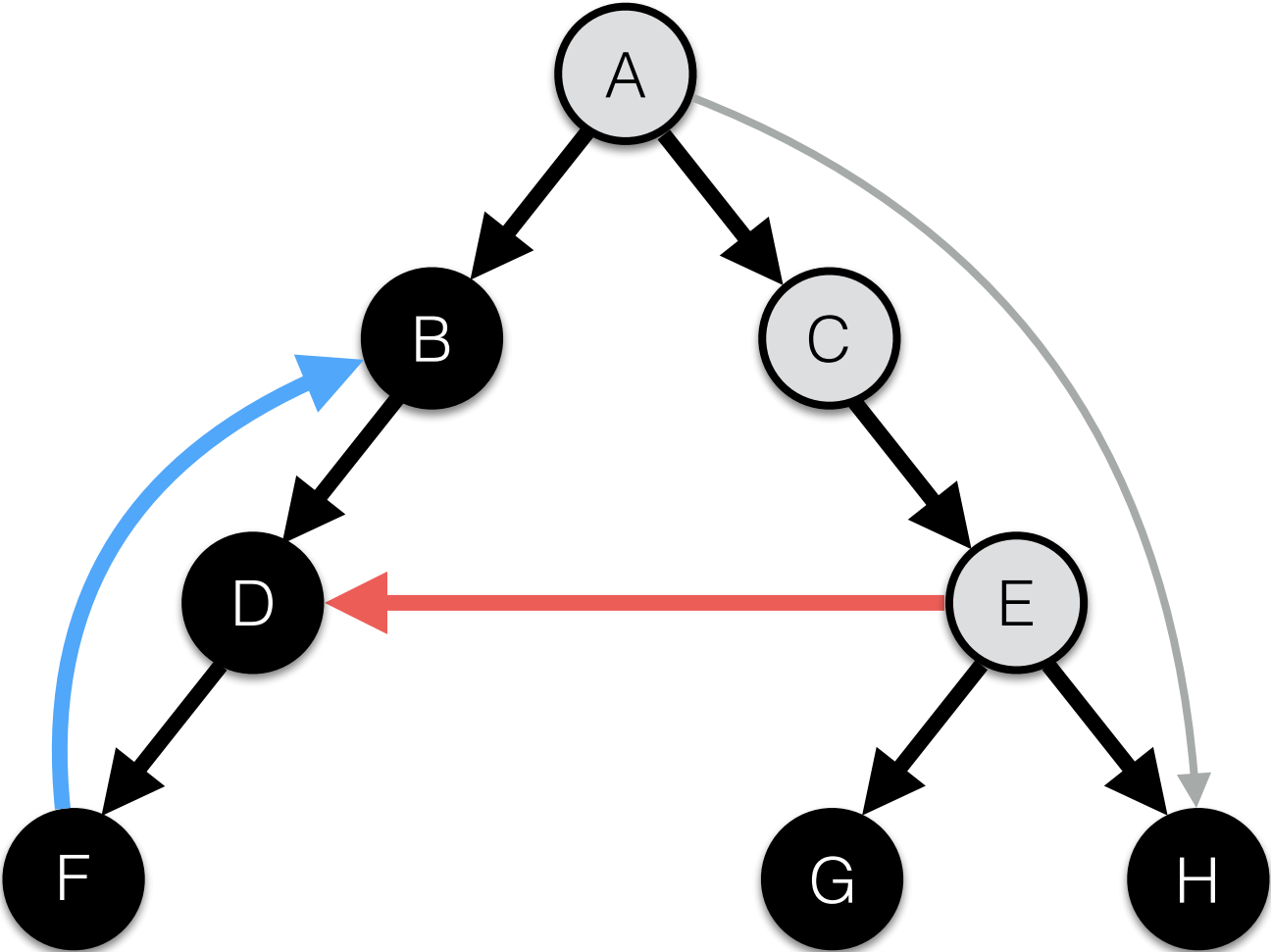


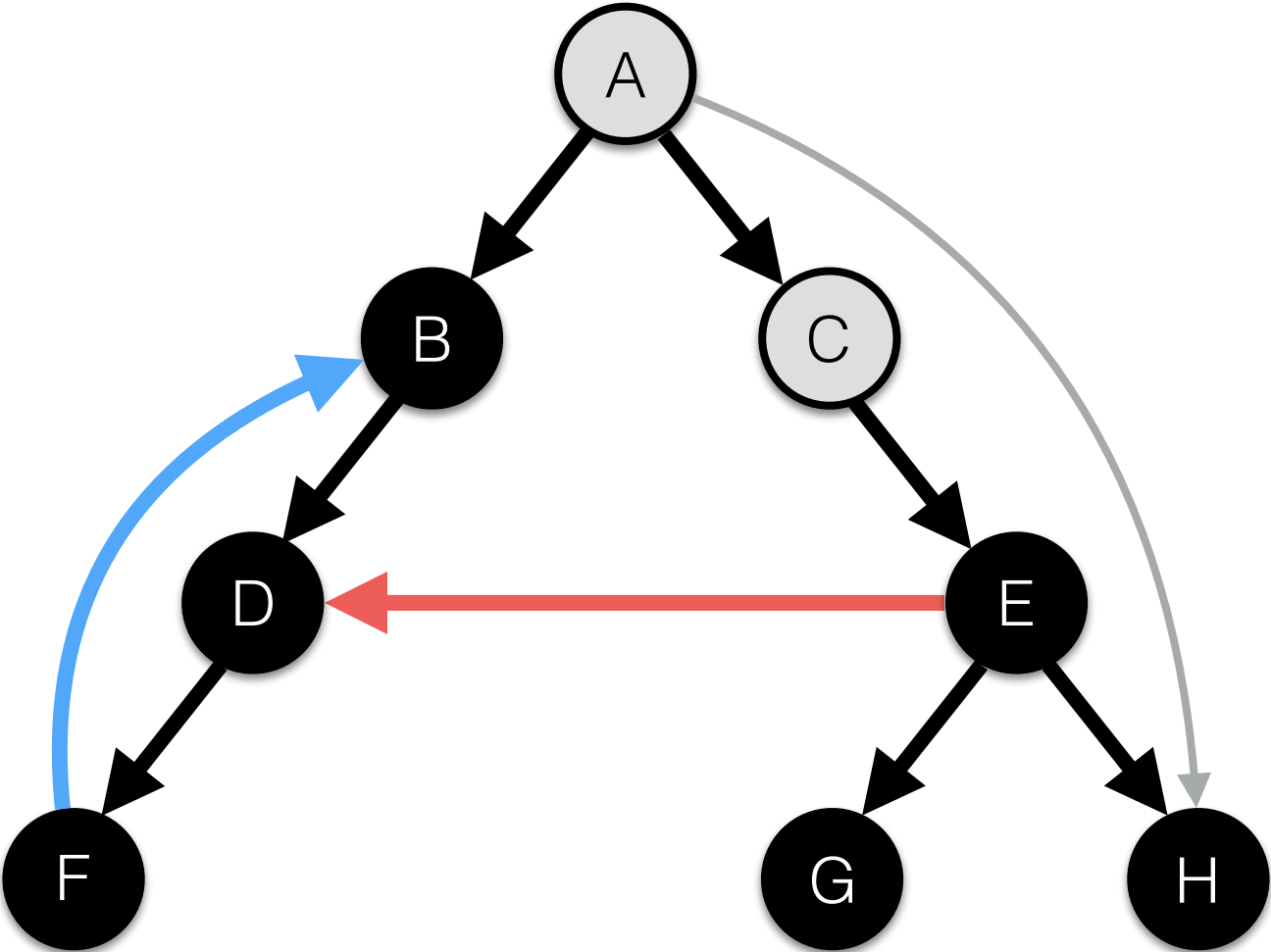


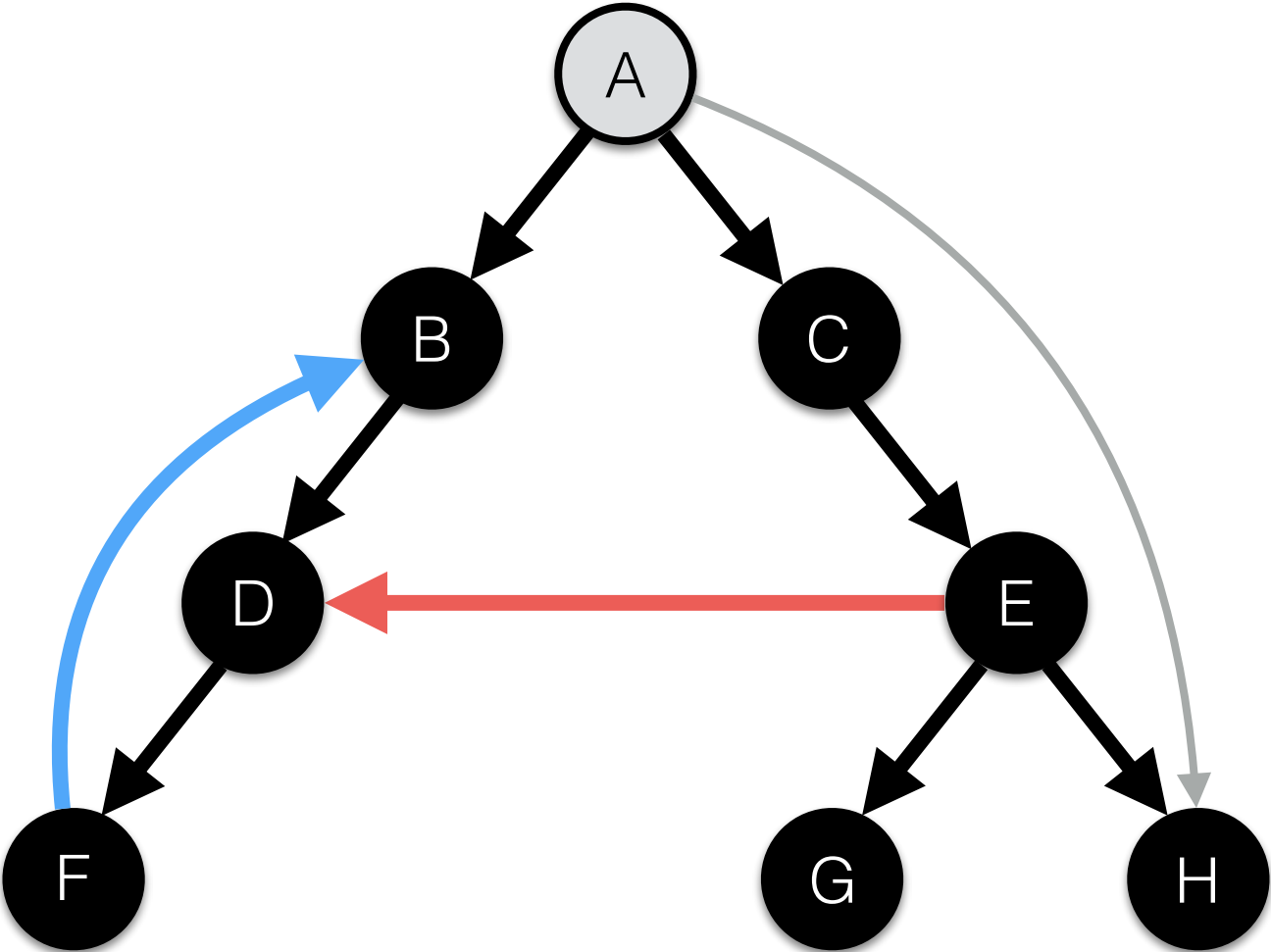


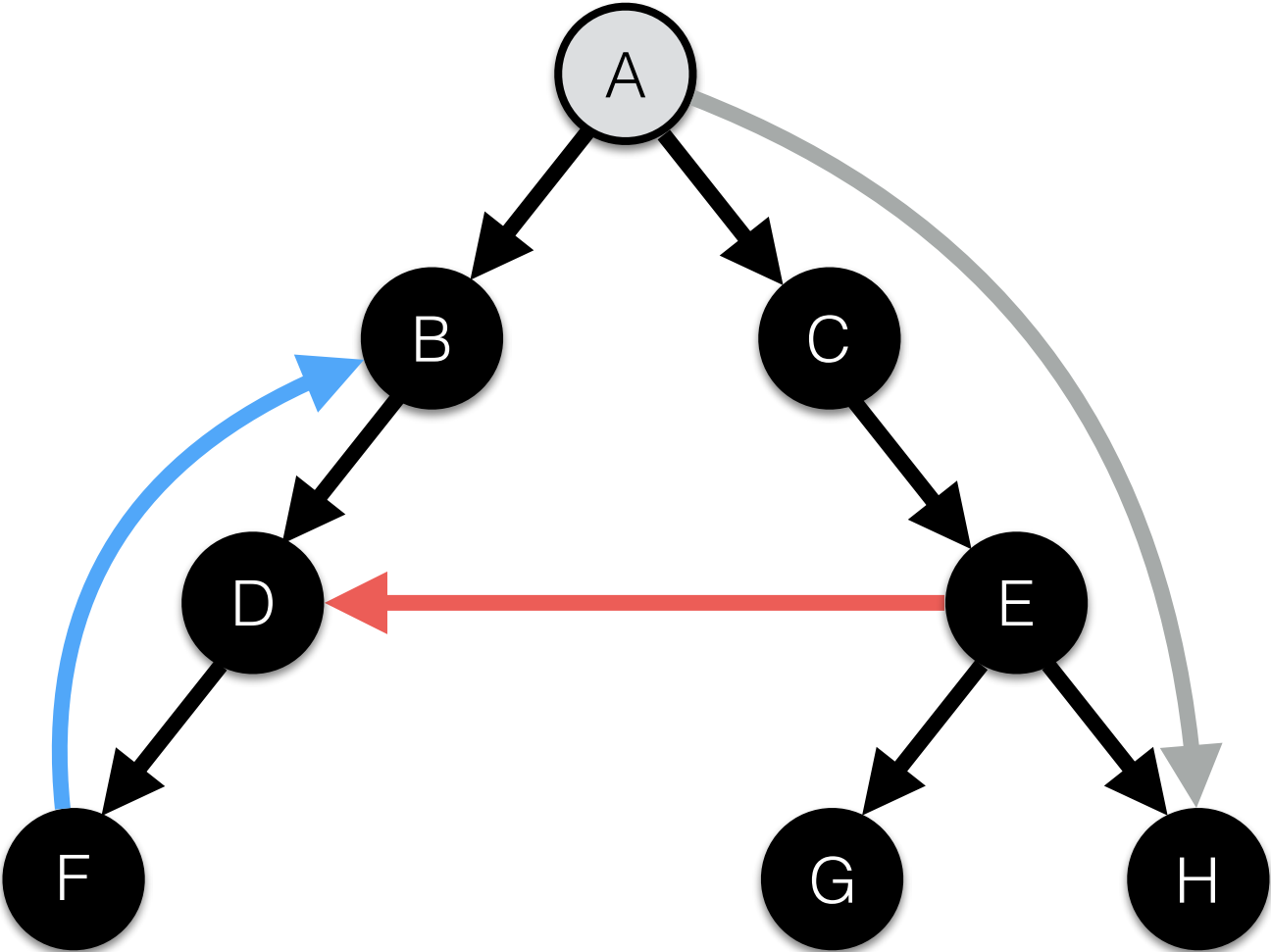


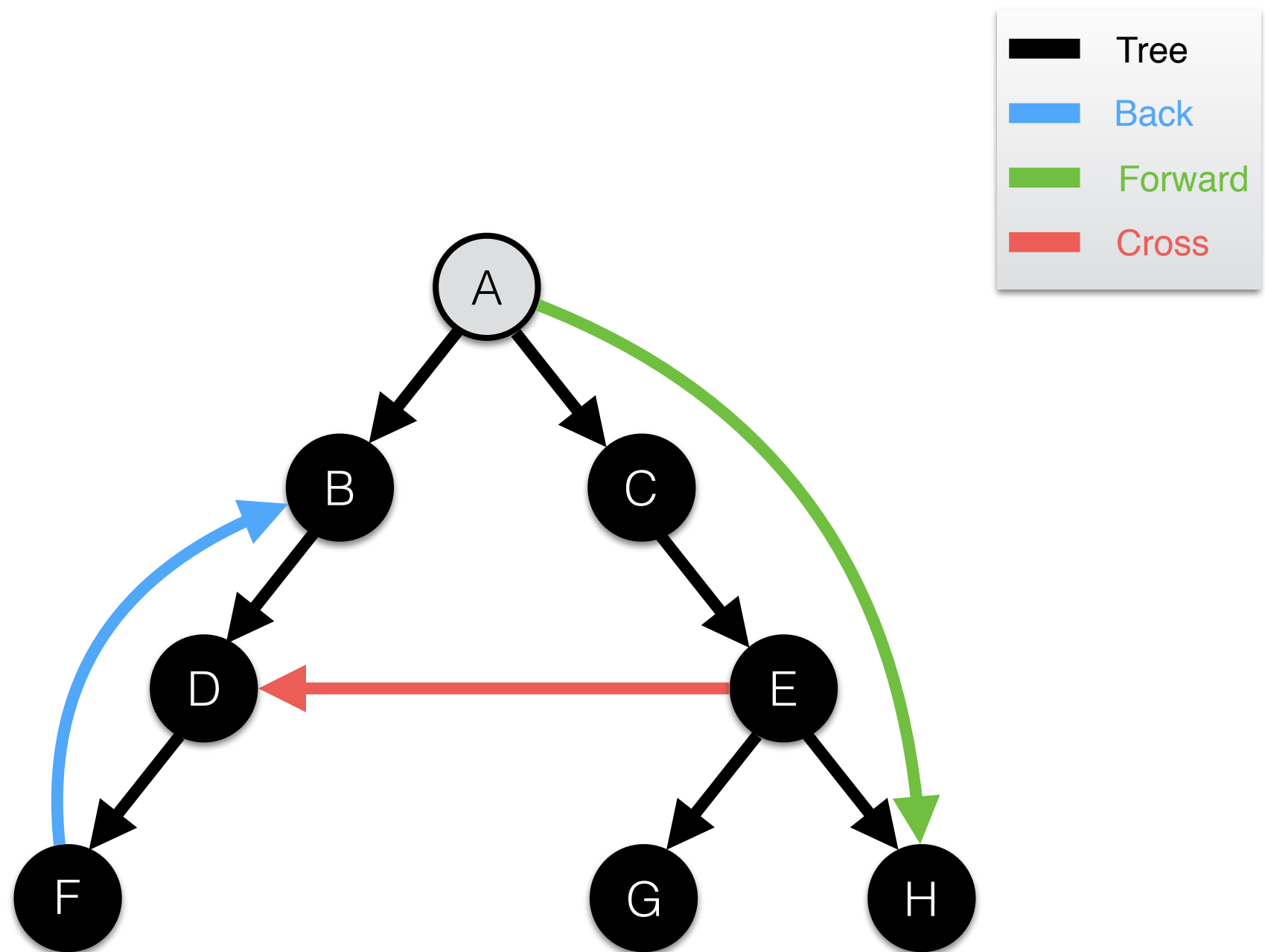


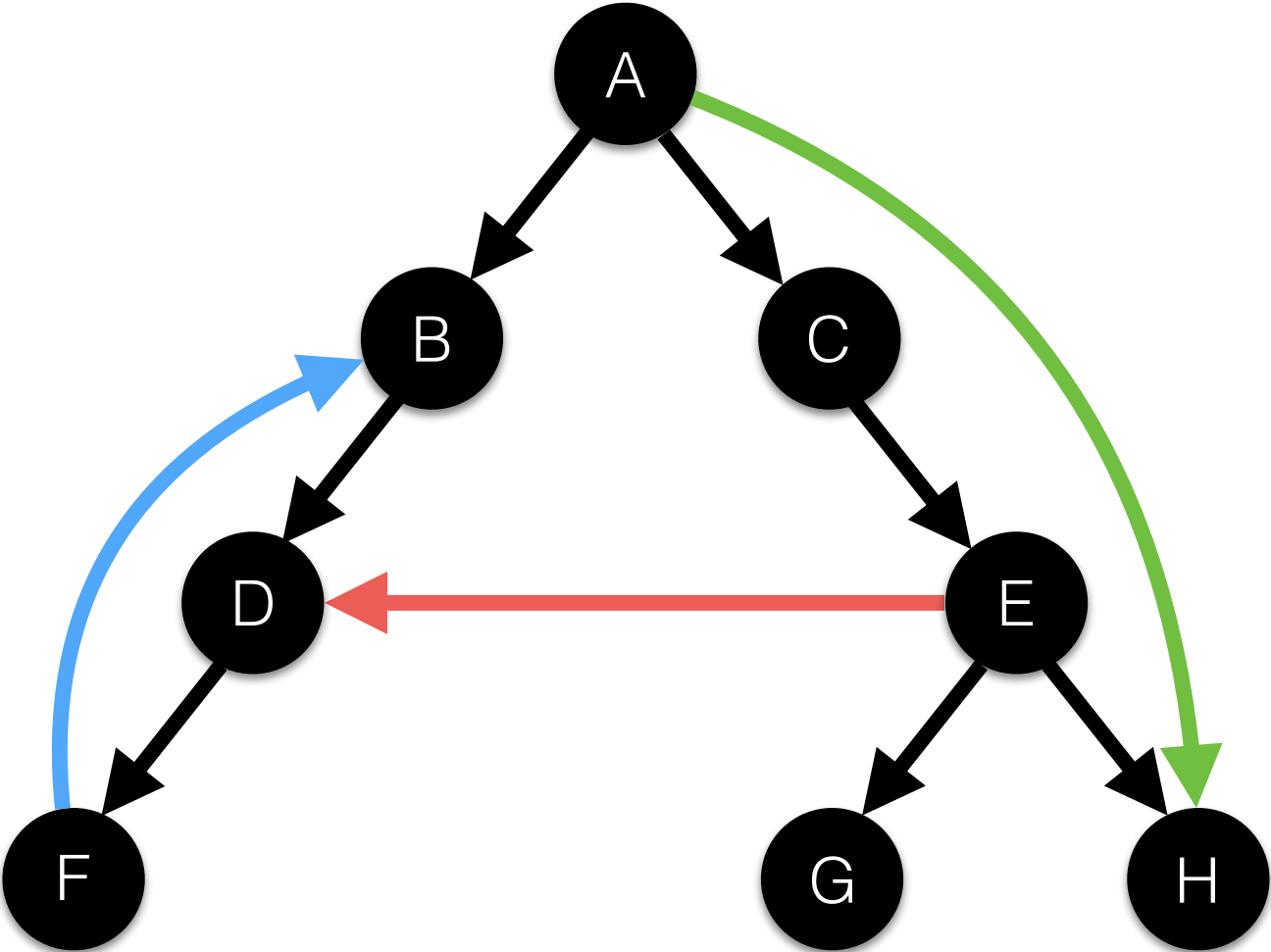






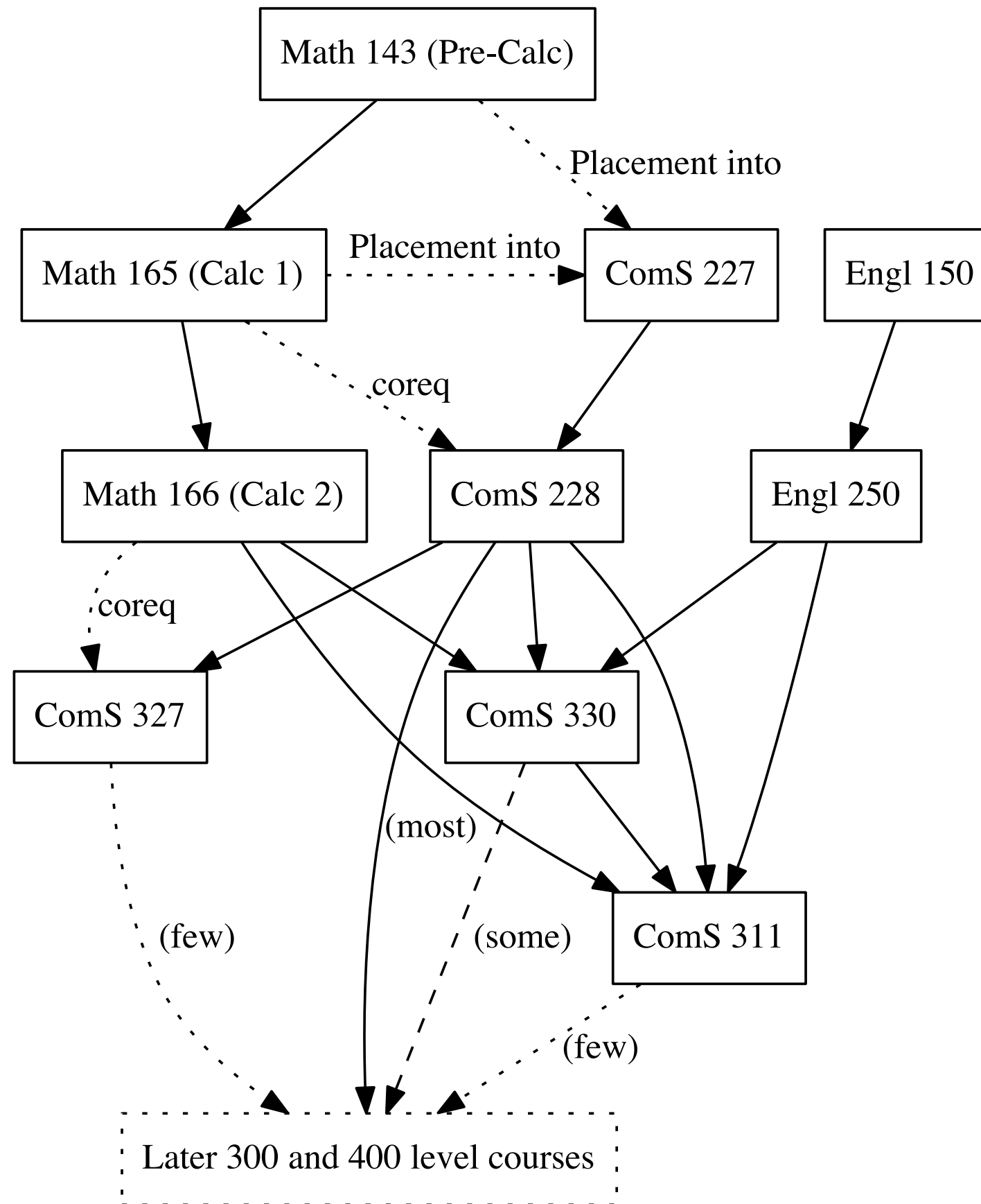


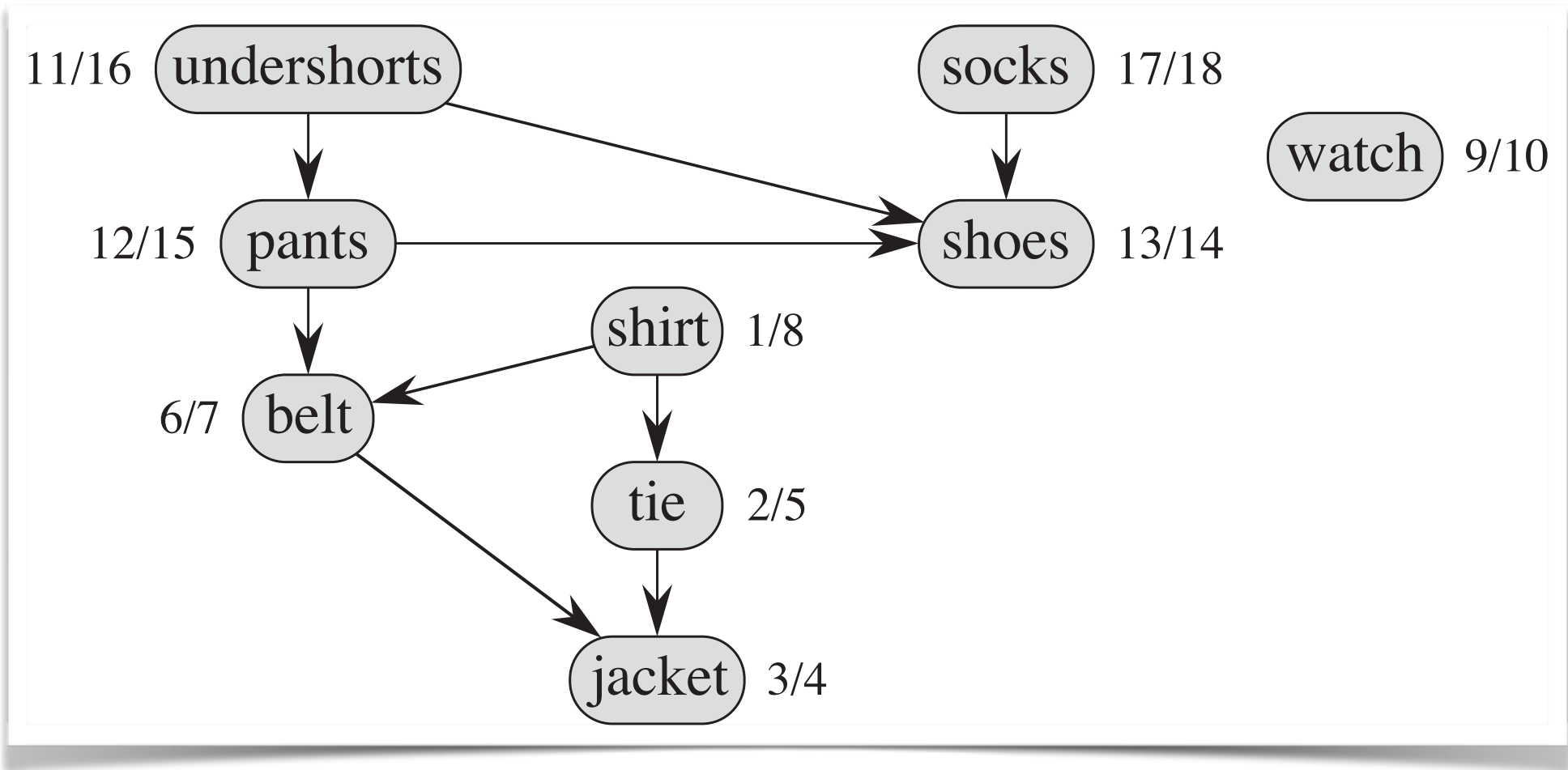




# Directed Acyclic Graphs





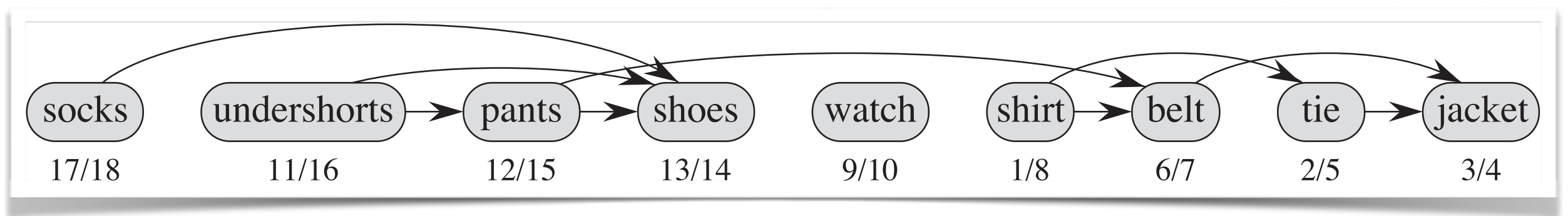
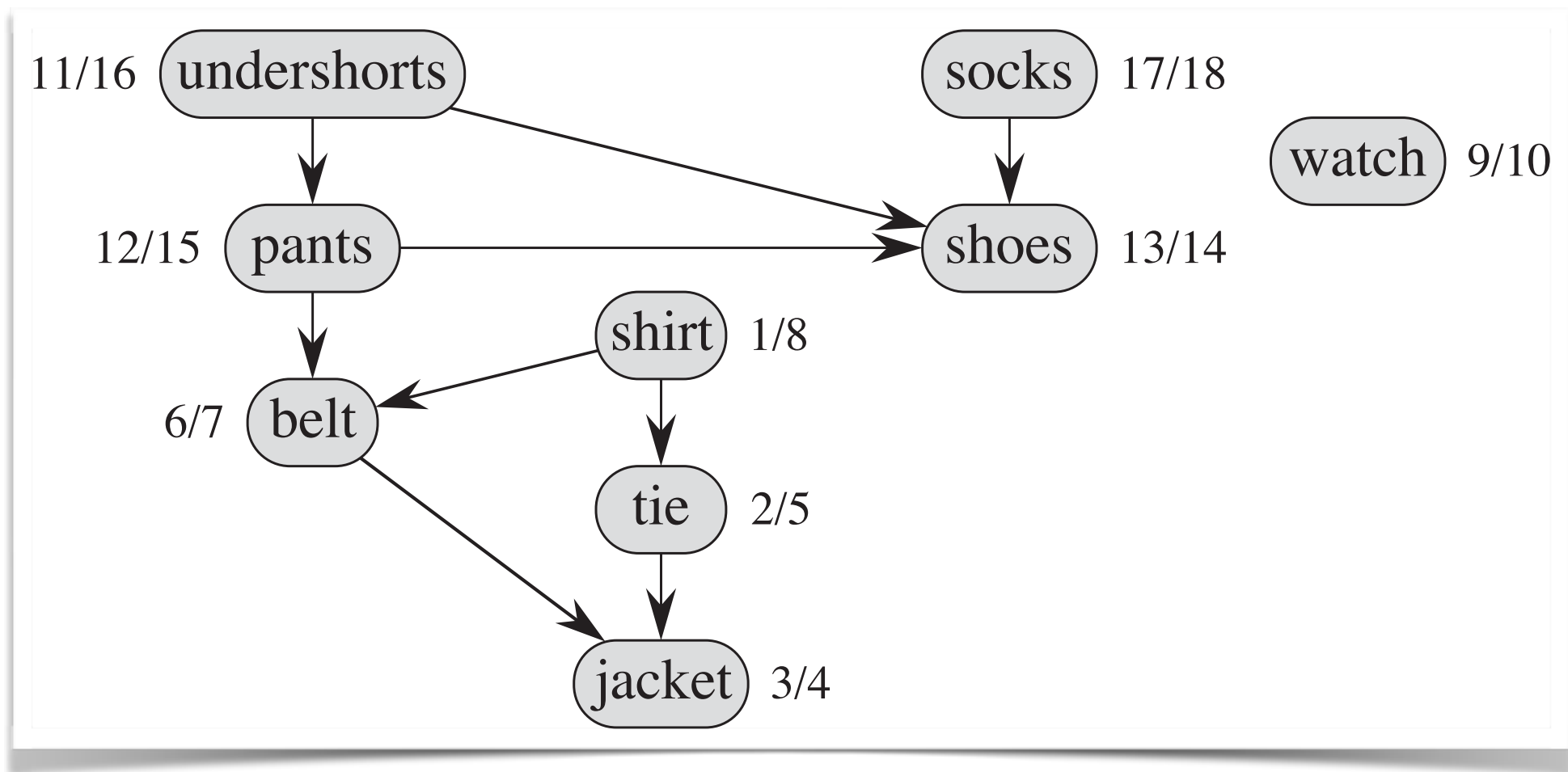


# Topological Sort

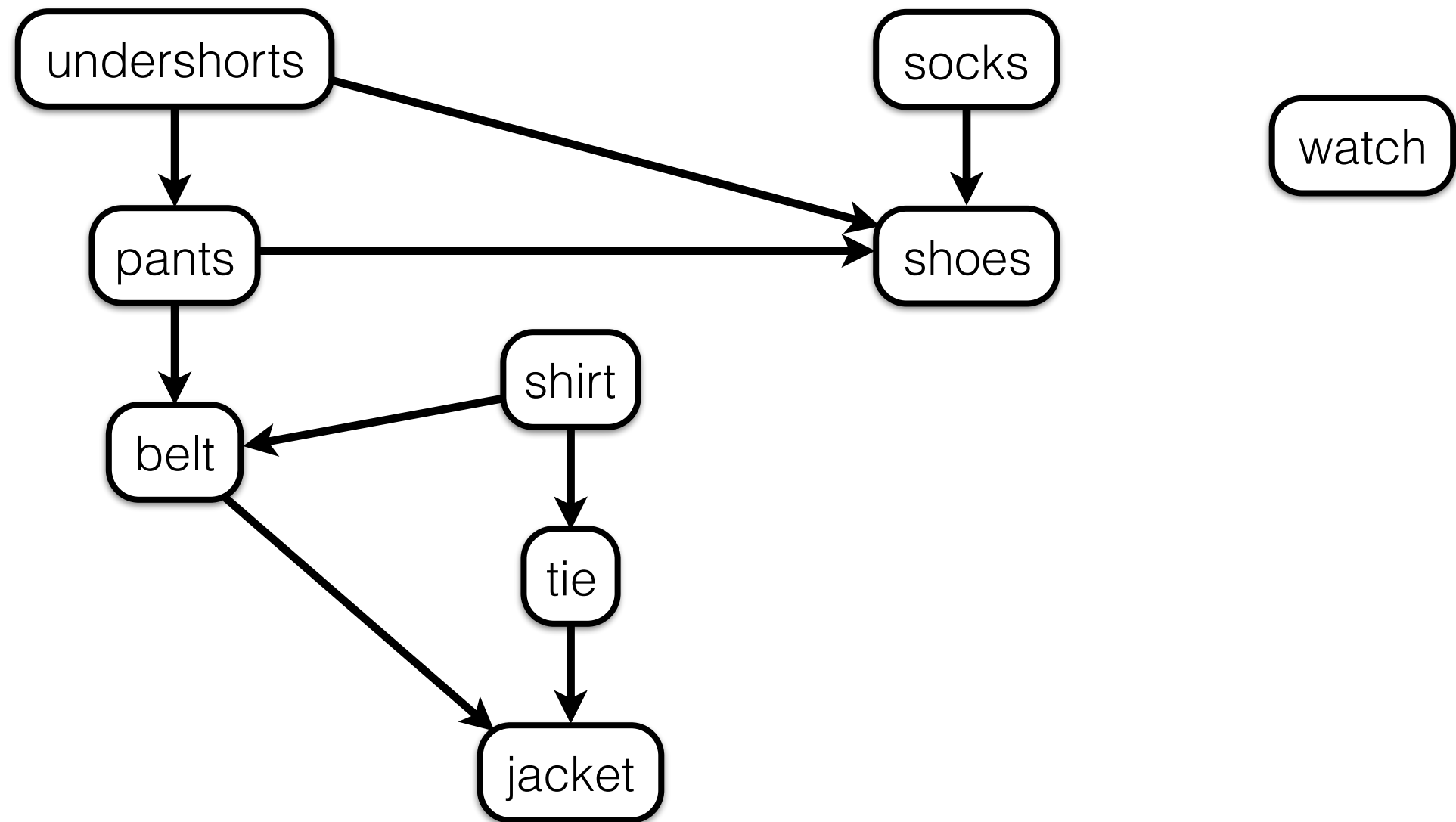
An ordering of the nodes such that if there is an edge

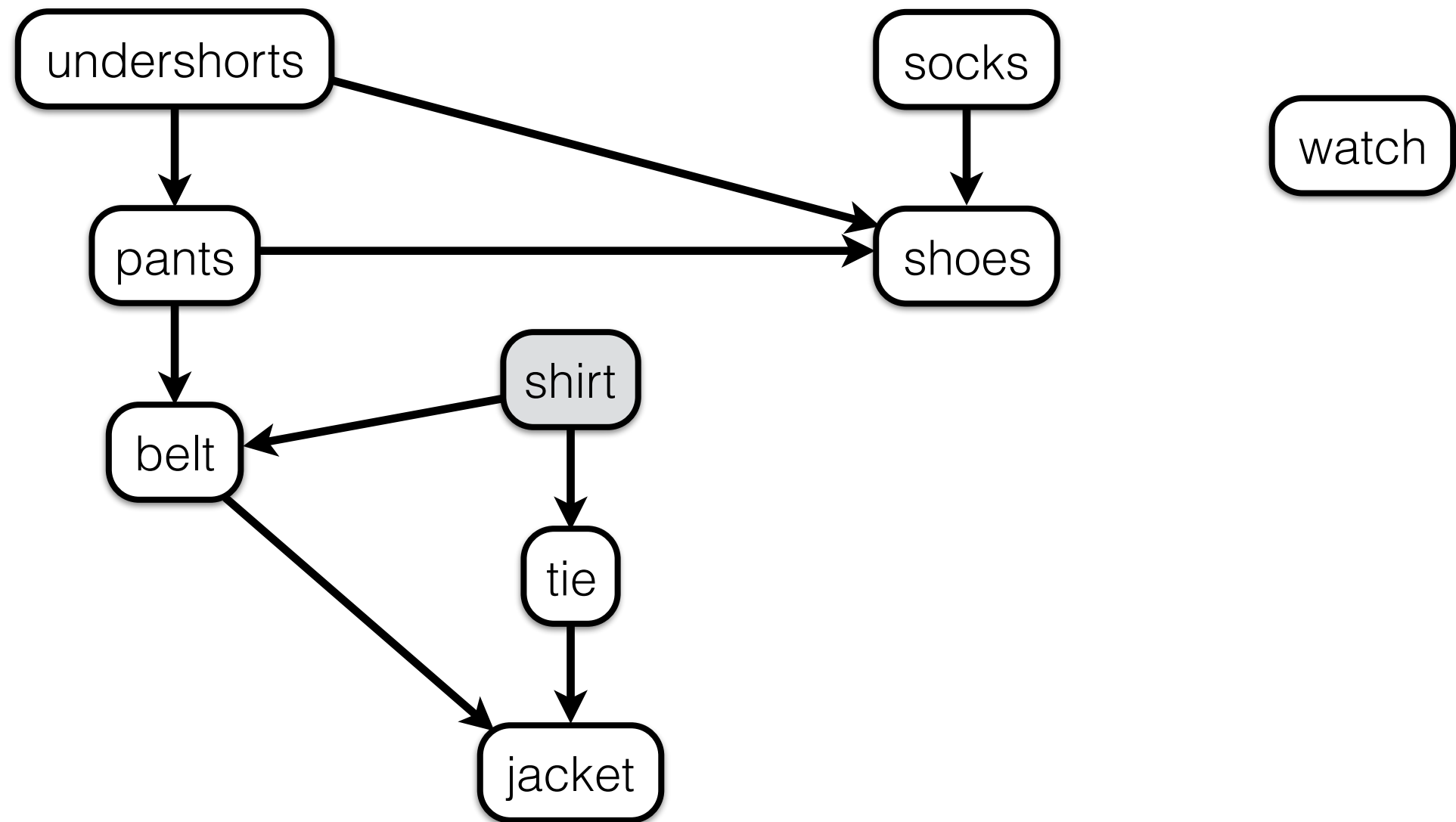


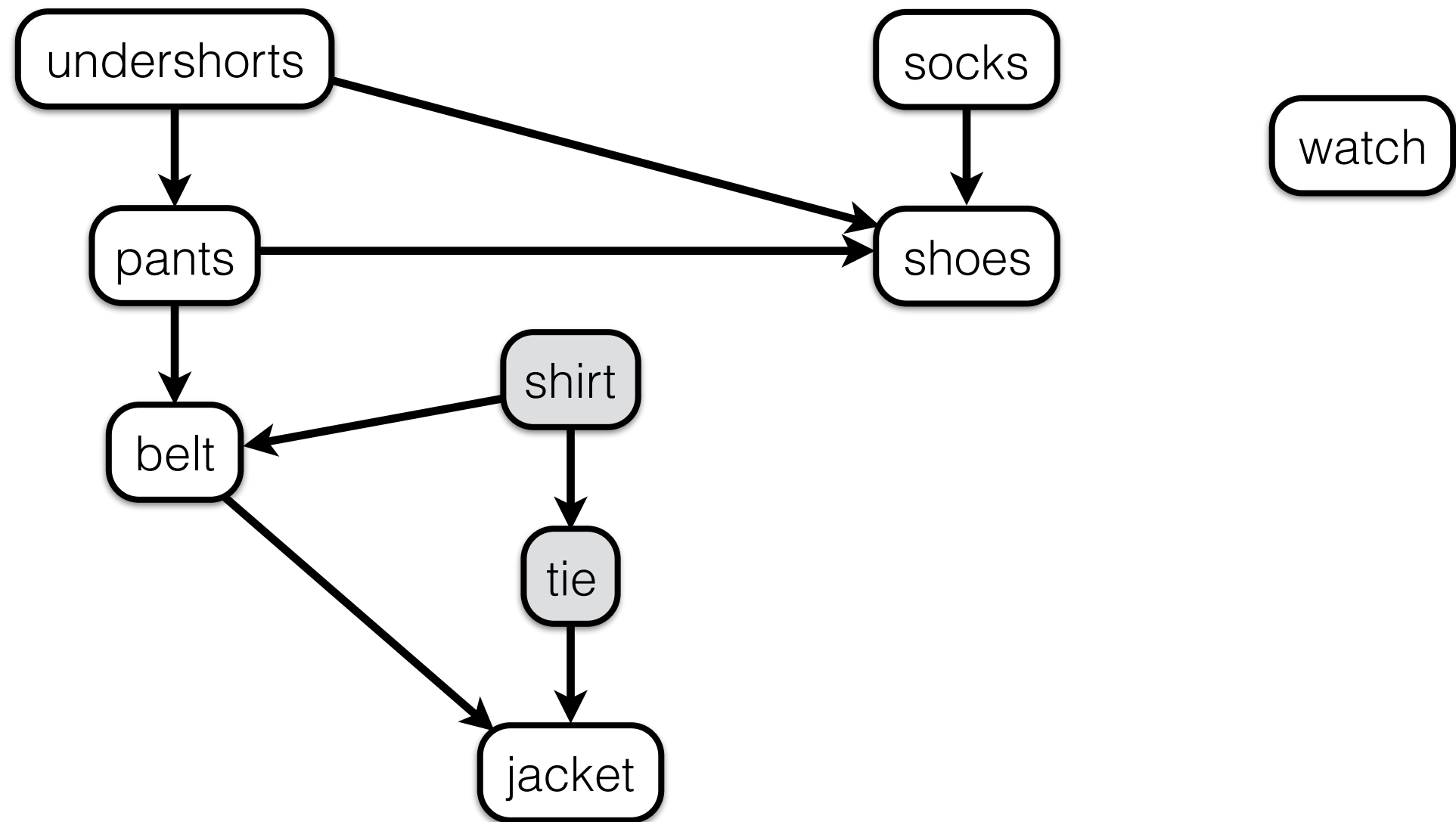
then **u** comes before **v** in the ordering.



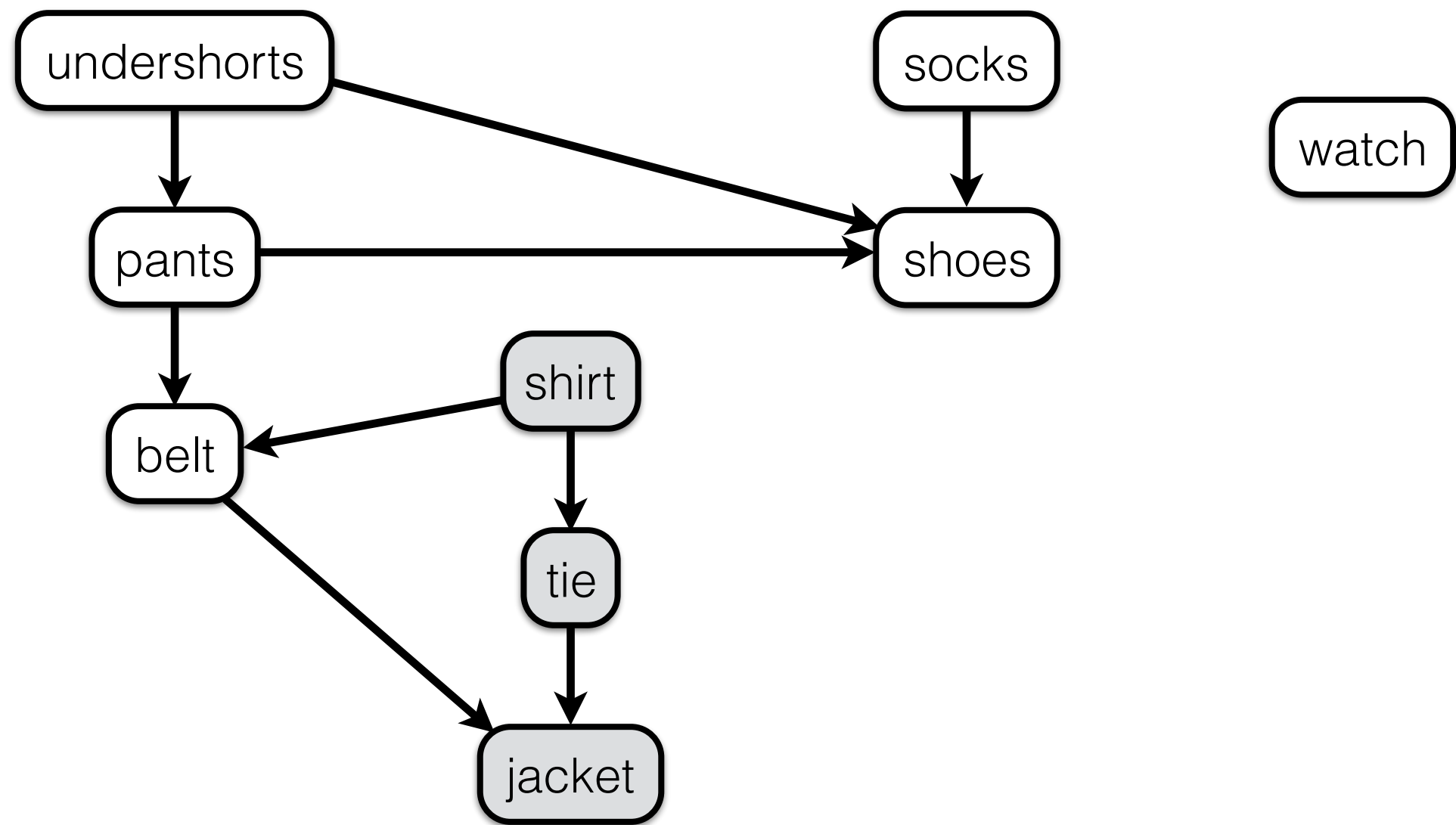
# Topological Sort and DFS

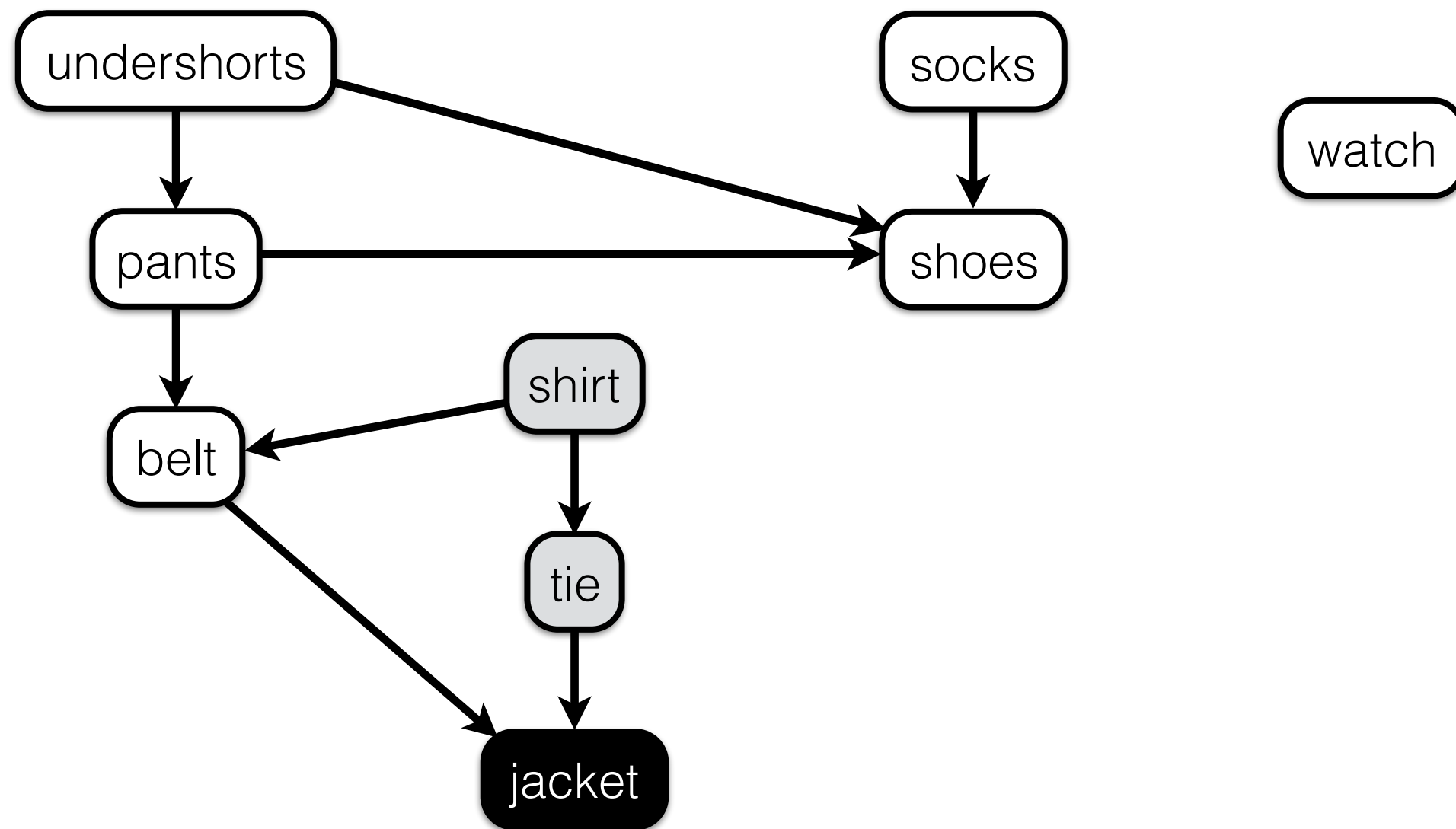




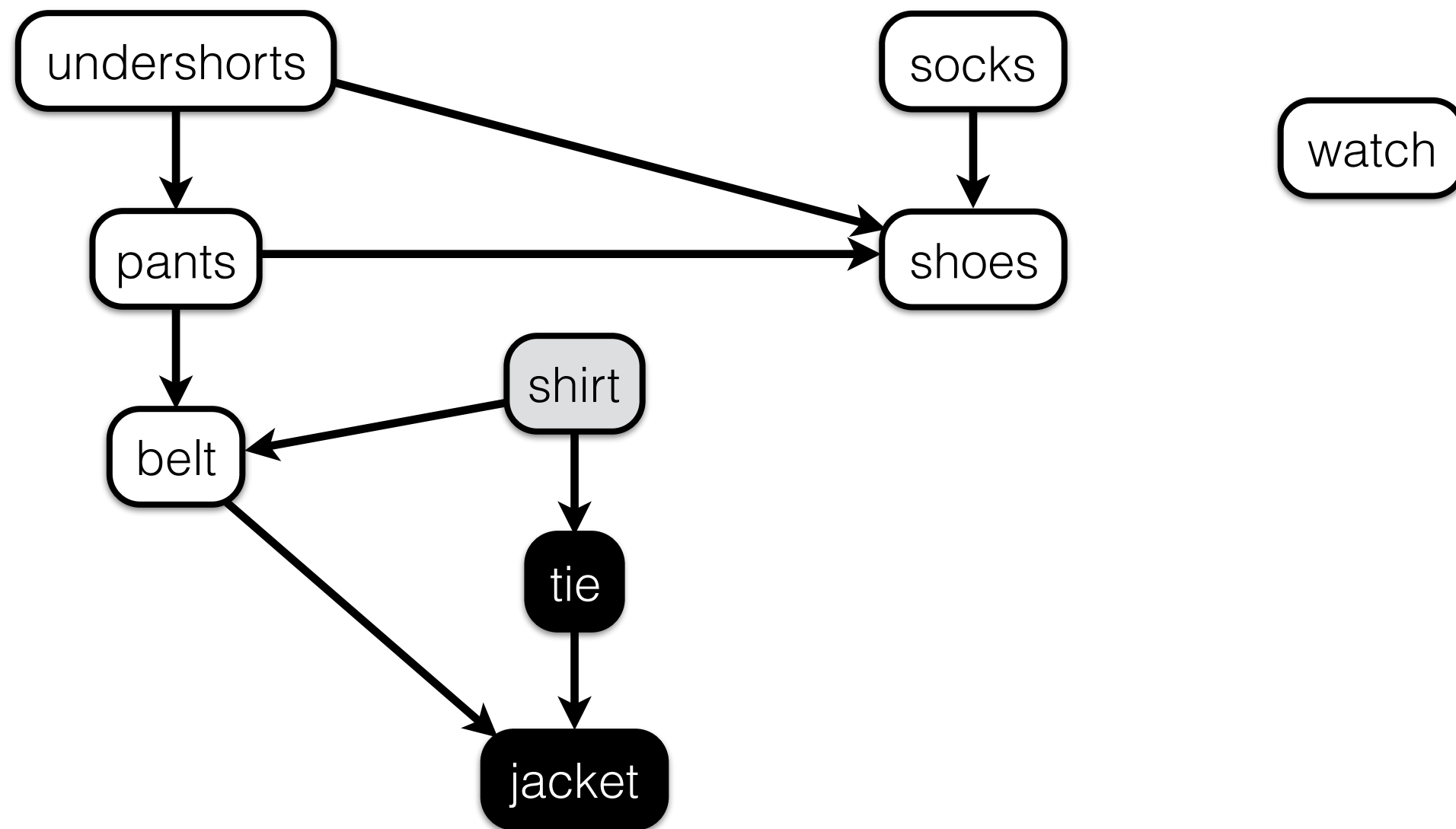




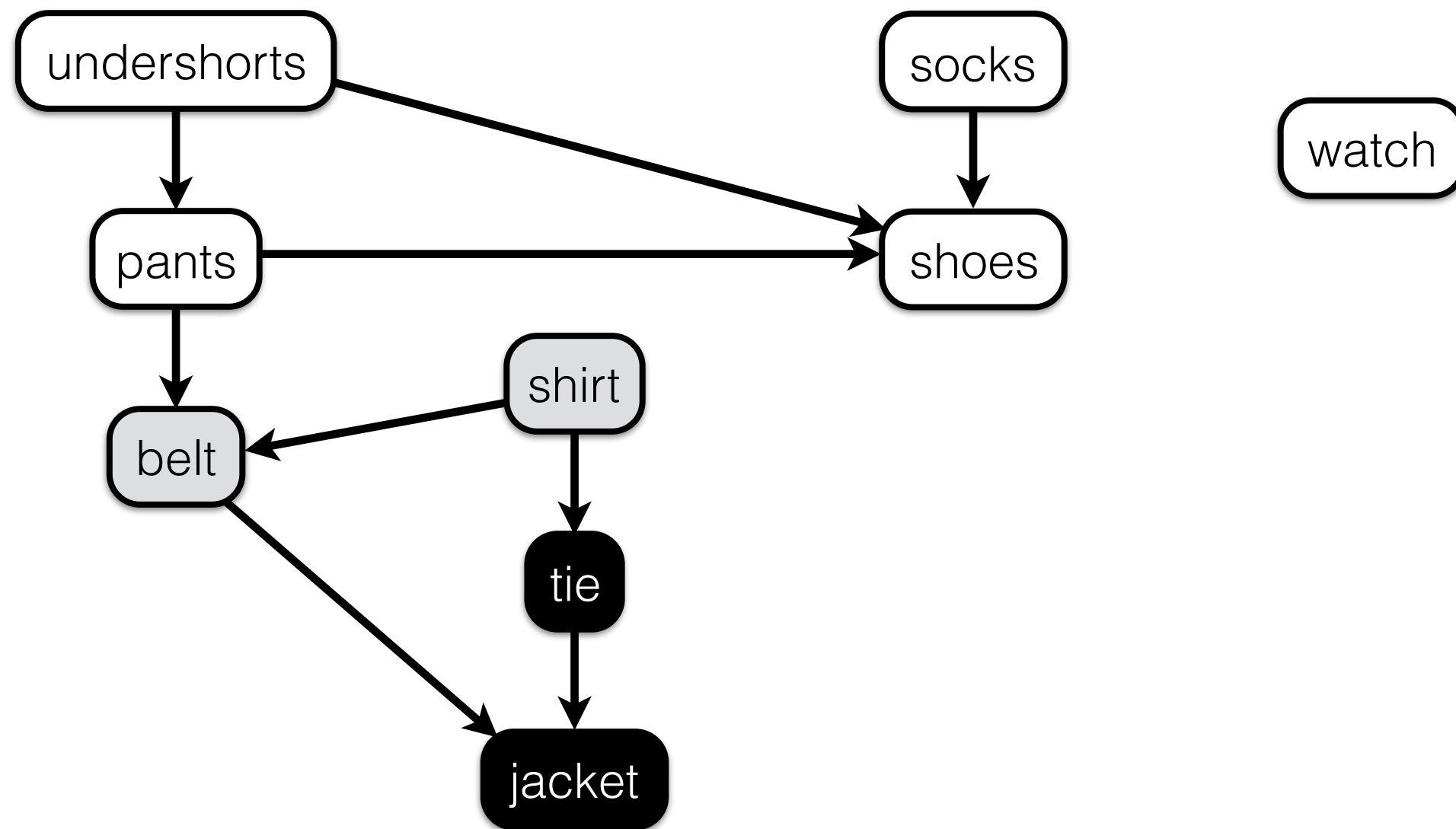




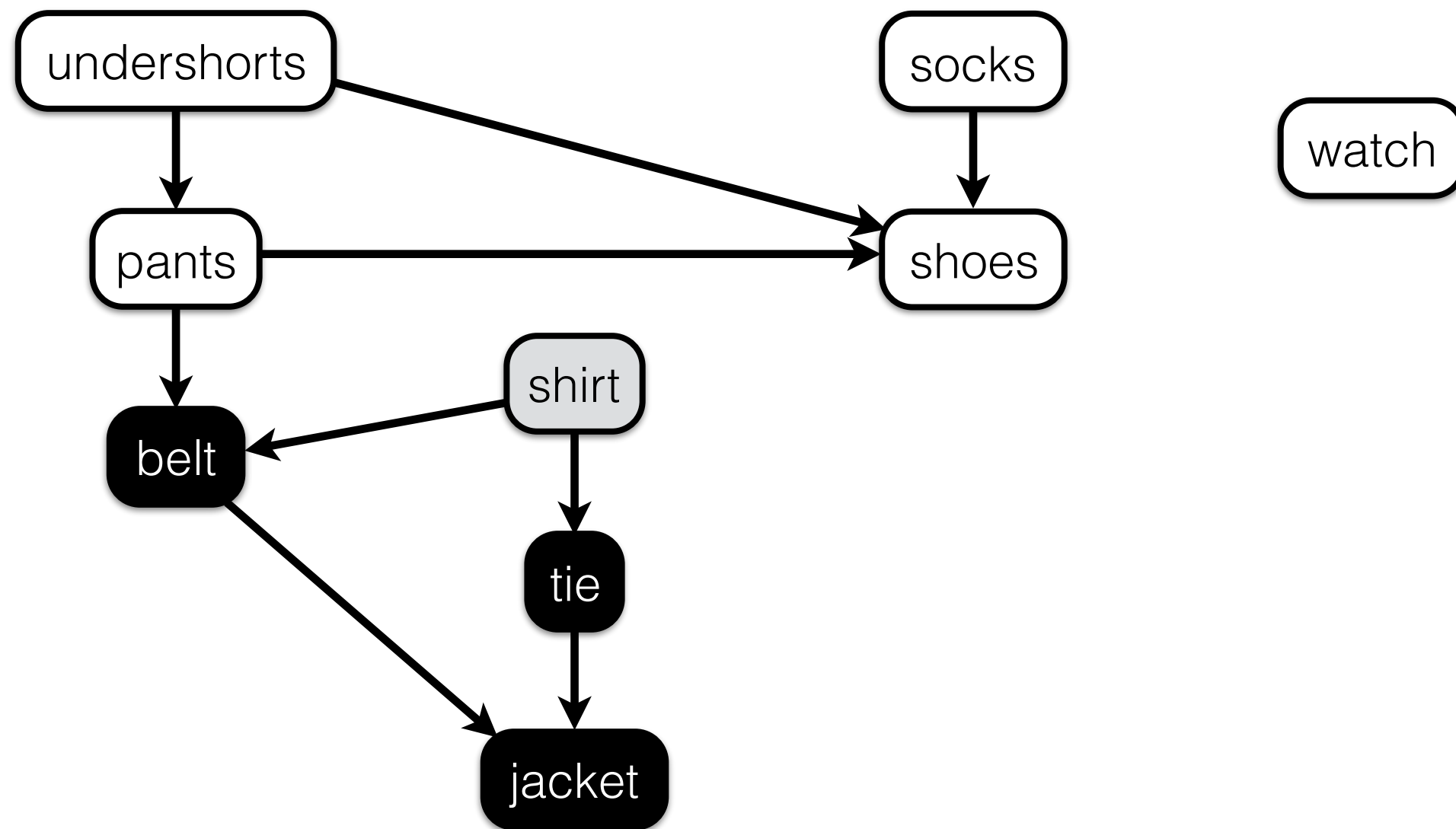
jacket



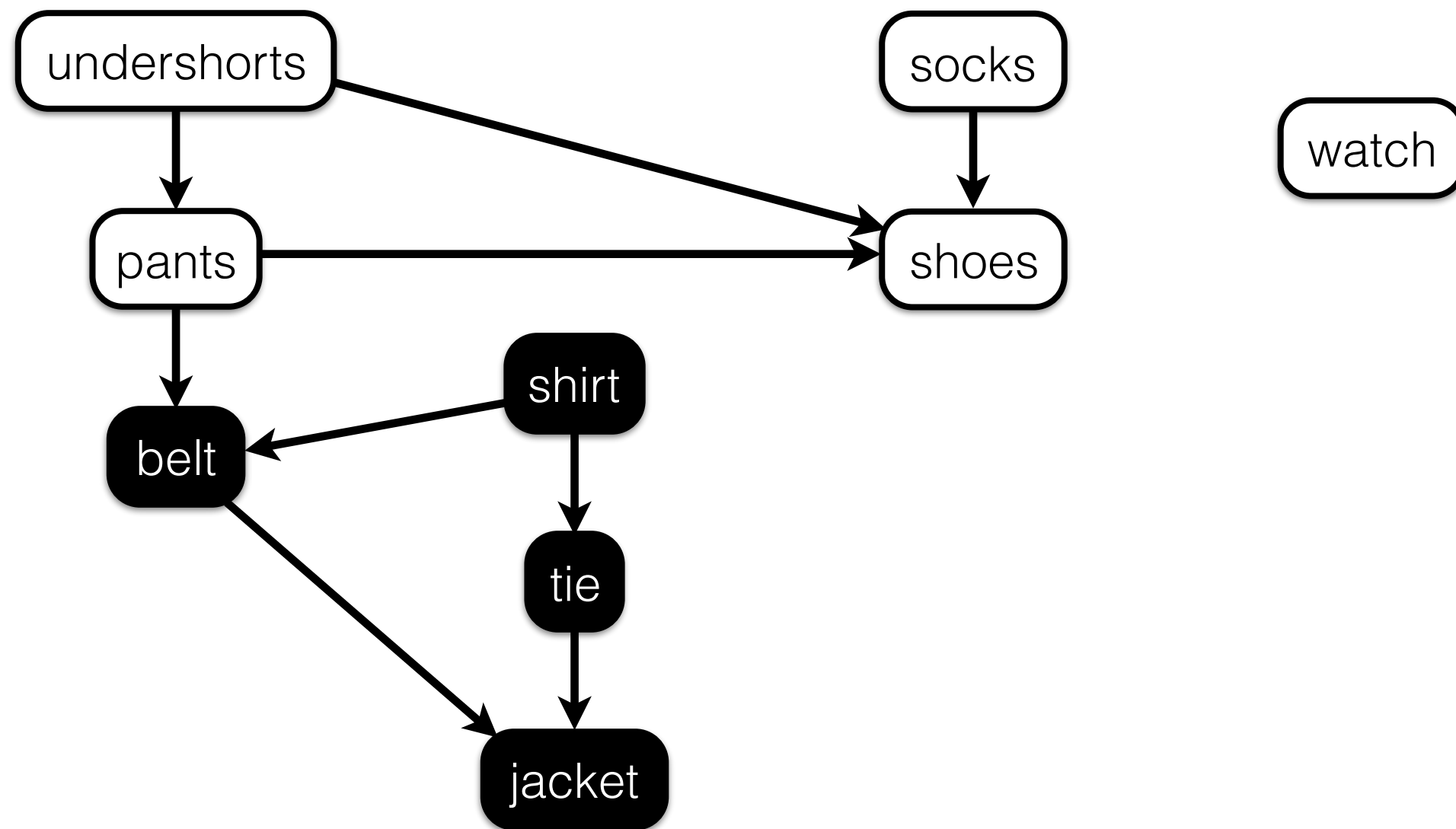
tie jacket



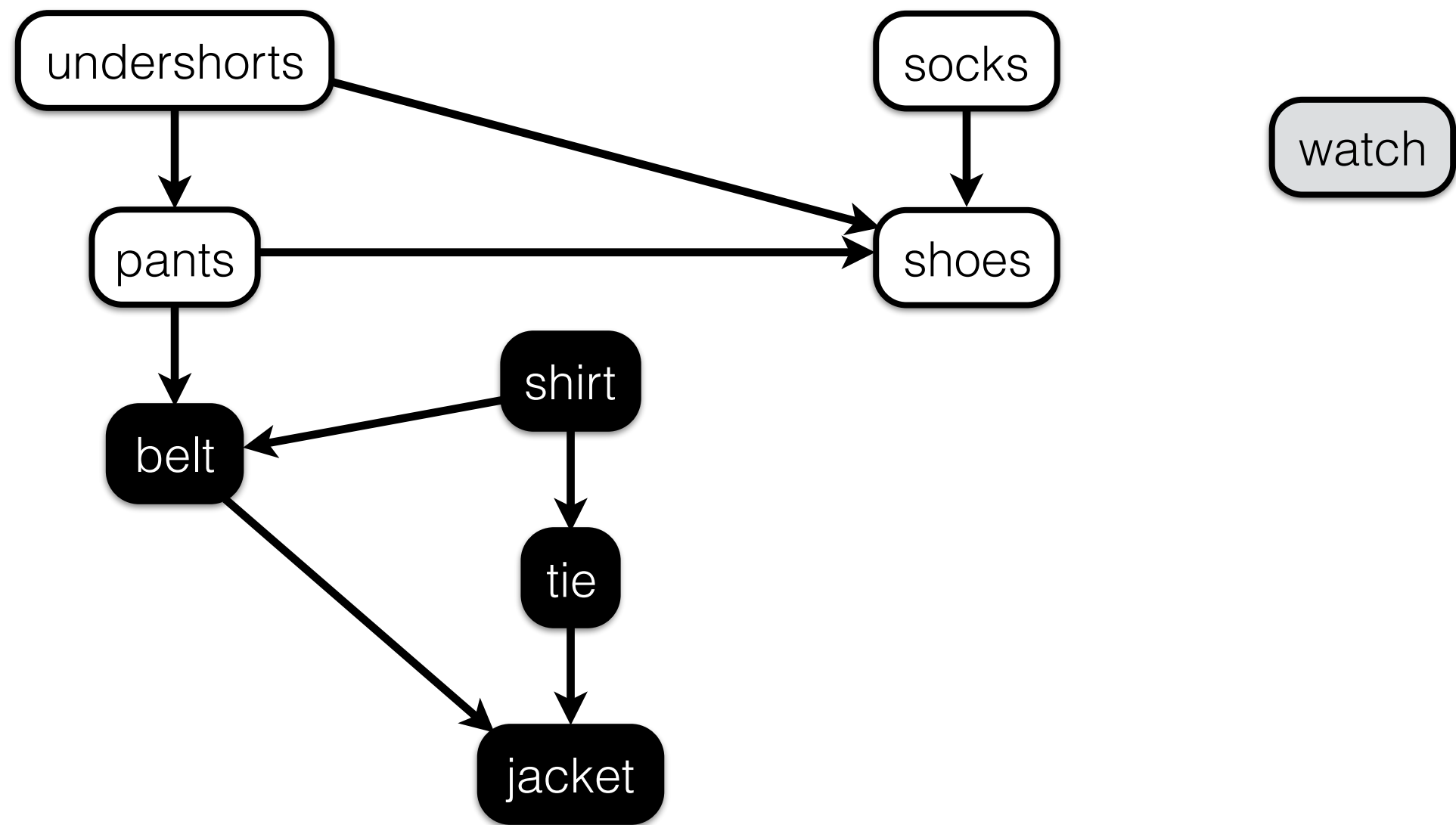
tie jacket



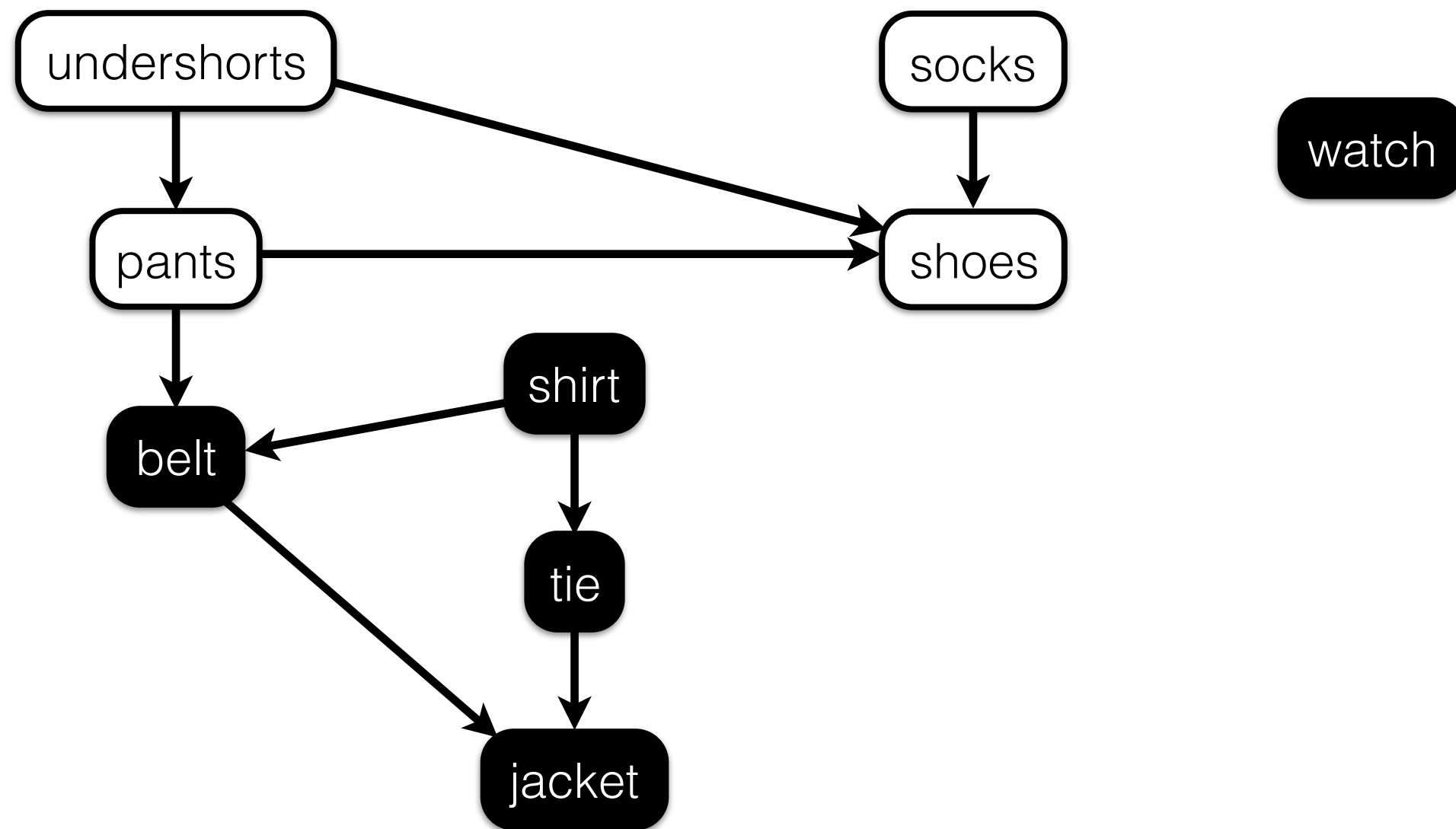
belt tie jacket



shirt belt tie jacket

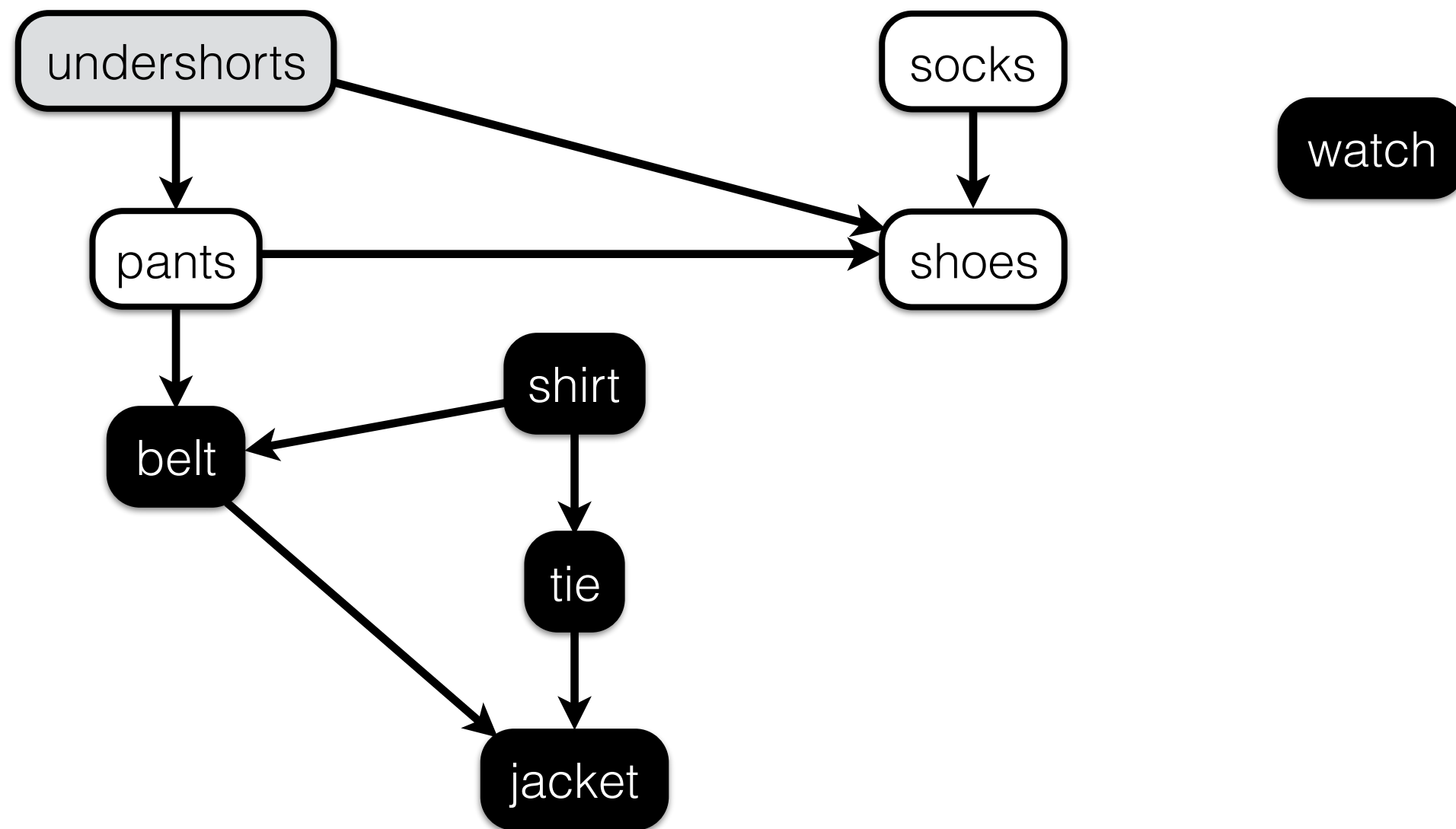


shirt belt tie jacket

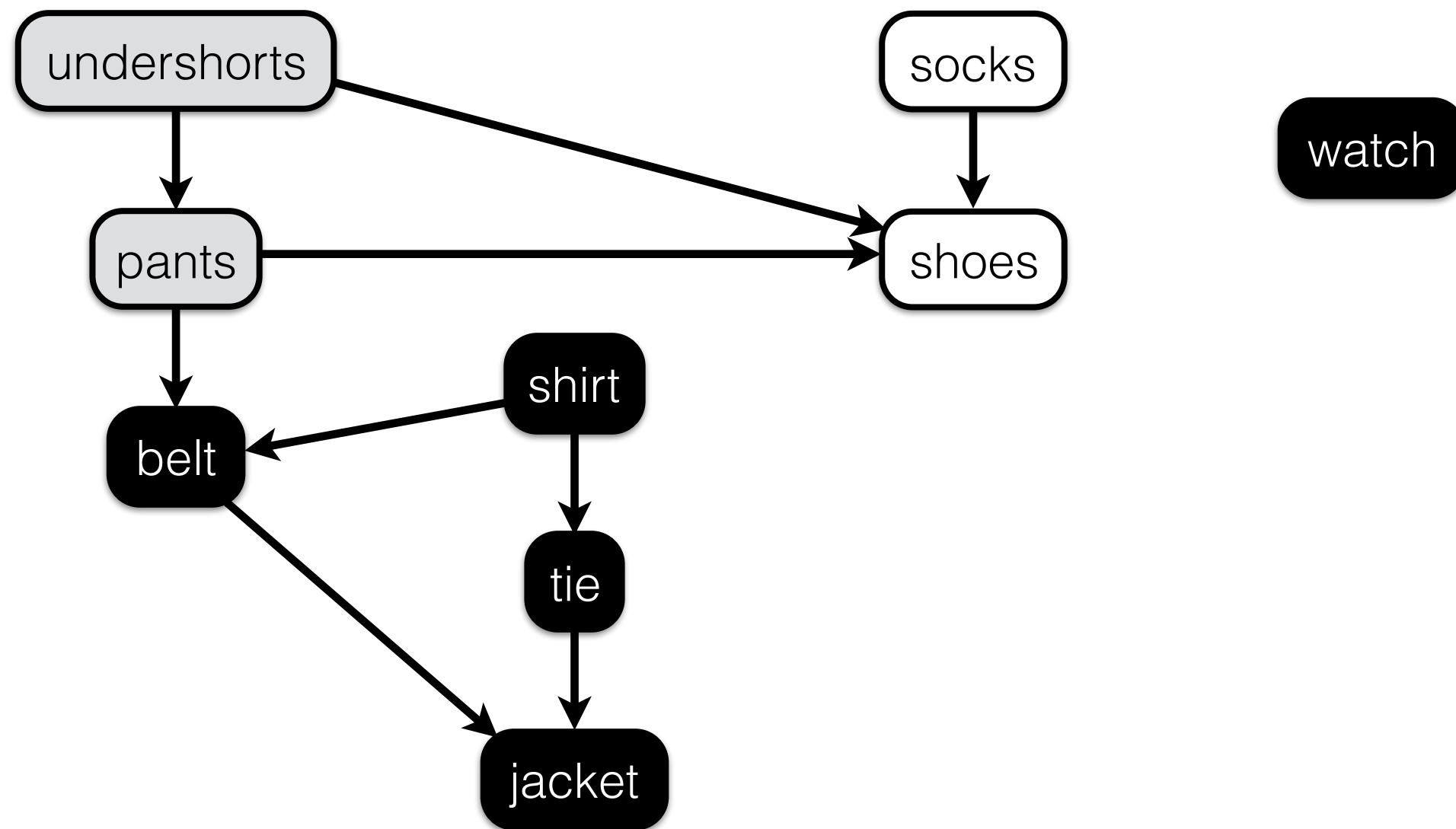


watch shirt belt tie jacket

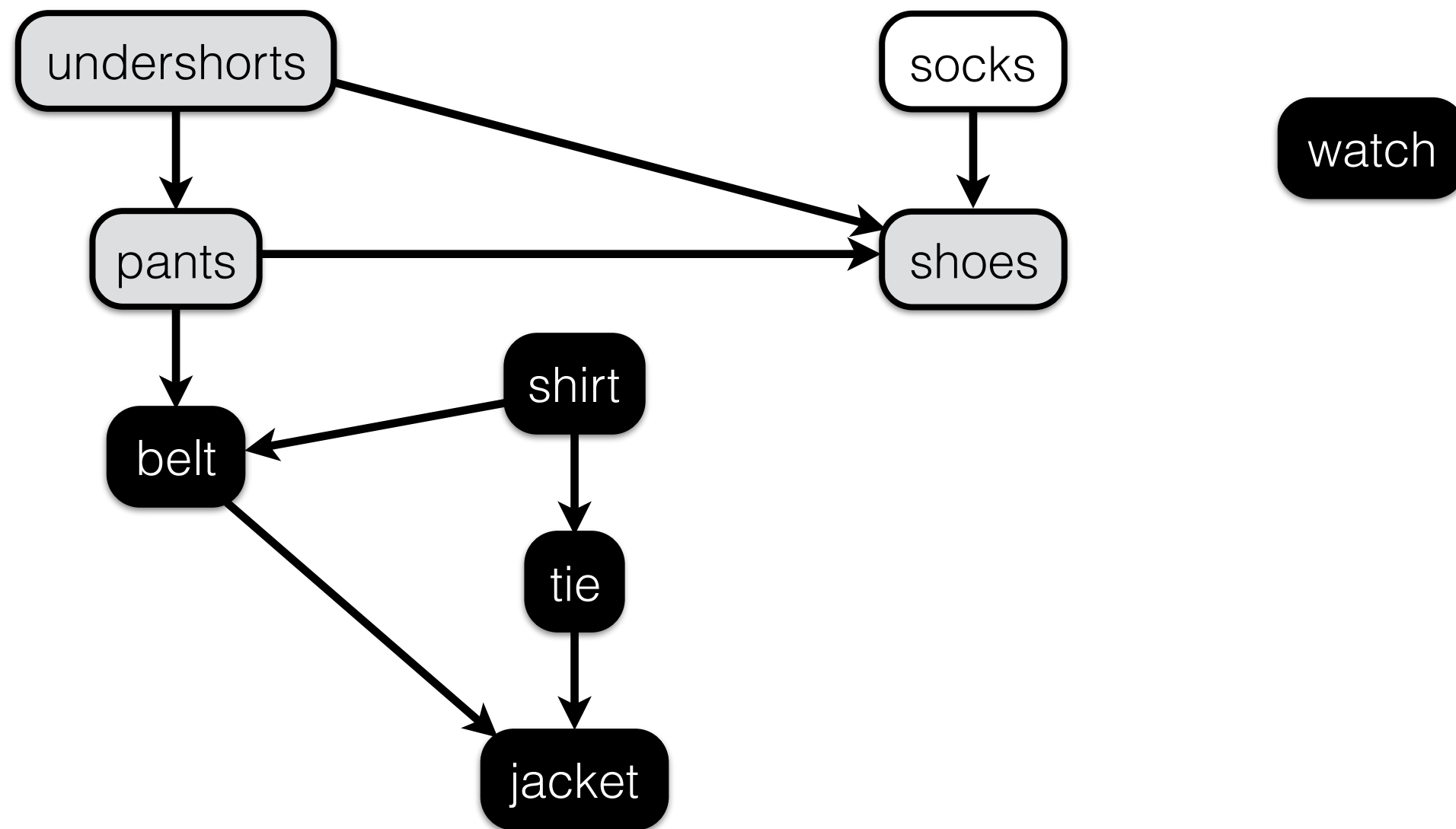




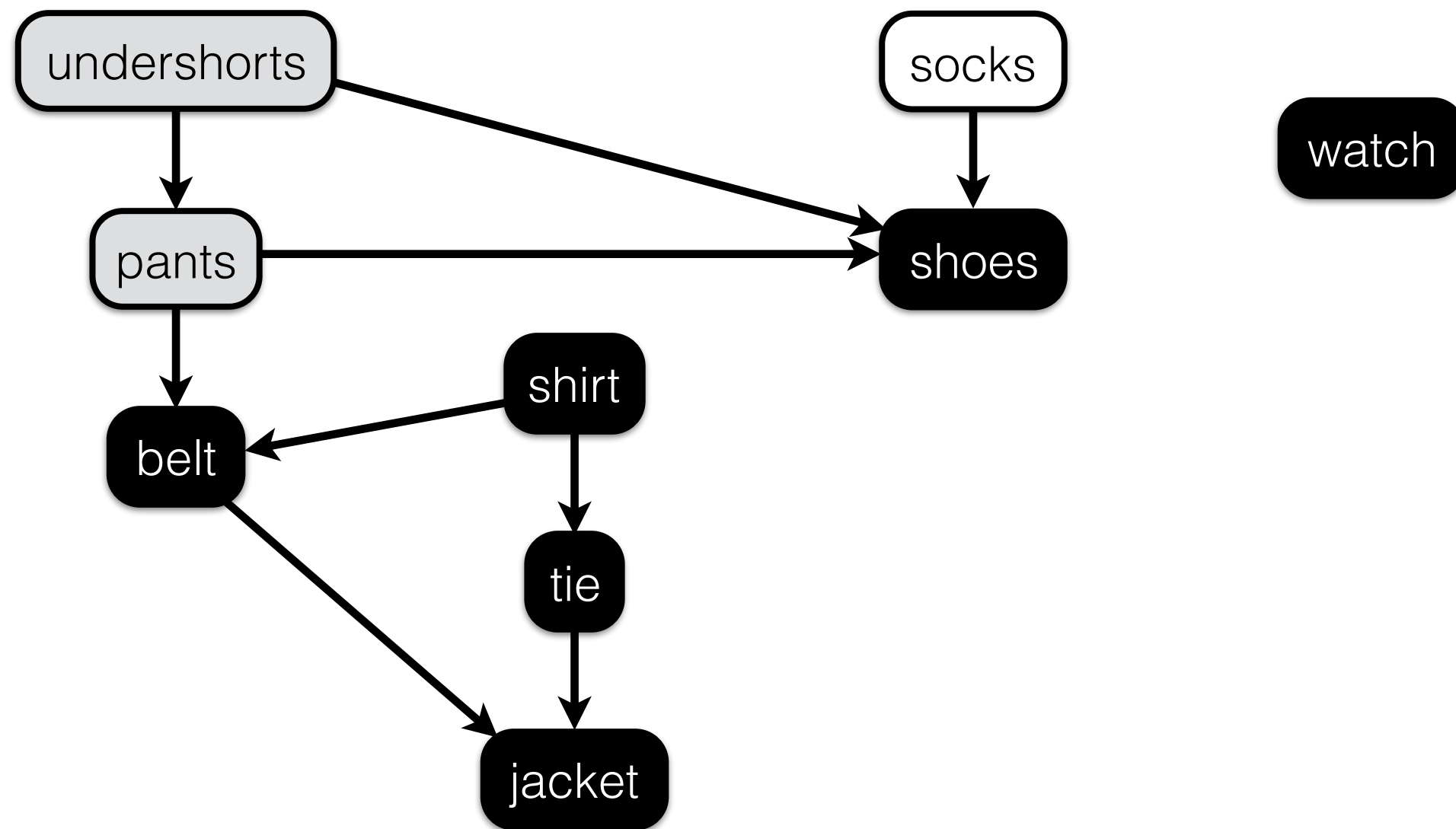
watch shirt belt tie jacket



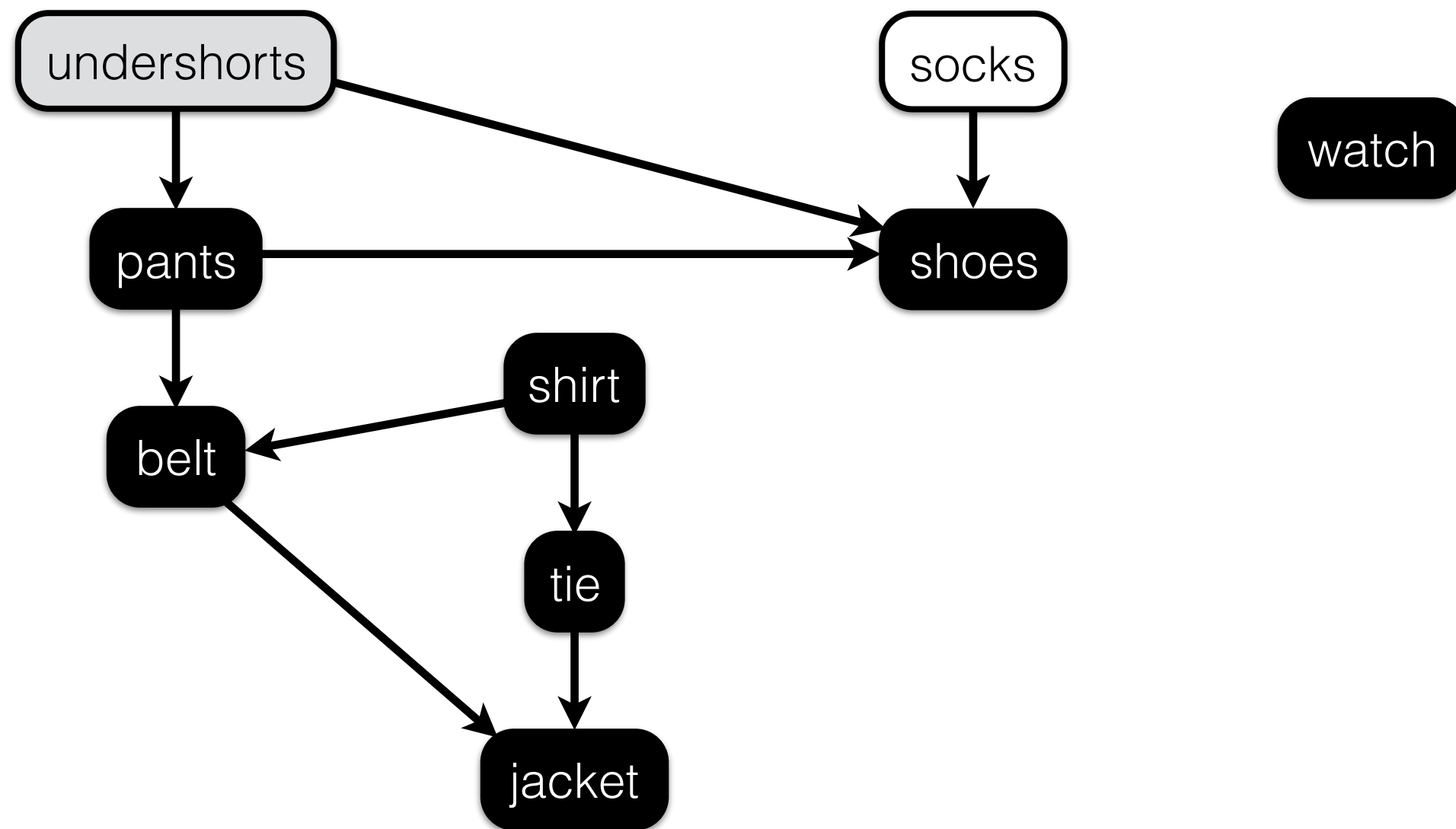
watch shirt belt tie jacket



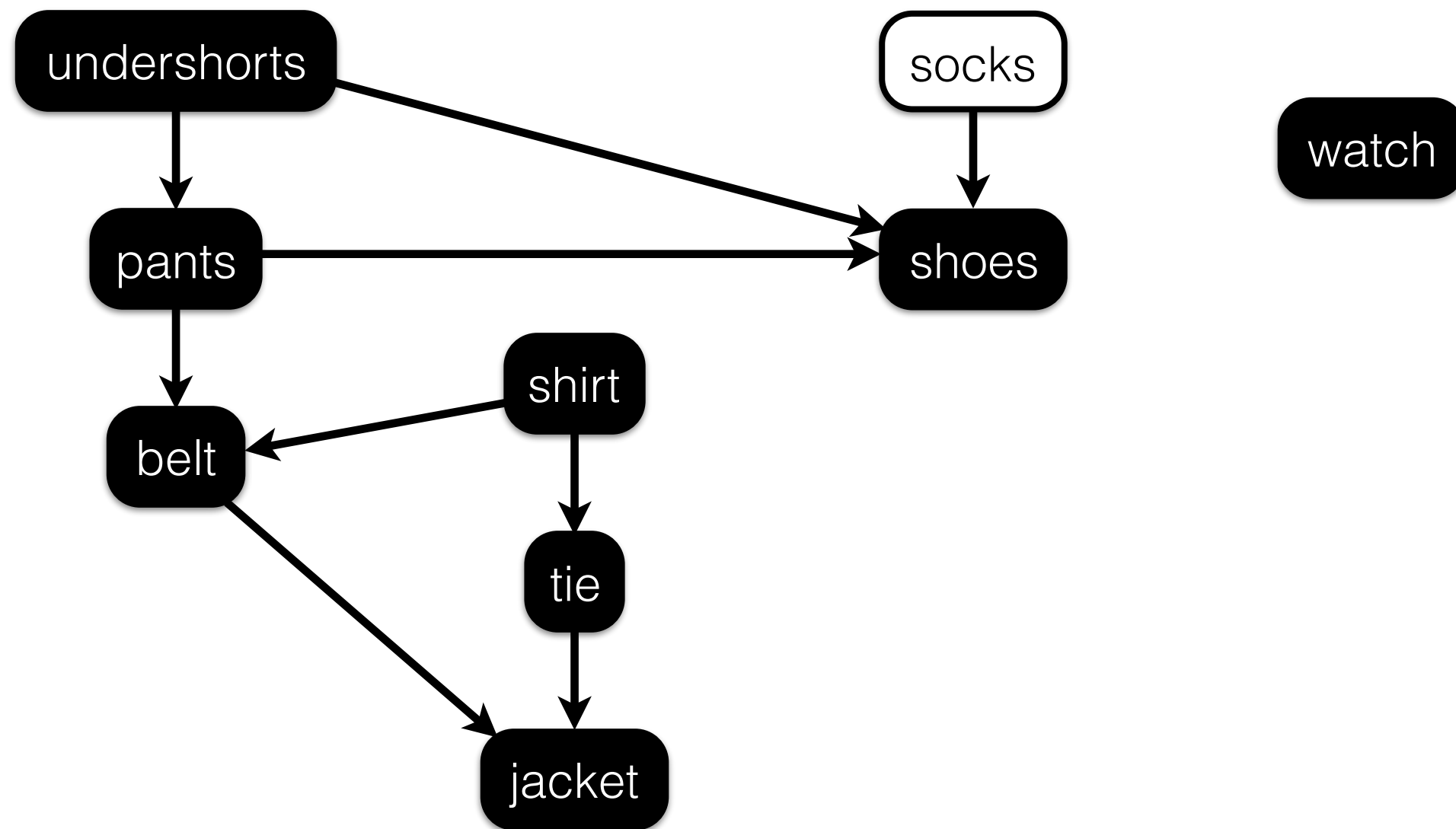
watch shirt belt tie jacket



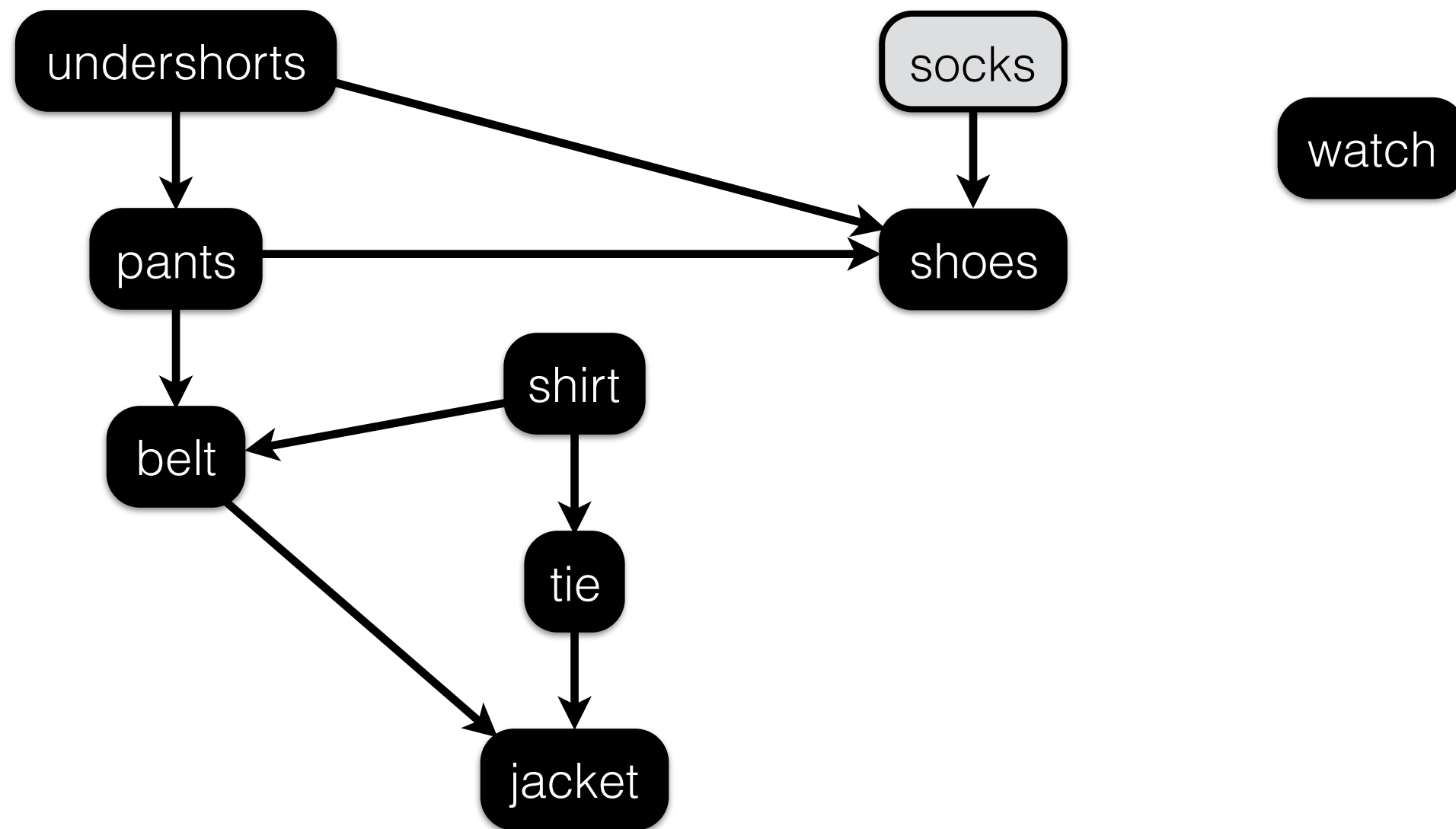
shoes watch shirt belt tie jacket



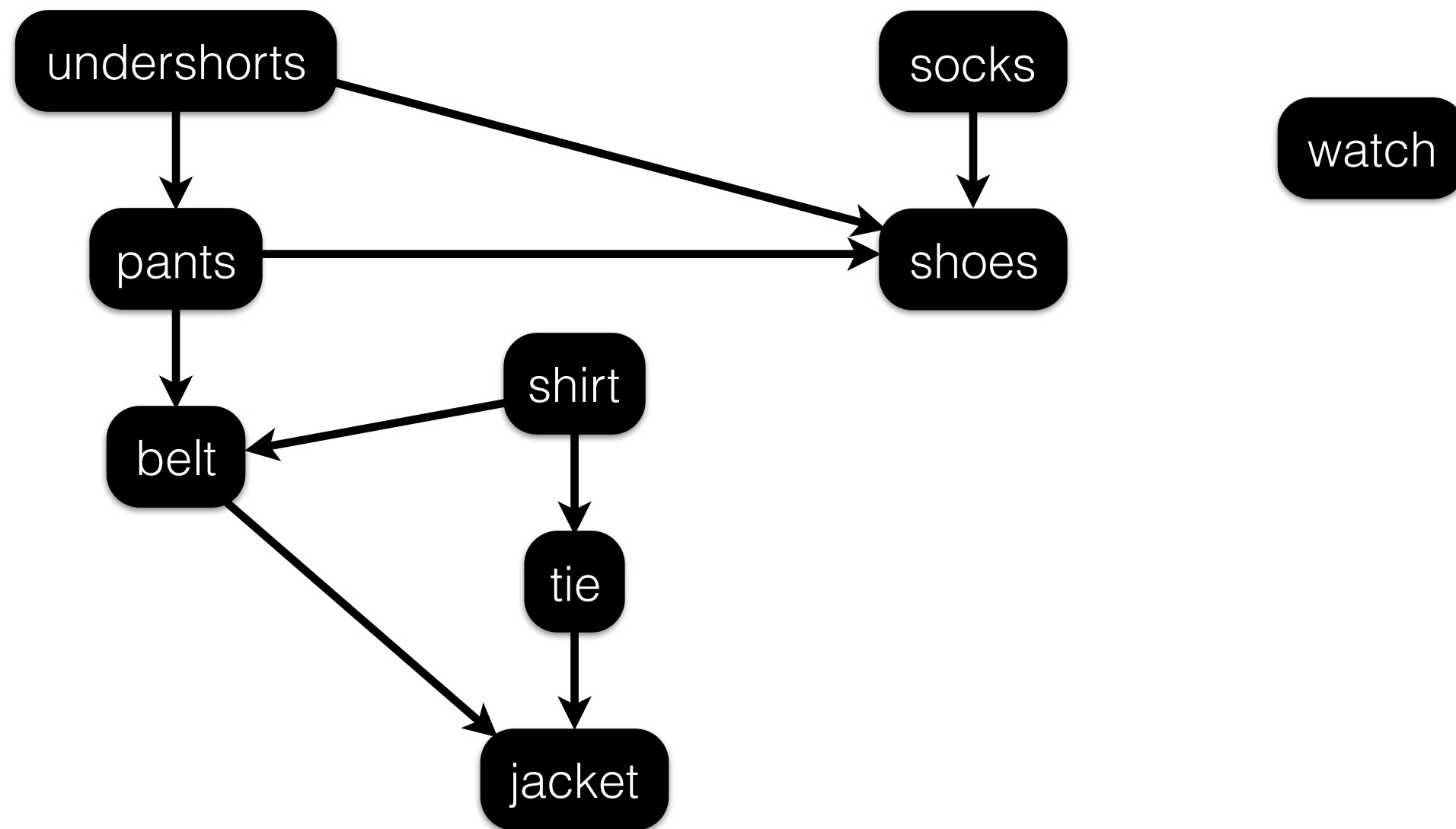
pants shoes watch shirt belt tie jacket



undershorts pants shoes watch shirt belt tie jacket

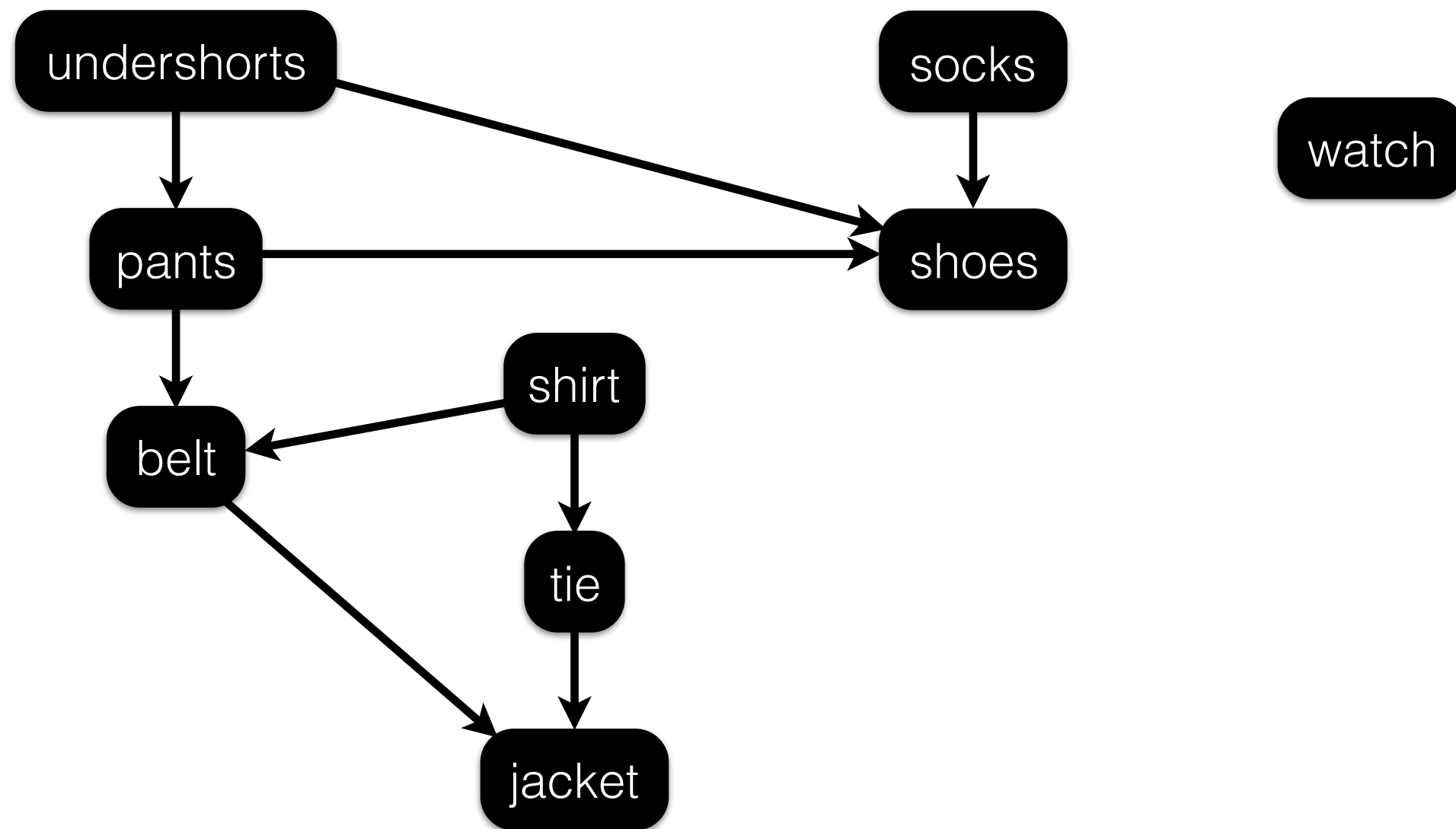


undershorts pants shoes watch shirt belt tie jacket



socks undershorts pants shoes watch shirt belt tie jacket





socks undershorts pants shoes watch shirt belt tie jacket