

CS 170

2.4 LECTURE 6

TOPOLOGICAL SORT

A total order on the vertices of a DAG so that each edge goes from an earlier vertex to a later one. How can we achieve this?

If  $G$  is a DAG, then  $\forall (u,v) \in E$  in  $DFS(G)$ ,  $post[u] > post[v]$ .

If  $\exists (u,v) \in E$  such that  $post[v] > post[u]$  (back edge),  $G$  has a cycle. (contradiction).

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