

**Theorem** The algorithm produces a topological sort of the input DAG. [Just need to show if  $(u, v) \in E$ , then  $v.f < u.f$ ]

When  $(u, v)$  is explored,  $u$  is gray.

$v$  is not gray. If it were, then  $(u, v)$  would be back edge and contract with the lemma.