



SNS COLLEGE OF TECHNOLOGY
(Autonomous)
COIMBATORE-35



Depth First Traversal

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Depth-First Search



- *Depth-first search* is another strategy for exploring a graph
 - Explore “deeper” in the graph whenever possible
 - Edges are explored out of the most recently discovered vertex v that still has unexplored edges
 - When all of v 's edges have been explored, backtrack to the vertex from which v was discovered



Depth-First Search

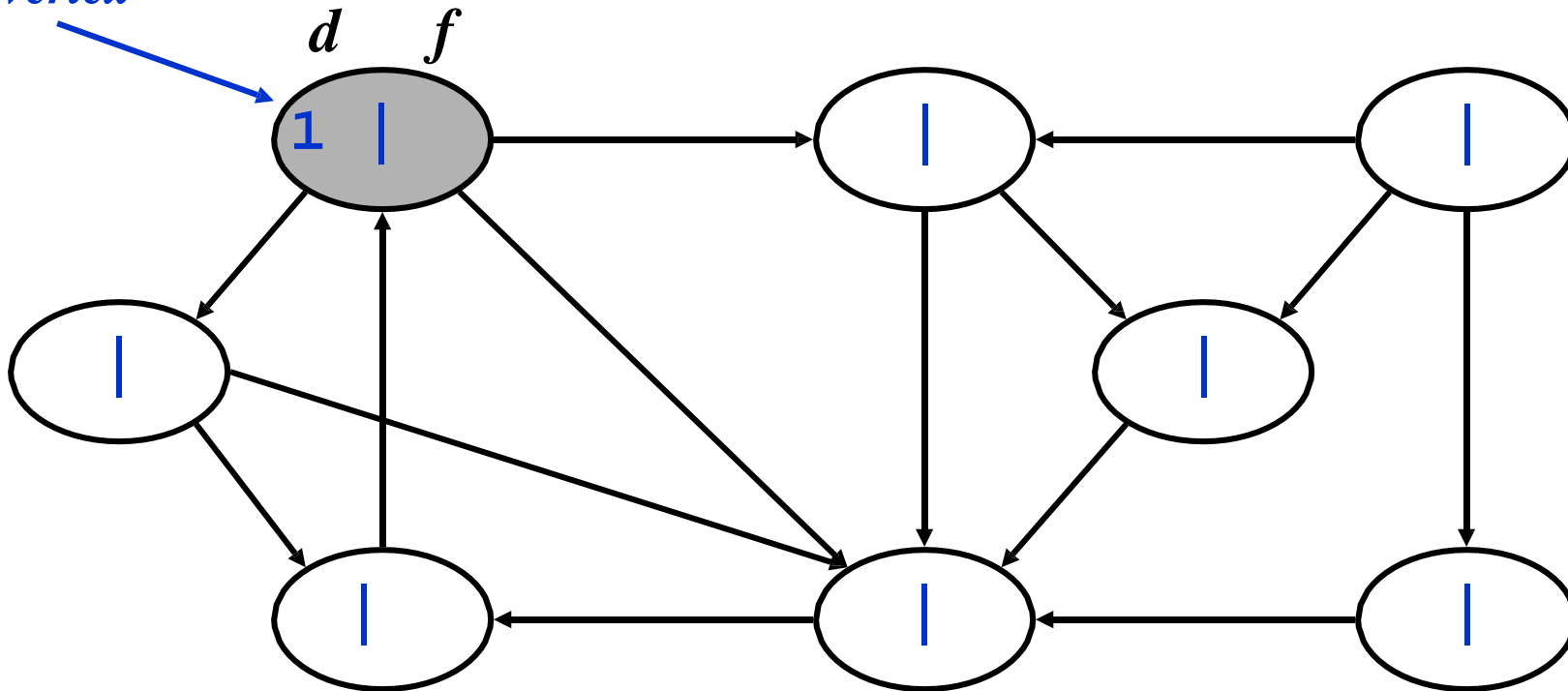


- Vertices initially colored white
- Then colored gray when discovered
- Then black when finished



DFS Example

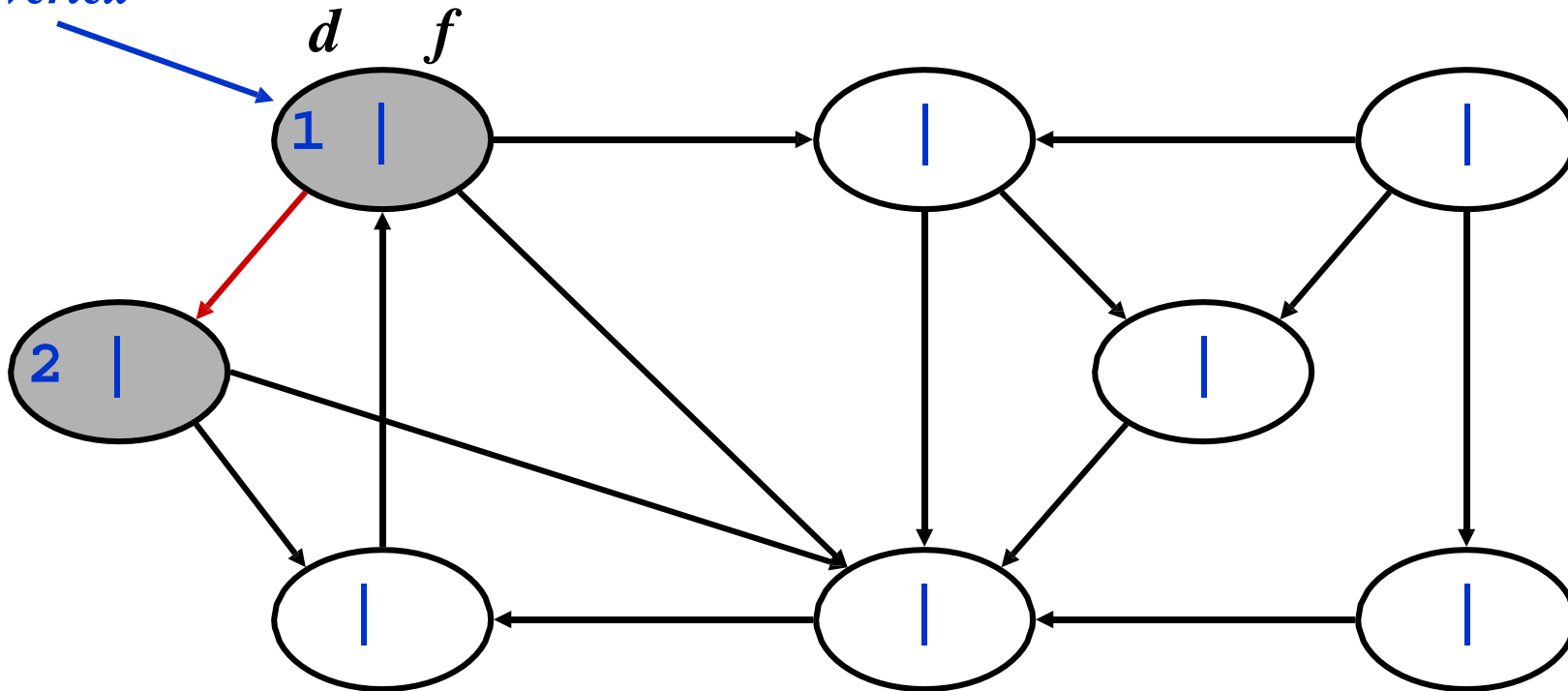
source
vertex





DFS Example

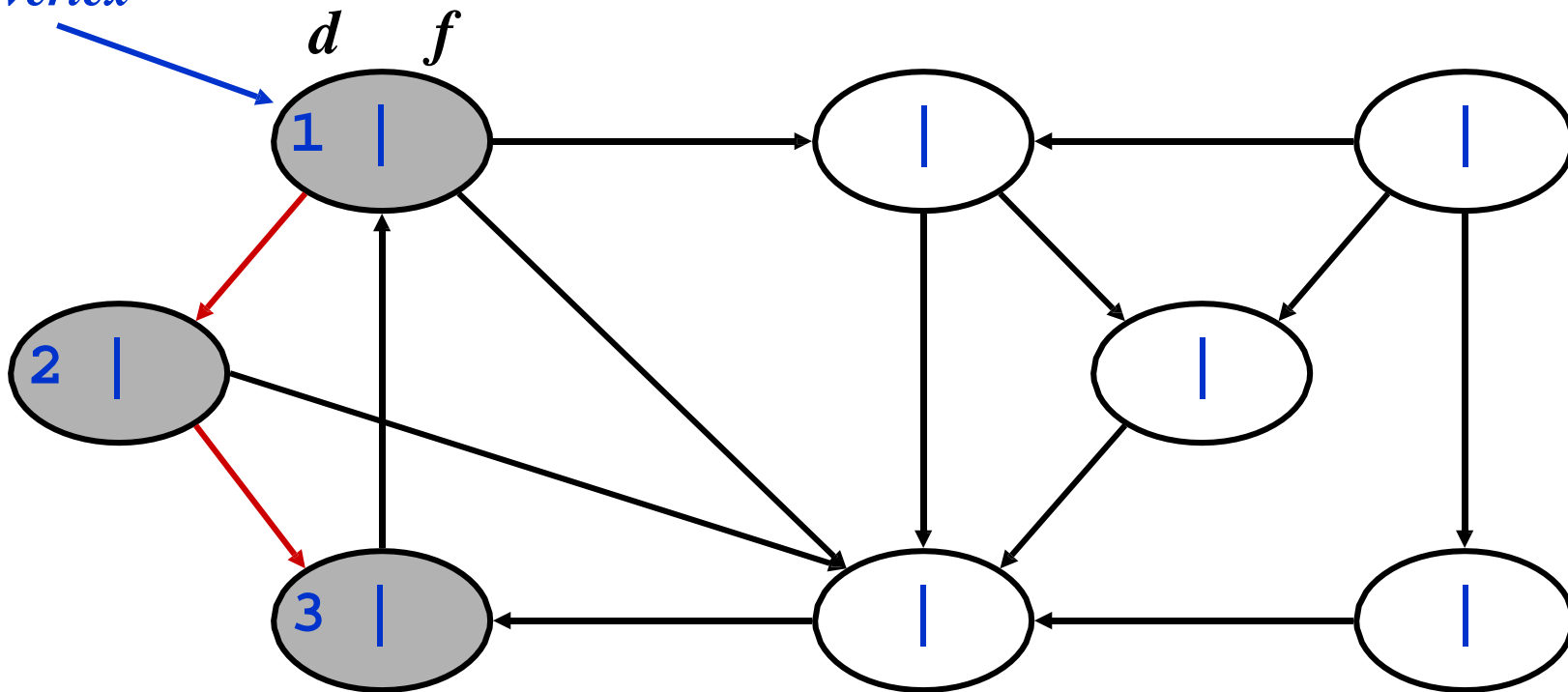
source
vertex





DFS Example

source
vertex

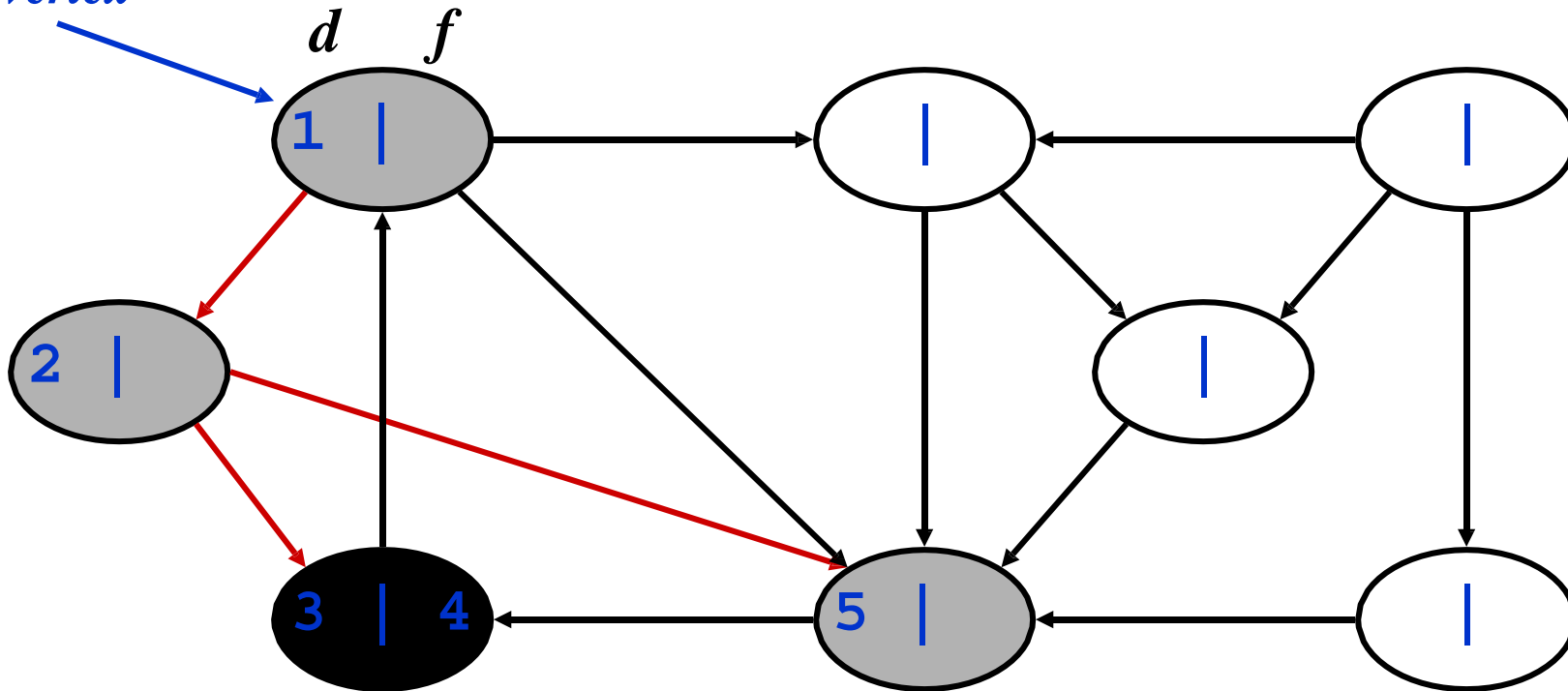


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DFS Example

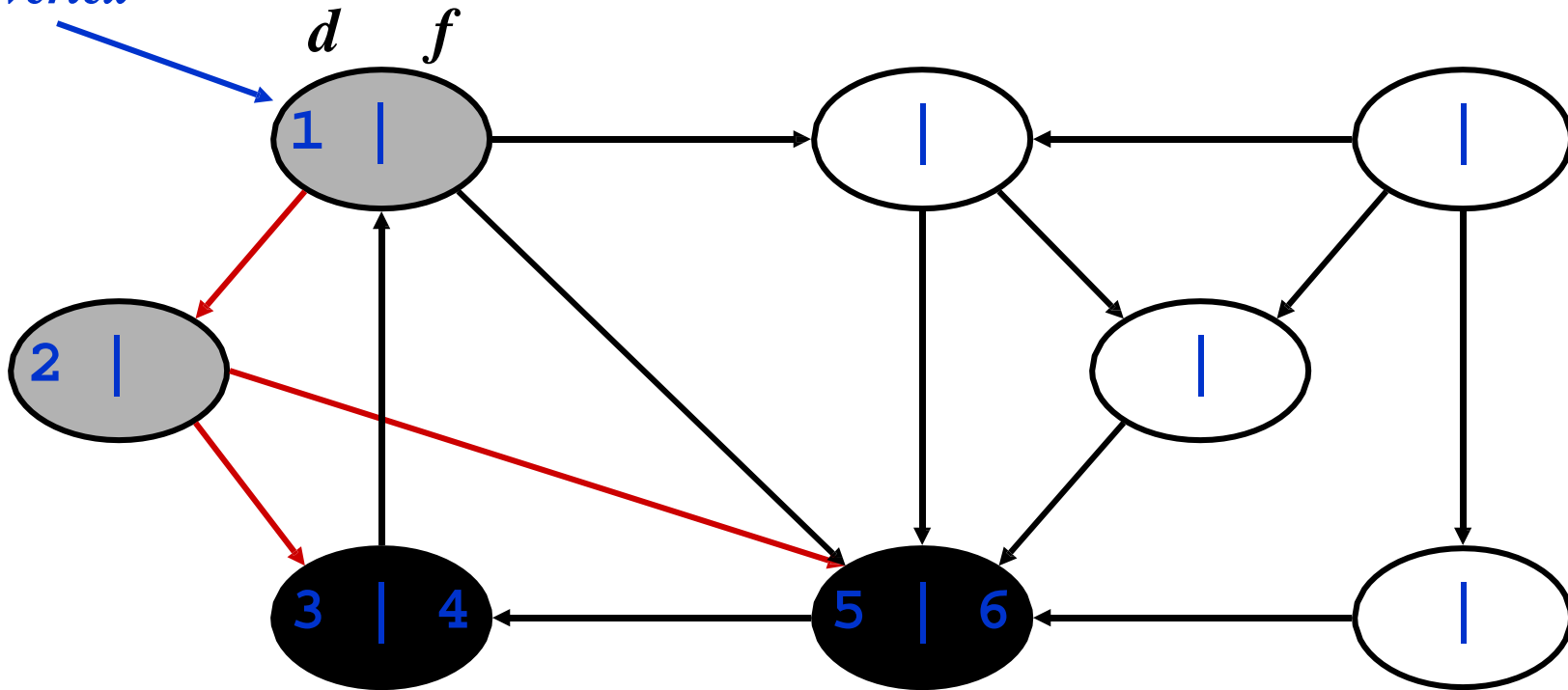
source
vertex





DFS Example

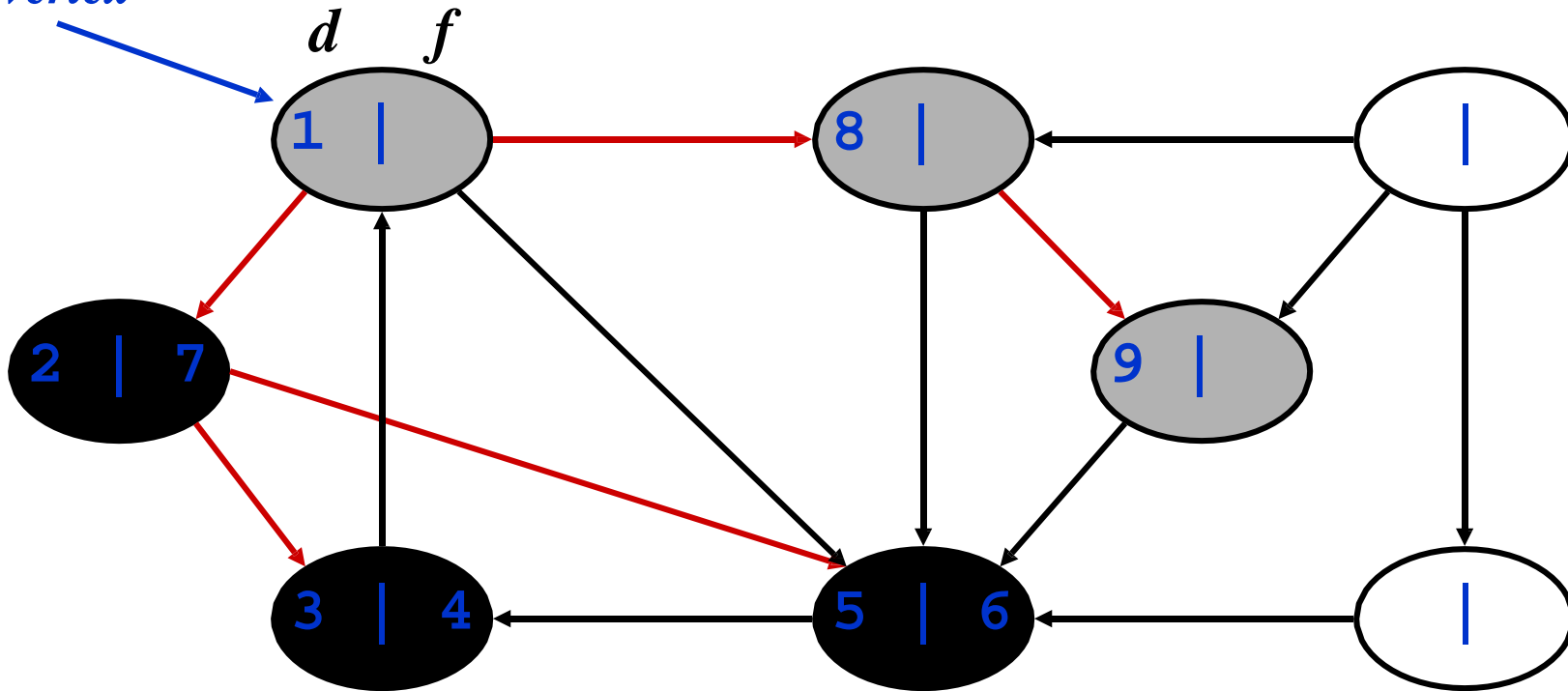
source
vertex





DFS Example

source
vertex

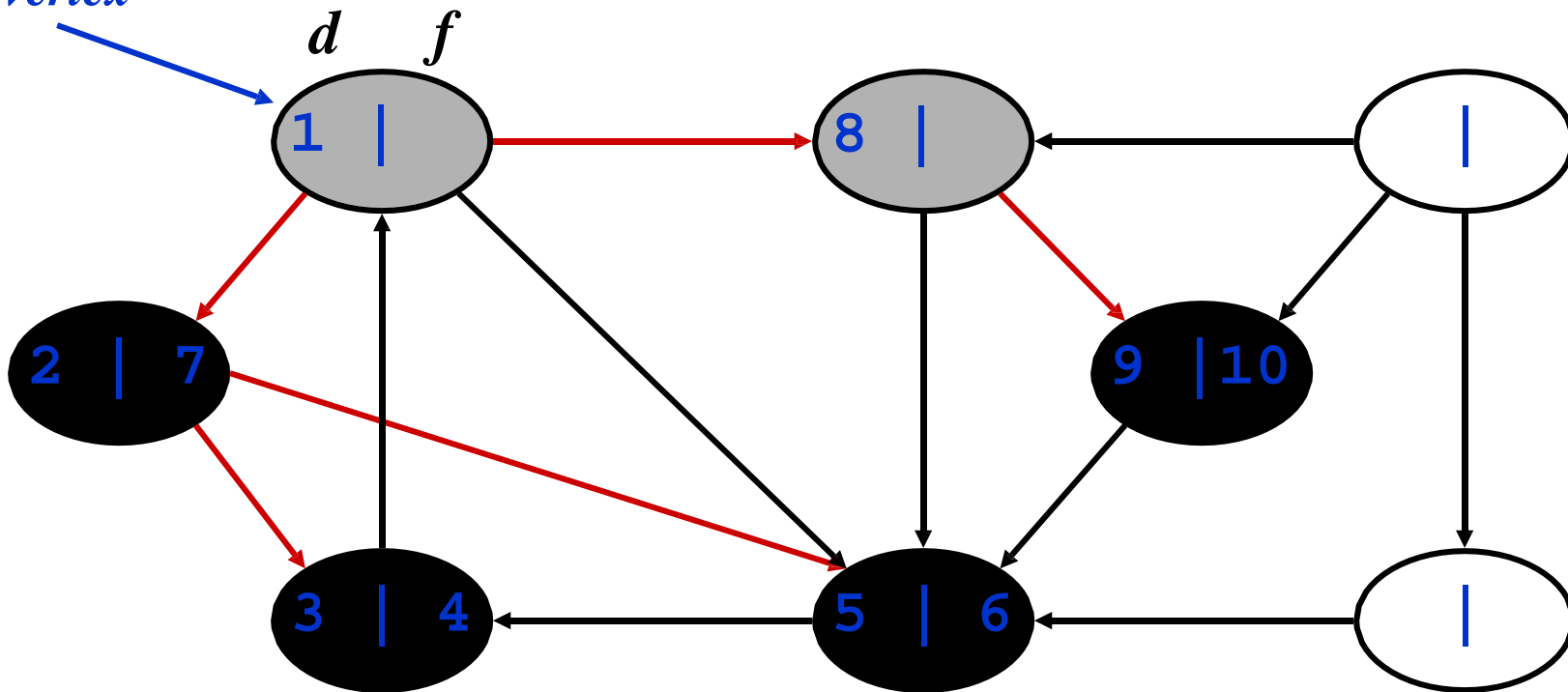


What is the structure of the grey vertices?



DFS Example

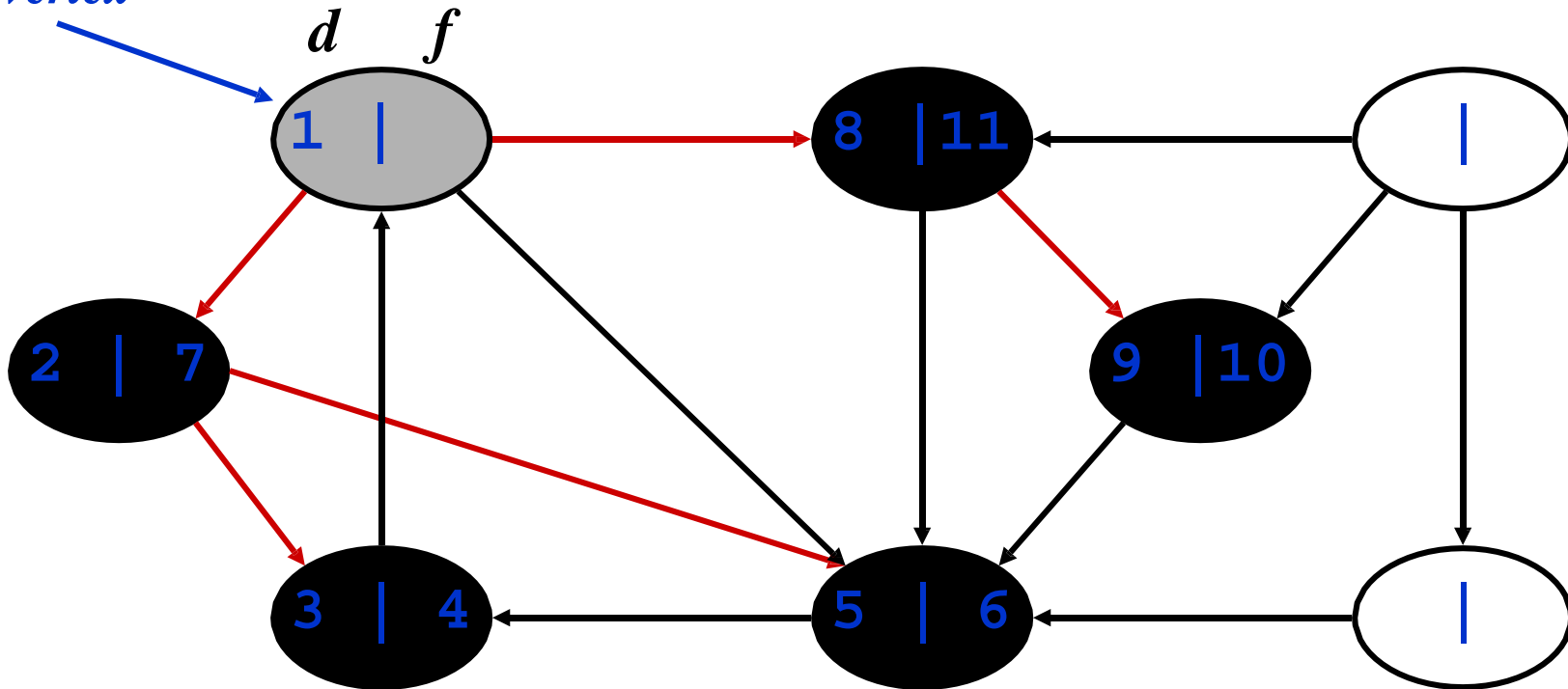
source
vertex





DFS Example

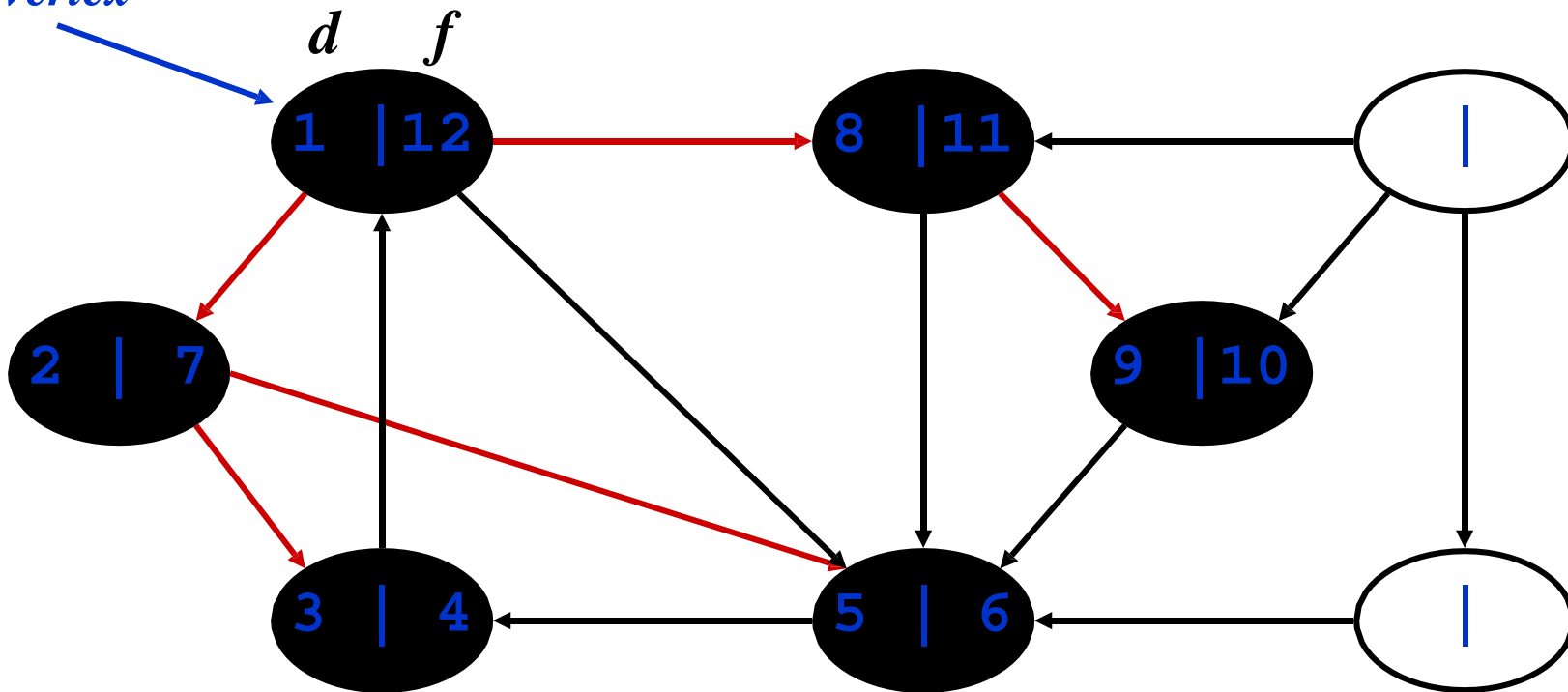
source
vertex





DFS Example

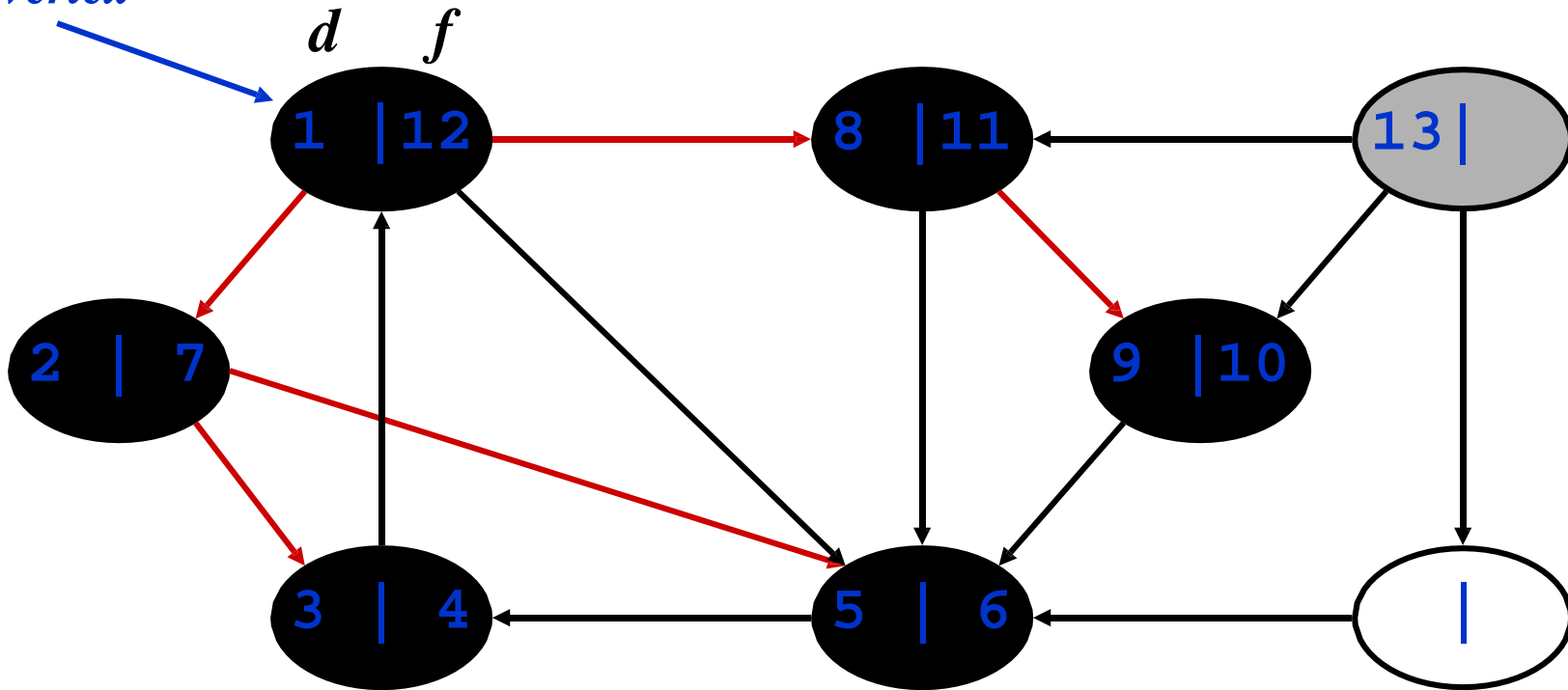
source
vertex





DFS Example

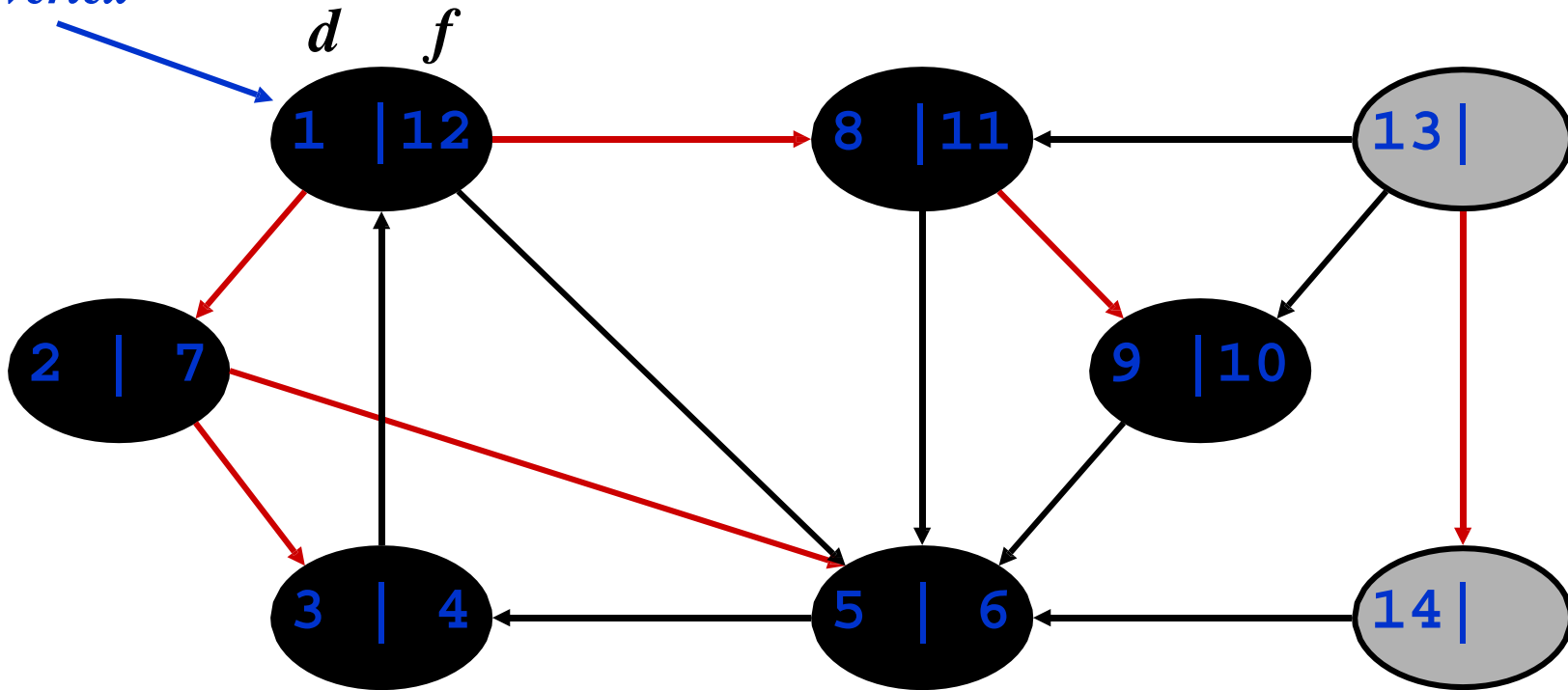
source
vertex





DFS Example

source
vertex





DFS Example

source
vertex

