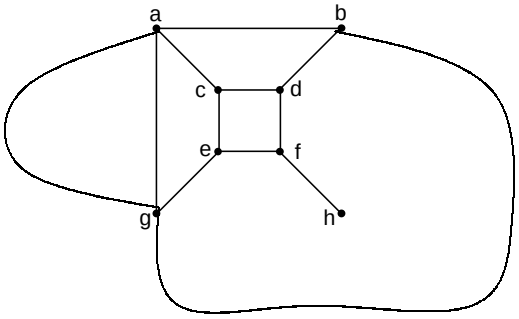
Examples of Depth–First and Breadth–First Searches

From Johnsonbaugh, Section 7.3

(1) Use breadth first search with the vertex ordering $hgfedcba$ to find a spanning tree for the graph G



Root: h: add (h, f)

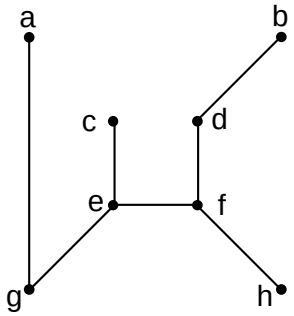
Level 1: f: add $(f, e), (f, d)$

Level 2: e: add $(e, g), (e, c)$
d: add (d, b)

Level 3: g: add (g, a)

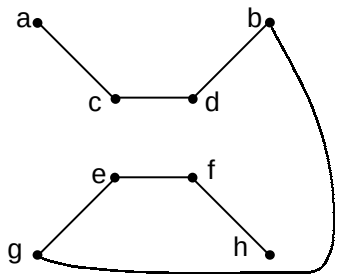
Level 4: a: add nothing

Finished



(4) Use depth first search with vertex ordering $hgfedcba$ to find a spanning tree for the graph G in question 1.

Start with h. Add $(h, f), (f, e), (e, g), (g, b), (b, d), (d, c), (c, a)$. The algorithm backtracks to the root, then concludes it is finished.



(6) Use depth first search with vertex ordering $dhcbefag$ to find a spanning tree for the graph G in question 3.

Start with d. Add $(d, c), (c, e), (e, f), (f, h)$. Backtrack to f. Backtrack to e. Add $(e, g), (g, b), (b, a)$.