

Biconnected Components

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i ← 0
S ← ∅   # Set stack to empty
for all x in vertices of G do d[x] ← 0
for all x in vertices of G do
    if d[x] = 0 then bicon(x,0)
end for

procedure bicon(x, parent)
    i ← i+1
    d[x] ← i
    lowpt[x] ← i
    for all y adjacent to x do
        if d[y] = 0 then # (x,y) is a tree edge
            S ← (x,y)   # Put (x,y) on stack x
            bicon(y,x)
            lowpt[x] ← min(lowpt[x],lowpt[y])
            if lowpt[y] ≥ d[x] then
                # either x is an articulation point relative to y
                # or x is the root of the tree
                Form a new connected component out of all edges on the stack
                up to and including (x,y). Remove these edges from the stack.
            end if
        else if d[y] < d[x] and y ≠ parent then # (x,y) is a back edge
            S ← (x,y)   # Put (x,y) on stack x
            lowpt[x] ← min(lowpt[x],d[y])
        end if
    end for
end procedure

```