

$i \leftarrow 0$

$S \leftarrow \text{empty stack}$

for $x \in V$ **do** $\text{num}(x) \leftarrow 0$

for $x \in V$ **do if** $\text{num}(x) = 0$ **then** $BICON(x, 0)$

procedure $BICON(v, u)$

$i \leftarrow i + 1$

$\text{num}(v) \leftarrow i$

$\text{lowpt}(v) \leftarrow i$

for $w \in \text{Adj}(v)$ **do if** $\text{num}(w) = 0$ **then** {

[[(v, w) is a tree edge]]

$S \Leftarrow (v, w)$

$BICON(w, v)$

$\text{lowpt}(v) \leftarrow \min(\text{lowpt}(v), \text{lowpt}(w))$

if $\text{lowpt}(w) \geq \text{num}(v)$ **then** {

At this point v is either the root of the tree or it is an articulation point. Form a new biconnected component consisting of all the edges on the stack above and including (v, w) . Remove these edges from the stack.

else if $\text{num}(w) < \text{num}(v)$ **and** $w \neq u$ **then** {

[[(v, w) is a back edge]]

$S \Leftarrow (v, w)$

$\text{lowpt}(v) \leftarrow \min(\text{lowpt}(v), \text{num}(w))$

return}

Algorithm 8.5 Determining the biconnected components of $G = (V, E)$.