

STRONGLY CONNECTED COMPONENT ALGORITHM

Input: A digraph G .

Output: A function $comp : V(G) \rightarrow \mathbb{N}$ indicating the membership of the strongly connected components.

- ① Set $R := \emptyset$. Set $N := 0$.
- ② **For all** $v \in V(G)$ **do:** **If** $v \notin R$ **then** VISIT1(v).
- ③ Set $R := \emptyset$. Set $K := 0$.
- ④ **For** $i := |V(G)|$ **down to** 1 **do:**
 If $\psi^{-1}(i) \notin R$ **then** set $K := K + 1$ and VISIT2($\psi^{-1}(i)$).

VISIT1(v)

- ① Set $R := R \cup \{v\}$.
- ② **For all** w with $(v, w) \in E(G)$ **do:**
 If $w \notin R$ **then** VISIT1(w).
- ③ Set $N := N + 1$, $\psi(v) := N$ and $\psi^{-1}(N) := v$.

VISIT2(v)

- ① Set $R := R \cup \{v\}$.
 - ② **For all** w with $(w, v) \in E(G)$ **do:**
 If $w \notin R$ **then** VISIT2(w).
 - ③ Set $comp(v) := K$.
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