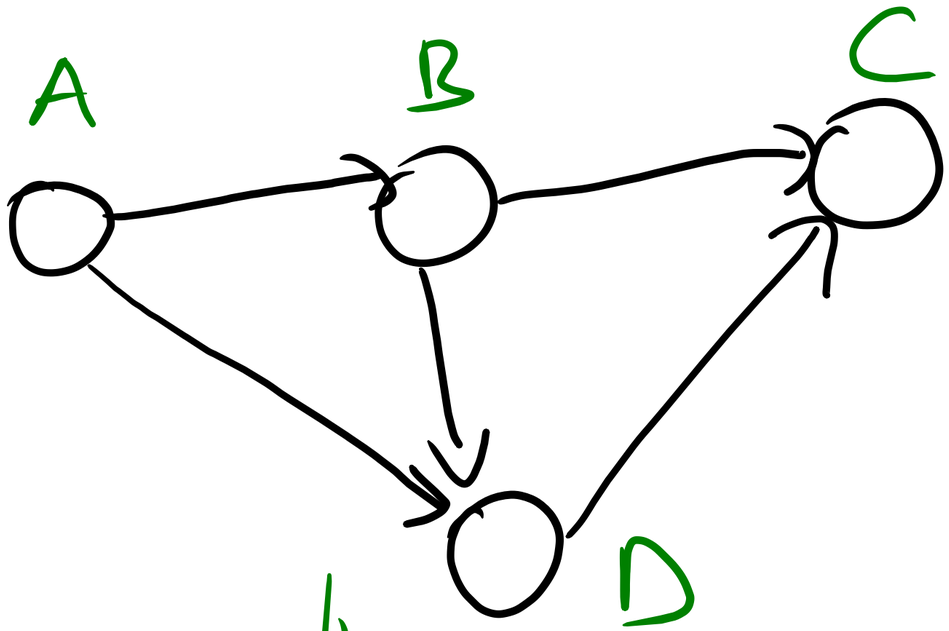
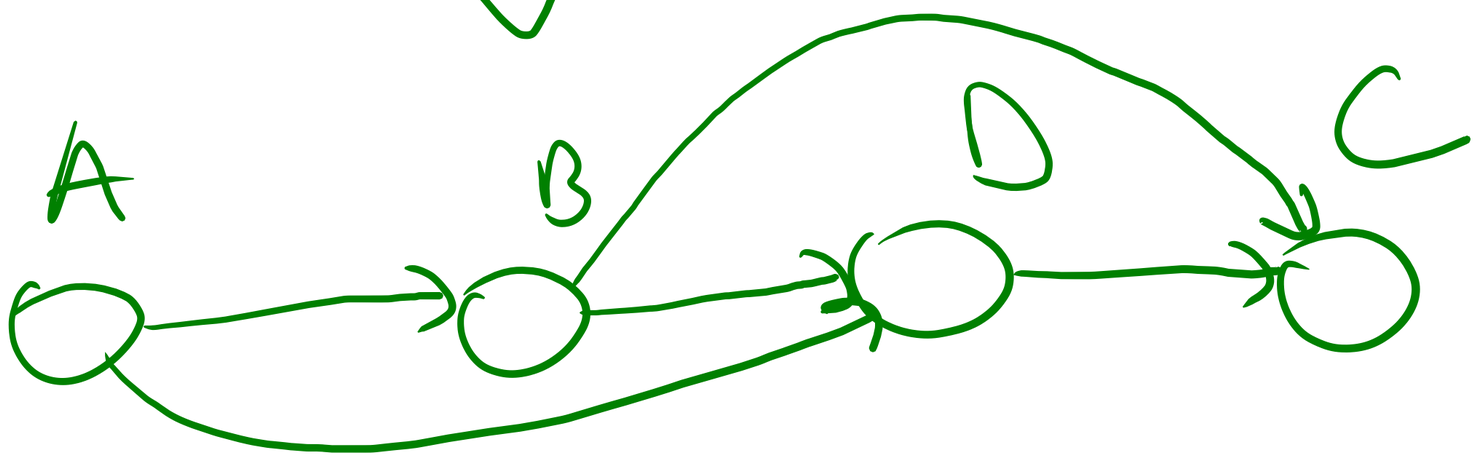
DAG

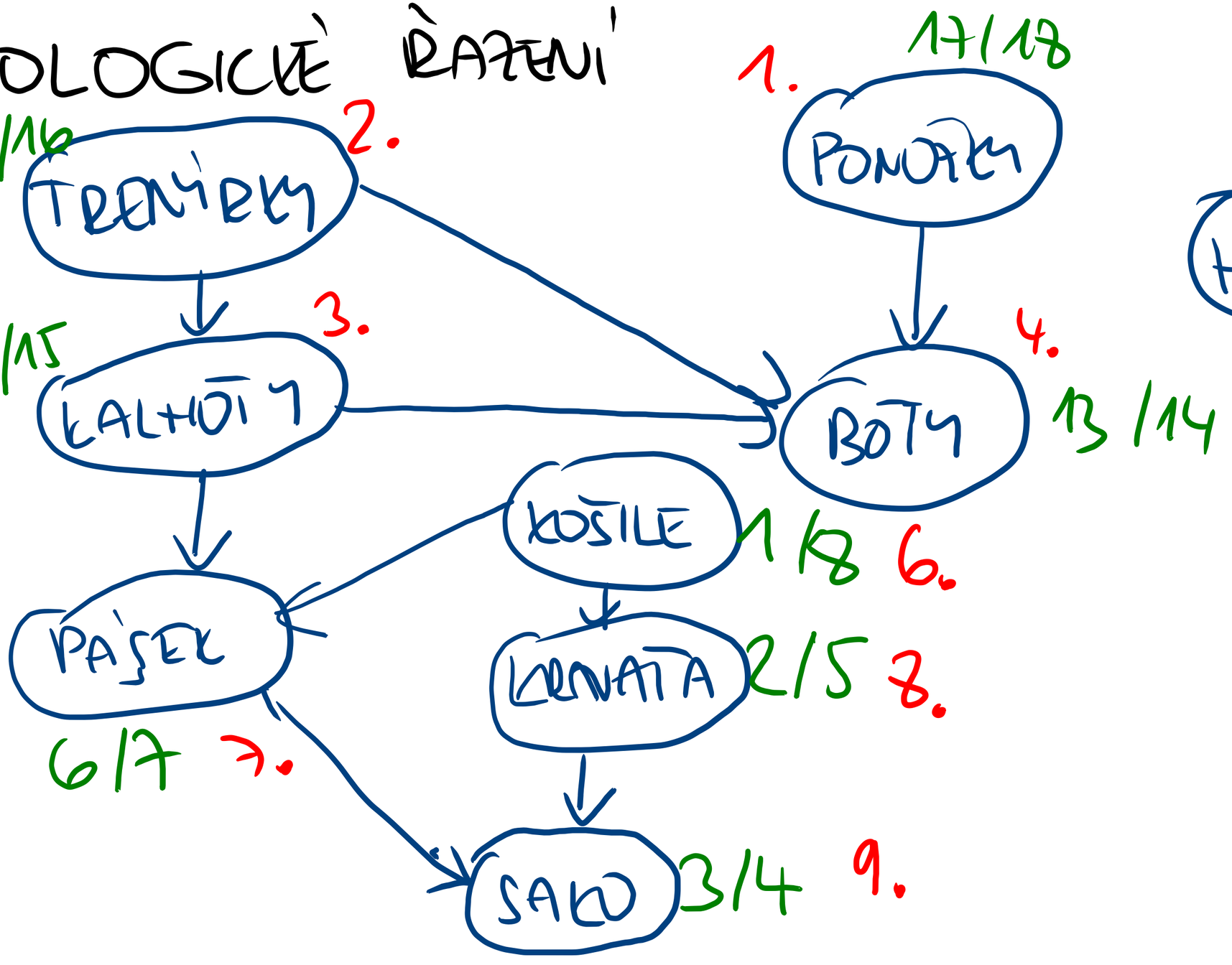


= B závisí na A



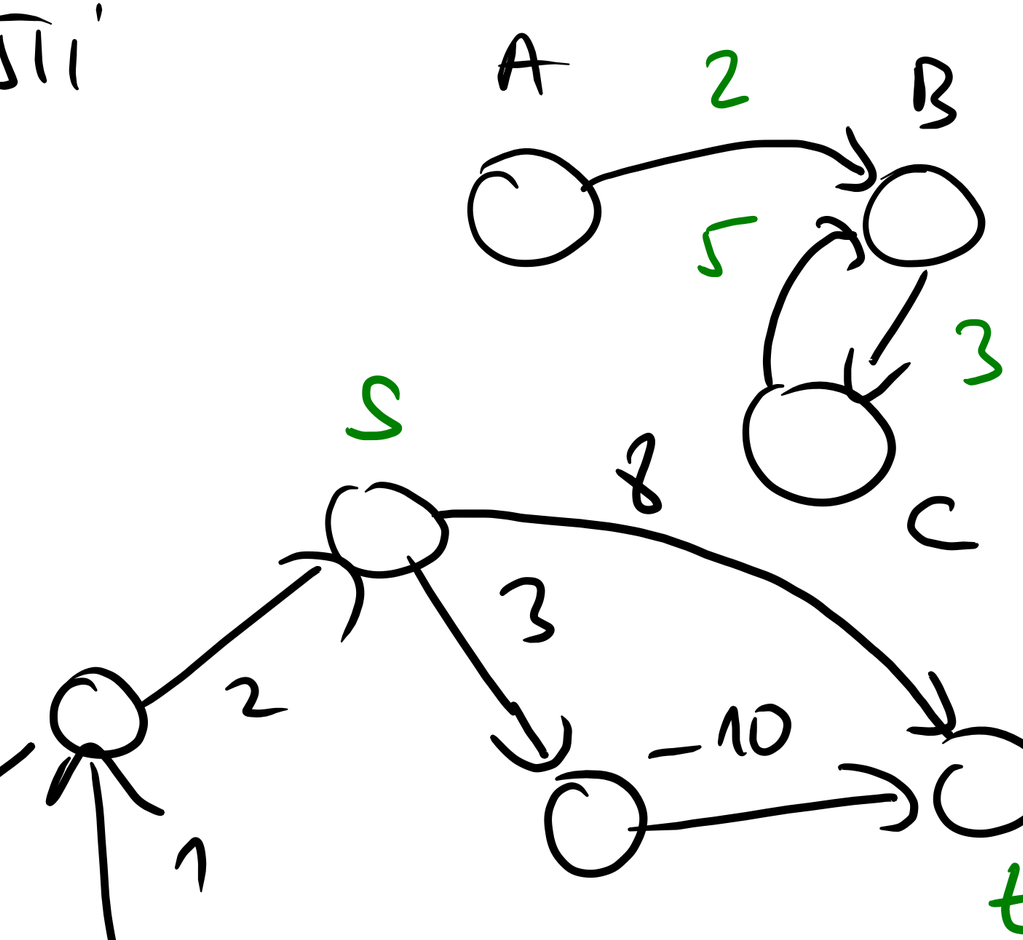
TOPOLOGICKÉ ŘAZENÍ

DFS



MATICE VZDÁLENOSTÍ

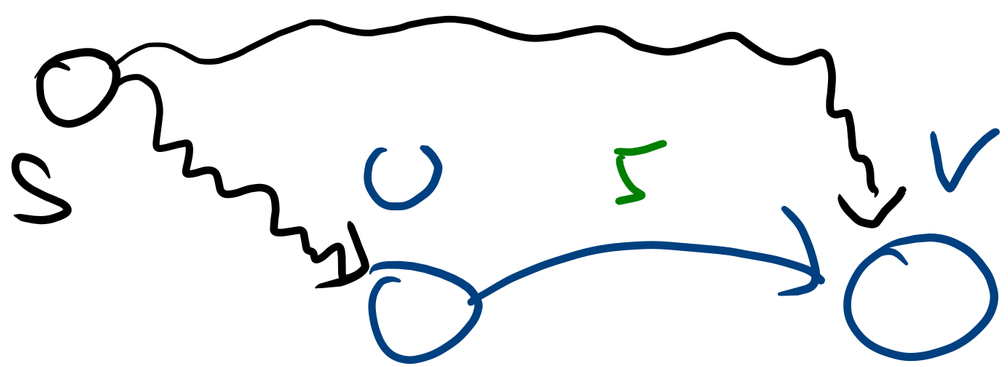
$$\begin{bmatrix} 0 & 2 & \infty \\ \infty & 0 & 3 \\ \infty & 5 & 0 \end{bmatrix}$$



ZÁPORNÝ CYKLUS

D.Ú. JAK DETEKOVAT CYKLUS V GRAFU ?

RELAXACE HRANY

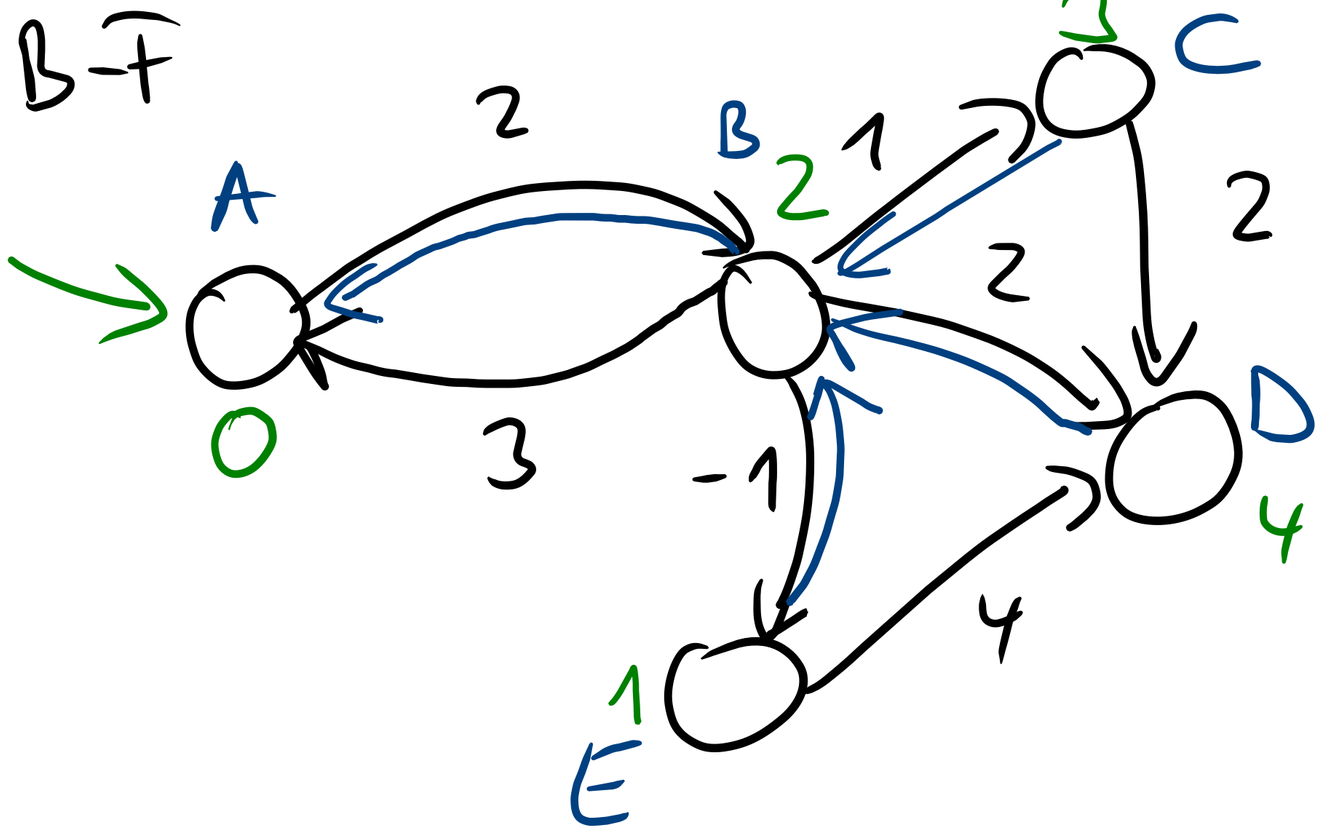


IF $v.d > u.d + w_e(u,v)$:

$v.d = u.d + w_e(u,v)$

$v.p = u$

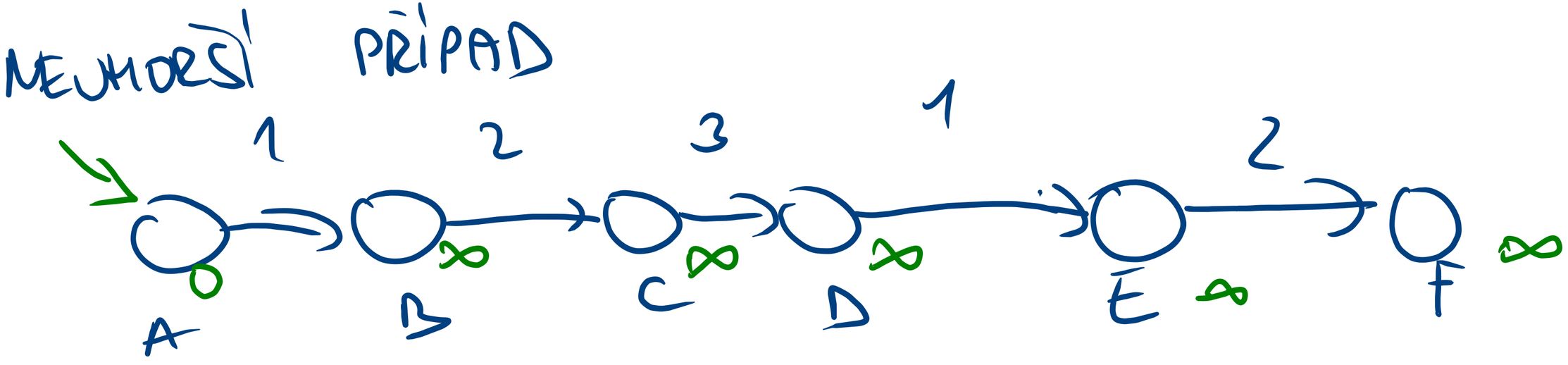
B-F



SLOŽITOST

$O(|V| \cdot |E|)$

NEJHORŠÍ PŘÍPAD

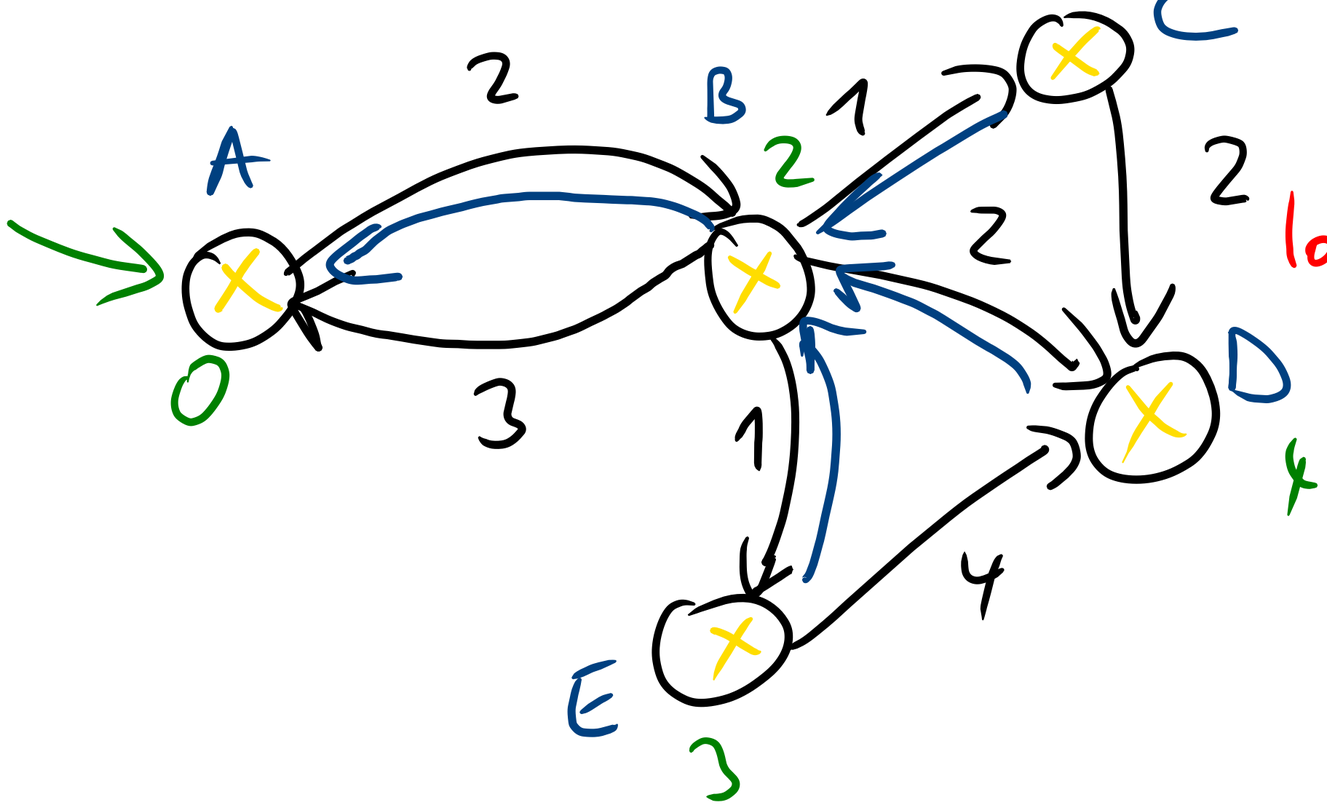


DIJKSTRA

→ POŽADUJE KLADNÉ OHODNOCENÍ HRAN

SLOŽITOST:

$O(|V|\log|V| + |E|\cdot\log|V|) = O(\log|V|(|V|+|E|))$

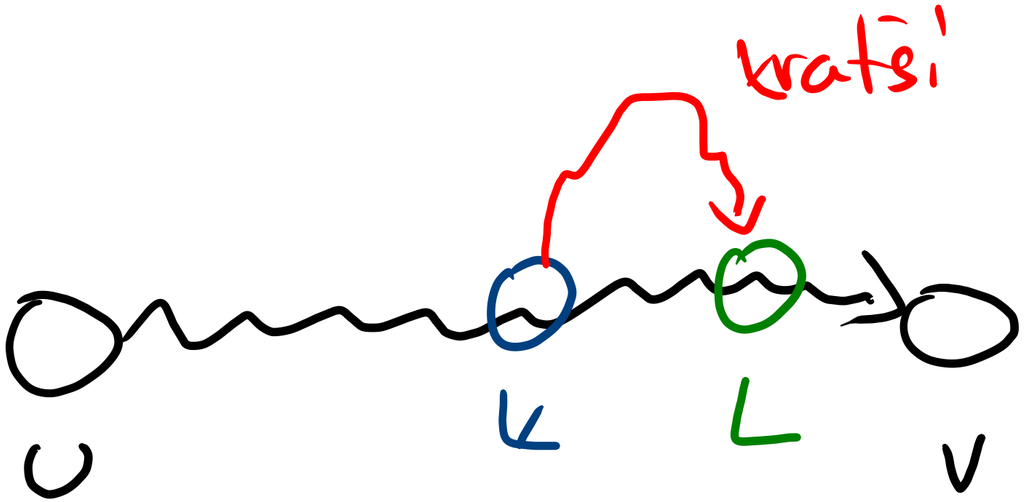



```
function Dijkstra(G = (V, E, w_e), s) is
    ∀v ∈ V : v.d ← ∞                          |V|
    s.d ← 0                                   1
    Q ← V                                     |V|·log|V|
    while Q není prázdná do                   |V|
        u ← t ∈ Q s minimální t.d             |V|·log|V|   ] EXTRACT MIN
        Odstraň u z Q
        for all v : (u, v) ∈ E do             log|V|·|E|
            if v.d > u.d + w_e(u, v) then
                v.d ← u.d + w_e(u, v)
            fi
        done
    done
end
```

|V| iterací

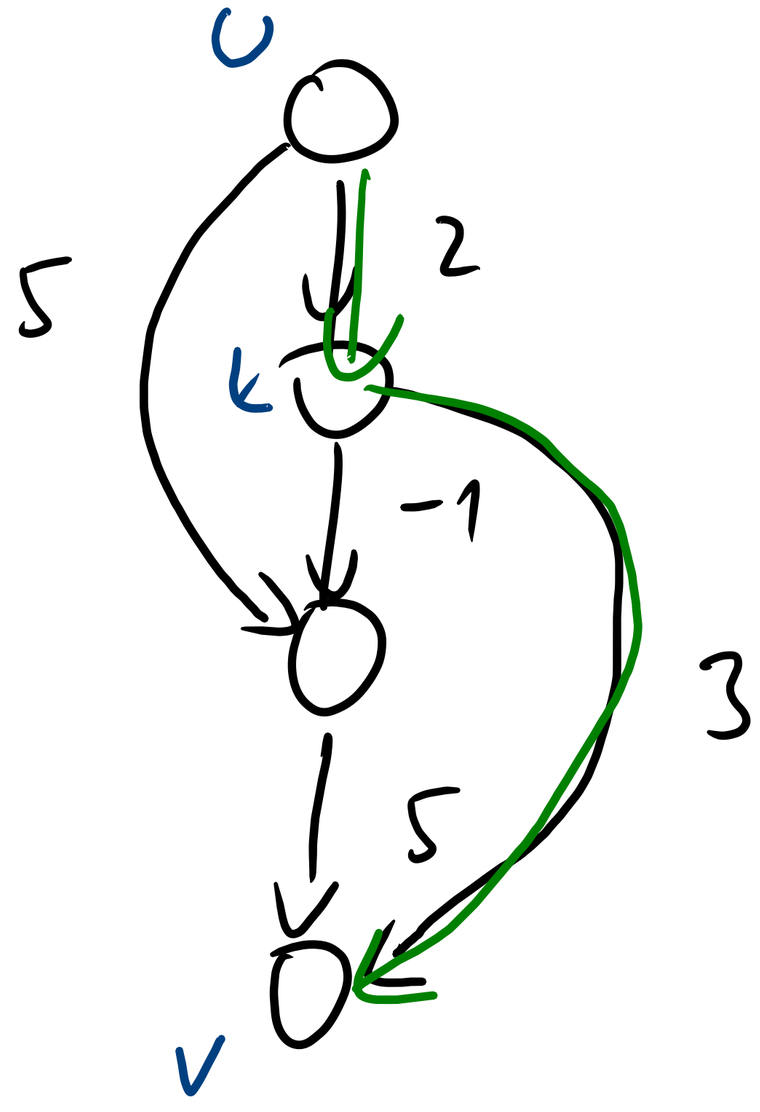
SNÍŽENÍ KLÍČE

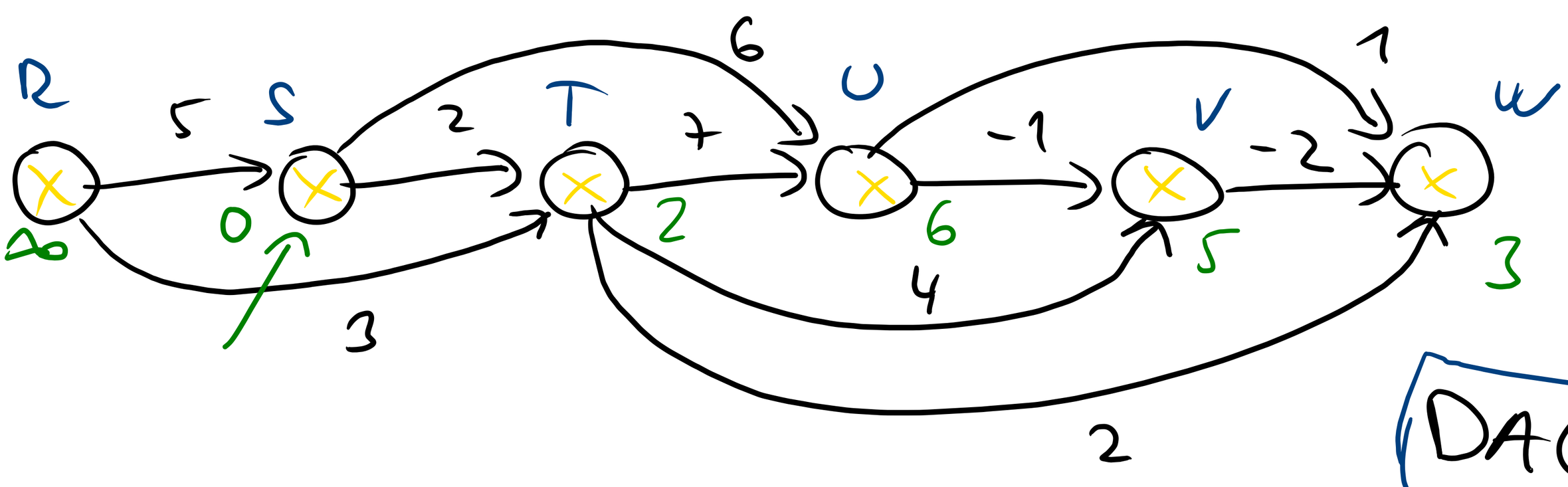
Q = BINÁRNÍ HALDA (PRIORITNÍ FRONTA)



u ⇝ v je nejkratší cesta

⇒ u ⇝ k je nejkratší cesta





SORTOST:

$O(|V| + |E|)$