Algorithm WD
Complexity

- Time complexity: $\mathcal{O}(V^3)$.

- Space complexity: $\mathcal{O}(V^2)$.

Theorem 7

Let G be a synchronous circuit, let c be an arbitrary positive real number, and let r be a function $r : V \mapsto \mathbb{Z}$.

Then, r is a legal retiming of G such that $\Phi(G_r) \leq c$ if and only if

1. $r(u) - r(v) \leq w(e) \quad \forall\ u \xrightarrow{e} v \in G$

2. $r(u) - r(v) \leq W(u, v) - 1 \quad \forall u, v \in V : D(u, v) > c$