THEM: PC = EPF if and only if \( P = NP \)

**PC = EPF \( \Rightarrow \)** For each \( SE_{NP} \) consider the verifiable \( V \) and let \( R \equiv (x, y): V(x, y) = 3 \).
Then \( RE_{PC} \Rightarrow RE_{PF} \).
Decide \( S \) by finding a \( w \).
(Note: \( S = SR = \exists x: R(x) + 3 \)

**P = NP \( \Rightarrow \)** For each \( RE_{PC} \), let \( S \equiv \exists (x, y): \exists y (x, y, y') \in R \).
Then \( SE_{NP} \Rightarrow SE_{P} \).
Find solution of \( \alpha \) by exactly a prefix-subdivision bit by bit.
Typical result starts with \( y' \) that is a prefix-solution.

- If \((x, y', 0), (x, y', 1) \in S\), then \( y' \in R(x) \Rightarrow output y' \).
- If \((x, y', 0) \in S \) for some \( x \), then \( y' = y' \)

\( \exists x \in S \iff \text{true} \quad \iff x = y' \)

\( \exists (x, y) \in R(x) \Rightarrow R(x) = \{ s | s(x, y) \} \) for some \( y \)