Dual of the Schröder – Bernstein Theorem:

Suppose that **A** *and* **B** *are sets such that there are surjective mappings from* **A** *to* **B** *and from* **B** *to* **A.** *Prove that* **A** *and* **B** *have the same cardinalities***.**

This is fairly simple to prove if one has the Axiom of Choice (just take one – sided inverses to the surjections)**.** Is there an **"**elementary**"** proof of this fact which does not use the Axiom of Choice along the lines of the classical Birkhoff – MacLane proof for the Schröder – Bernstein Theorem**?**