Let's do "strong induction"!

Let $F : \mathbb{Z}^+ \to \mathbb{Z}$ be defined by

- $F(1) = 1$ and $F(2) = 0$
- $F(n) = F(n-2)$ if $n > 2$

Then $F(n) = n \mod 2$ for all $n \in \mathbb{Z}^+$.

Question: What should we assume?

Let $P(k)$ be the assertion that:

- $F(k) = k \mod 2$

and let us assume that $P(1), P(2), P(3), \ldots, P(n)$ are all true!

Can we work with this?