

## For strong induction

For strong induction, don't confuse your variables with each other (they are not interchangeable)

For example, suppose you want to prove that  $f(n) = 0$  for all  $n \in \mathbb{Z}^+$  where  $f$  is defined by

- ▶  $f(1) = f(2) = 0$
- ▶  $f(n) = f(n-2)$  if  $n \geq 3$

You say  $P(n)$  asserts that  $f(n) = 0$ , and you check base cases  $n = 1, 2$ .

Your Inductive Hypothesis is: for some arbitrary  $n \geq 2$ ,  $P(k)$  is true for all integers  $k$  between 1 and  $n$

You now want to show that  $P(n+1)$  is true.