

# Connecting proofs by contradiction and induction

Note the similarities to proofs by induction.

To prove that  $P(n)$  is true for all  $n \geq n_0$  by *induction*, we would

- ▶ Show  $P(n_0)$  is true
- ▶ Let  $N$  be arbitrary.
- ▶ Show that  $P(N) \rightarrow P(N + 1)$

The reason this works is the same as why the proof by contradiction works.

Proofs by induction are just short ways of doing the proof by contradiction.