

But be careful! What is wrong with the following argument??

## Theorem

*Every integer is less than or equal to 1.*

## Proof.

- 1 Let  $n$  be the greatest integer.
- 2 Then  $n^2 \leq n$ ; otherwise,  $n^2$  would be greater and  $n$  wouldn't be the greatest.
- 3 Then  $n^2 - n \leq 0$ , or  $n(n - 1) \leq 0$ .
- 4 It is not possible for  $n, n - 1$  to both be positive, and therefore  $n \leq 1$ .

