

# Infinite versus Dedekind Infinite

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If  $f: \mathbb{N} \rightarrow X$  is injective, then

$$g(x) = \begin{cases} f(S(n)) & \text{if } x = f(n) \end{cases}$$

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is also injective.  $f(0) \notin \text{im}(g)$ , so  $g$  is not surjective.

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