

## $\omega$ is the Least Limit Ordinal

SET\_THEORY\_03\_5517271459954688

**Proposition 0.1.** Let  $\lambda$  be a limit ordinal. Then

$$\omega \leq \lambda.$$

*Proof.* Assume the contrary. Then  $\lambda < \omega$ . Consequently  $\lambda \in \omega$ . Hence  $\lambda = 0$  or  $\lambda = \text{succ}(n)$  for some  $n \in \omega$ . Thus  $\lambda$  is not a limit ordinal. Contradiction.  $\square$