

# Bootstrapping Idea

**Bootstrap sample:** sample with replacement from a dataset

The probability that a given example is not selected for a bootstrap sample of size  $n$ :

$$(1 - 1/n)^n$$

This has a limit as  $n$  goes to infinity:  $1/e = 0.368$

**Conclusion:** each bootstrap sample is likely to leave out about a third of the examples.

# Bootstrapping Illustrated

