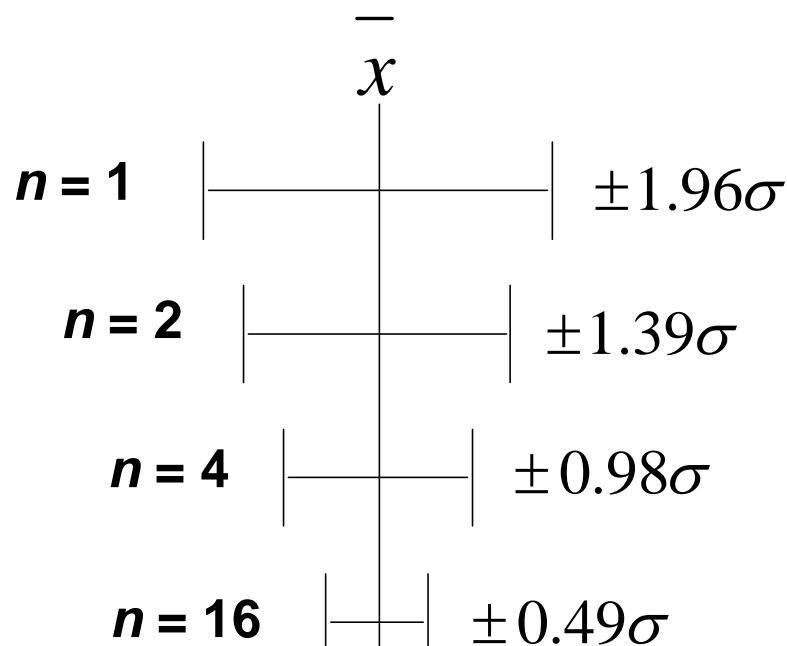


C. Confidence Intervals When σ is Known (Perfect Method)

(not calculated from the data on a sample; known from past experience)

$$\mu = \bar{x} \pm z \frac{\sigma}{\sqrt{n}}$$

The following CI's all have a 95% chance of containing the true value μ :



At the 95% CL, $z = 1.96$ regardless of the value of n

Random error can cause the mean to be this far away from the true value(!)

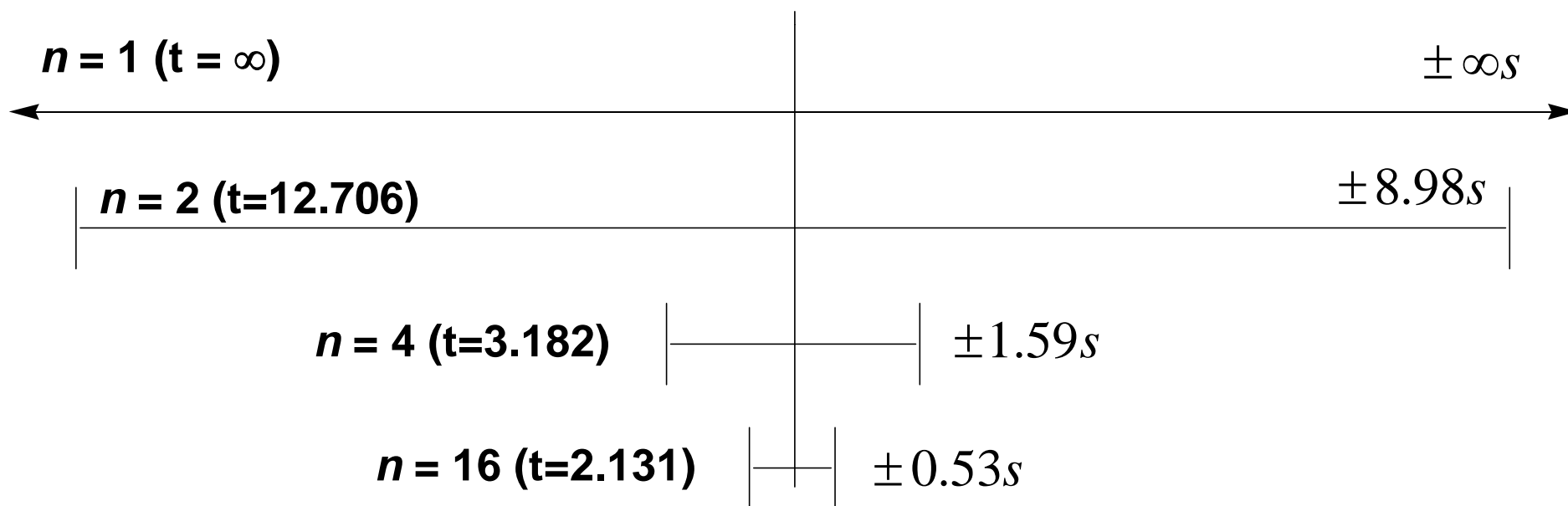
D. Confidence Intervals When σ is Not Known

(calculate an estimated s from the data on a sample)

$$\mu = \bar{x} \pm t \frac{s}{\sqrt{n}}$$

The following CI's all have a 95% chance of containing the true value μ :

\bar{x}



t depends on both the confidence level
and on the number of degrees of freedom ($n - 1$)