DATA SAMPLE: $(x_1, \dots, x_n)$

MODEL: $(X_1, \dots, X_n) = (X, \dots, X)$, $X \sim N(\mu, \sigma^2)$ (? ? ?)

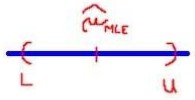
$(1-\alpha)\cdot 100\,\%$ — 95 %

CI: 1) **2-sided:** (L, U)

$$P(L \le \mu \le U) = 1-\alpha$$

$$L = \hat{\mu}_{MLE} - q_{1-\frac{\alpha}{2}} \cdot \frac{\sigma}{\sqrt{n}}$$

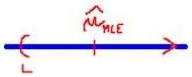
$$U = \hat{\mu}_{MLE} + q_{1-\frac{\alpha}{2}} \cdot \frac{\sigma}{\sqrt{n}}$$



2) LEFT: (L, ∞)

$$P(L \le \mu) = 1-\alpha$$

$$L = \hat{\mu}_{MLE} - q_{1-\alpha} \cdot \frac{\sigma}{\sqrt{n}}$$



3) RIGHT: $(-\infty, U)$

$$P(\mu \le U) = 1-\alpha$$

$$U = \hat{\mu}_{MLE} + q_{1-\alpha} \cdot \frac{\sigma}{\sqrt{n}}$$

$q_{1-\frac{\alpha}{2}}$, $q_{1-\alpha}$ **are the QUANTILES of:**

stand. NORMAL dist. (σ^2 **is known**)

STUDENT t-distribution (**is not**)
(**with n - 1 degrees of freedom**)