Test of Hypothesis steps:

1) $H_0: \theta = \theta_0$ | $\theta \le \theta_0$ | $\theta \ge \theta_0$ The null hypothesis

2) $H_1: \theta \ne \theta_0$ | $\theta > \theta_0$ | $\theta < \theta_0$ The alternative hypothesis

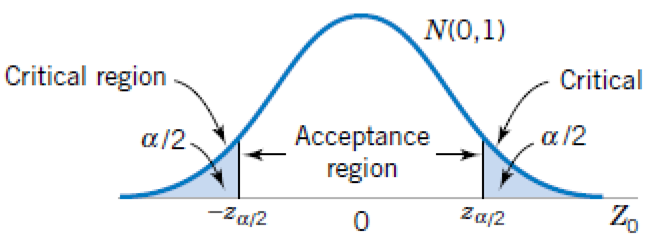
θ_0

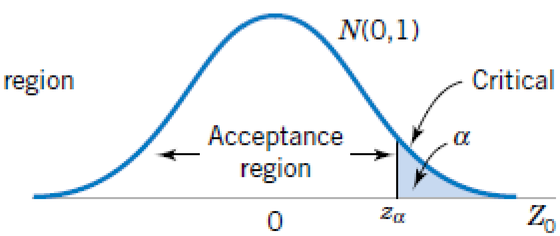
3) Calculate the value of the Static

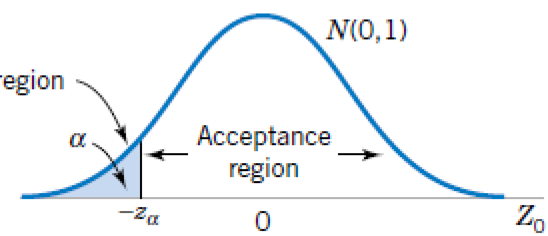
$$Z = \frac{\overline{X} - \mu}{\sigma/\sqrt{n}} \qquad T = \frac{\overline{X} - \mu}{S/\sqrt{n}} \qquad X^2 = \frac{(n-1)\,S^2}{\sigma^2} \qquad Z = \frac{\hat{P} - p}{\sqrt{\frac{p(1-p)}{n}}}$$

4) Find the critical region (hint: this step depends on H_1)

$\theta \ne \theta_0$ $\theta > \theta_0$ $\theta < \theta_0$







5) Decision making:

if the static fall in the critical region, then reject H_0

Otherwise accept H_0

Step 1 and 2

Test of Hypothesis steps:

1) $H_0: \theta = \theta_0 \;|\; \theta \leq \theta_0 \;|\; \theta \geq \theta_0$ The null hypothesis

2) $H_1: \theta \neq \theta_0 \;|\; \theta > \theta_0 \;|\; \theta < \theta_0$ The alternative hypothesis

Parameter: μ, p, σ^2

Value

In each of the following situations, state whether it is a correctly stated hypothesis testing problem and why.

(a) $H_0: \mu = 25, H_1: \mu \neq 25$

(b) $H_0: \sigma > 10, H_1: \sigma = 10$

(c) $H_0: p = 0.1, H_1: p = 0.5$

Step 3

3) Calculate the value of the Static

Population with known variance

$$Z = \frac{\overline{X} - \mu}{\sigma / \sqrt{n}}$$

$$H_0: \mu = 25, H_1: \mu \neq 25$$
$$H_0: \sigma \geqslant 10, H_1: \sigma < 10$$
$$H_0: p \leqslant 0.1, H_1: p > 0.5$$

Population with unknown variance

$$T = \frac{\overline{X} - \mu}{S / \sqrt{n}}$$

Confidence interval on the population variance

$$X^2 = \frac{(n-1) S^2}{\sigma^2}$$

CONFIDENCE INTERVAL FOR A POPULATION PROPORTION

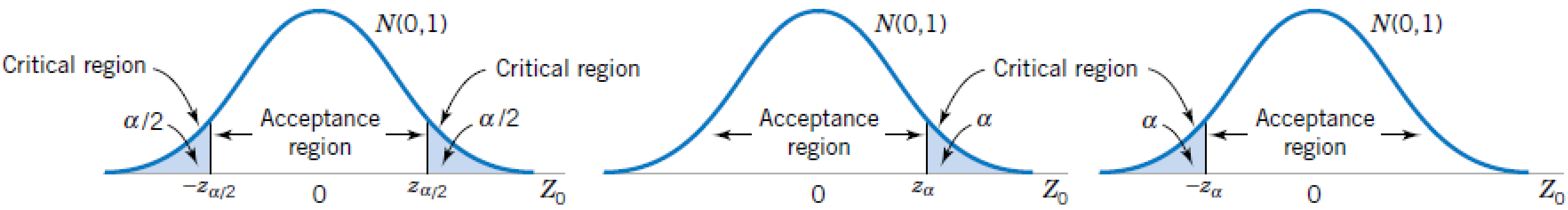
$$Z = \frac{\hat{P} - p}{\sqrt{\frac{p(1-p)}{n}}}$$

Step 4

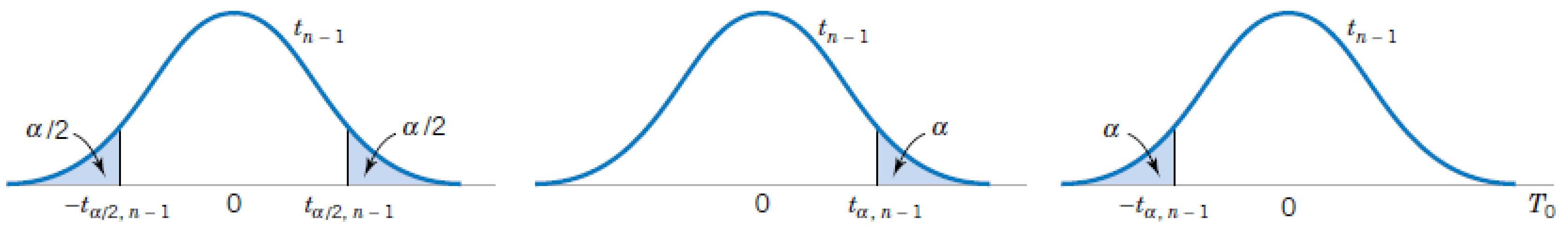
4) Find the critical region (hint: this step depends on H_1)

$\theta \neq \theta_0$ | $\theta > \theta_0$ | $\theta < \theta_0$

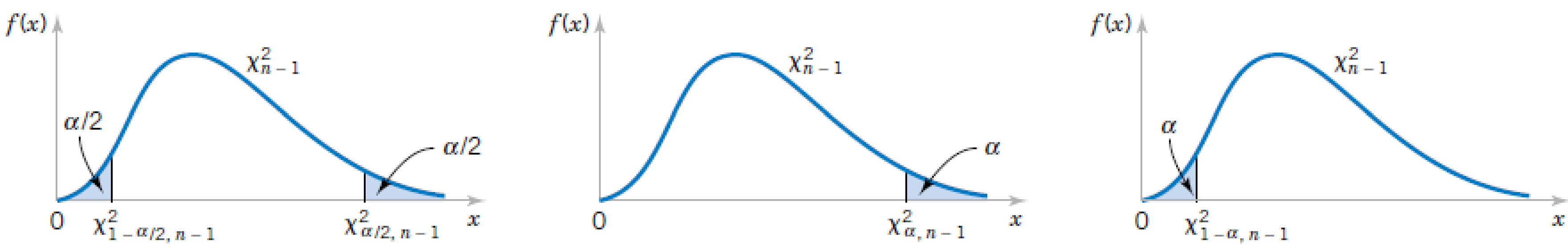
Z



T



X²



Step 5

5) Decision making:

if the static fall in the critical region, then reject H_0

Otherwise accept H_0