Hypothesis Testing

Single Sample Proportion

Testing a Population Proportion

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The sample proportion, $\hat{p}$ is given by

$$\hat{p} = \frac{x}{n} = \frac{\text{number of observed successes}}{\text{sample size}}$$

with sample standard error

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

Test Statistic and Critical Value Method

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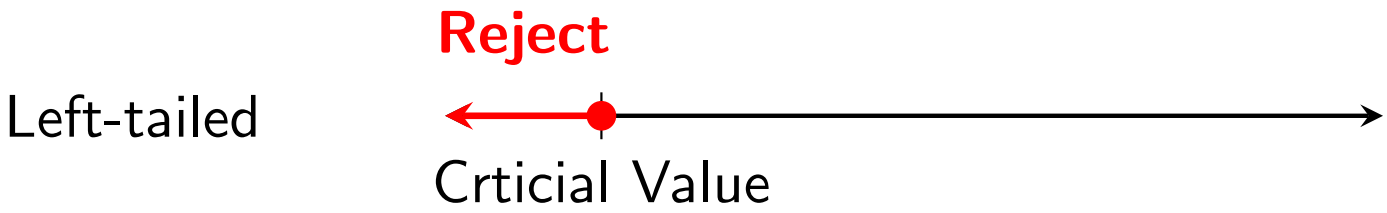
Significance Level	**Critical Value**
$\alpha = 0.01$	± 2.576
$\alpha = 0.05$	± 1.96
$\alpha = 0.10$	± 1.645

Test Statistic and Critical Value Method



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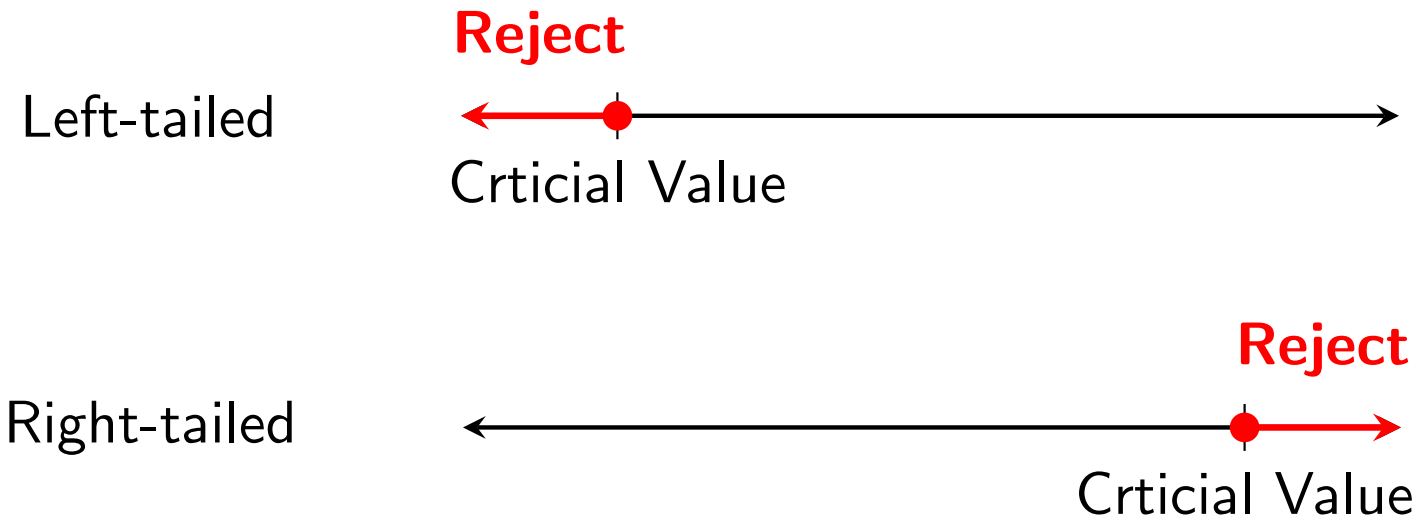

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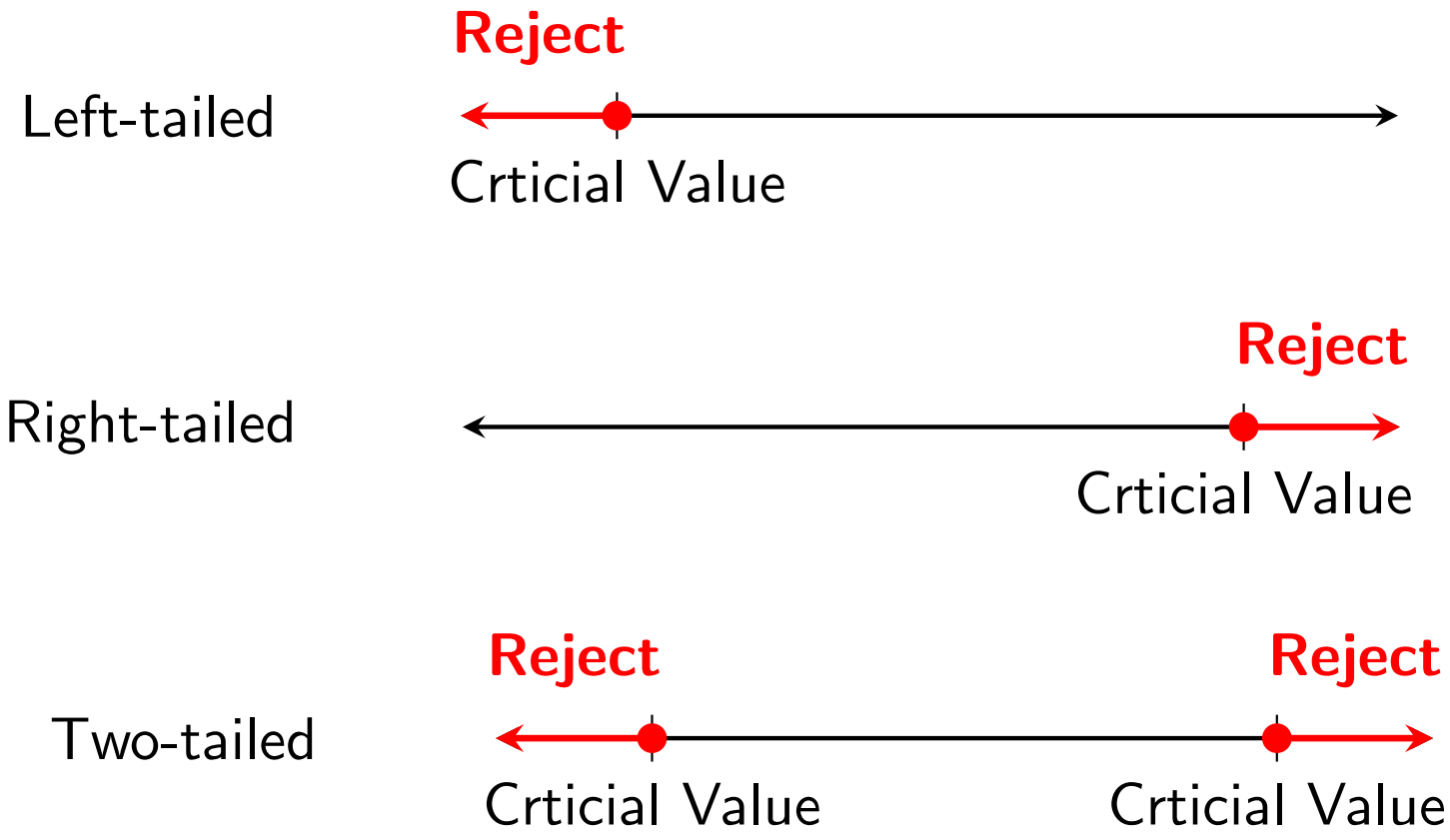

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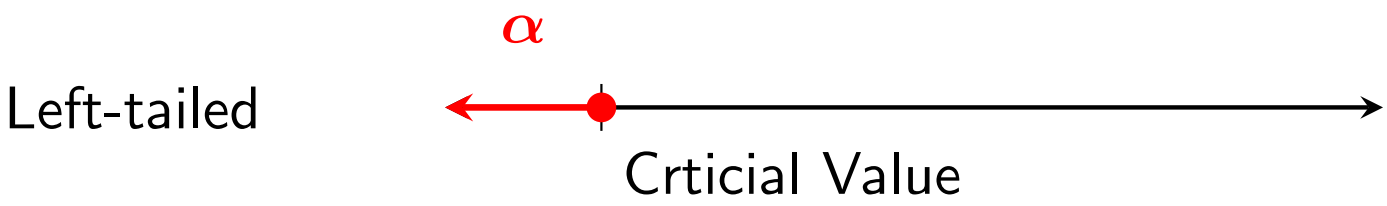
Reminder, if the *p*-value $< \alpha$, we reject the null hypothesis.

p-Value Method



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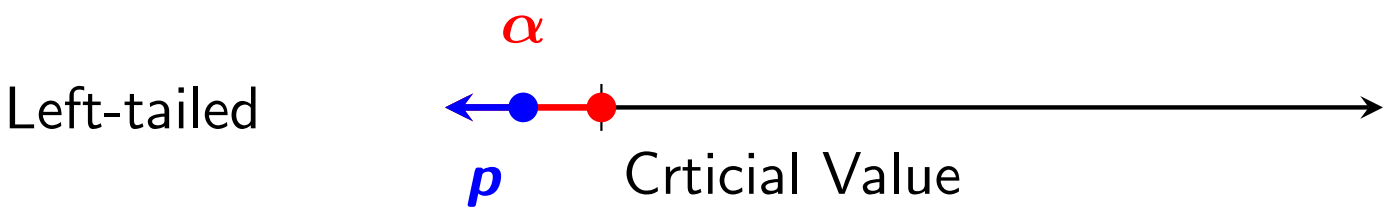
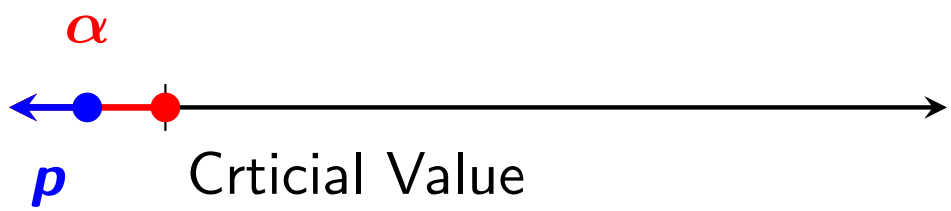


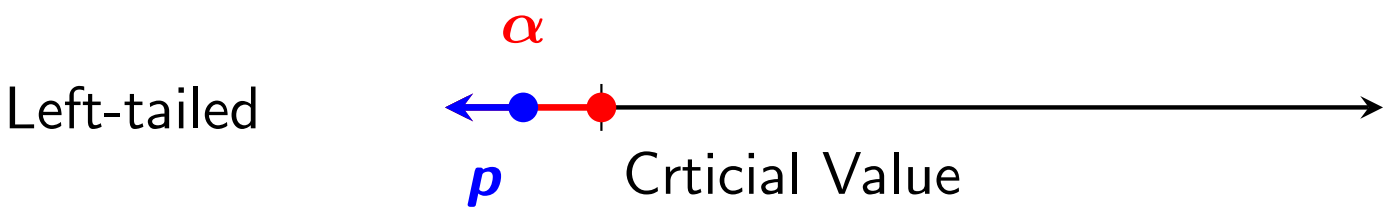
p-Value Method

Left-tailed



Reject null

p-Value Method



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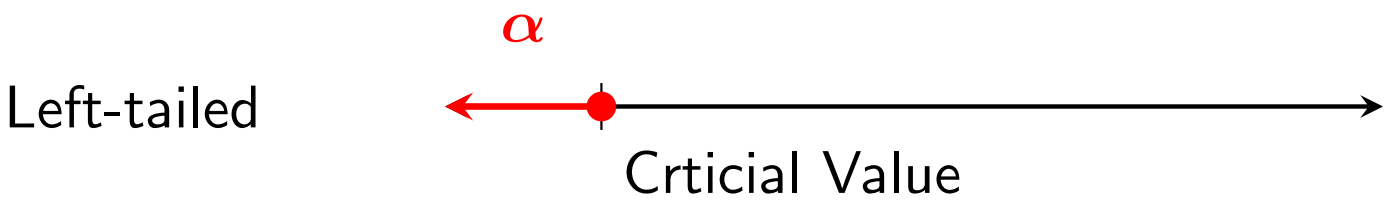

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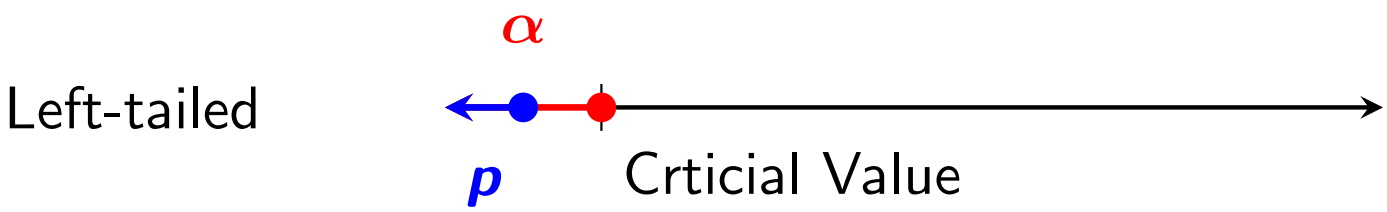

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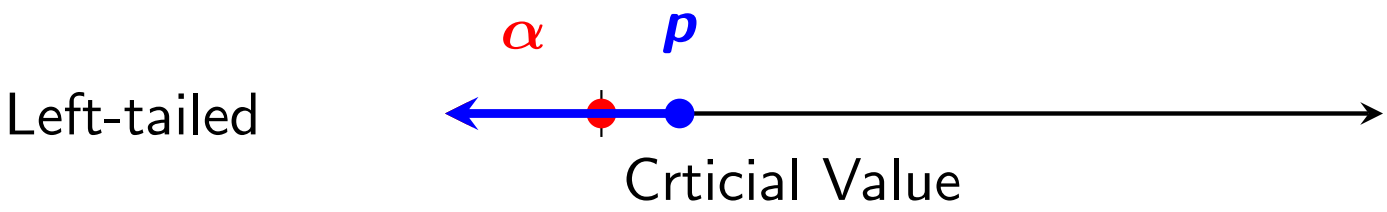

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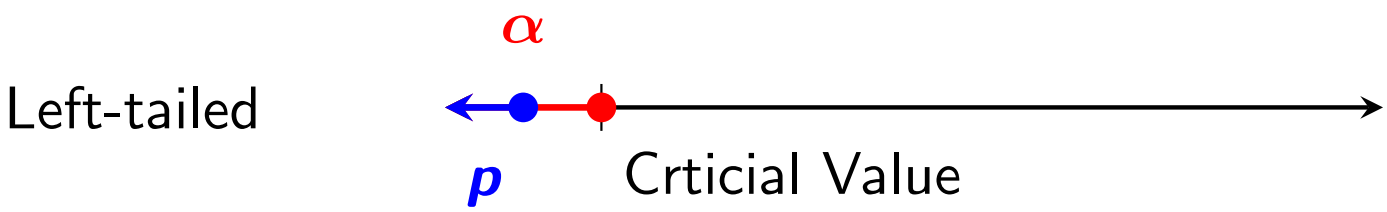

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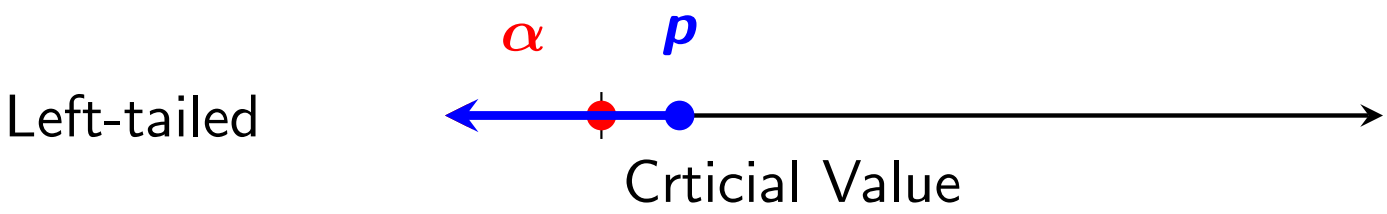
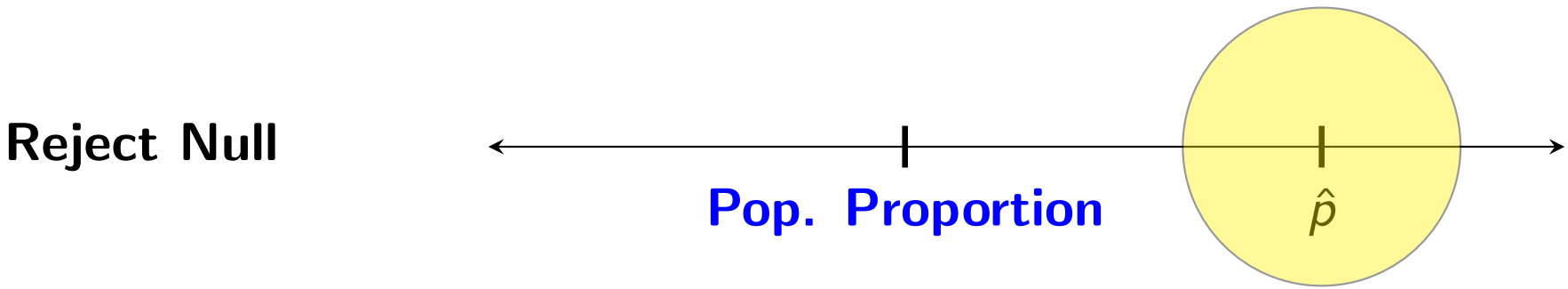


Do Not Reject Null

Confidence Interval Method



Confidence Interval Method

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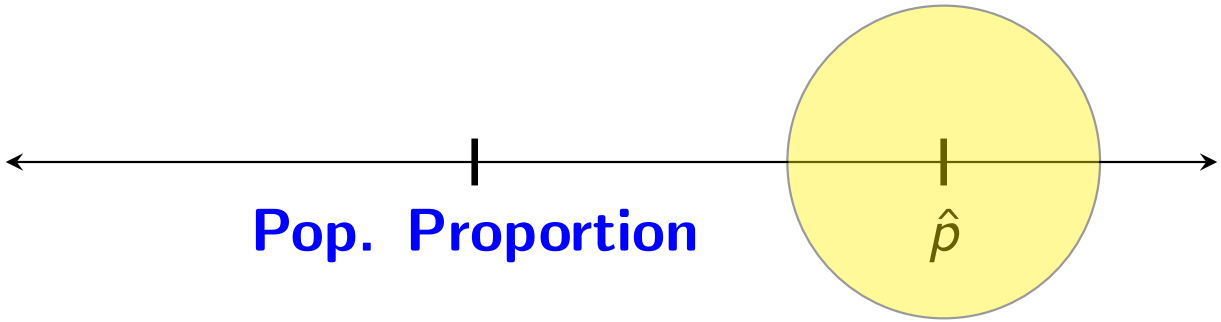
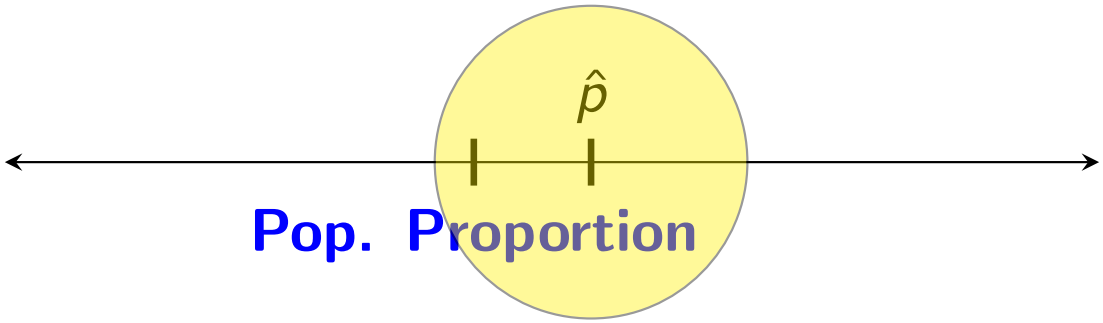
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