

Bootstrap mean and standard error

$$mean_{boot} = \frac{1}{B} \sum \bar{x}^*$$

$$SE_{boot} = \sqrt{\frac{1}{B-1} \sum (\bar{x}^* - mean_{boot})^2}$$

z-test and standard error

$$SE = \frac{\sigma}{\sqrt{N}}$$

$$z = \frac{X - \mu}{SE}$$

Bootstrap ANOVA

$$F_{boot(c-1),(n-c)} = \frac{\sum_{j_{boot}=1}^c n_{j_{boot}} (x_{j_{boot}} - \bar{\bar{x}}_{boot})^2}{\sum_{j=1}^c \sum_{k=1}^{n_{j_{boot}}} (x_{j_{boot}k} - \bar{x}_{j_{boot}})^2}$$

Pooled standard deviation – for heteroscedastic t-test

$$S_p = \sqrt{\frac{\sum_{i=1}^k (n_i - 1) s_i^2}{\sum_{i=1}^k (n_i - 1)}}$$

Kruskal-Wallis test (nonparametric ANOVA)

$$K=(N-1)\frac{\sum_{i=1}^gn_i(\bar{r}_i-\bar{r})^2}{\sum_{i=1}^g\sum_{j=1}^{n_i}(r_{ij}-\bar{r})^2}$$

$$Pr(X_{g-1}^2\geq K)$$

Double-bootstrap t-test and bootstrap pooled standard deviation

$$t_{boot_2} = \frac{\bar{x}_{boot_2}^1 - \bar{x}_{boot_2}^2}{Sp_{boot_2}}$$

$$Sp_{boot_2} = \sqrt{\frac{\sum_{i=1}^k (n_{i_{boot_2}} - 1) s_{i_{boot_2}}^2}{\sum_{i=1}^k (n_{i_{boot_2}} - 1)}}$$

Weighted mean

$$\bar{x} = \frac{\sum_{i=1}^n w_i x_i}{\sum_{i=1}^n w_i}$$