1) 이분산의 경우 두 모평균의 비교를 위한 검정통계량의 df

$$df=\frac{\left(S_1^2/n_1+S_2^2/n_2\right)^2}{\left(S_1^2/n_1\right)^2/(n_1-1)+\left(S_2^2/n_2\right)^2/(n_2-1)}$$

2) e_{ij} : 잔차

studentized deleted 잔차 : $t_{ij}=e_{ij}\left[\frac{N-p-1}{SSE(1-1/n_i)-e_{ij}^2}\right]^{1/2}$

3) Hartley 검정

- 검정통계량 : $H^*\sim H(p,n-1)$

4) Bartlett 검정

- 검정통계량 : $\chi_0^2=2.3026\frac{q}{c}\ \sim\ \chi_{p-1}^2$
  - $q=(N-p)\log_{10}MSE-\sum_{i=1}^{p}(n_i-1)\log_{10}S_i^2$
  - $c=1+\frac{1}{3(p-1)}\left\{\sum_{i=1}^{p}\frac{1}{n_i-1}-\frac{1}{N-p}\right\}$

5) Jarque-Bera test

$$JB=\frac{n}{6}\left(b_1+\frac{1}{4}(b_2-3)^2\right)$$

- $\sqrt{b_1}$: 왜도(skewness), b_2: 첨도(kurtosis)

6) Box-Cox transformation (1964)

- 최대가능도 추정에 의한 변환선택

$$g(x,\lambda)=\begin{cases}(x^\lambda-1)/\lambda, & \lambda\neq 0\\ \log(x), & \lambda=0.\end{cases}$$

- Yeo-Johnson transformation (2000)

$$g(x,\lambda)=\begin{cases}((x+1)^\lambda-1)/\lambda, & \lambda\neq 0,\quad x\geq 0\\ \log(x+1), & \lambda=0,\quad x\geq 0\\ -((-x+1)^{2-\lambda}-1)/(2-\lambda), & \lambda\neq 2,\quad x<0\\ -\log(-x+1), & \lambda=2,\quad x<0.\end{cases}$$

- Modulus transformation (2000)

$$g(x,\lambda)=\begin{cases}sign(x)\frac{(|x|+1)^\lambda-1)}{\lambda}, & \lambda\neq 0\\ sign(x)\log(|x|+1), & \lambda=0.\end{cases}$$