Fordelinger:

$$\mu \leftarrow \bar{x}. = \frac{1}{n}\sum_{i=1}^{n} x_i \sim\sim N(\mu, \frac{\sigma^2}{n})$$

$$\mu_i \leftarrow \bar{x_i}. \sim\sim N(\mu_i 1, \frac{\sigma^2}{n})$$

$$\mu \leftarrow \bar{x}.. = \frac{S.}{n.} \sim\sim N(\mu, \frac{\sigma^2}{n.})$$

$$\sigma^2 \leftarrow s^2 = \frac{1}{n-1}\sum_{i=1}^{n}(x_i - \bar{x}.)^2 = \frac{1}{n-1}SSD = \frac{1}{n-1}(USS - \frac{S^2}{n}) \sim\sim \sigma^2\chi^2(f)/f$$

$$\sigma_i^2 \leftarrow s_{(i)}^2 = \frac{1}{n_i - 1}\sum_{j=1}^{n_i}(x_{ij} - \bar{x_i}.)^2 \sim\sim \sigma_i^2\chi^2(f_{(i)})/f_{(i)} = (n_i - 1)/n_i - 1$$

$$\sigma_{02}^2 \sim\sim N(\alpha(\frac{1}{n}) + \frac{t_0^{-n}}{SSD_t}\sigma^2)$$

$$t \sim\sim t(f_1) = t(n-1)$$

$$-2lnQ(x) = f_1 ln(s_1^2) - \sum_{i=1}^{k} f_{(i)} ln s_{(i)}^2 \sim\sim \chi^2(k-1)$$

$$Ba = \frac{-2lnQ(x)}{C} \sim\sim \chi^2(k-1)$$

$$\alpha \leftarrow \hat{\alpha} = \bar{x}. - \bar{\beta}\bar{t}. \sim\sim N(\alpha, \sigma^2(\frac{1}{n} + \frac{\bar{t^2}.}{SSD_t})$$

$$\alpha_i \leftarrow \hat{\alpha}_i = \bar{x}. - \bar{\beta}\bar{t}. \sim\sim N(\alpha_i, \sigma_i^2(\frac{1}{n_i} + \frac{\bar{t^2}._i}{SSD_{ti}})$$

$$\beta \leftarrow \hat{\beta} = \frac{SPD_x t}{SSD_t} \sim\sim N(\beta, \frac{\sigma^2}{SSD_t})$$

$$\beta_i \leftarrow \hat{\beta}_i = \frac{SPD_{xt}}{SSD_t} \sim\sim N(\beta_i, \frac{\sigma_i^2}{SSD_{ti}})$$

$$\hat{\alpha} + \hat{\beta}t \sim\sim N(\alpha + \beta t, \sigma^2(\frac{1}{n} + \frac{(t - \bar{t}.^2)}{SSD_t}))$$

Formler

$$S_x = \sum_{i=1}^{n} x_i$$

$$S_t = \sum_{i=1}^{n} t_i$$

$$USS_x = \sum_{i=1}^{n} x_i^2$$

$$USS_t = \sum_{i=1}^{n} t_i^2$$

$$SSD_x = \sum_{i=1}^{n} (x_i - \bar{x}.)^2$$

$$SSD_t = \sum_{i=1}^{n} (t_i - \bar{t}.)^2$$

$$SP_{xt} = \sum_{i=1}^{n} x_i t_i$$

$$SPD_{xt} = \sum_{i=1}^{n} (x_i - \bar{x}.)(t_i - \bar{t}.)$$

$$\hat{\sigma}^2 = \frac{1}{n-2} \sum_{i=1}^{n} \left\{ x_i - (\hat{\alpha} + \hat{\beta} t_i) \right\}^2$$

$$C = 1 + \frac{1}{3(k-1)} \left[(\sum_{i=1}^{k} \frac{1}{f_{(i)}}) - \frac{1}{f_1} \right]$$

$$SSD_2 = SSD_{02} - SSD_1$$

Konfidensintervaller:

Binomialfordelinger Hvis: $M_b : X \sim b(n,\pi)$, er 95% konfidensintervallet for π

$$\pi_- = \frac{1}{n+1.96^2}\left[x + \frac{1.96^2}{2} - 1.96\sqrt{\frac{x(n-x)}{n} + \frac{1.96^2}{4}}\right]$$

og

$$\pi_+ = \frac{1}{n+1.96^2}\left[x + \frac{1.96^2}{2} + 1.96\sqrt{\frac{x(n-x)}{n} + \frac{1.96^2}{4}}\right]$$

$C_{0.95}(x) = \{\pi_0 | H_0 : \pi = \pi_0$ forkastes ikke med niveau 0.05 test$\{ = [\pi_-, \pi_+]$

Normalfordelt observationrække med ukendt varians: 95% for σ^2

$$\left[\frac{(n-1)s^2}{\chi^2_{1-\frac{\alpha}{2}}(n-1}, \frac{(n-1s^2)}{\chi^2_{\frac{\alpha}{2}}(n-1)}\right]$$

Pobs test

Binomialfordeling:
Test for $H_{0\pi} := \pi_1 = ... = \pi_n = x$

$$-2lnQ(x) = 2\sum_{i=1}^{n} x_i ln(\frac{x_i}{e_1}) \sim\sim \chi^2(k-1-d), \text{ k er observationsrækker, d er frie variabler}$$

p_{obs} test

$$p_{obs} = 1 - F_{\chi^2(k-1-d)}(-2lnQ(x))$$

En normalt fordelte observationsrækker
Test af ens varians:

$$F = \frac{s^2_{tæller}}{s^2_{nævner}}$$

$$p_{obs} = \begin{cases} 2F_{F(f_{(tæller)}, f_{(nævner)})}(\frac{s^2_{(tæller)}}{s^2_{(nævner)}}) & \text{hvis } \frac{s^2_{(tæller)}}{s^2_{(nævner)}} < 1 \\ 2\left[1 - F_{F(f_{(tæller)}, f_{nævner})}(\frac{s^2_{(tæller)}}{s^2_{nævner}})\right] & \text{hvis } \frac{s^2_{tæller}}{s^2_{nævner}} > 1 \end{cases}$$