Bernoulli eloszlás: $P(\xi = 1) = p$, $P(\xi = 0) = 1 - p$, $E(\xi) = p$, $D(\xi) = \sqrt{p(1-p)}$.

Binomiális eloszlás: $P(\xi = k) = \binom{n}{k} p^k (1-p)^{n-k}$, $E(\xi) = np$, $D(\xi) = \sqrt{np(1-p)}$.

Polinomiális eloszlás: $P(\xi_1 = k_1, \ldots, \xi_r = k_r) = \frac{n!}{k_1! \ldots k_r!} \cdot p_1^{k_1} \cdot \ldots \cdot p_r^{k_r}$, $0 \le p_i$, $p_1 + \ldots + p_r = 1$, $k_i \ge 0$, $k_1 + \ldots + k_r = n$, $r \ge 2$.

Hipergeometrikus eloszlás: $P(\xi = k) = \frac{\binom{M}{k}\binom{N-M}{n-k}}{\binom{N}{n}}$, $k = 0, 1, \ldots, n$, $E(\xi) = n\frac{M}{N}$, $D^2(\xi) = n\frac{M}{N}\left(1 - \frac{M}{N}\right)\left(1 - \frac{n-1}{N-1}\right)$, $M < N$, $n \le N$.

Geometriai eloszlás: $P(\xi = k) = (1-p)^{k-1}p$, $k = 1, 2, \ldots$, $E(\xi) = \frac{1}{p}$, $D(\xi) = \frac{\sqrt{1-p}}{p}$.

Negatív binomiális eloszlás: $P(\xi = r + k) = \binom{r+k-1}{k} p^r (1-p)^k$, $k = 0, 1, 2, \ldots$, $E(\xi) = \frac{r}{p}$, $D(\xi) = \frac{\sqrt{r(1-p)}}{p}$, $r \ge 1$.

Poisson eloszlás: $P(\xi = k) = \frac{\lambda^k}{k!} e^{-\lambda}$, $k = 0, 1, 2, \ldots$, $E(\xi) = \lambda$, $D(\xi) = \sqrt{\lambda}$.

Normális eloszlás: $f(x) = \frac{1}{\sqrt{2\pi}\sigma} e^{-\frac{(x-\mu)^2}{2\sigma^2}}$, $-\infty < x < \infty$, $E(\xi) = \mu$, $D(\xi) = \sigma$.

Egyenletes eloszlás: $f(x) = \frac{1}{b-a}$, ha $a < x < b$, $F(x) = \frac{x-a}{b-a}$, ha $a < x < b$, $E(\xi) = \frac{a+b}{2}$, $D(\xi) = \frac{b-a}{\sqrt{12}}$.

Exponenciális eloszlás: $f(x) = \lambda e^{-\lambda x}$, ha $x > 0$, $F(x) = 1 - e^{-\lambda x}$, ha $x > 0$, $E(\xi) = D(\xi) = \frac{1}{\lambda}$.

k-adrendű λ paraméterű gamma eloszlás (k db független exponenciális eloszlású valószínűségi változó összegének sűrűségfüggvénye): $f(x) = \frac{\lambda^k}{(k-1)!} x^{k-1} e^{-\lambda x}$, ha $x > 0$.

Többdimenziós normális eloszlás: $f(\underline{x}) = \frac{1}{\left(\sqrt{2\pi}\right)^n \sqrt{\det(D)}} \cdot e^{-\frac{1}{2}\left(\underline{x}-\underline{\mu}\right)^T D^{-1}\left(\underline{x}-\underline{\mu}\right)}$, $\underline{x} \in R^n$.

χ^2 eloszlás: $\chi^2 = \xi_1^2 + \ldots + \xi_n^2$

Student eloszlás: $t = \frac{\xi_0}{\sqrt{\frac{\xi_1^2 + \ldots + \xi_n^2}{n}}}$

F eloszlás: $F = \frac{\frac{1}{m}(\eta_1^2 + \ldots + \eta_m^2)}{\frac{1}{n}(\xi_1^2 + \ldots + \xi_n^2)}$

$$E_n(\xi) = \frac{\xi_1 + \ldots + \xi_n}{n}, \quad V_n(\xi) = \frac{1}{n}\sum_i (\xi_i - E_n(\xi))^2, \quad D_n(\xi) = \sqrt{V_n(\xi)}$$

$$V_n^*(\xi) = \frac{n}{n-1}V_n(\xi), \quad D_n^*(\xi) = \sqrt{V_n^*(\xi)}, \quad C_n(\xi,\eta) = \frac{1}{n}\sum_i (\xi_i - E_n(\xi))(\eta_i - E_n(\eta))$$

$$r_n(\xi,\eta) = \frac{C_n(\xi,\eta)}{D_n(\xi)D_n(\eta)}, \quad y = ax + b, \quad \hat{a} = r_n(\xi,\eta)\frac{\sqrt{V_n(\eta)}}{\sqrt{V_n(\xi)}}, \quad \hat{b} = E_n(\eta) - \hat{a}E_n(\xi)$$

$$SST = \textstyle\sum_{i=1}^n (\eta_i - E_n(\eta))^2, \quad SSR = \sum_{i=1}^n (\hat{\eta}_i - E_n(\eta))^2, \quad SSE = \sum_{i=1}^n (\eta_i - \hat{\eta}_i)^2, \quad \hat{\eta}_i = \hat{a}\xi_i + \hat{b}$$

$$\left[E_n(\xi) - x_\alpha \frac{\sigma}{\sqrt{n}}, E_n(\xi) + x_\alpha \frac{\sigma}{\sqrt{n}}\right], \quad \sigma = \sqrt{V_n^*(\xi)}, \quad x_\alpha = \Phi_{n-1}^{-1}\Big(1 - \frac{\alpha}{2}\Big)$$

$$\Big[E_{n_1}(\xi) - E_{n_2}(\eta) - x_\alpha D^*_{n_1,n_2}, E_{n_1}(\xi) - E_{n_2}(\eta) + x_\alpha D^*_{n_1,n_2}\Big], \quad x_\alpha = \Phi_{n_1+n_2-2}^{-1}\Big(1 - \frac{\alpha}{2}\Big)$$

$$D^*_{n_1,n_2} = \sqrt{\Big((n_1-1)V^*_{n_1}(\xi) + (n_2-1)V^*_{n_2}(\eta)\Big)\frac{n_1+n_2}{n_1 n_2 (n_1+n_2-2)}}$$

$$\left[\sqrt{\frac{nV_n(\xi)}{b}}, \sqrt{\frac{nV_n(\xi)}{a}}\right], \quad a = F^{-1}_{\chi^2,n-1}\Big(\frac{\alpha}{2}\Big), \quad b = F^{-1}_{\chi^2,n-1}\Big(1 - \frac{\alpha}{2}\Big)$$

próba	feltétel	H_0	s_n	s_α
u (μ)	σ ismert	$\mu = \mu_0$	$u = \frac{E_n(\xi) - \mu_0}{\sigma/\sqrt{n}}$	$u_\alpha = \Phi^{-1}\Big(1 - \frac{\alpha}{2}\Big)$
t	σ ismeretlen	$\mu = \mu_0$	$t = \frac{E_n(\xi) - \mu_0}{\sqrt{V_n^*(\xi)/n}}$	$t_\alpha = \Phi_{n-1}^{-1}\Big(1 - \frac{\alpha}{2}\Big)$
kétm. t	$\sigma_1 = \sigma_2$	$\mu_1 - \mu_2 = \Delta$	$t = \frac{E_{n_1}(\xi) - E_{n_2}(\eta) - \Delta}{D^*_{n_1,n_2}}$	$t_\alpha = \Phi_{n_1+n_2-2}^{-1}\Big(1 - \frac{\alpha}{2}\Big)$
F	$\frac{V^*_{n_1}(\xi)}{V^*_{n_2}(\eta)\cdot\tau_0^2} \geq 1$	$\frac{\sigma_1}{\sigma_2} = \tau_0$	$F = \frac{V^*_{n_1}(\xi)}{V^*_{n_2}(\eta)\cdot\tau_0^2}$	$F_\alpha = F_{n,m}^{-1}\Big(1 - \frac{\alpha}{2}\Big)$ $(df_1, df_2) = (n,m) = (n_1-1, n_2-1)$
χ^2	$n > \max_i\left\{\frac{10}{p_i}\right\}$ $E_1,\ldots,E_r$ TER	$P(E_i) = p_i$	$\chi^2 = \sum_{i=1}^r \frac{(\varphi_i - np_i)^2}{np_i}$ φ_i: E_i beköv. száma	$\chi^2_\alpha = F^{-1}_{\chi^2,r-1}(1-\alpha)$
χ^2 fgnségre	nagy minta	ξ és η független	$\chi^2 = n\sum_{i=1}^r\sum_{j=1}^s \frac{(\nu_{ij} - \frac{\nu_{i.}\nu_{.j}}{n})^2}{\nu_{i.}\nu_{.j}}$	$\chi^2_\alpha = F^{-1}_{\chi^2,(r-1)(s-1)}(1-\alpha)$
korr. teszt	(ξ,η) norm. eloszl.	$\mathrm{r}(\xi,\eta) = 0$	$t = \sqrt{n-2}\frac{r_n(\xi,\eta)}{\sqrt{1 - r_n^2(\xi,\eta)}}$	$t_\alpha = \Phi_{n-2}^{-1}\Big(1 - \frac{\alpha}{2}\Big)$