Kapitel 8: Die wichtigsten Verteilungen III

Verteilung	$p(k)$ bzw. $f(x)$	$\mathcal{W}(X)$	$E[X]$	$\mathrm{Var}[X]$
Binomial (n, p)	$\binom{n}{k} p^k (1-p)^{n-k}$	$k = 0, 1, \ldots, n$	np	$np(1-p)$
Geometrisch (p)	$p(1-p)^{k-1}$	$k = 1, 2, \ldots$	$\frac{1}{p}$	$\frac{1-p}{p^2}$
Poisson (λ)	$e^{-\lambda} \frac{\lambda^k}{k!}$	$k = 0, 1, 2, \ldots$	λ	λ
Uniform (a, b)	$\frac{1}{b-a}$	$a \leq x \leq b$	$\frac{a+b}{2}$	$\frac{(b-a)^2}{12}$
Exponential (λ)	$\lambda e^{-\lambda x}$	$x > 0$	$\frac{1}{\lambda}$	$\frac{1}{\lambda^2}$
Gamma (α, λ)	$\frac{\lambda^\alpha}{\Gamma(\alpha)} x^{\alpha-1} e^{-\lambda x}$	$x > 0$	$\frac{\alpha}{\lambda}$	$\frac{\alpha}{\lambda^2}$
Normal (μ, σ^2)	$\frac{1}{\sigma\sqrt{2\pi}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right)$	$-\infty < x < \infty$	μ	σ^2
χ^2_n	$\frac{1}{2^{\frac{n}{2}} \Gamma\left(\frac{n}{2}\right)} x^{\frac{n}{2}-1} e^{-\frac{1}{2}x}$	$x > 0$	n	$2n$
t_n	$\frac{\Gamma\left(\frac{n+1}{2}\right)}{\sqrt{n\pi}\,\Gamma\left(\frac{n}{2}\right)} \left(1 + \frac{x^2}{n}\right)^{-\frac{n+1}{2}}$	$-\infty < x < \infty$	$0 \ (n > 1)$	$\frac{n}{n-2} \ (n > 2)$