Anhang A: Mittel, Varianz und Modus einiger diskreter Verteilungen

Verteilung		Merkmalraum	Mittel	Varianz	Modus
Dirac	δ_μ	$\{\mu\}$	μ	0	μ
Uniform	D_m	$\{1, 2, \ldots, m\}$	$\frac{m+1}{2}$	$\frac{m^2-1}{12}$	–
Alternativ	A_p	$\{0, 1\}$	p	$p(1-p)$	$\begin{cases} 0 & p \leq 0.5 \\ 1 & p \geq 0.5 \end{cases}$
Binomial	$B_{n,\,p}$	$\{0, 1, \ldots, n\}$	$n\,p$	$n\,p(1-p)$	$\begin{cases} \lfloor (n+1)p \rfloor & (n+1)p \notin \mathbb{N} \\ (n+1)p - 1,\ (n+1)p & (n+1)p \in \mathbb{N} \end{cases}$
Hypergeometrisch	$H_{N,\,A,\,n}$	$\{\max[0, n-(N-A)], \ldots, \min[n, A]\}$	$n\frac{A}{N}$	$n\frac{A}{N}\left(1-\frac{A}{N}\right)\frac{N-n}{N-1}$	$\begin{cases} \left\lfloor (n+1)\frac{A+1}{N+2} \right\rfloor & (n+1)\frac{A+1}{N+2} \notin \mathbb{N} \\ (n+1)\frac{A+1}{N+2} - 1,\ (n+1)\frac{A+1}{N+2} & (n+1)\frac{A+1}{N+2} \in \mathbb{N} \end{cases}$
Poisson	P_μ	$\mathbb{N}_0$	μ	μ	$\begin{cases} \lfloor \mu \rfloor & \mu \notin \mathbb{N} \\ \mu - 1,\ \mu & \mu \in \mathbb{N} \end{cases}$
Geometrisch	G_p	$\mathbb{N}$	$\frac{1}{p}$	$\frac{1-p}{p^2}$	1
Negativ-Binomial	$NB_{r,\,p}$	$\{r, r+1, \ldots\}$	$\frac{r}{p}$	$\frac{r(1-p)}{p^2}$	$\begin{cases} \left\lfloor \frac{r-1}{p} \right\rfloor + 1 & \frac{r-1}{p} \notin \mathbb{N} \\ \frac{r-1}{p},\ \frac{r-1}{p} + 1 & \frac{r-1}{p} \in \mathbb{N} \end{cases}$ $(r > 1)$

Anhang B: Mittel, Varianz und Modus einiger kontinuierlicher Verteilungen

Verteilung		Merkmalraum	Mittel	Varianz	Modus
Uniform	$U_{a,\,b}$	(a, b)	$\frac{a+b}{2}$	$\frac{(b-a)^2}{12}$	–
Exponential	Ex_τ	$\mathbb{R}_+$	τ	τ^2	0
Normal	$N(\mu, \sigma^2)$	$\mathbb{R}$	μ	σ^2	μ
Log-Normal	$LN(\mu, \sigma^2)$	$\mathbb{R}_+$	$\exp\left(\mu + \frac{\sigma^2}{2}\right)$	$\exp\left[2\,(\mu+\sigma^2)\right] - \exp\left(2\,\mu+\sigma^2\right)$	$\exp\left(\mu - \sigma^2\right)$
Pareto	$Pa(\alpha, x_0)$	$[x_0, \infty)$	$\frac{\alpha\, x_0}{\alpha-1}$ $(\alpha > 1)$	$\frac{\alpha\, x_0^2}{(\alpha-1)^2\,(\alpha-2)}$ $(\alpha > 2)$	x_0
Beta	$Be(\alpha, \beta)$	$(0, 1)$	$\frac{\alpha}{\alpha+\beta}$	$\frac{\alpha\,\beta}{(\alpha+\beta)^2\,(\alpha+\beta+1)}$	$\frac{\alpha-1}{\alpha+\beta-2}$ $(\alpha,\, \beta > 1)$
Gamma	$Gam(\alpha, \beta)$	$\mathbb{R}_+$	$\alpha\,\beta$	$\alpha\,\beta^2$	$(\alpha-1)\,\beta$ $(\alpha \geq 1)$
Weibull	$Wei(\alpha, \beta)$	$\mathbb{R}_+$	$\beta\,\Gamma\left(1+\frac{1}{\alpha}\right)$	$\beta^2\left\{\Gamma\left(1+\frac{2}{\alpha}\right) - \left[\Gamma\left(1+\frac{1}{\alpha}\right)\right]^2\right\}$	$\beta\left(\frac{\alpha-1}{\alpha}\right)^{1/\alpha}$ $(\alpha \geq 1)$
Chquadrat	χ^2_n	$\mathbb{R}_+$	n	$2\,n$	$n-2$ $(n \geq 2)$
t	t_n	$\mathbb{R}$	0 $(n > 1)$	$\frac{n}{n-2}$ $(n > 2)$	0
F	$F_{m,\,n}$	$\mathbb{R}_+$	$\frac{n}{n-2}$ $(n > 2)$	$\frac{2\,n^2\,(m+n-2)}{m\,(n-2)^2\,(n-4)}$ $(n > 4)$	$\frac{n\,(m-2)}{m\,(n+2)}$ $(m \geq 2)$