

*Poisson*density  $\Lambda \equiv \lambda > 0$ mixed-Poisson  $\frac{e^{-\lambda}\lambda^j}{j!}, \lambda > 0$ *Gamma*density  $\frac{\left(\frac{1+t_1}{t_2}\right)^{1+t_1} \lambda^{t_1} e^{-((1+t_1)/t_2)\lambda}}{\Gamma(t_1+1)}, t_1 > -1, t_2 > 0, \lambda > 0$ mixed-Poisson  $\frac{\left(\frac{1+t_1}{1+t_1+t_2}\right)^{1+t_1} \left(\frac{t_2}{1+t_1+t_2}\right)^j \Gamma(1+t_1+j)}{\Gamma(1+t_1)\Gamma(j+1)}$ *Inverse Gaussian*density  $\frac{\sqrt{2}}{2} \sqrt{\frac{t_1}{\pi\lambda^3}} e^{-\left(\frac{t_1(\lambda-t_2)^2}{2t_2^2\lambda}\right)}, t_1, t_2 > 0$ mixed-Poisson  $\frac{\sqrt{2}t_1^{-1/2+j} e^{t_1/t_2} \left(\sqrt{\frac{t_1+2t_2^2}{t_2^2}}\sqrt{t_1}\right)^{3/2-j} \sqrt{\frac{t_1+2t_2^2}{t_2^2}} \text{BesselK}\left(-1/2+j, \sqrt{\frac{t_1+2t_2^2}{t_2^2}}\sqrt{t_1}\right)}{\sqrt{\pi}(t_1+2t_2^2)j!}$ *Lognormal*density  $\frac{\frac{\sqrt{2}}{2} e^{-(1/2)\left(\frac{(\ln\lambda-t_1)^2}{t_2}\right)}}{\lambda\sqrt{\pi t_2}}, t_1 \in R, t_2 > 0$ mixed-Poisson  $\frac{\frac{1}{j!} \int_{-\infty}^{\infty} \frac{\frac{\sqrt{2}}{2} e^{-\left(\frac{(\lambda-t_1)^2}{2t_2}\right)} e^{-e^\lambda} (e^\lambda)^j}{\sqrt{\pi}\sqrt{t_2}}}{\sqrt{\pi}\sqrt{t_2}}$ *Pareto*density  $\left(\frac{t_1}{t_2+\lambda}\right) \left(\frac{t_2+\lambda}{t_2}\right)^{-t_1}, t_1, t_2 > 0$ mixed-Poisson  $t_1 e^{t_2} t_2^j \sum_{R=0}^j \frac{\Gamma(R-t_1, t_2) t_2^{j-R} (-1)^{j-R}}{\Gamma(R+1)\Gamma(j-R+1)}$ *2-mixed exponential*density  $\left(\frac{1}{1+t_3}\right) \frac{1}{t_1} e^{-\lambda/t_1} + \left(\frac{t_3}{1+t_3}\right) \frac{1}{t_2} e^{-\lambda/t_2}, t_1, t_2, t_3 > 0$ mixed-Poisson  $\left(\frac{1}{1+t_3}\right) \left(\frac{1}{1+t_1} \left(\frac{t_1}{1+t_1}\right)^j\right) + \left(\frac{t_3}{1+t_3}\right) \left(\frac{1}{1+t_2} \left(\frac{t_2}{1+t_2}\right)^j\right)$