Table 3.1 Mellin transform of commonly used probability distributions. Note that $\delta, \omega, \omega_1, \omega_2 > 0$ and $-\infty < v < \infty, (a)_n = a(a-1)\dots(a-n+1)$ is Pochhammer notation [166], $a!!$ denotes the double factorial, and $\mathcal{M}[f_V^+(v)](s)$ denotes the Mellin transform of the PDF $f_V^+(v)$ whereby V is a random variable with a standard tabulated distribution.

Positive-half PDF $f_V^+(v)$ of V	$M_V^+(s) = \mathcal{M}\left[f_V^+(v)\right](s)$	Simplified form of $M_V^+(m+1)$ when $m \in \mathbb{Z}^+$	
		m is odd	m is even
Normal: $\frac{1}{\delta\sqrt{2\pi}} \exp\left(-\frac{v^2}{2\delta^2}\right)$	$\delta^{s-1}\left[\frac{2^{(s-3)/2}\Gamma\left(\frac{s}{2}\right)}{\sqrt{\pi}}\right]$	$\delta^m\left[\frac{2^{m/2-1}\left(\frac{m-1}{2}\right)!}{\sqrt{\pi}}\right]$	$\delta^m\left[\frac{(m-1)!!}{2}\right]$
Student's t: $\frac{\Gamma(\frac{\omega+1}{2})}{2\delta\sqrt{\omega\pi}\Gamma(\frac{\omega}{2})}(1+\frac{1}{\omega}(\frac{v}{\delta})^2)^{\frac{-\omega+1}{2}}$	$\delta^{s-1}\left[\frac{\omega^{(s-1)/2}\Gamma(\frac{s}{2})\Gamma(\frac{\omega+1}{2}-\frac{s}{2})}{2\sqrt{\pi}\Gamma(\frac{\omega}{2})}\right]$	$\delta^{s-1}\left[\frac{\omega^{(m/2}\Gamma(\frac{m+1}{2})\Gamma(\frac{\omega-m}{2})}{2\sqrt{\pi}\Gamma(\frac{\omega}{2})}\right]$	
Triangular: $\begin{cases} \frac{1}{\delta}\left(1-\frac{\lvert v\rvert}{\delta}\right) & \text{if } \lvert v\rvert \le \delta \\ 0 & \text{otherwise} \end{cases}$	$\delta^{s-1}\left[\frac{\Gamma(s)}{\Gamma(2+s)}\right]$	$\delta^m\left[\frac{1}{m^2+3m+2}\right]$	
Trapezoidal: $\begin{cases} \frac{1}{\delta(1+\omega)} & \text{if } \lvert v\rvert \le \omega \\ \frac{\delta-\lvert v\rvert}{\delta^2(1-\omega^2)} & \text{if } \omega < \lvert v\rvert \le \delta \\ 0 & \text{otherwise} \end{cases}$	$\delta^{s-1}\left[\frac{1-\omega^{s+1}}{1-\omega^2}\frac{\Gamma(s)}{\Gamma(2+s)}\right]$	$\delta^m\left[\frac{(1-\omega^{m+2})/(1-\omega^2)}{m^2+3m+2}\right]$	

Table 3.1 continued from previous page

Beta: $\frac{1}{2\delta B(\omega_1,\omega_2)}\left(\frac{\lvert v\rvert}{\delta}\right)^{\omega_1-1}\left(1-\frac{\lvert v\rvert}{\delta}\right)^{\omega_2-1}$	$\delta^{s-1}\left[\frac{\Gamma(\omega_1+\omega_2)\Gamma(\omega_1-1+s)}{2\Gamma(\omega_1)\Gamma(\omega_1+\omega_2-1+s)}\right]$	$\delta^m\left[\frac{(\omega_1+m-1)_m}{2(\omega_1+\omega_2+m-1)_m}\right]$	
Uniform: $\frac{1}{2\delta}$	$\delta^{s-1}\left[\frac{\Gamma(s)}{2\Gamma(1+s)}\right]$	$\delta^m\left[\frac{1/2}{m+1}\right]$	
Gamma: $\frac{1}{2\delta\Gamma(\omega)}\left(\frac{\lvert v\rvert}{\delta}\right)^{\omega-1}e^{-\frac{\lvert v\rvert}{\delta}}$	$\delta^{s-1}\left[\frac{\Gamma(\omega-1+s)}{2\Gamma(\omega)}\right]$	$\delta^m\left[\frac{(\omega+m-1)_m}{2}\right]$	
Laplace: $\frac{1}{2\delta}e^{-\frac{\lvert v\rvert}{\delta}}$	$\delta^{s-1}\left[\frac{\Gamma(s)}{2}\right]$	$\delta^m\left[\frac{m!}{2}\right]$	
Weibull: $\frac{\omega}{\delta}\left(\frac{\lvert v\rvert}{\delta}\right)^{\omega-1}e^{-\left(\frac{\lvert v\rvert}{\delta}\right)^{\omega}}$	$\delta^{s-1}\left[\frac{\omega}{2}\Gamma\left(1-\frac{1}{\omega}+\frac{s}{\omega}\right)\right]$	$\delta^m\left[\frac{\omega\Gamma(\frac{m}{\omega}+1)}{2}\right]$	
Maxwell: $\frac{1}{\delta}\sqrt{\frac{2}{\pi}}\left(\frac{v}{\delta}\right)^2e^{-\frac{v^2}{2\delta^2}}$	$\delta^{s-1}\left[\frac{2^{(s+1)/2}}{\sqrt{\pi}}\Gamma\left(1+\frac{s}{2}\right)\right]$	$\delta^m\left[\frac{2^{m/2-1}(\frac{m-1}{2})!}{\sqrt{\pi}}\right]$	$\delta^m\left[\frac{(m-1)!!}{2}\right]$
Lognormal: $\frac{1}{v\delta\sqrt{2\pi}}e^{\frac{-\ln^2(v)}{2\delta^2}}$	$\exp\left(\frac{(s-1)^2\delta^2}{2}\right)$	$\exp\left(\frac{m^2\delta^2}{2}\right)$	