

Errata–corrigé of
‘Further results on a class of distributions
which includes the normal ones’
by A. Azzalini [*Statistica*, vol. **46** (1986), 199–208]

Moments of density (15): The formula given on p. 206 for the moments $\mathbb{E}\{Z^m\}$ of density (15) are in error, and so is the subsequent example of $\mathbb{E}\{Z\}$ at the end of the page. The correct expressions are as follows.

For generic m (even non integer) and $\lambda \geq 0$, we have

$$\mathbb{E}\{Z^m\} = \frac{2\omega^{m/\omega}\tilde{\lambda}}{\sqrt{\pi}\Gamma(1/\omega)(1+\tilde{\lambda}^2)^{s+1/2}} \sum_{n=0}^{\infty} \frac{\Gamma(s+n+1/2)}{(2n+1)!!} \left[\frac{2\tilde{\lambda}^2}{1+\tilde{\lambda}^2}\right]^n$$

where

$$\tilde{\lambda} = \lambda^{\omega/2}, \quad s = \frac{m+1}{\omega}.$$

If $\lambda < 0$, apply the above expression to $|\lambda|$ and then change the sign of the result.

In case s is an integer, we use the fact that

$$\Gamma(n+1/2) = (2n-1)!!\sqrt{\pi}/2^n$$

and the above expression simplifies to

$$\mathbb{E}\{Z^m\} = \frac{\omega^{m/\omega}\tilde{\lambda}}{\Gamma(1/\omega)(1+\tilde{\lambda}^2)^{s+1/2}2^{s-1}} \sum_{n=0}^{\infty} \frac{(2s+2n-1)!!}{(2n+1)!!} \left[\frac{2\tilde{\lambda}^2}{1+\tilde{\lambda}^2}\right]^n$$

For example, if $\omega = 1$, $m = 1$, we have $s = 2$ and

$$\mathbb{E}\{Z\} = \frac{\sqrt{\lambda}}{2\sqrt{1+\lambda}} \left(3 - \frac{\lambda}{1+\lambda}\right).$$