

Errata for Kyprianou, Pardo and Watson, ‘The extended hypergeometric class of Lévy processes’

Errata for published version

The following errors appear in the published paper.

- The process appearing in Proposition 6 is in fact a reparametrisation of the hypergeometric Lévy process. The Wiener–Hopf factorisation and properties of the process listed are correct, but the class is not ‘disjoint’ from the hypergeometric class, as claimed.

To begin with, the displayed equation for ψ on p. 406, l. –12 should read

$$\psi(z) = \frac{\Gamma(1 - \beta + \gamma - z) \Gamma(\beta + \hat{\gamma} + z)}{\Gamma(1 - \beta - z) \Gamma(\beta + z)}.$$

Then, by standard manipulations of gamma functions, it can be rewritten as

$$\psi(z) = -\frac{\Gamma(1 - \beta + \gamma - z) \Gamma(\beta + \hat{\gamma} + z)}{\Gamma(2 - \beta - z) \Gamma(\beta - 1 + z)},$$

and defining $\beta' = \beta - 1 \in [0, 1]$, $\gamma' = \gamma - 1 \in (0, 1)$ and $\hat{\gamma}' = \hat{\gamma} + 1 \in (0, 1)$, this reads

$$\psi(z) = -\frac{\Gamma(1 - \beta' + \gamma' - z) \Gamma(\beta' + \hat{\gamma}' + z)}{\Gamma(1 - \beta' - z) \Gamma(\beta' + z)}.$$

This implies that ψ is the Laplace exponent of a (standard) hypergeometric Lévy process with parameters $(\beta', \gamma', \beta', \hat{\gamma}')$.

To put this another way: a hypergeometric Lévy process with parameters $(\beta', \gamma', \beta', \hat{\gamma}')$ has Laplace exponent

$$\psi(z) = \frac{\Gamma(1 - \beta' + \gamma' - z) \Gamma(\beta' + \hat{\gamma}' + z)}{\Gamma(-\beta' - z) \Gamma(1 + \beta' + z)}.$$