approaches (Thongmoon and McKibbin, 2006),

$$\frac{\partial u(x,t)}{\partial t} + b\frac{\partial u(x,t)}{\partial x} = a\frac{\partial^2 u(x,t)}{\partial x^2}, \qquad t \geq 0,\ x \in [0,1],$$

with initial and boundary conditions

$$\begin{aligned} u(x,0) &= 100x, \quad x \in [0,1], \\ u(0,t) &= 0, \qquad t \geq 0, \\ u(1,t) &= 100, \quad t \geq 0. \end{aligned}$$

The complementary SDE for this system is

$$dX_s^x = -b\, ds + \sqrt{2a}\, dW_s,$$

which, when transformed using the Lamperti transform, becomes

$$\begin{aligned} dY_s^y &= -\frac{b}{\sqrt{2a}}\, ds + dW_s, \\ &= -\alpha\, ds + dW_s, \end{aligned}$$

where $y = \frac{x}{\sqrt{2a}}$. The boundaries for the transformed SDE are 0 and $\frac{1}{\sqrt{2a}}$. Note that accepting proposed paths from this SDE does not require sampling from a Poisson process, owing to the fact that $\phi(v)$ is constant. Whilst this example is not fully demonstrative of the EA approach, it offers an analytical solution for comparison (Thongmoon and McKibbin, 2006).