

$$\underbrace{d\left[ly \right] \left(t \right)}_{d\boldsymbol{\eta}(t)} = \left(\underbrace{\left[drift_ly_ly \right]}_{\mathbf{A}} \underbrace{\left[ly \right] \left(t \right)}_{\boldsymbol{\eta}(t)} + \underbrace{\left[0 \right]}_{\mathbf{b}} \right) dt \; +$$

$$cholsdcor\left(\underbrace{\left[diffusion_ly_ly \right]}_{\mathbf{G}}\right)\underbrace{d\left[W_1\right]\left(t\right)}_{d\mathbf{W}(t)}$$

DIFFUSION

$$\underbrace{\left[W_1\right]\left(t+u\right)}_{\mathbf{W}(t+u)}-\underbrace{\left[W_1\right]\left(t\right)}_{\mathbf{W}(t)}\sim \mathrm{N}\left(\left[0\right],\left[\mathbf{u-t}\right]\right)$$

$$\underbrace{\left[y\right]\left(t\right)}_{\mathbf{Y}(t)} = \underbrace{\left[1\right]}_{\mathbf{\Lambda}} \underbrace{\left[ly\right]\left(t\right)}_{\boldsymbol{\eta}(t)} + \underbrace{\left[manifestmeans_y\right]}_{\boldsymbol{\tau}} + \underbrace{\left[0.2\right]}_{\mathbf{\Theta}} \underbrace{\left[\epsilon_1\right]\left(t\right)}_{\boldsymbol{\epsilon}(t)}$$

LAMBDA MANIFESTMEANS MANIFESTVAR

$$\underbrace{\left[\epsilon_1\right]\left(t\right)}_{\boldsymbol{\epsilon}(t)} \sim \mathrm{N}\left(\left[0\right],\left[1\right]\right)$$

cholsdcor = Function converting lower tri matrix of std dev and unconstrained correlation to Cholesky factor.

See Driver & Voelkle (2018) p11.