

$$\underbrace{d\left[ss\right]\left(t\right)}_{d\boldsymbol{\eta}(t)} = \left(\underbrace{\left[drift_lss_lss\right]}_{\mathbf{A}} \underbrace{\left[ss\right]\left(t\right)}_{\boldsymbol{\eta}(t)} + \underbrace{\left[0\right]}_{\mathbf{b}} \right) dt \quad +$$

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

DIFFUSION

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

$$\underbrace{\left[ss\right]\left(t\right)}_{\mathbf{Y}(t)} = \underbrace{\left[1\right]}_{\mathbf{\Lambda}} \underbrace{\left[ss\right]\left(t\right)}_{\boldsymbol{\eta}(t)} + \underbrace{\left[manifestmeans_ss\right]}_{\boldsymbol{\tau}} + \underbrace{\left[manifestvar_ss_ss\right]}_{\mathbf{\Theta}} \underbrace{\left[\epsilon_1\right]\left(t\right)}_{\boldsymbol{\epsilon}(t)}$$

LAMBDA MANIFESTMEANS MANIFESTVAR

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

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

See Driver & Voelkle (2018) p11.