

Example: state-transition operator

$$\begin{bmatrix} u' \\ v' \end{bmatrix} = \begin{bmatrix} 0 & \mathbf{I} \\ 0 & 1-x^2 \end{bmatrix} \begin{bmatrix} u \\ v \end{bmatrix}$$

$$\left\{ \begin{array}{l} \frac{d\Phi(x, \eta)}{dx} = A(x) \cdot \Phi(x, \eta) \\ \Phi(\eta, \eta) = \mathbf{I} \end{array} \right.$$

Can use chebfun to find $\Phi(x, \eta)$