

$$\theta \quad = \quad \{\pi, \mathbf{R}\}$$

$$p_i(t) \quad = \quad P(\sigma(t) = i)$$

$$\frac{d}{dt}\mathbf{p}(t) \quad = \quad \mathbf{R}\mathbf{p}$$

$$\mathbf{p}(0) \quad = \quad \pi$$

$$\mathbf{p}(t) \quad = \quad \pi \mathbf{M}(t)$$

$$\begin{aligned} \mathbf{M}(t) &= \exp(\mathbf{R}t) \\ &= \mathbf{U} \exp(\mathbf{D}t) \mathbf{U}^{-1} \end{aligned}$$

$$\mathbf{R} \quad = \quad \mathbf{U}^{-1} \mathbf{D} \mathbf{U}$$