

$$(1) e^{t+\gamma} + e^{t+\gamma} \cdot \gamma' = 0, \quad (2) \gamma(0) = 1.$$

$M(t, \gamma) = e^{t+\gamma}$ ,  $N(t, \gamma) = e^{t+\gamma}$  jsou spojité na  $\Omega = \mathbb{R}^2$ ,

přičemž  $\frac{\partial M}{\partial \gamma} = \frac{\partial N}{\partial t}$  na  $\Omega$ .

$V: \mathbb{R}^2 \rightarrow \mathbb{R}$  :  $\text{grad } V = (M, N)$ . Tedy

$$\frac{\partial V(t, \gamma)}{\partial t} = e^{t+\gamma}, \quad \frac{\partial V(t, \gamma)}{\partial \gamma} = e^{t+\gamma}$$

$$V(t, \gamma) = e^{t+\gamma} + x(\gamma)$$

$$\frac{\partial V(t, \gamma)}{\partial \gamma} = e^{t+\gamma} + x'(\gamma) = e^{t+\gamma} \text{ plyne, že}$$

$$x'(\gamma) = 0. \text{ Odtud například } x(\gamma) = 0.$$

Tedy  $V(t, \gamma) = e^{t+\gamma}$ . Pro řešení  $\varphi$  úlohy (1), (2)

musí platit:  $e^{t+\varphi(t)} = e$ ,  $\varphi(0) = 1$ .

$$t + \varphi(t) = 1, \text{ tedy } \varphi(t) = 1 - t.$$