

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

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

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

$V: \mathbb{R}^2 \rightarrow \mathbb{R} : \text{grad } V = (M, N)$. 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 φ úlohy (1), (2)

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

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