

DYNAMICS OF THE EQUIVALENT GAME

$$\xi(t) = X_{1,4}(T, t)z(t), \quad \dot{\xi} = D(t)u + E(t)v,$$

$$t \in [t_0, T], \quad \xi \in R^2, \quad \varphi(\xi(T)) = |\xi(T)|,$$

$$D(T) = X_{1,4}(T, t)B = \frac{1}{k_P} \left(\frac{T-t}{k_P} + e^{-(T-t)/k_P} - 1 \right) \cdot I_2,$$

$$E(T) = X_{1,4}(T, t)C = -\frac{T-t}{k_P} \cdot I_2,$$

I_2 — identity matrix 2×2 .

INPUT DATA FOR THE EXAMPLE COMPUTED

$$k_P = 1, \quad \chi_E = 45^\circ,$$

χ_P can be found from the nominal

$$\text{collision condition: } V_P \sin \chi_P = V_E \sin \chi_E,$$

$$V_E / V_P = 1.05, \quad a_P / a_E = 1.3.$$

The collision is on opposing courses.