Model Documentation of the N Integrator Chain

1 Nomenclature

1.1 Nomenclature for Model Equations

u_1 input

2 Model Equations

State Vector and Input Vector:

$$\underline{x} = (x_1 \; x_2 \; \ldots \; x_n)^T$$
$$\underline{u} = u_1$$

Model Equations:

$$\dot{x}_1 = x_2 \tag{1a}$$
$$\dot{x}_2 = x_3 \tag{1b}$$
$$\ldots \tag{1c}$$
$$\dot{x}_{n-1} = x_n \tag{1d}$$
$$\dot{x}_n = u_1 \tag{1e}$$

Parameters: *⟨not defined⟩*
Outputs: *⟨not defined⟩*

3 Derivation and Explanation

A series of integrators.

4 Simulation

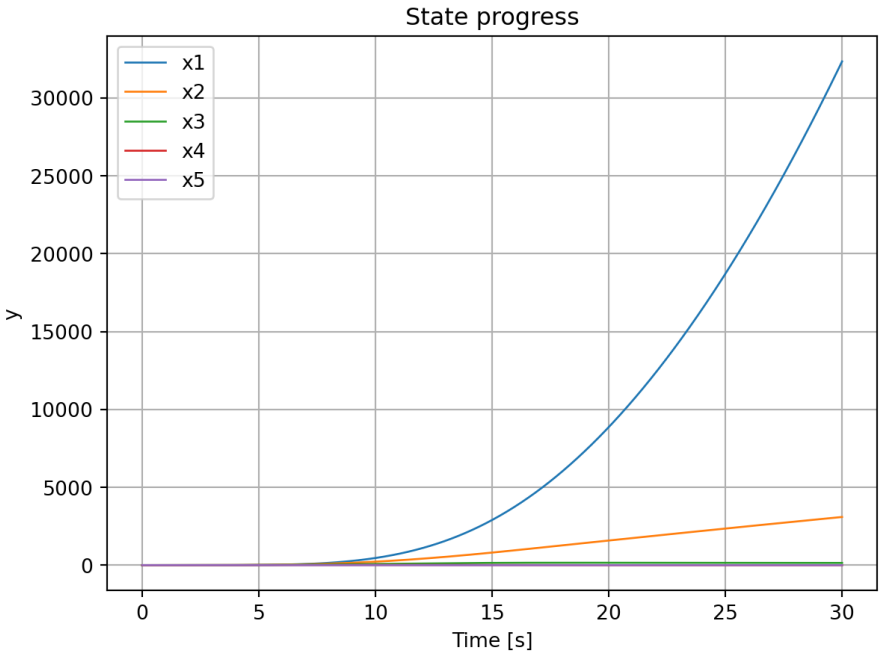

Figure 1: Simulation of the n integrator chain.

References

[1] Wang, X.; Saberi1, A.; Stoorvogel, A. A.; Grip, H. F.: *Control of a chain of integrators subject to actuator saturation and disturbances*, international journal of robust and nonlinear control, 2011.