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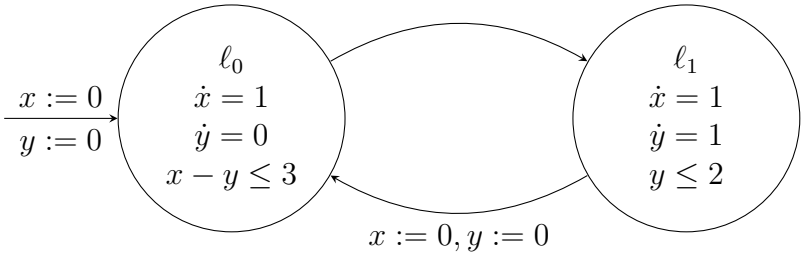
Tutorial for Cyber-Physical Systems - Hybrid Models
Exercise Sheet 9

Exercise 1: Forward reachability analysis of LHA
Consider the following linear hybrid automaton $\mathcal{H}$:



For a given linear hybrid automaton and $i \in \mathbb{N}$ we define $R_i \subseteq \Sigma$ inductively as follows:

$$R_i = \begin{cases} \mathit{Init} & i = 0 \\ \langle \mathit{post}[R_{i-1}] \rangle^{\nearrow} & i > 0 \end{cases}$$

(a) What does R_i describe?

(b) Compute R_2 for $\mathcal{H}$.

(c) What can you say about R_3? What are the consequences?