

Exercise 7

Task 1

Check whether $(\mathbb{N}, \leq) \models \exists x \forall y (x \leq y)$ holds by applying the technique from the proof of the Theorem of Khoussainov and Nerode.

Task 2

Prove or disprove the following statement: If $(\mathbb{N}, R_1)$ and $(\mathbb{N}, R_2)$ are automatically presentable, then $(\mathbb{N}, R_1, R_2)$ is automatically presentable.