

Cyber Physical Systems - Discrete Models

Exercise Sheet 6 Solution

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Exercise 1: Linear Time Properties

Part A

- $T_1 : \{A_0A_1A_2\ldots \mid \forall i \in N_{>0} . a \notin A_i\}$
- $T_2 : \{A_0A_1A_2\ldots \mid \forall i \in N . a \in A_i \rightarrow b \in A_{i+1}\}$
- $T_3 : \{A_0A_1A_2\ldots \mid \forall i \in N . a \in A_i \rightarrow b \notin A_i\}$
- $T_4 : \{A_0A_1A_2\ldots \mid \exists^\infty i \in N . a \in A_i\}$
- $T_5 : \{A_0A_1A_2\ldots \mid \exists^\infty i \in N . a \notin A_i\}$

Part B

- $T_1 : \{A_0A_1A_2\ldots \mid \forall i \in N . a \in A_i\}$
- $T_2 : \{A_0A_1A_2\ldots \mid \forall i \in N . a \in A_i \rightarrow a \in A_{i+1}\}$
- $T_3 : \{A_0A_1A_2\ldots \mid \forall i \in N . a \in A_i \wedge b \in A_i\}$
- $T_4 : \{A_0A_1A_2\ldots \mid \exists^\infty i \in N . b \in A_i\}$
- $T_5 : \{A_0A_1A_2\ldots \mid \forall i \in N . a \notin A_i\}$