A Instrument

A.1 Trace Satisfaction

A.1.1
Is the formula $\text{Red}$ satisfied by this trace?

Answer: Yes / No

A.1.2
Is the formula $\text{after} (\text{after}(\text{after}(\text{Red})))$ satisfied by this trace?

Answer: Yes / No

A.1.3
Is the formula $\text{always} (\text{Red} \Rightarrow \text{after}(\text{after}(\text{after}(\text{Red}))))$ satisfied by this trace?

Answer: Yes / No

A.1.4
Is the formula $((\text{after Red}) \until (\text{after Green}))$ satisfied by this trace?

Answer: Yes / No
Little Tricky Logic: Misconceptions in the Understanding of LTL

A.1.5
Is the formula \(((\text{eventually Red}) \land (\text{eventually Green}))\) satisfied by this trace?

Answer: Yes / No

A.1.6
Is the formula \(\text{after(after(\text{eventually(Red)})\))}\) satisfied by this trace?

Answer: Yes / No

A.1.7
Is the formula \((\text{Red until Blue})\) satisfied by this trace?

Answer: Yes / No

A.1.8
Is the formula \((\text{eventually(\text{always(Red)})})\) satisfied by this trace?

Answer: Yes / No

A.1.9
Is the formula \((\text{always(Red} \Rightarrow \text{Green})\)) satisfied by this trace?

Answer: Yes / No
A.2 LTL to English

A.2.1
Translate to English: Red => after(after(after(Red)))

Answer: 

A.2.2
Translate to English: after(after(eventually(after(Red))))

Answer: 

A.2.3
Translate to English: ((eventually Red) => (always Blue))

Answer: 

A.2.4
Translate to English: ((Red until Blue) and always(Red))

Answer: 

A.2.5
Translate to English: always(Red => (after(not Red) and after(after(Red))))

Answer: 

A.3 English to LTL

A.3.1 Translate to LTL: Whenever the Red light is on, it is off in the next state and on again in the state after that.

Answer: 

A.3.2 Translate to LTL: The Red light is on in exactly one state, but not necessarily the first state.

Answer: 

A.3.3 Translate to LTL: The Red light cannot stay on for three states in a row.

Answer: 

A.3.4 Translate to LTL: Whenever the Red light is on, the Blue light will be on then or at some point in the future.

Answer: 

A.3.5 Translate to LTL: The Red light is on for zero or more states, and then turns off and remains off in the future.

Answer: 

A.3.6