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*Discuss the essence of the Turing test.*

Turing tests are fundamental metric of how similar a machine’s intelligence is to a man’s. In its essence, it proves or disproves the humanity factor of the machine. However, there is not yet a machine to have blurred the lines.

*Differentiate the Total Turing test from just the Turing Test.*

The Total Turing Test is an upgraded version of the Turing Test. A normal Turing Test would be for the human subject and the machine subject to answer questions. To achieve totality, the machine must be able to perform physical tasks like solving puzzles or the machine must be able to feel emotion.

*Demonstrate that the Regular Language is closed under complementation.*

Regular Language is closed under complementation since if there would be two proven languages L1 and L2 and an intersection operation is done, then we can conclude that the intersection between both Languages use the same Alphabet as the compositions.

Given Li uses the Roman Alphabet System:

L1: {a,b,c}

L2: {a,d,e}

L1 Intersection L2: {a}

*Describe how machine learning works.*

Machine Learning is a way of powering the computers to think on its own. The goal of this is to have autonomous problem-solving given a situation. Machine Learning follows the structure of the human brain. To learn specific situations through mathematical means, we give a machine, neurons. These neurons calculate possible next steps and are given performance measures and values to ‘learn’. In a perfect Machine Learning Setup, the machine must reach a node setup similar to a human brain and have weights on each node that would perfectly function as a brain.