Computation, Encoding and Languages

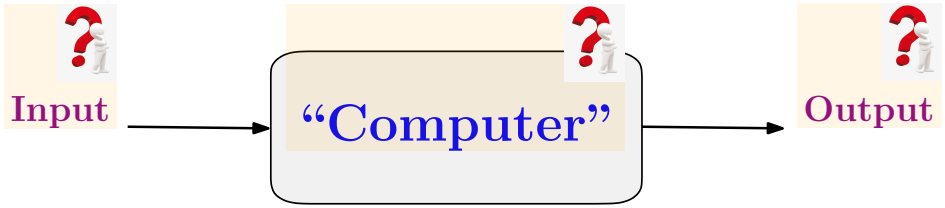
- Computational Problems, Strings and Data Encoding
- Binary Encoding
- Language
- Versions of Computational Problems
- Decision Problems as Language Recognition
- Models of Computation – CPU + Memory

Imdad ullah Khan

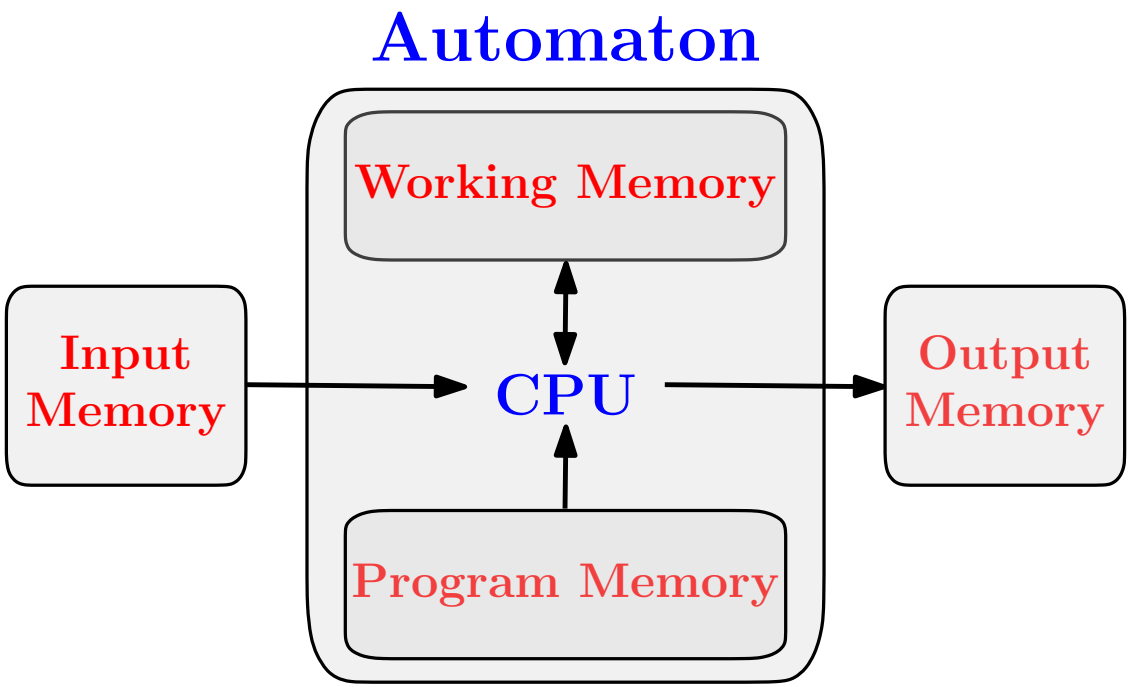
Models of Computation

Models of Computation

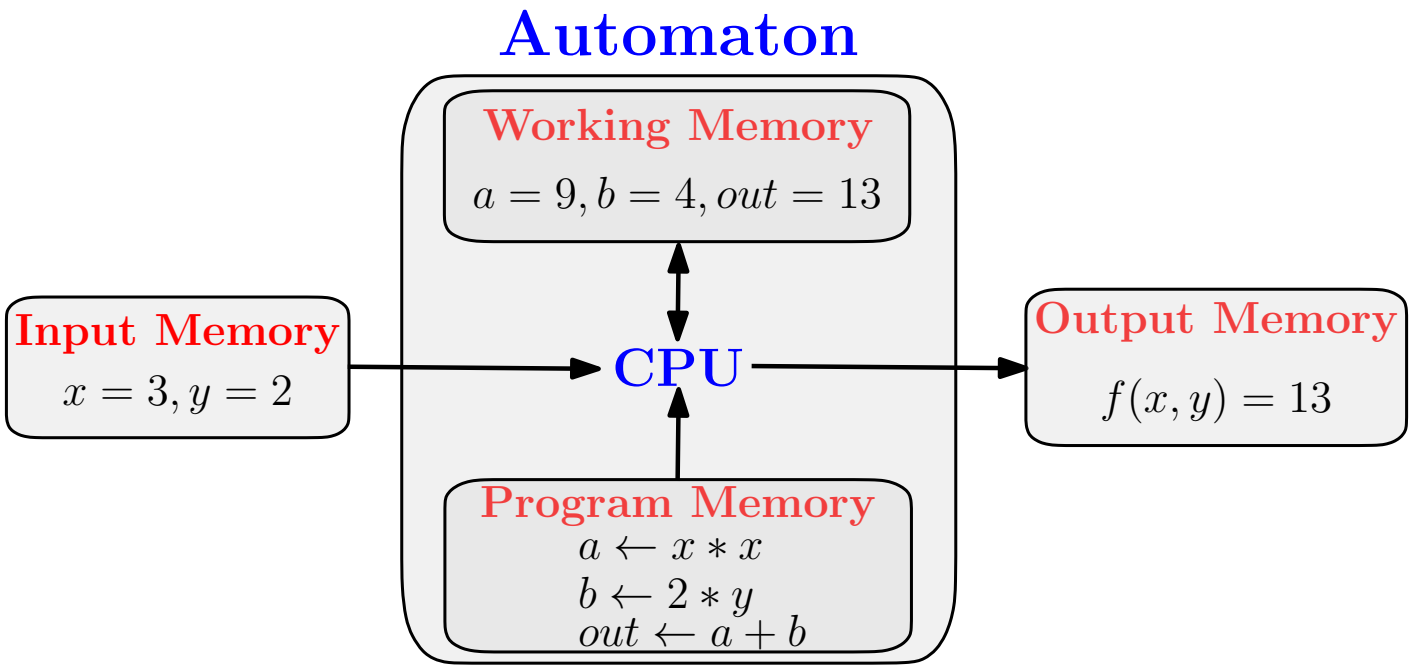
Next we talk about the "Computer"



A more detailed view of model of the "computer" is as follow

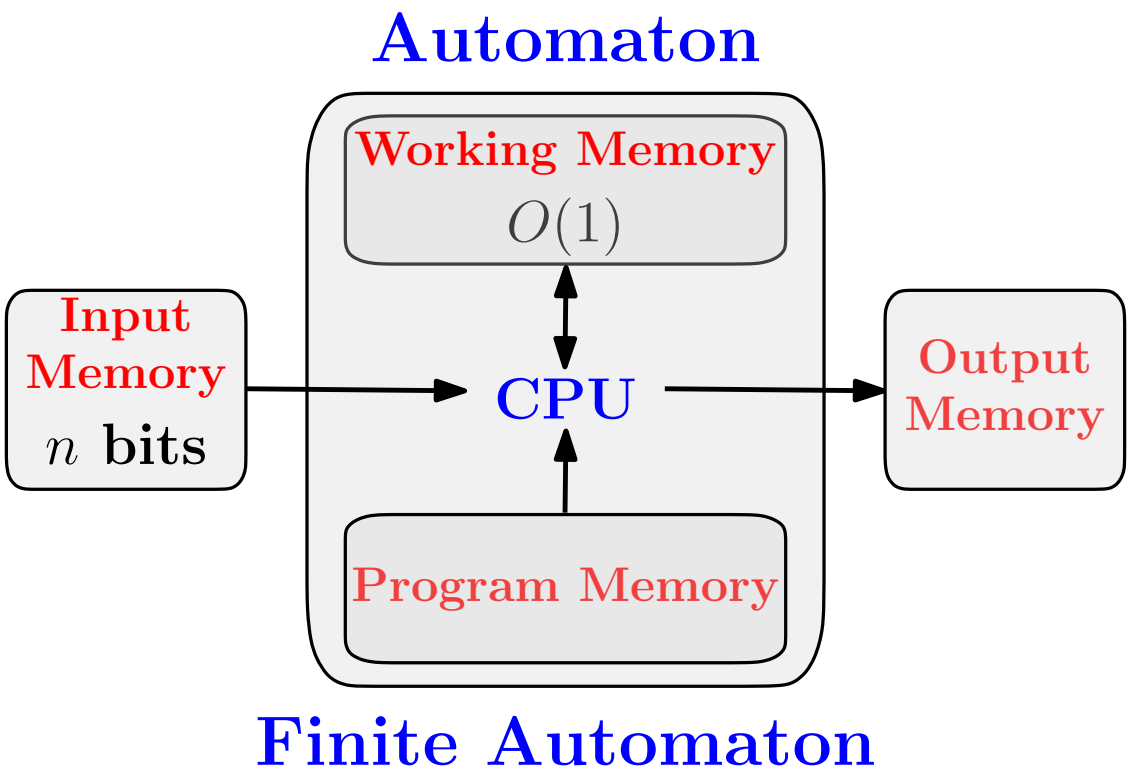


$f(x, y) = x^2 + 2y$ Computer



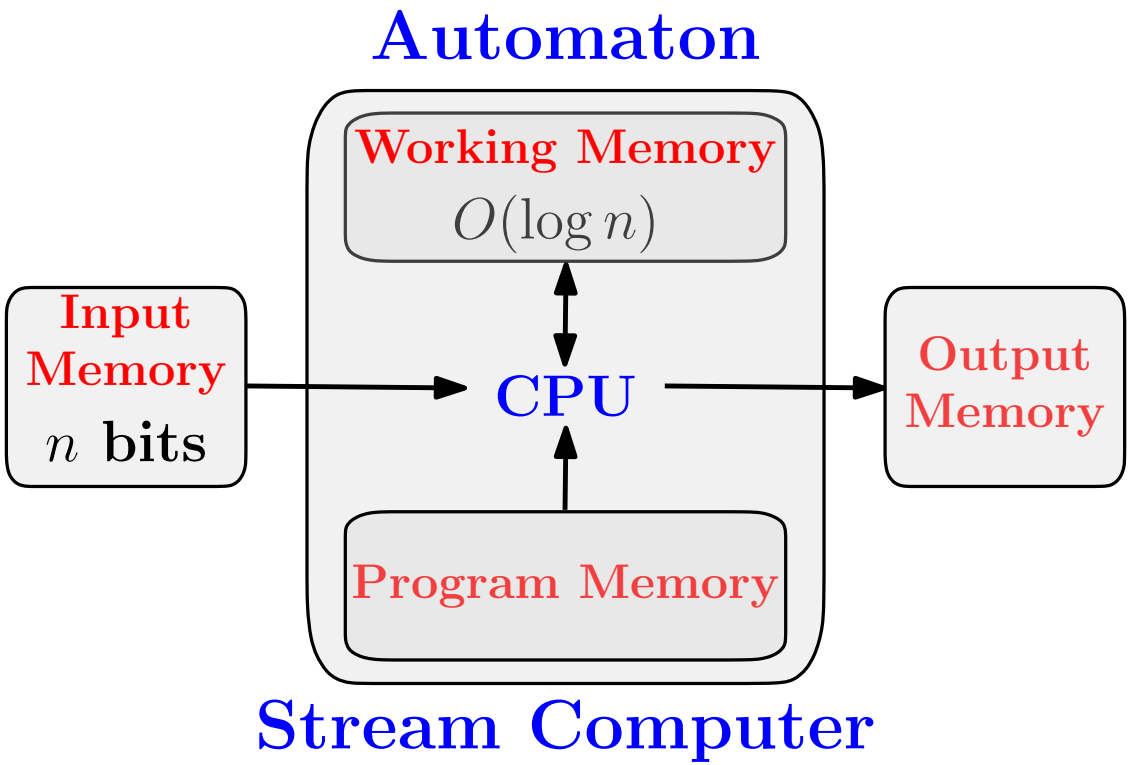
Automata are distinguished by type/amount of working memory

A Deterministic Finite Automata has constant working memory



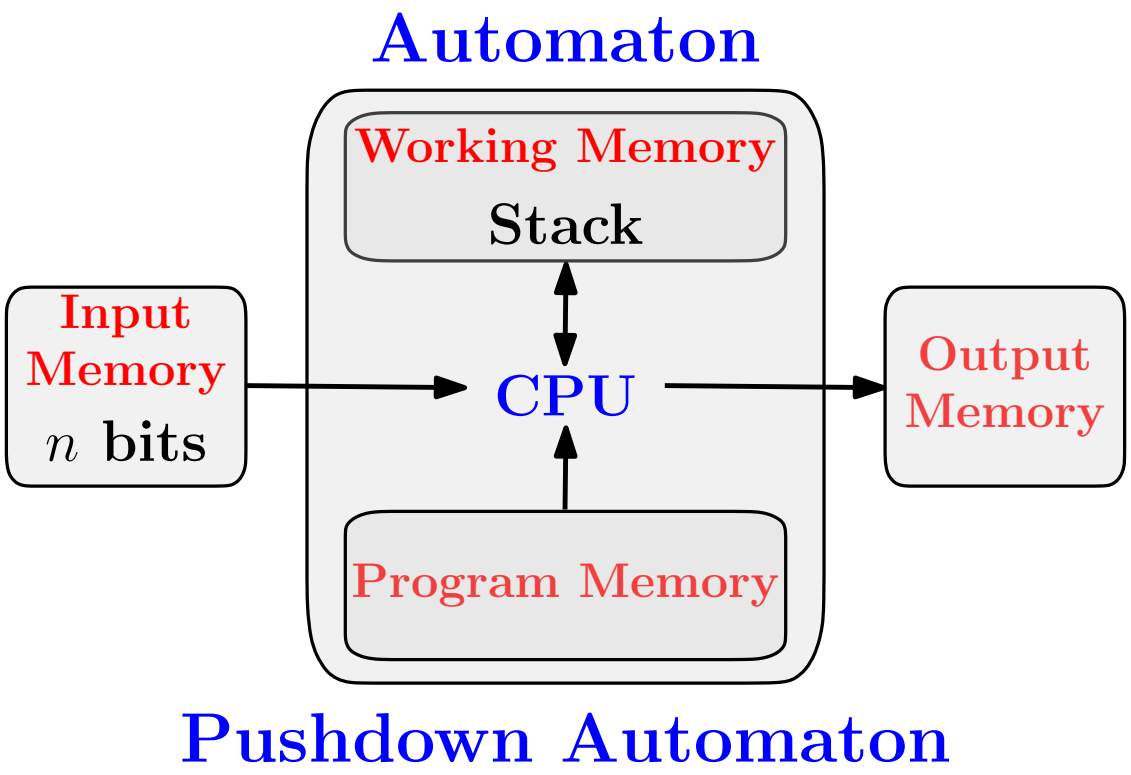
Automata are distinguished by type/amount of working memory

A stream model of computation has working memory poly-logarithmic in input size



Automata are distinguished by type/amount of working memory

A Pushdown Automata has LIFO (stack) working memory



Automata are distinguished by type/amount of working memory

A Turing Machine has an unbounded working memory