An Automata-Theoretic Approach to Modeling Systems and Specifications over Infinite Data

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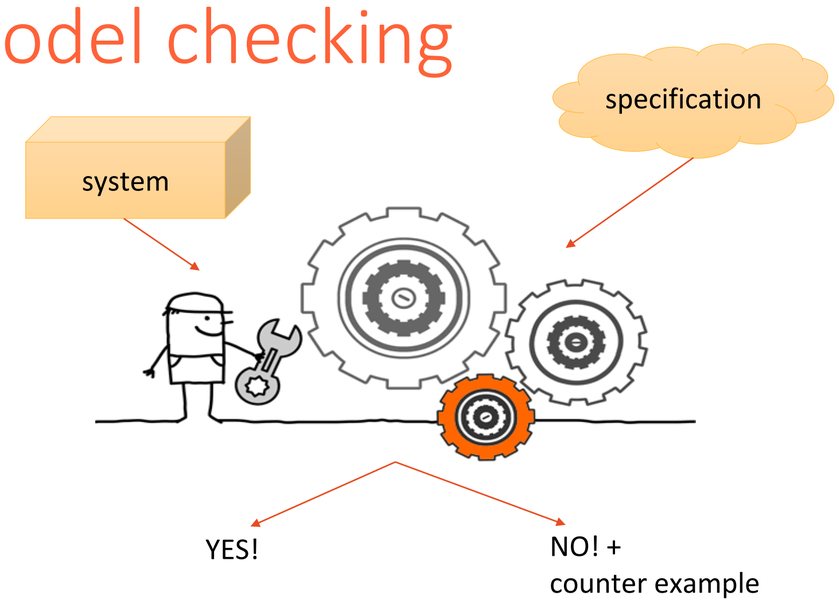
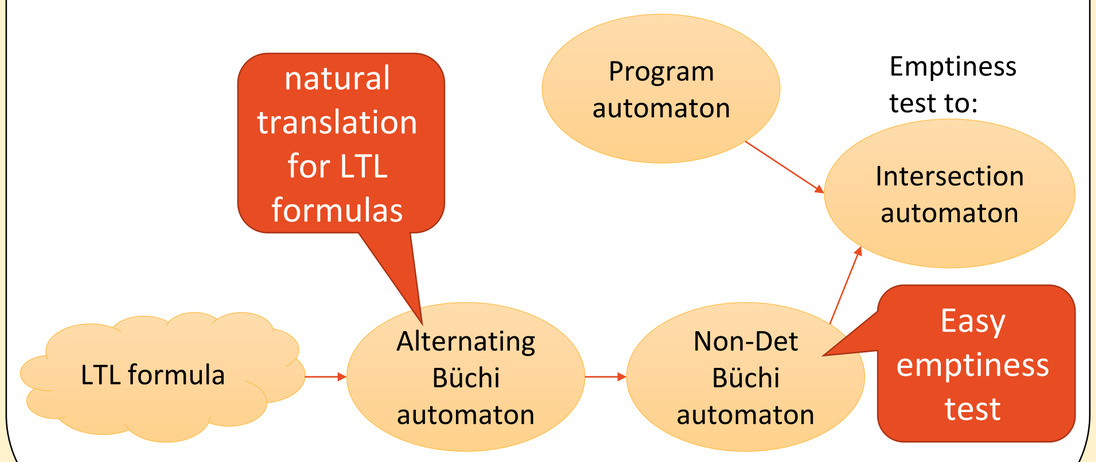
Finite data domains

Model checking



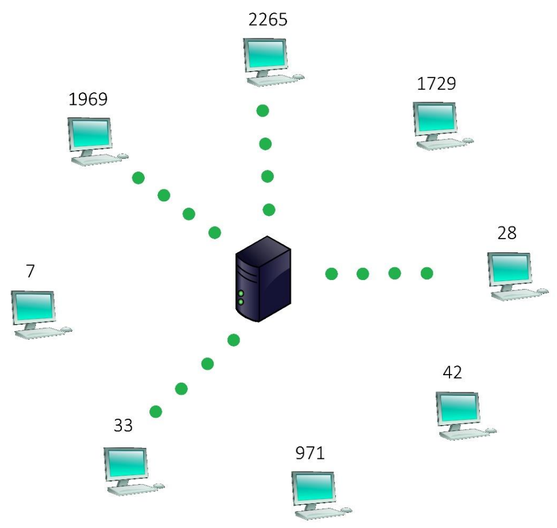
Automata theoretic approach



Infinite data domains

Motivation

Infinite \ unbounded data domain

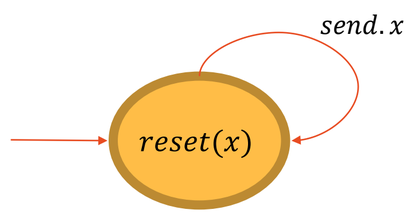


"every client is eventually active"

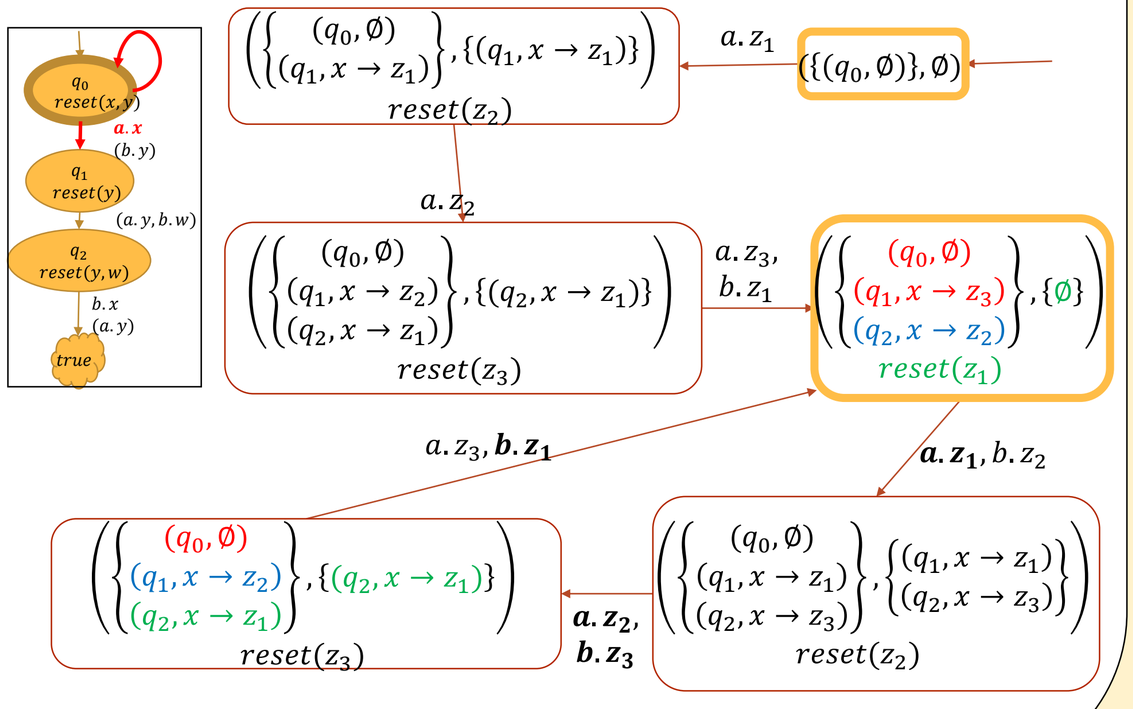
VLTL & variable Büchi automata

$\forall x\ F\ active.x$

$G\ \exists x: send.x$

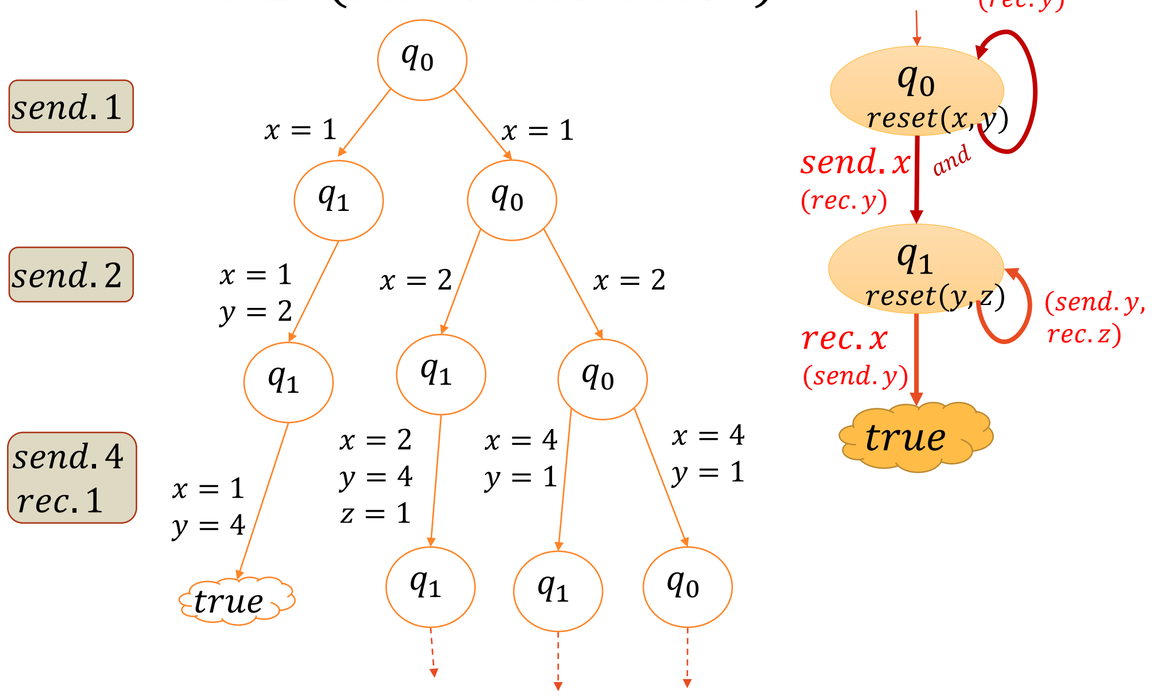


Alternating Variable Automaton → Non-Det Variable Automaton



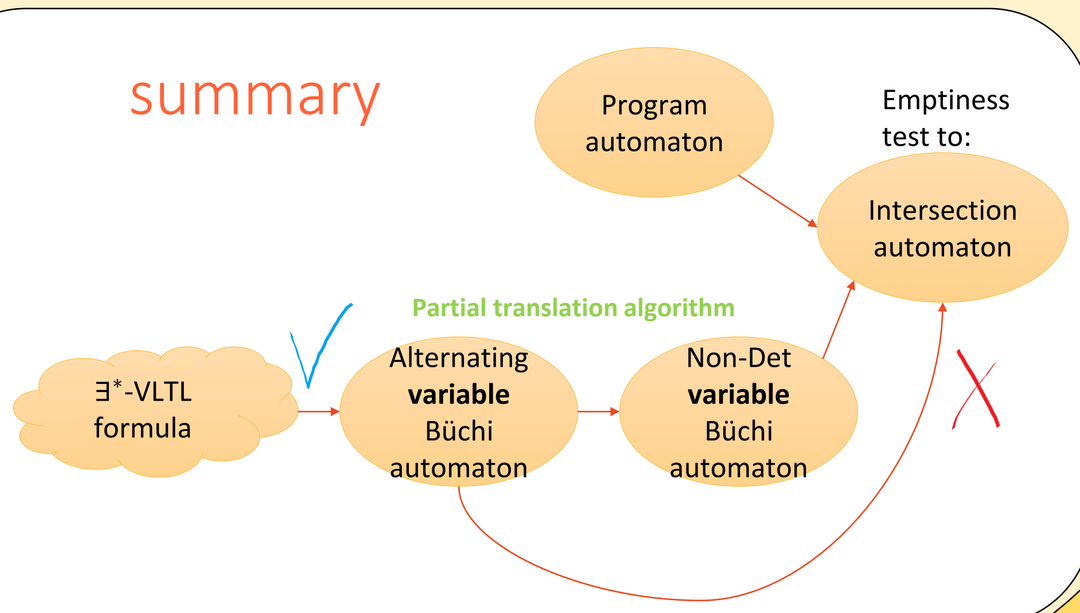
Alternating Variable Büchi Automata

$G\ \exists x(send.x \wedge F\ rec.x)$



$G\ \exists x(send.x \wedge F\ rec.x)$

Cannot be expressed In Non-Deterministic Büchi:

send.1	send.2 rec.1	send.3	send.4 rec.2	send.5	send.6 rec.3	send.7	send.8 rec.4

summary