Demonstration: Learning \( e \mid a \mid b \mid a(a \mid b)^* a \mid b(a \mid b)^* b \) : (all words that start and end the same, over \( \{a, b\} \))

Equivalence Queries: done by parallel exploration

Equivalence queries can cause refinements!

Cluster Conflict

Distinguishing suffix \( (\text{state } 0) \) is "ab". Check "aa" (state 0 + "ab") and "bab" (state 1 + "ab").

RNN agrees with \( L^* \) on "ab" and on "bab", so partitioning is refined

(Could have not agreed, then counterexample would be returned)

Classification Conflict

RNN disagrees with \( L^* \) on "aa".

A counterexample is returned to \( L^* \).

Counterexample: "aa"

Try it yourself: [github.com/tech-srl/lstar_extraction](https://github.com/tech-srl/lstar_extraction) contains also link to a Google Colaboratory notebook

Supported by European Union’s Seventh Framework Programme (FP7) under grant agreement no. 615688 (PRIME)