

Investigating Algorithms for Identifying Transition Arcs in Logic Circuits

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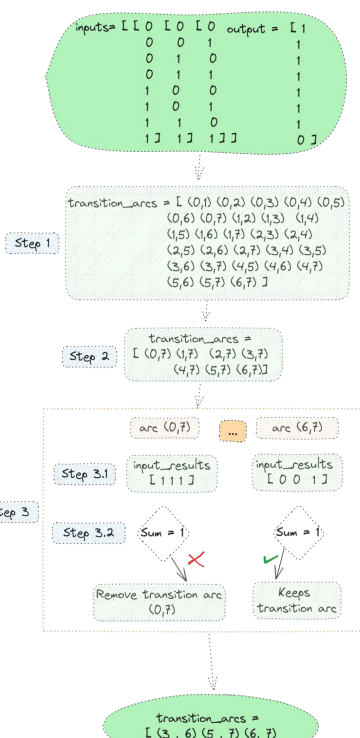
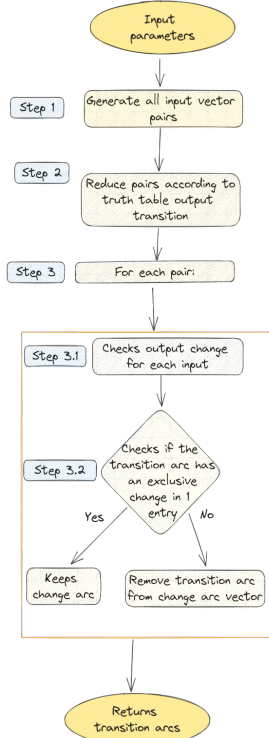
Introduction

The identification of transition arcs of Boolean functions is an important step in the simulation and analysis of logic circuit design. This identification allows the measurement of delay times in output state transitions given a change in a specific input. This work explores 2 algorithmic alternatives for recognizing these arcs.

Algorithm 1

Input parameters:
- Vec<Vec<int>>> inputs (Truth Table Inputs)
- Vec<bool> output (Truth Table Output)

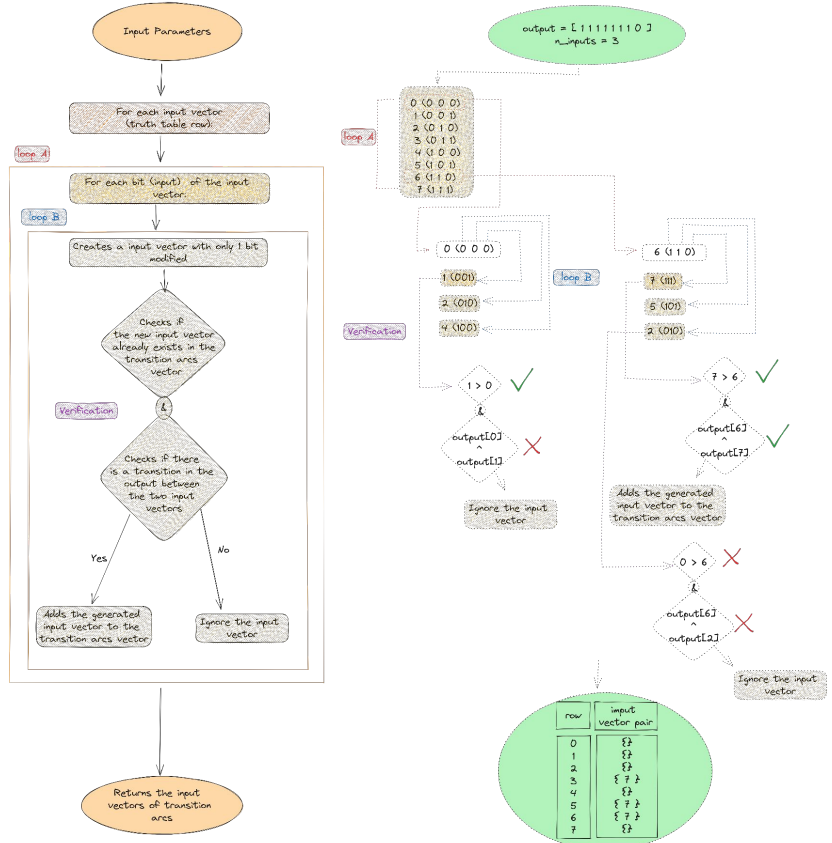
Return data:
- Vec<int> transition_arcs



Algorithm 2

Input parameters:
- Vec<int> output (Truth Table Output)
- int n_inputs (number of truth table inputs)

Return data:
- Vec<Vec<int>> transition_arcs (transition arcs)



Conclusions

The next stage of the ongoing study is to obtain metrics regarding the efficiency of the developed algorithms and compare the results in different truth table situations. The following metrics will be evaluated:

- Execution time
- Algorithmic complexity
- Memory usage

For this, the algorithms will be implemented using the Rust programming language.



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