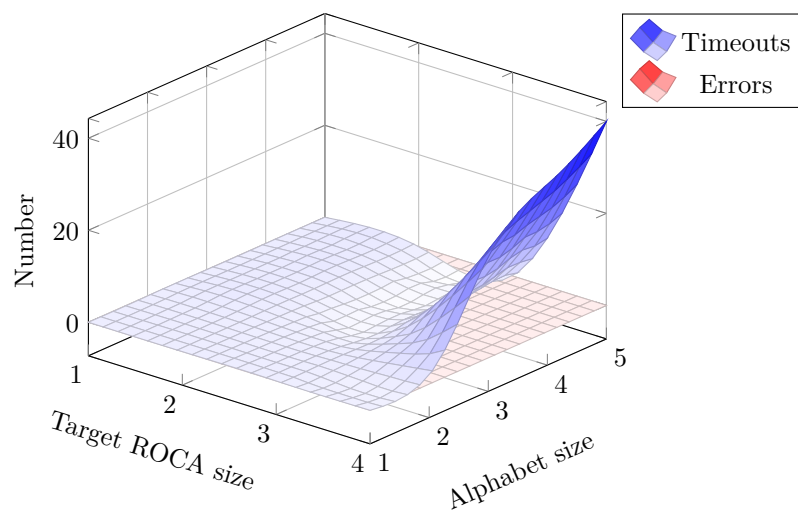


1 Experiments

- 16GB of RAM.
- Maximum 2 minutes.
- See paper for CPU specifications.

2 Timeouts and errors



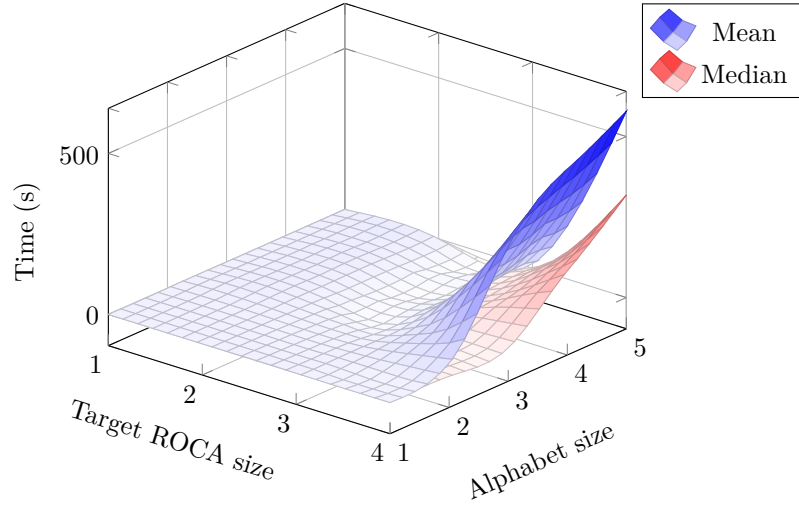
Target ROCA size	Alphabet size	Timeouts	Errors
1	1	0	0
1	2	0	0
1	3	0	0
1	4	0	0
1	5	0	0
2	1	0	0
2	2	0	0
2	3	0	0
2	4	0	0
2	5	0	0
3	1	0	0
3	2	0	0
3	3	0	0
3	4	0	0
3	5	0	0
4	1	0	0
4	2	2	0
4	3	22	0
4	4	32	0
4	5	40	0

3 Times

If a timeout is reached, the value is replaced by *two minutes* (i.e., the time limit).

3.1 Total time

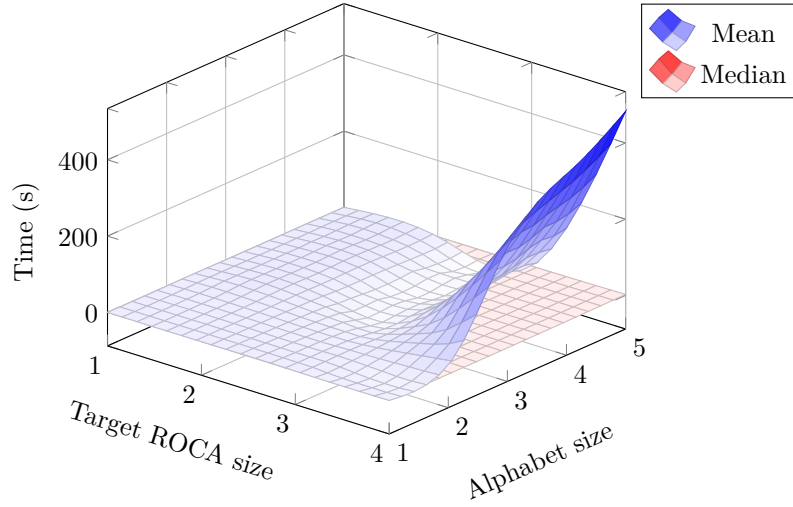
Time from start to finish.



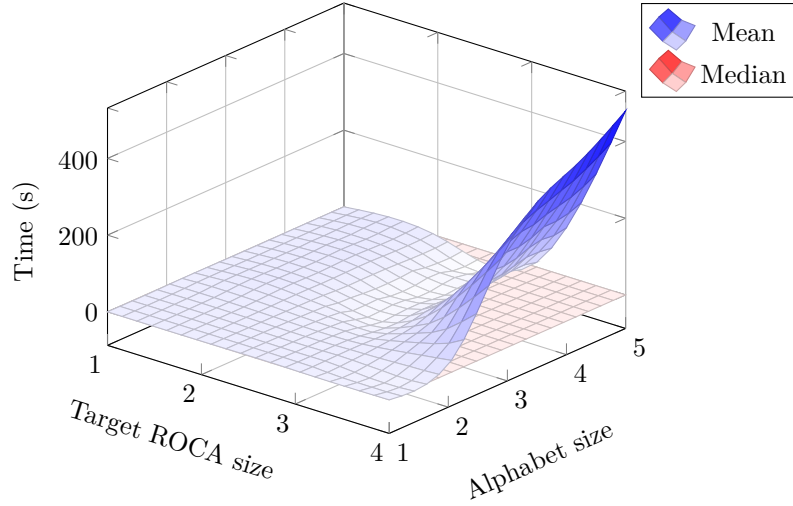
3.2 Counterexample time

Time to *find* a counterexample, i.e., time taken by the equivalence oracles.

3.2.1 ROCA

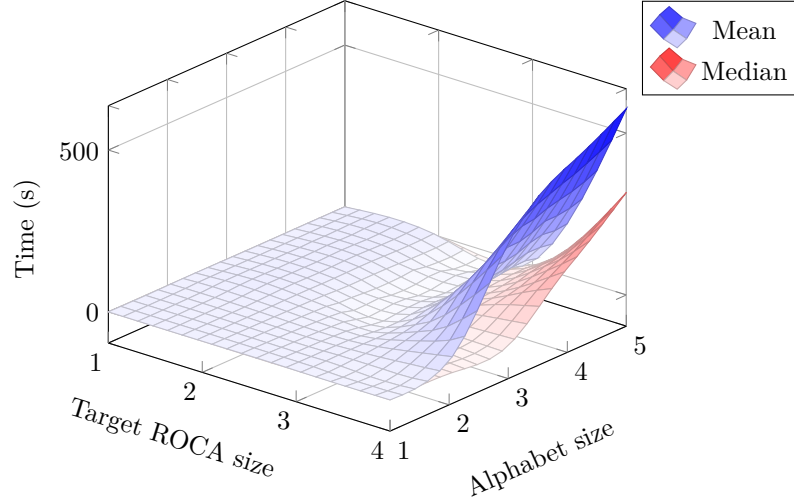


3.2.2 DFA



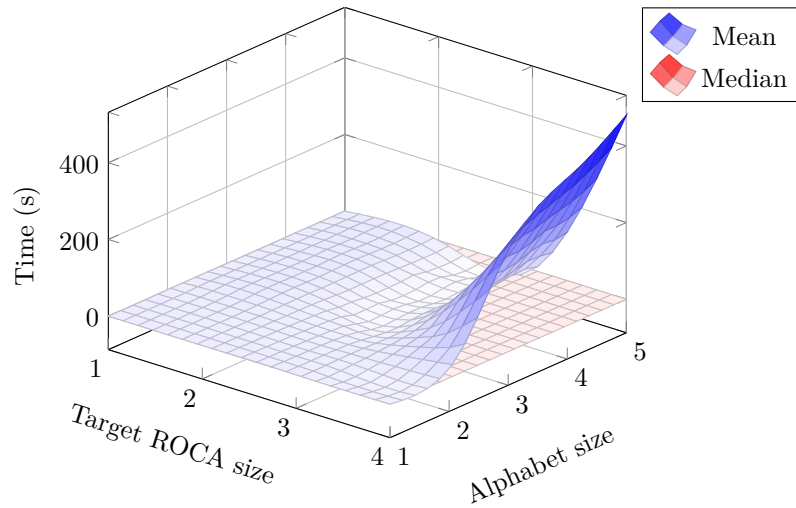
3.3 Learning a DFA for a fixed counter limit

Time to refine the table using an equivalence query's counterexample. Note that it includes the time needed to make the table closed, Σ -, and \perp -consistent.



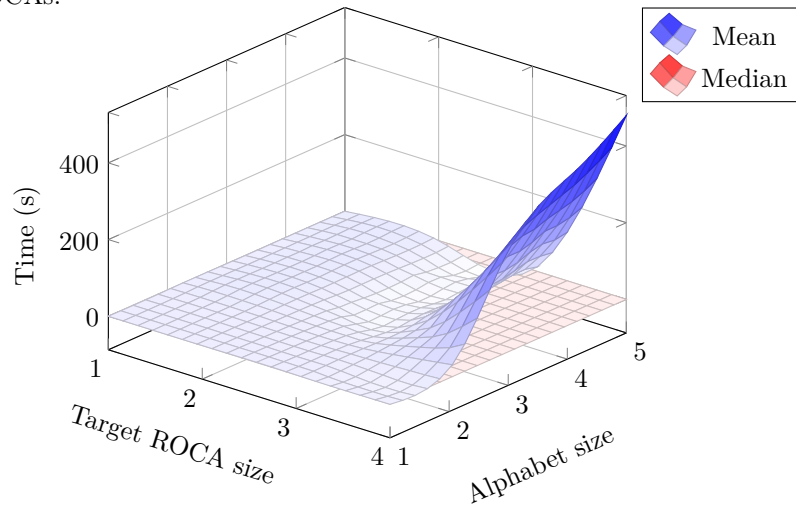
3.4 Making table closed, Σ -, and \perp -consistent

UNUSABLE FOR NOW. DATA INCORRECT! The code is already corrected.
New benchmarks are running.



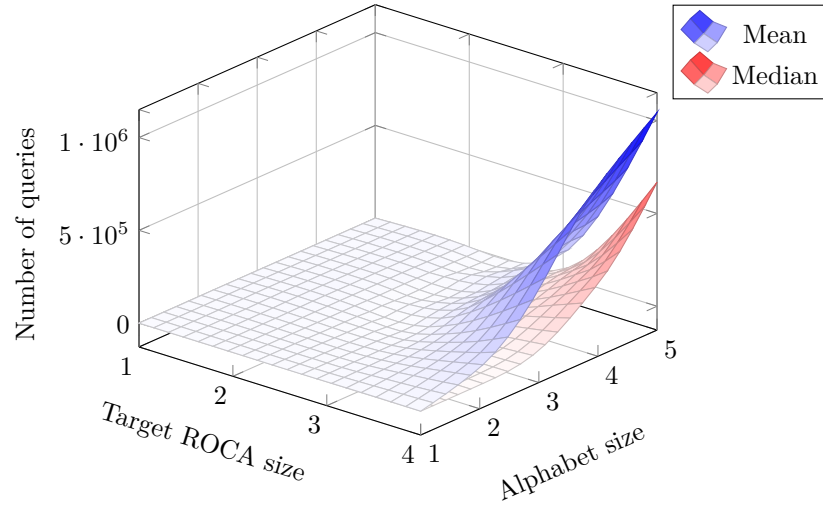
3.5 Computing periodic descriptions

Time to find the periodic descriptions AND to construct the corresponding ROCAs.

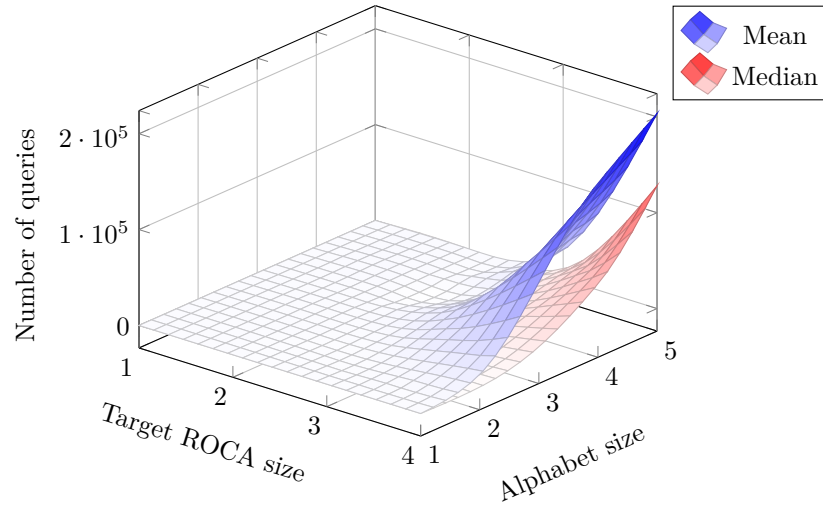


4 Number of queries

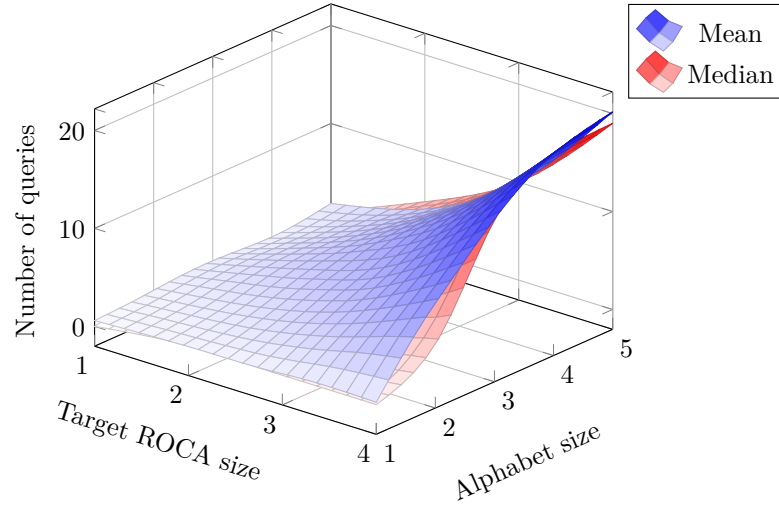
4.1 Membership queries



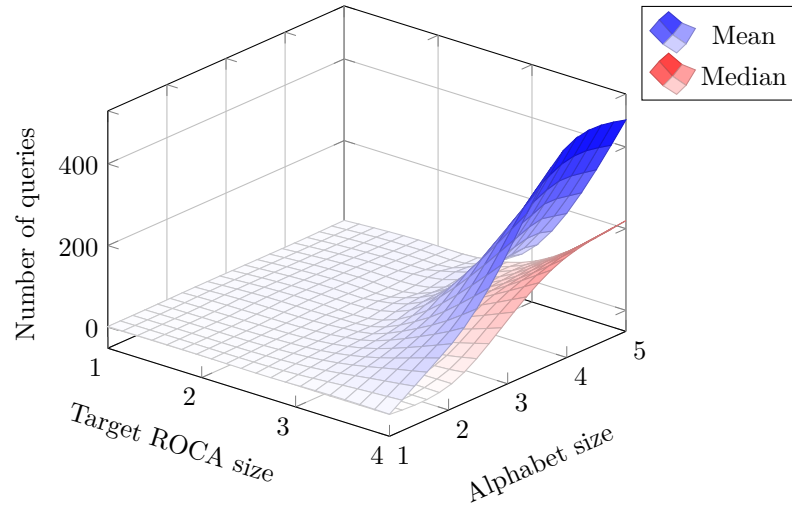
4.2 Counter value queries



4.3 Partial equivalence queries

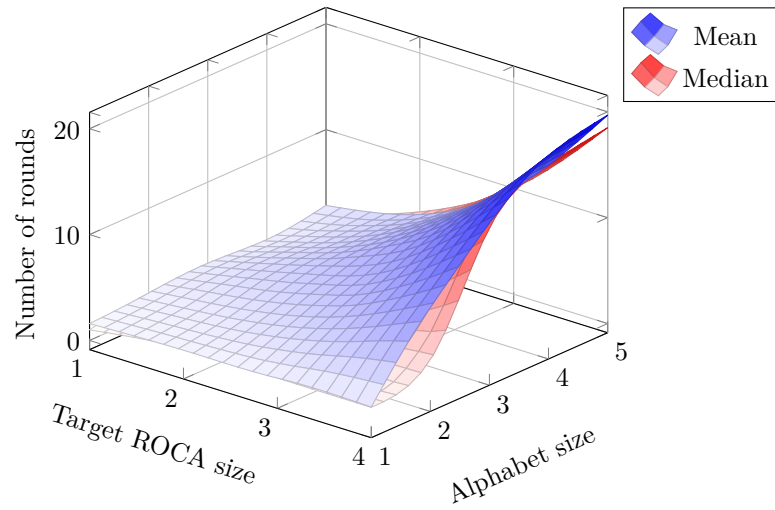


4.4 Equivalence queries



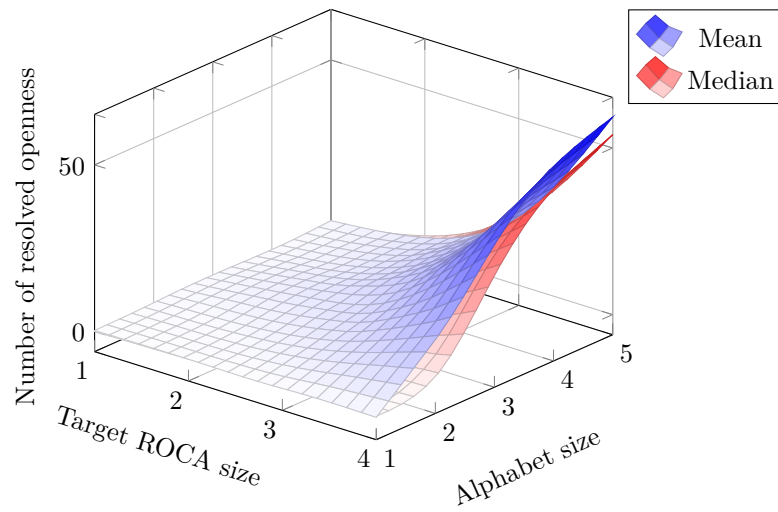
5 Number of rounds

Equivalent to number of processed ROCA counterexamples + 1.

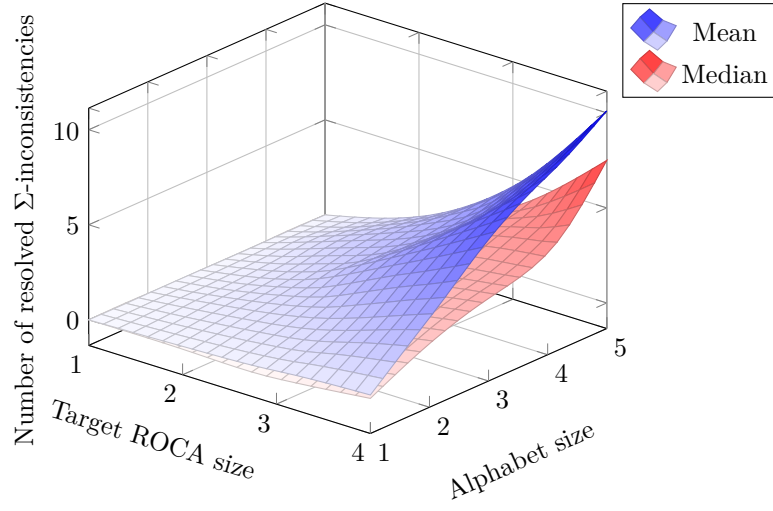


6 Number of operations to make the table nice

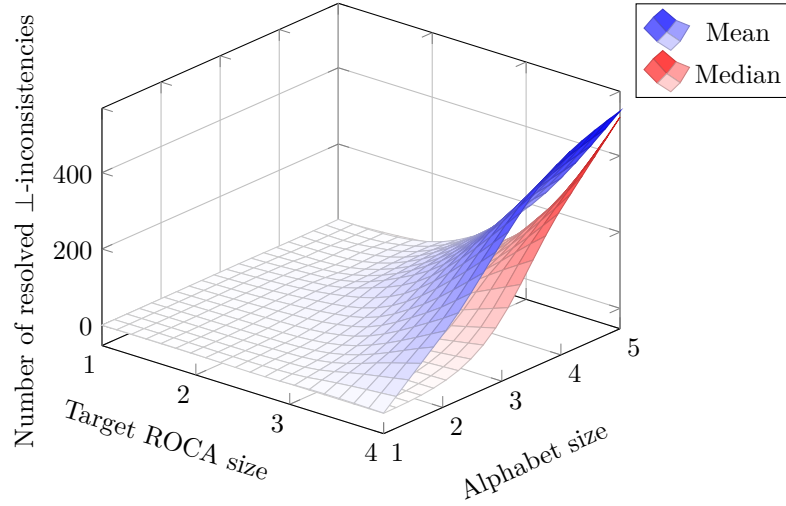
6.1 Openness



6.2 Σ -inconsistencies

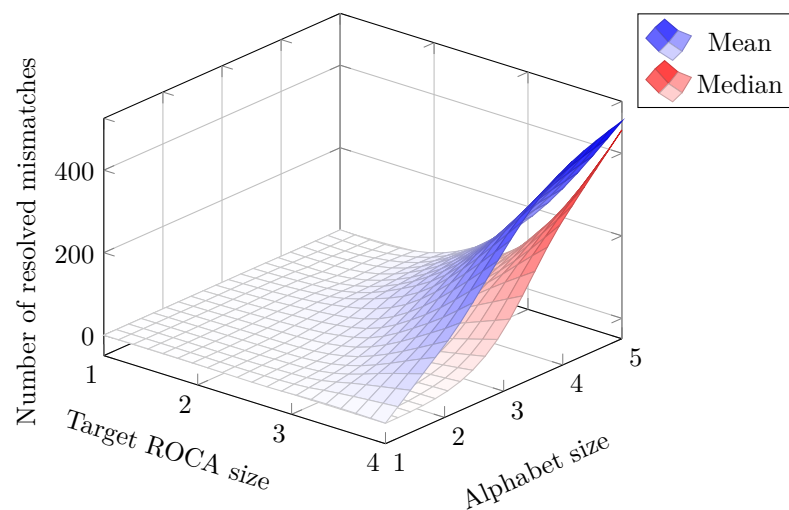


6.3 \perp -inconsistencies



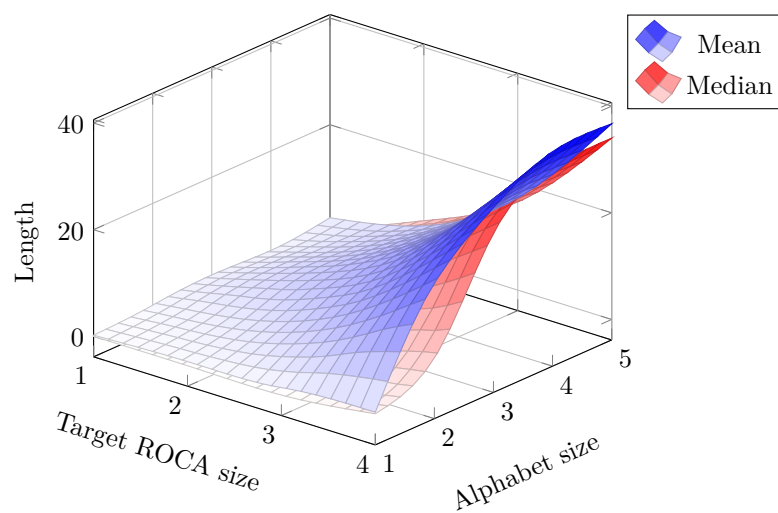
6.3.1 \perp -inconsistencies resolved by adding separators in $\hat{S} \setminus S$

Included in the number of \perp -inconsistencies.

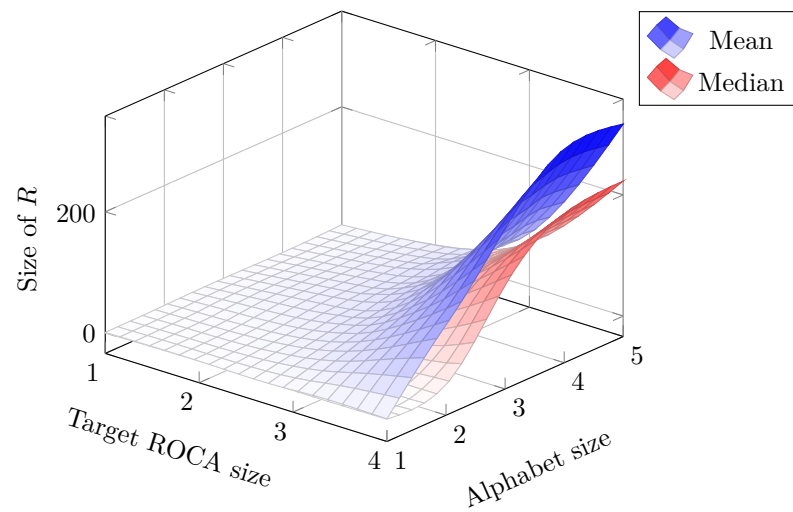


7 Size of sets and counterexamples

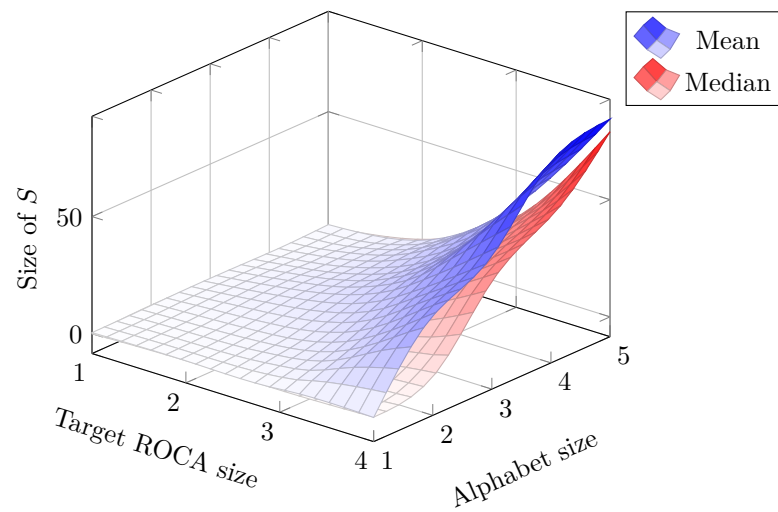
7.1 Length of the longest counterexample



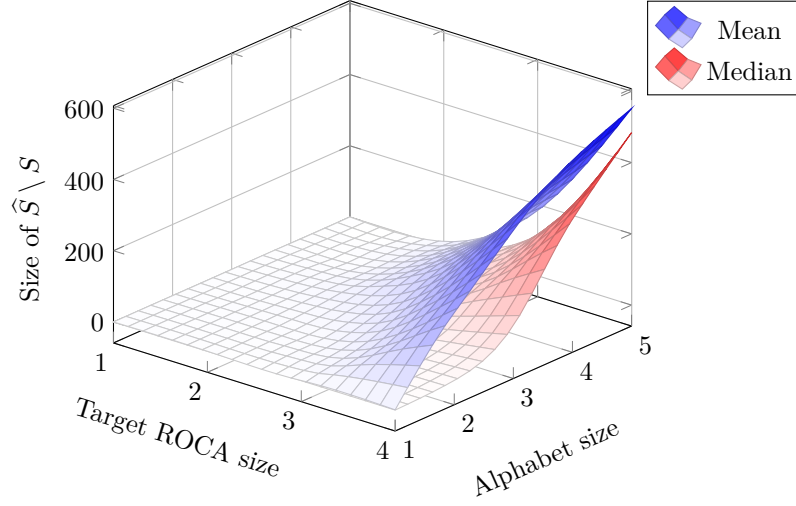
7.2 Size of R



7.3 Size of S

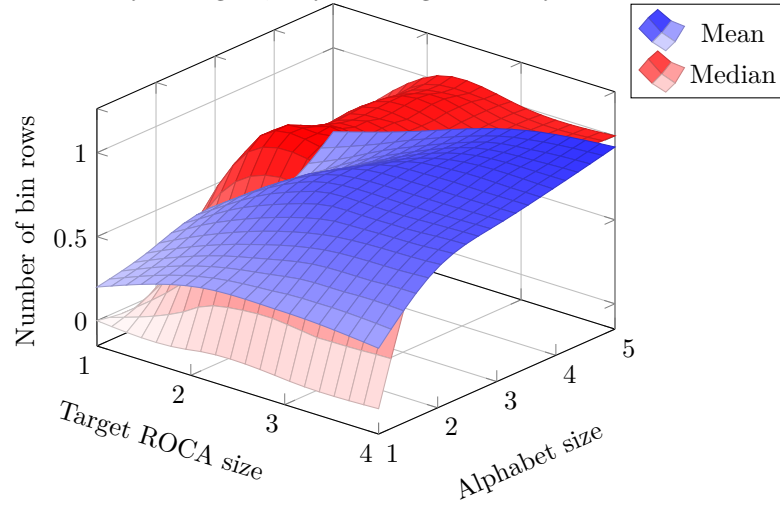


7.4 Size of $\hat{S} \setminus S$



7.5 Number of bin rows

A bin row $u \in R$ is such that $C_\ell(u) = \perp$. This is more for debugging purpose. I'm satisfied by the figure, so you can ignore it if you want.



8 Size of the learned ROCA

