|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Values  of H1-h2 | States in initial model | transitions in initial model | actions in counterexample | No. of variables | NUmber of formulas | Time taken to encode smt encoding | time taken by z3 to check for sat/unsat |
| 0-1 | 7 | 13 | a\_0=0  a\_1=1  a\_6=0  a\_5=0  a\_4=0  a\_3=0  a\_2=0 | 1673 | 11922 | 0.10756 | 0.09587 |  |
| 0-5 | 15 | 33 | a\_5=1  a\_7=0  a\_0=0  a\_3=0  a\_9=1  a\_1=0  a\_14=0  a\_13=0  a\_12=0  a\_11=0  a\_10=0  a\_8=0  a\_6=0  a\_4=0  a\_2=0 | 7665 | 61614 | 1.75407 | 4.08991 |  |
| 0-10 | 25 | 58 | a\_17=0  a\_7=0  a\_0=0  a\_19=0  a\_1=1  a\_11=0  a\_13=1  a\_15=1  a\_5=1  a\_3=0  a\_9=0  a\_24=0  a\_23=0  a\_22=0  a\_21=0  a\_20=0  a\_18=0  a\_16=0  a\_14=0  a\_12=0  a\_10=0  a\_8=0  a\_6=0  a\_4=0  a\_2=0 | 21275 | 178539 | 13.24235 | 184.58241 |  |
| 0-15 | 35 | 83 | a\_29=0  a\_19=1  a\_1=0  a\_13=0  a\_15=0  a\_21=0  a\_3=1  a\_17=1  a\_7=0  a\_0=0  a\_25=0  a\_23=1  a\_27=0  a\_11=1  a\_5=1  a\_9=1  a\_34=0  a\_33=0  a\_32=0  a\_31=0  a\_30=0  a\_28=0  a\_26=0  a\_24=0  a\_22=0  a\_20=0  a\_18=0  a\_16=0  a\_14=0  a\_12=0  a\_10=0  a\_8=0  a\_6=0  a\_4=0  a\_2=0 | 41685 | 356364 | 52.68174 | 2201.18484 |  |
| 1-2 | 9 | 18 | a\_0=1  a\_3=0  a\_1=1  a\_8=0  a\_7=0  a\_6=0  a\_5=0  a\_4=0  a\_2=0 | 2763 | 20700 | 0.24920 | 0.24520 |  |
| 3-5 | 15 | 33 | a\_5=1  a\_7=0  a\_0=0  a\_3=0  a\_9=1  a\_1=1  a\_14=0  a\_13=0  a\_12=0  a\_11=0  a\_10=0  a\_8=0  a\_6=0  a\_4=0  a\_2=0 | 7665 | 61674 | 1.74773 | 5.22899 |  |
| 4-8 | 21 | 48 | a\_7=0  a\_0=0  a\_1=1  a\_11=0  a\_13=0  a\_15=0  a\_5=1  a\_3=1  a\_9=0  a\_20=0  a\_19=0  a\_18=0  a\_17=0  a\_16=0  a\_14=0  a\_12=0  a\_10=0  a\_8=0  a\_6=0  a\_4=0  a\_2=0 | 15015 | 124608 | 6.50802 | 17.99828 |  |
| 8-14 | 33 | 78 | a\_19=1  a\_1=0  a\_13=0  a\_15=1  a\_21=0  a\_3=1  a\_17=0  a\_7=0  a\_0=0  a\_25=0  a\_23=0  a\_27=1  a\_11=1  a\_5=1  a\_9=1  a\_32=0  a\_31=0  a\_30=0  a\_29=0  a\_28=0  a\_26=0  a\_24=0  a\_22=0  a\_20=0  a\_18=0  a\_16=0  a\_14=0  a\_12=0  a\_10=0  a\_8=0  a\_6=0  a\_4=0  a\_2=0 | 37059 | 316356 | 43.12299 | 1613.46989 |  |
| 3-15 | 35 | 83 | a\_29=0  a\_19=1  a\_1=0  a\_13=0  a\_15=1  a\_21=0  a\_3=0  a\_17=1  a\_7=0  a\_0=0  a\_25=0  a\_23=1  a\_27=0  a\_11=0  a\_5=1  a\_9=0  a\_34=0  a\_33=0  a\_32=0  a\_31=0  a\_30=0  a\_28=0  a\_26=0  a\_24=0  a\_22=0  a\_20=0  a\_18=0  a\_16=0  a\_14=0  a\_12=0  a\_10=0  a\_8=0  a\_6=0  a\_4=0  a\_2=0 | 41685 | 356854 | 55.06562 | 1535.48116 |  |
| 8-15 | 35 | 83 | a\_29=1  a\_19=0  a\_1=1  a\_13=0  a\_15=0  a\_21=0  a\_3=1  a\_17=0  a\_7=1  a\_0=0  a\_25=0  a\_23=1  a\_27=1  a\_11=1  a\_5=1  a\_9=1  a\_34=0  a\_33=0  a\_32=0  a\_31=0  a\_30=0  a\_28=0  a\_26=0  a\_24=0  a\_22=0  a\_20=0  a\_18=0  a\_16=0  a\_14=0  a\_12=0  a\_10=0  a\_8=0  a\_6=0  a\_4=0  a\_2=0 | 41685 | 356854 | 52.77866 | 1972.31912 |  |
| 12-15 | 35 | 83 | a\_29=0  a\_19=0  a\_1=1  a\_13=1  a\_15=0  a\_21=1  a\_3=1  a\_17=1  a\_7=0  a\_0=1  a\_25=1  a\_23=0  a\_27=0  a\_11=0  a\_5=0  a\_9=1  a\_34=0  a\_33=0  a\_32=0  a\_31=0  a\_30=0  a\_28=0  a\_26=0  a\_24=0  a\_22=0  a\_20=0  a\_18=0  a\_16=0  a\_14=0  a\_12=0  a\_10=0  a\_8=0  a\_6=0  a\_4=0  a\_2=0 | 41685 | 356854 | 53.23173 | 1504.09548 |  |

**Property for row 1-4** : AS sh . A s1 . A s2 . ~((he0(s1) & hg0(s2)) & ~((P(true U (l\_1(s1) & terminated(s1))) = P(true U (l\_1(s2)& terminated(s2)))) & (P(true U (l\_2(s1)& terminated(s1))) = P(true U (l\_2(s2) & terminated(s2))))))

**Property for row 5-8** : AS sh . A s1 . A s2 . ~((h1(s1) & h2(s2)) & ~((P(true U (l\_1(s1) & terminated(s1))) = P(true U (l\_1(s2)& terminated(s2)))) & (P(true U (l\_2(s1)& terminated(s1))) = P(true U (l\_2(s2) & terminated(s2))))))