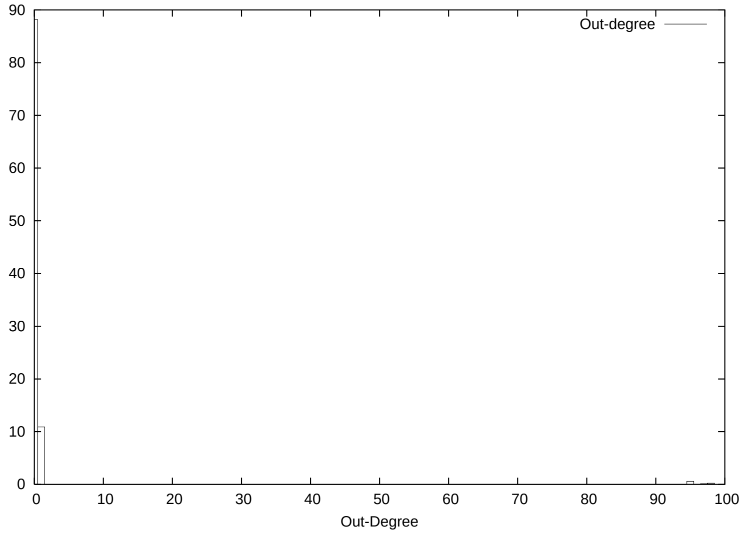
# Graph: spin/n-s-fixed.red

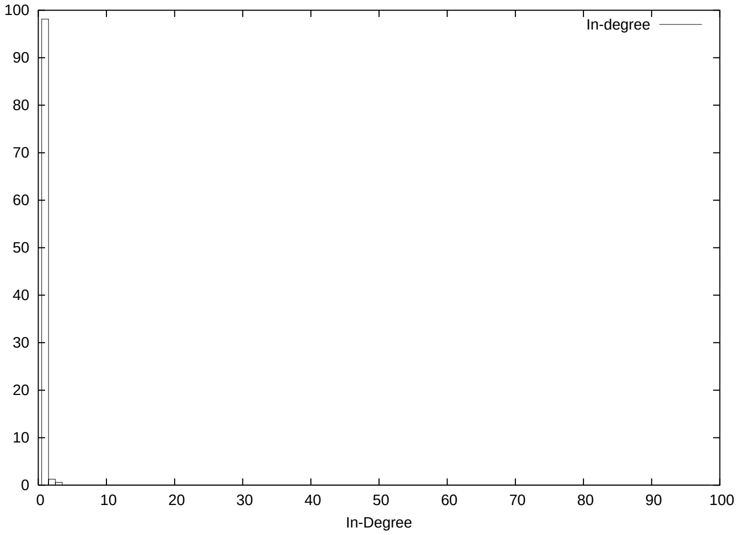
## General Info

| | |
|---|---|
| Example title | Needham-Schroeder Public Key Protocol |
| Parameter | |
| Reduction | POR |
| Modification | fixed version |
| | |
| States | 376,987 |
| Edges | 386,281 |
| Average degree | 1 |

Out-Degrees distribution:



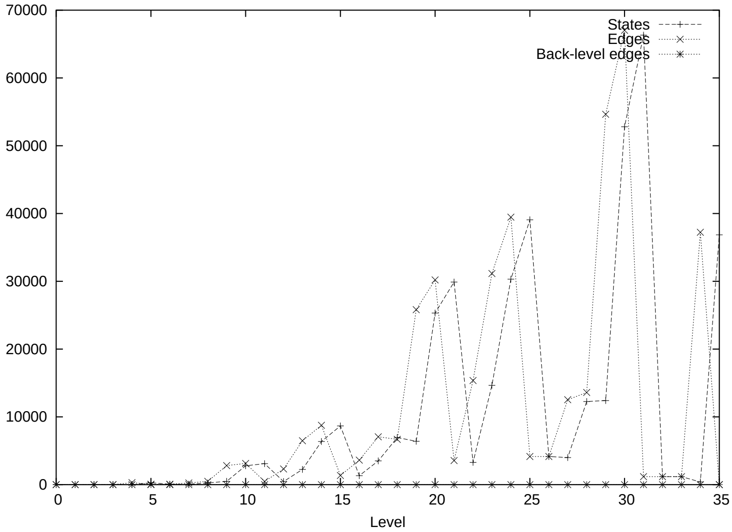

In-Degrees distribution:



## BFS Info

| | |
|---|---|
| BFS height | 35 |
| BFS width | 66,324 (17.5%) |
| Back level edges | 0 (0%) |

BFS level info:



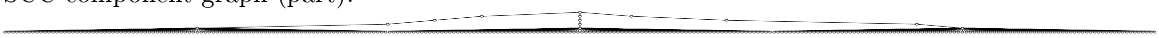
## SCC Info

| | |
|---|---|
| SCC components | 376,987 |
| SCC quetient height | 35 |
| SCC quetient nontrivial height | 0 |
| Number of terminal components | 332,328 |
| The largest component is | terminal |

Statistics according to **sizes**:

| Size | Number of components | Number of states here |
|---|---|---|
| 1 | 376,987 | 100% |

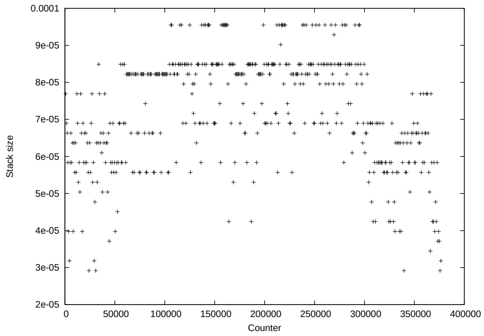
SCC component graph (part):



# DFS Info

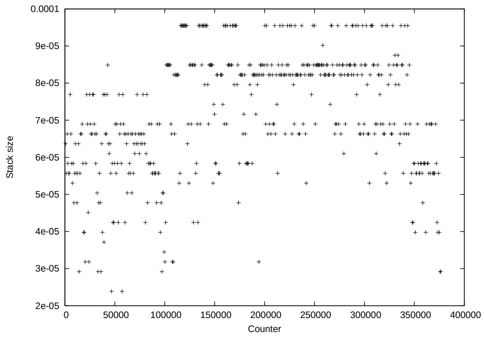
## Run 0

front-edges : back-edges : cross-edges = 376,986 : 0 : 9,295 = 97.5%:0%:2.4%
Max. stack size: 36 (0%)
Shortest cycle detected: -1
Most often detected lengths of cycles: (), (), (), (), ()
Stack graph:




## Run 1

front-edges : back-edges : cross-edges = 376,986 : 0 : 9,295 = 97.5%:0%:2.4%
Max. stack size: 36 (0%)
Shortest cycle detected: -1
Most often detected lengths of cycles: (), (), (), (), ()
Stack graph:



# Local Structure

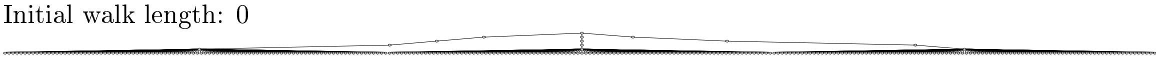
**Short cycles**(up to 6)
none
**Diamonds**

0 (0%)

**Neighborhoods**

| $k$ | avg size | avg clustering |
|---|---|---|
| 1 | 2 | 1 |
| 2 | 4.4 | 1 |
| 3 | 6.9 | 1 |
| 4 | 9.4 | 1 |

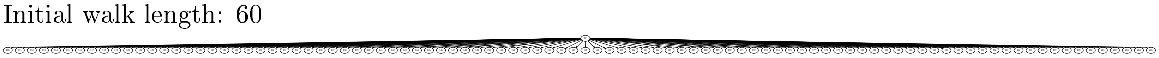
Visualization of some parts of the state state space:
Initial walk length: 0



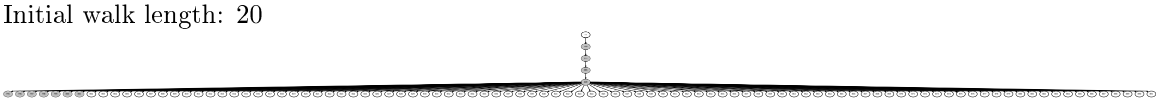
Initial walk length: 20

Initial walk length: 40

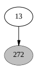
Initial walk length: 60



Initial walk length: 20



Initial walk length: 40




Initial walk length: 60