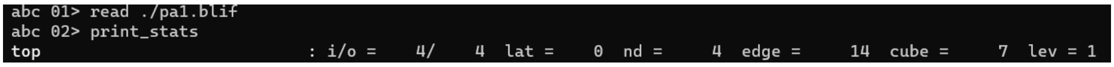
2.

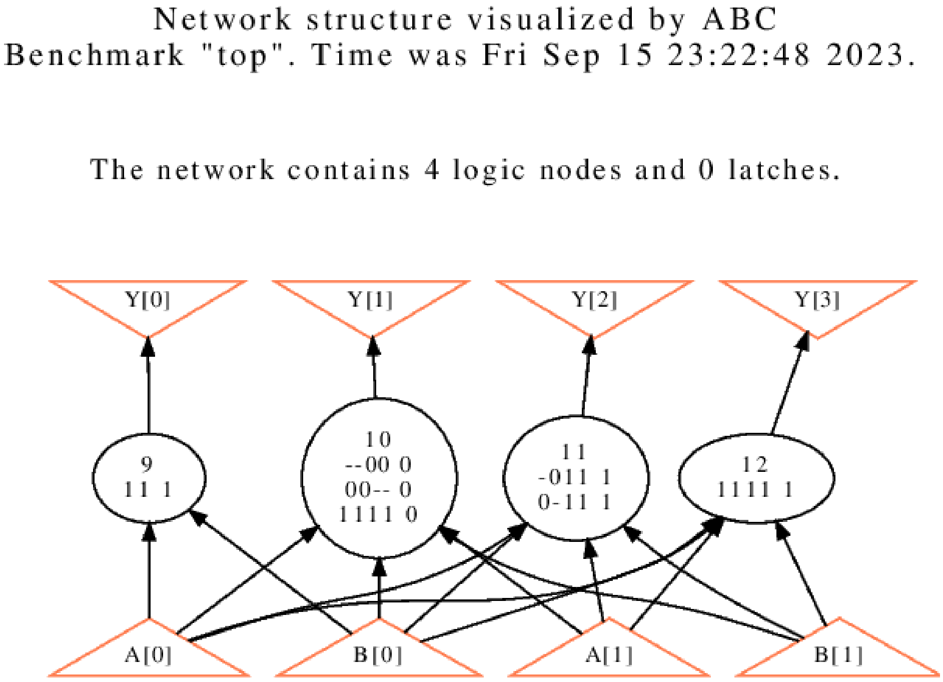
(b)

- read and print_status



```
abc 01> read ./pa1.blif
abc 02> print_stats
top                          : i/o =    4/    4  lat =    0  nd =     4  edge =     14  cube =     7  lev = 1
```

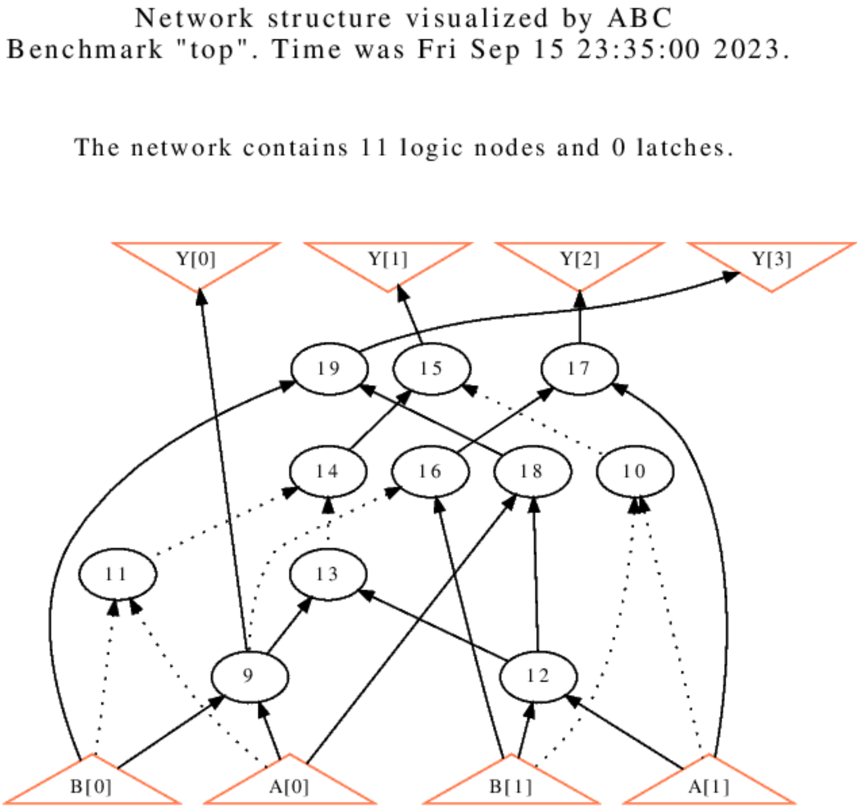
- first show



Network structure visualized by ABC
Benchmark "top". Time was Fri Sep 15 23:22:48 2023.

The network contains 4 logic nodes and 0 latches.

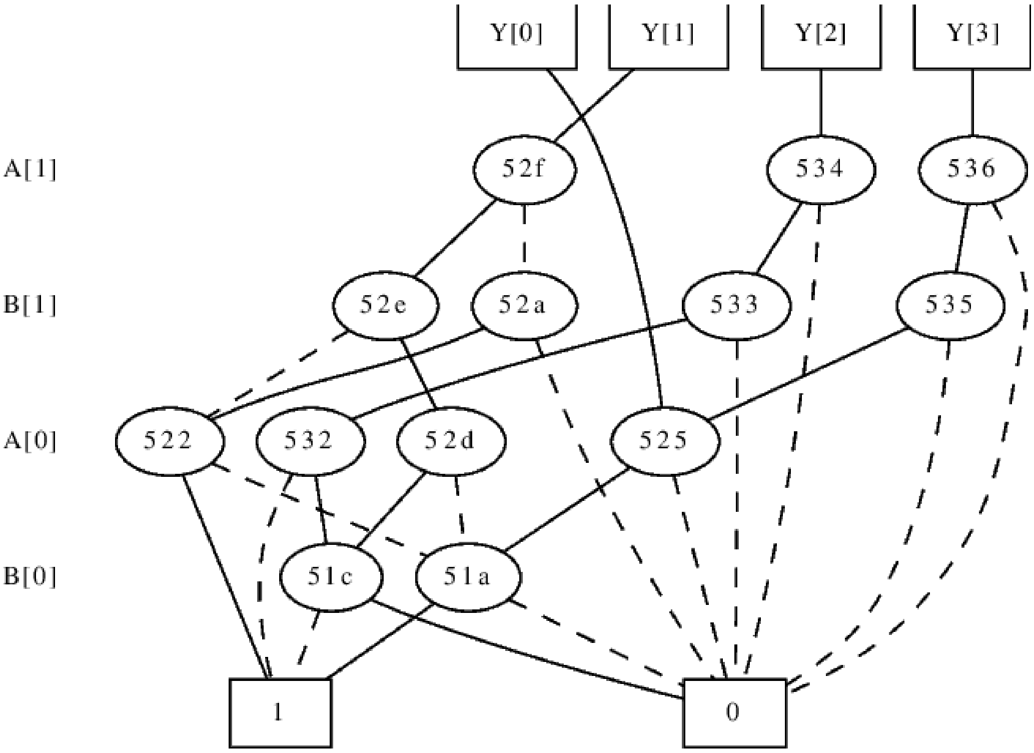
- show after “strash”



Network structure visualized by ABC
Benchmark "top". Time was Fri Sep 15 23:35:00 2023.

The network contains 11 logic nodes and 0 latches.

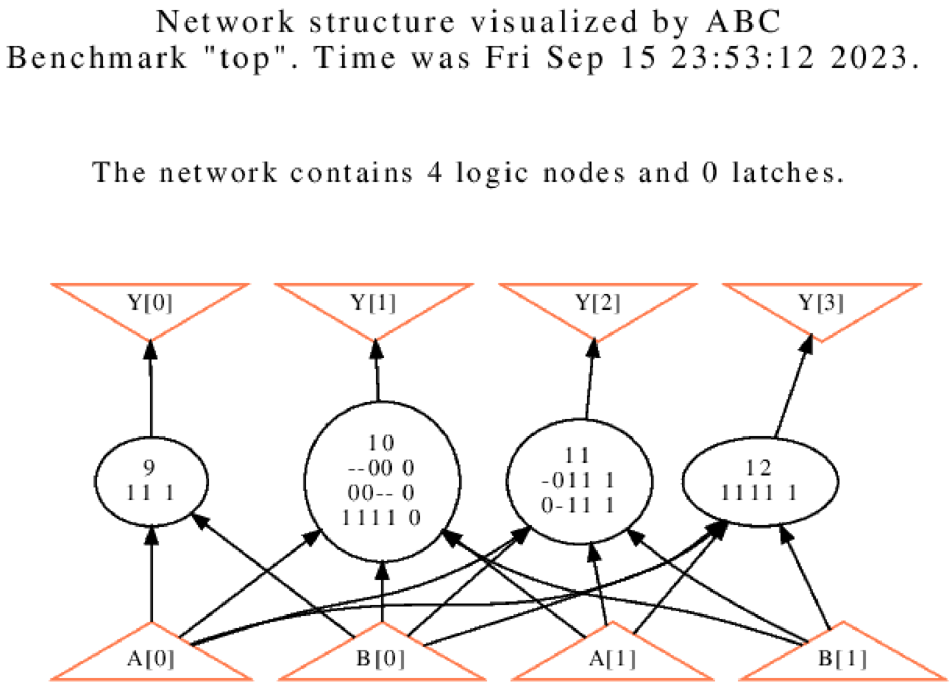
- “show_bdd -g” after “collapse”



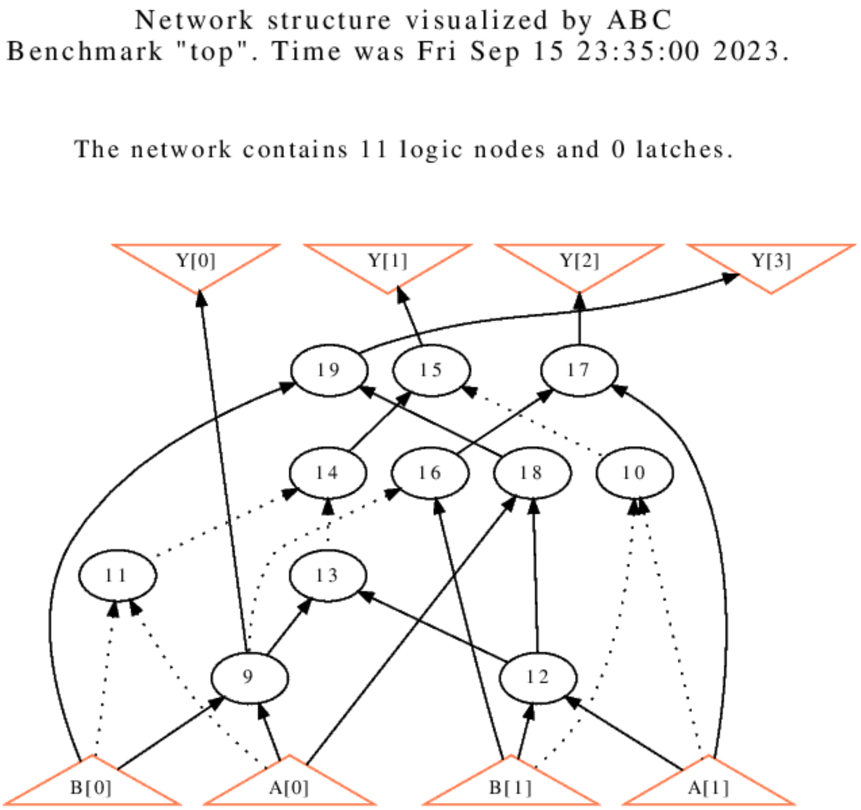
3.

(a)

1. The “aig” command didn’t make any difference to the read in network.

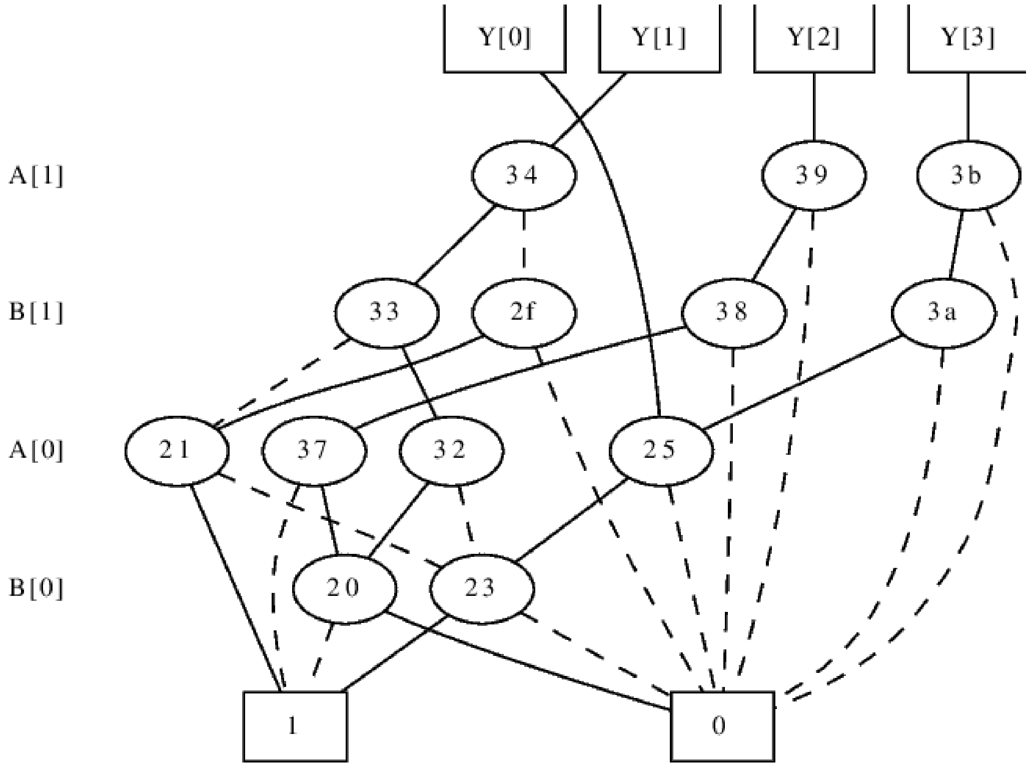

Network structure visualized by ABC
Benchmark "top". Time was Fri Sep 15 23:53:12 2023.
The network contains 4 logic nodes and 0 latches.
Y[0]
Y[1]
Y[2]
Y[3]
9
11 1
10
--00 0
00-- 0
1111 0
11
-011 1
0-11 1
12
1111 1
A[0]
B[0]
A[1]
B[1]

And the “strash” command did. Resulted in a proper aig representation.

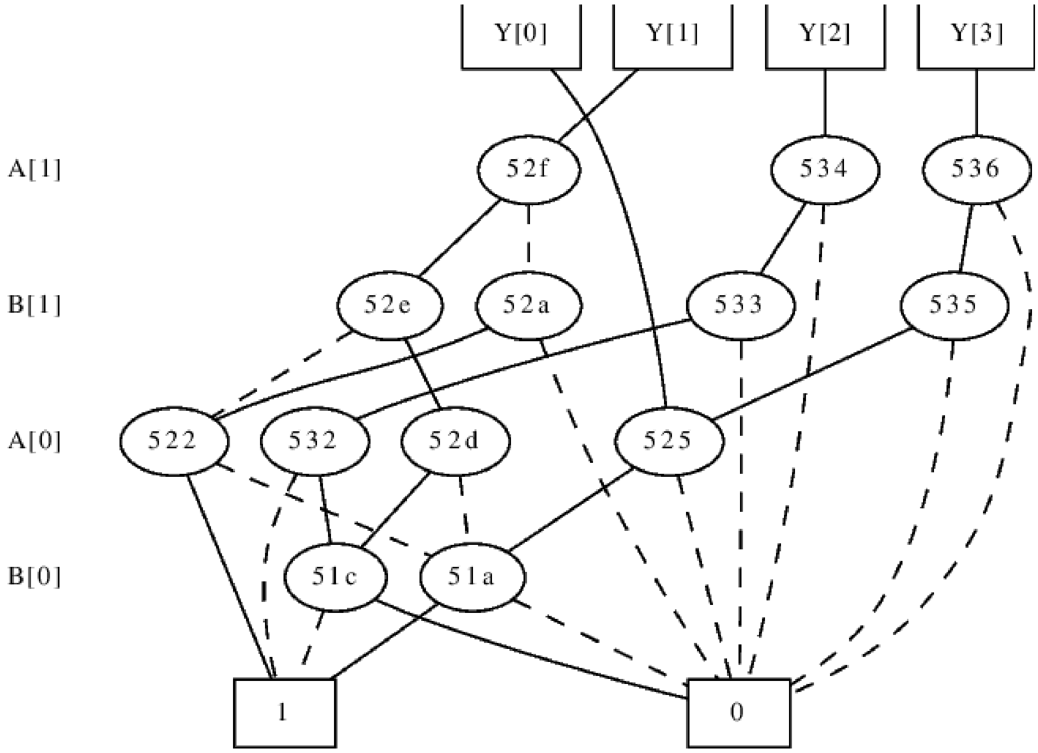

Network structure visualized by ABC
Benchmark "top". Time was Fri Sep 15 23:35:00 2023.
The network contains 11 logic nodes and 0 latches.
Y[0]
Y[1]
Y[2]
Y[3]
19
15
17
14
16
18
10
11
13
9
12
B[0]
A[0]
B[1]
A[1]

2.

The “bdd” command,



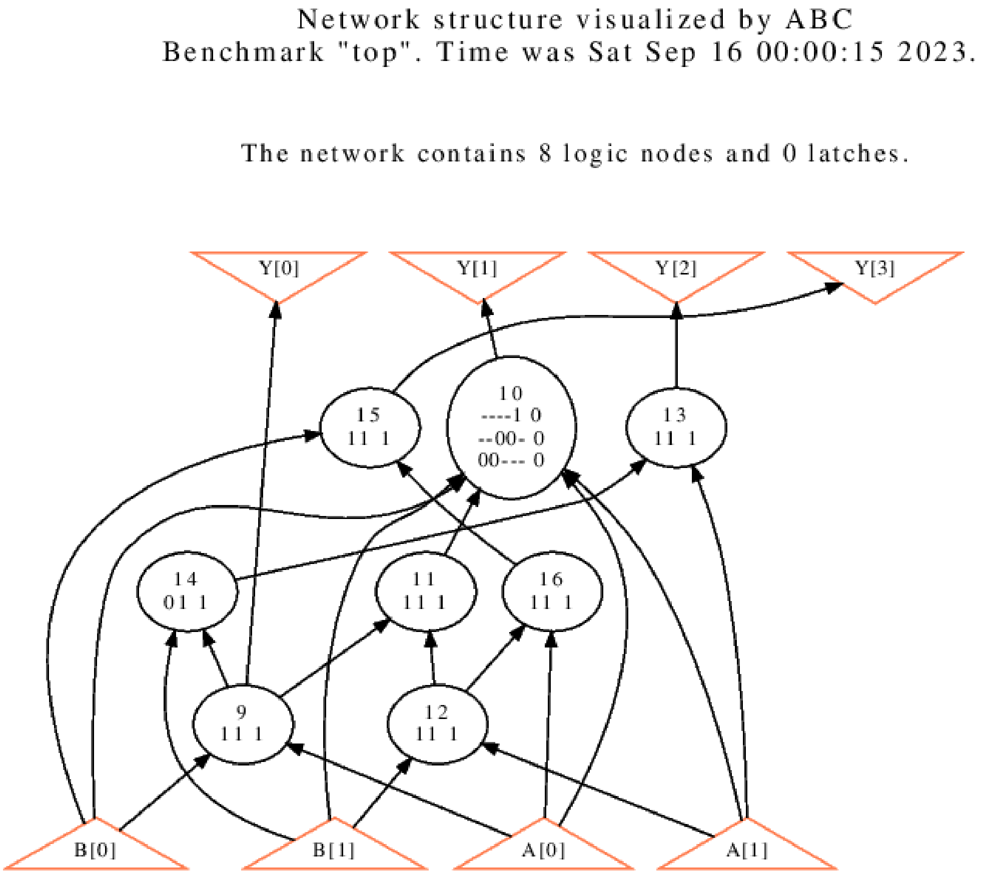
and the “collapse” command resulted in the same BDD with different node names.



(b)

Just use “renode”

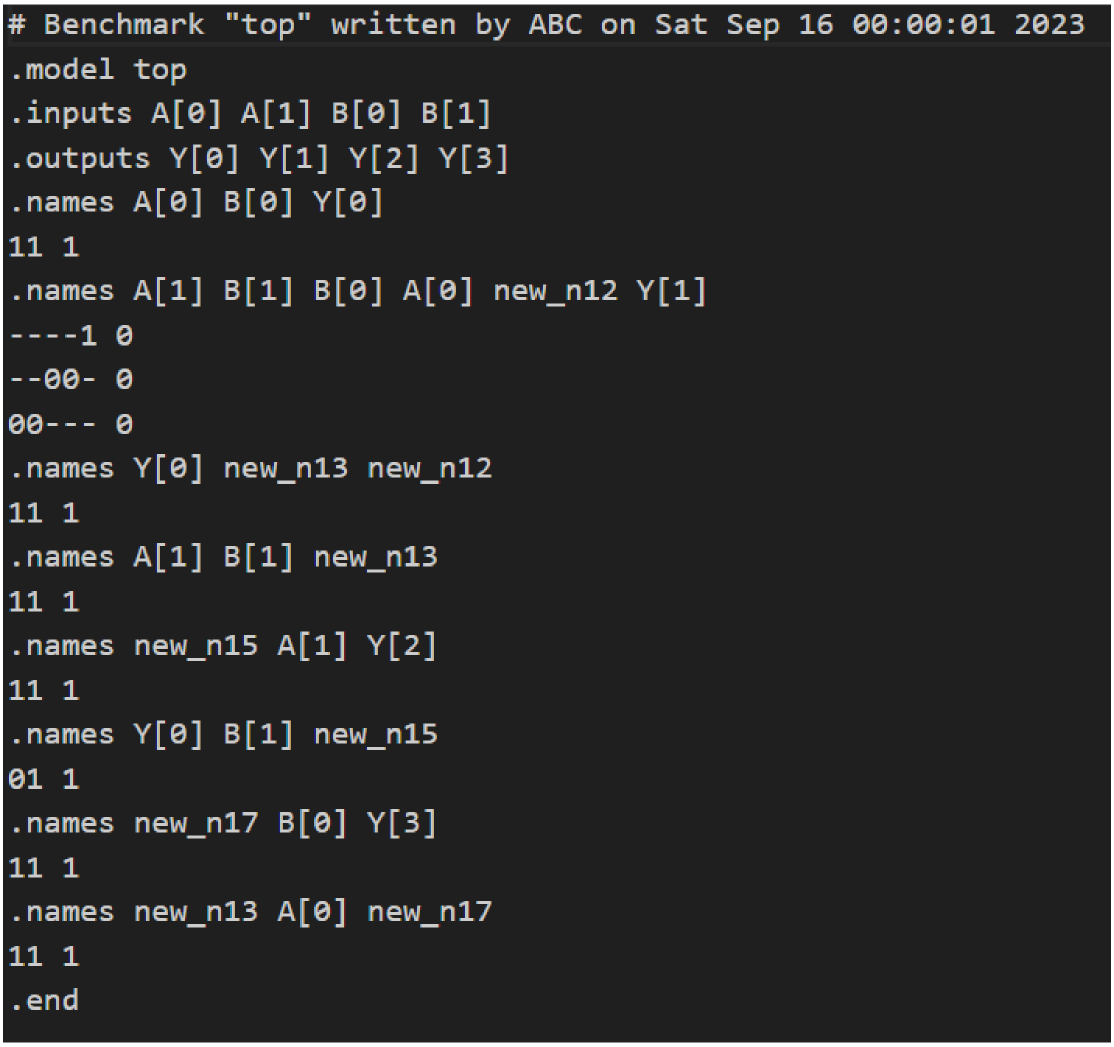
This is the result using “show” after “renode”



Network structure visualized by ABC
Benchmark "top". Time was Sat Sep 16 00:00:15 2023.

The network contains 8 logic nodes and 0 latches.

And the corresponding BLIF



```
# Benchmark "top" written by ABC on Sat Sep 16 00:00:01 2023
.model top
.inputs A[0] A[1] B[0] B[1]
.outputs Y[0] Y[1] Y[2] Y[3]
.names A[0] B[0] Y[0]
11 1
.names A[1] B[1] B[0] A[0] new_n12 Y[1]
----1 0
--00- 0
00--- 0
.names Y[0] new_n13 new_n12
11 1
.names A[1] B[1] new_n13
11 1
.names new_n15 A[1] Y[2]
11 1
.names Y[0] B[1] new_n15
01 1
.names new_n17 B[0] Y[3]
11 1
.names new_n13 A[0] new_n17
11 1
.end
```