LSV HW1

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2. (b)

read lsv/pa1/mul.blif

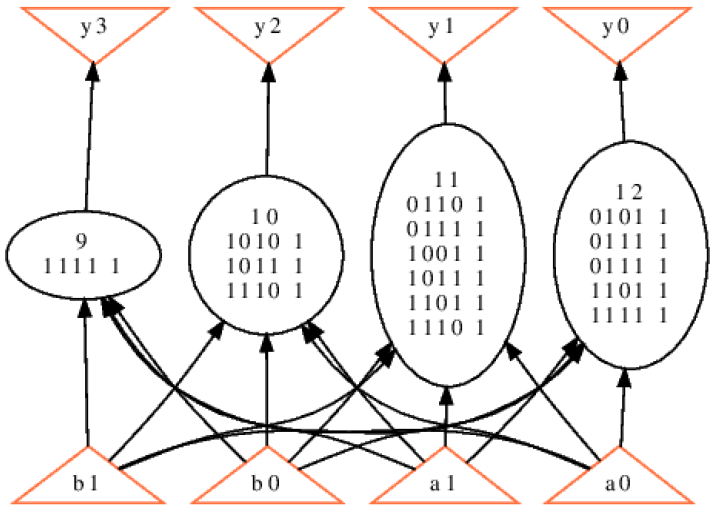
print_stats

```
abc 01> read lsv/pa1/mul.blif
abc 02> print_stats
mul                       : i/o =    4/    4  lat =    0  nd =     4  edge =     16  cube =    15  lev = 1
abc 02> print_stats
```

show

Network structure visualized by ABC
Benchmark "mul". Time was Wed Sep 13 22:15:06 2023.

The network contains 4 logic nodes and 0 latches.



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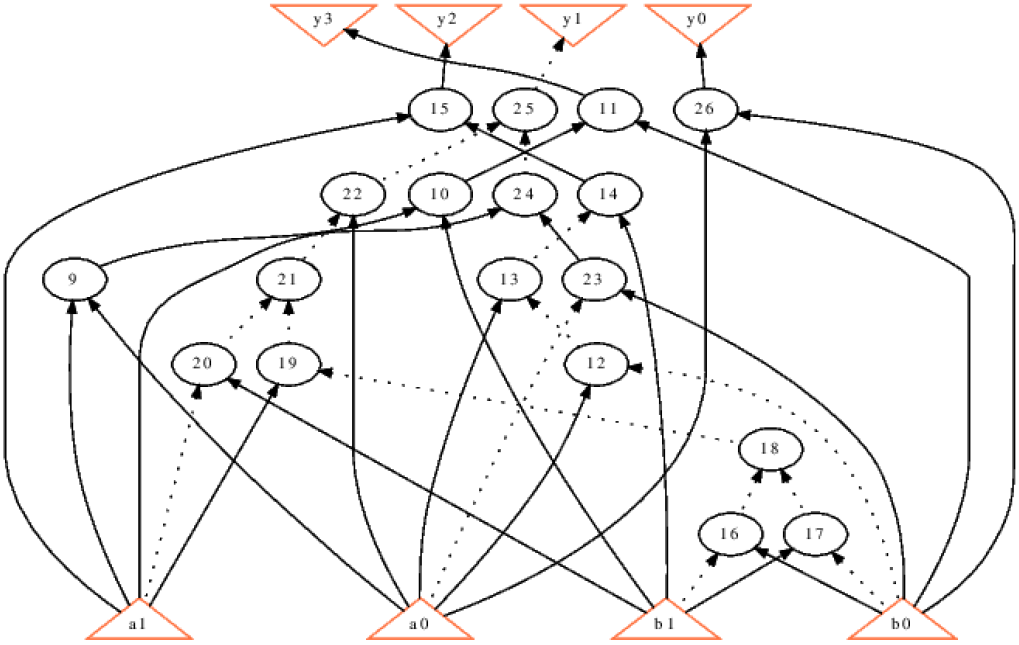
strash

show

```
abc 02> strash
abc 03> show
```

Network structure visualized by ABC
Benchmark "mul". Time was Wed Sep 13 22:16:35 2023.

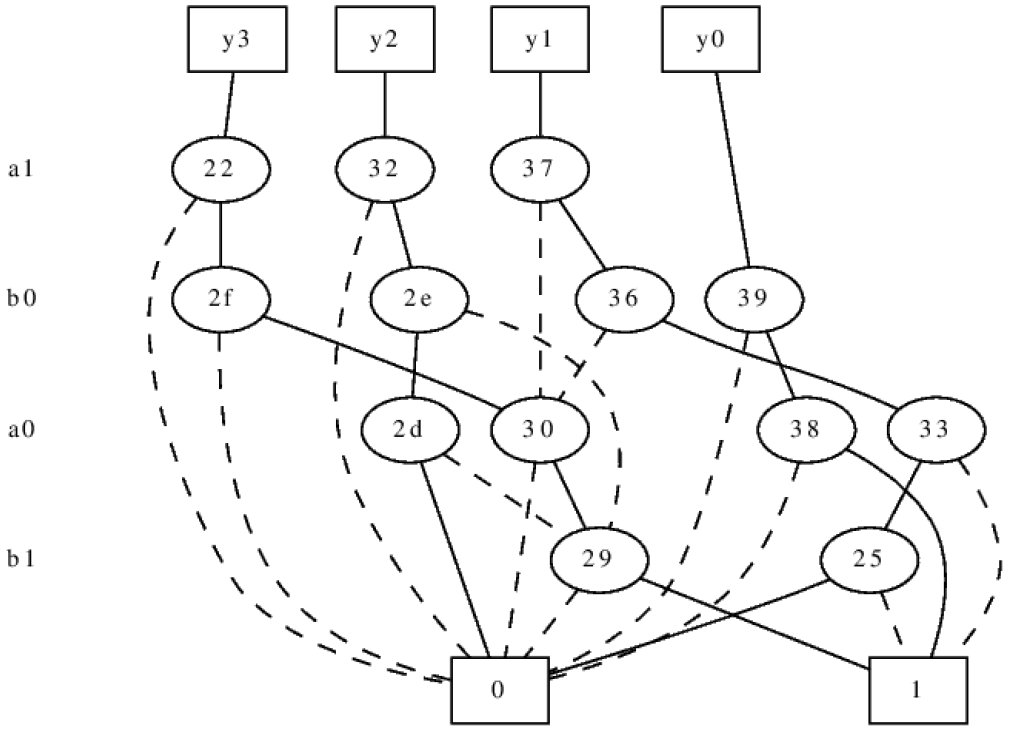
The network contains 18 logic nodes and 0 latches.



collapse

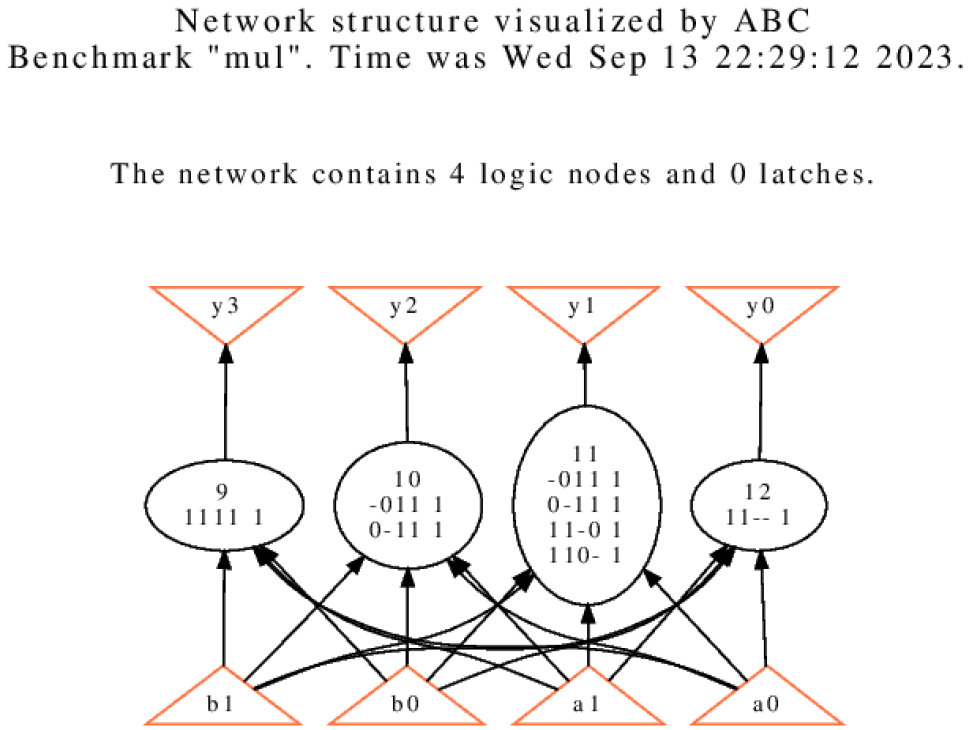
show_bdd -g

```
abc 03> collapse
abc 04> show_bdd -g
```



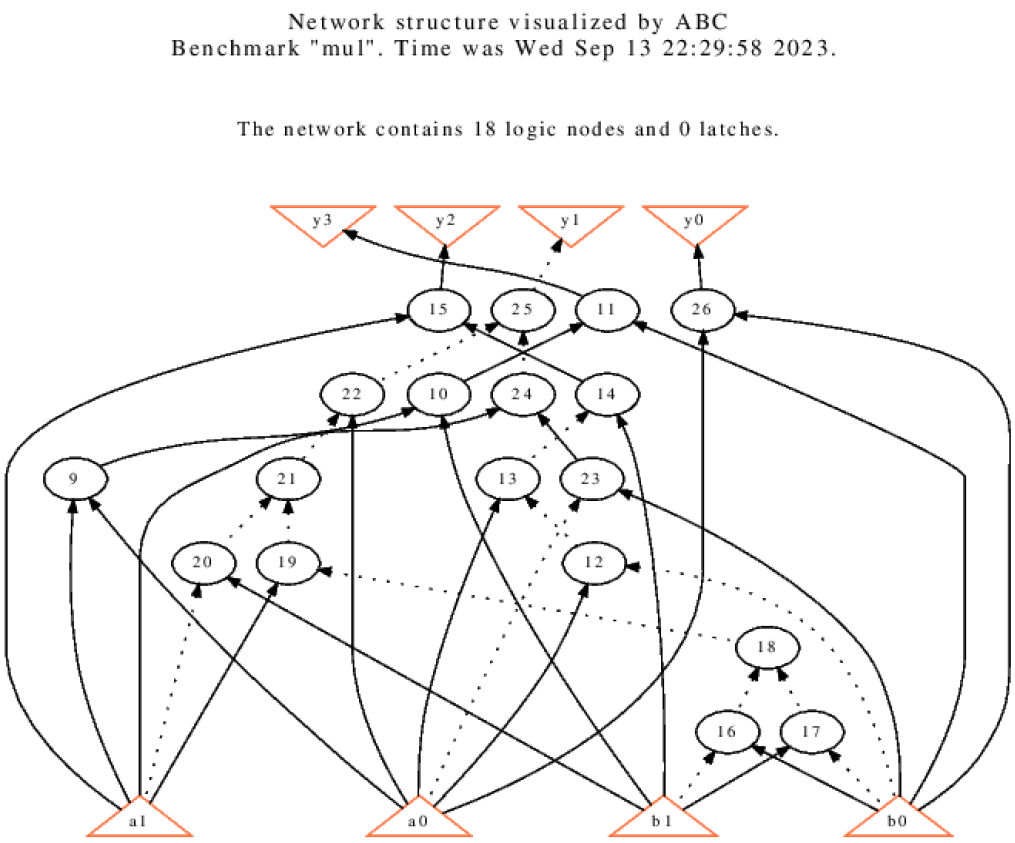
3. (a)

1. AIG



The logic nodes are transformed into AIG gates, but they still are represented in a big node rather than a few AIG nodes. In other words, the transformation is done locally.

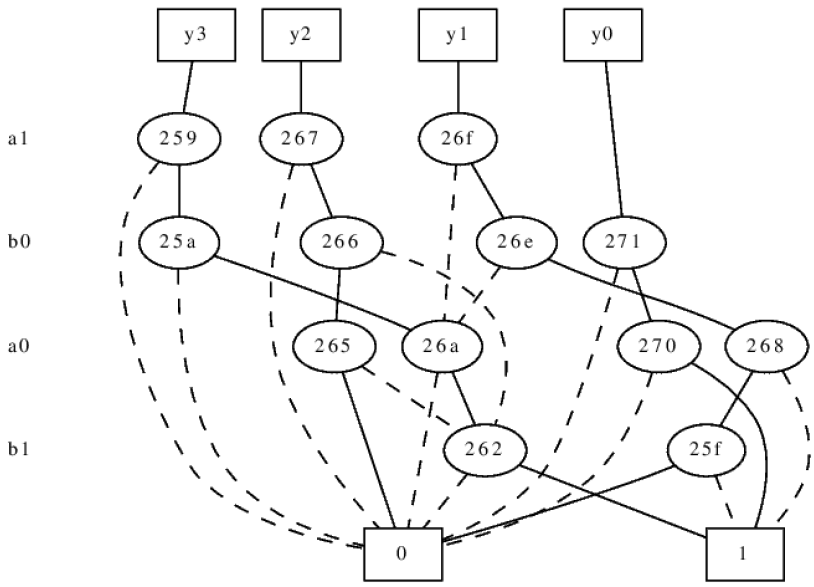
2. structurally hashed AIG



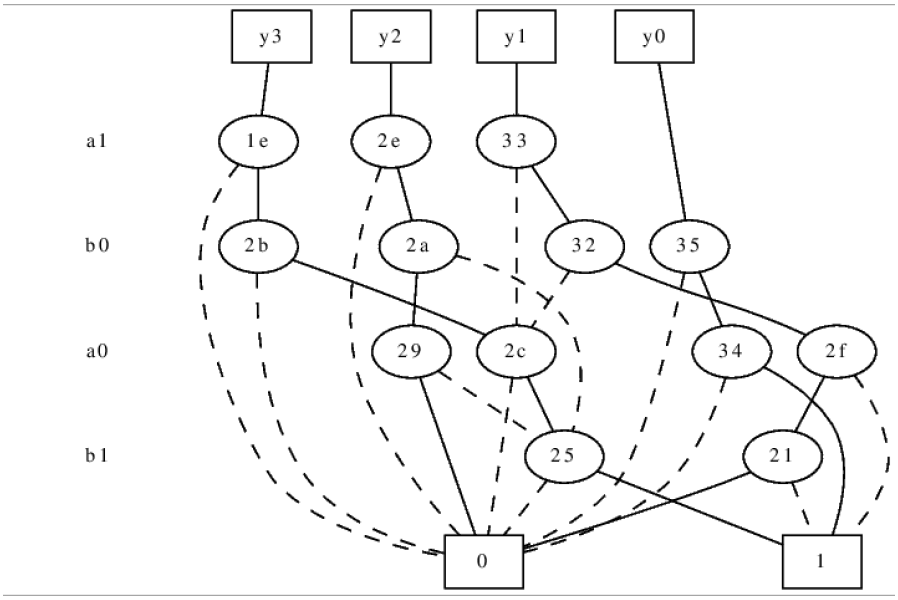
On the other hand, structurally hashed AIG break up the originally node structure to get a better structurally hashed result.

3. (b)

1. BDD



2. collapsed BDD

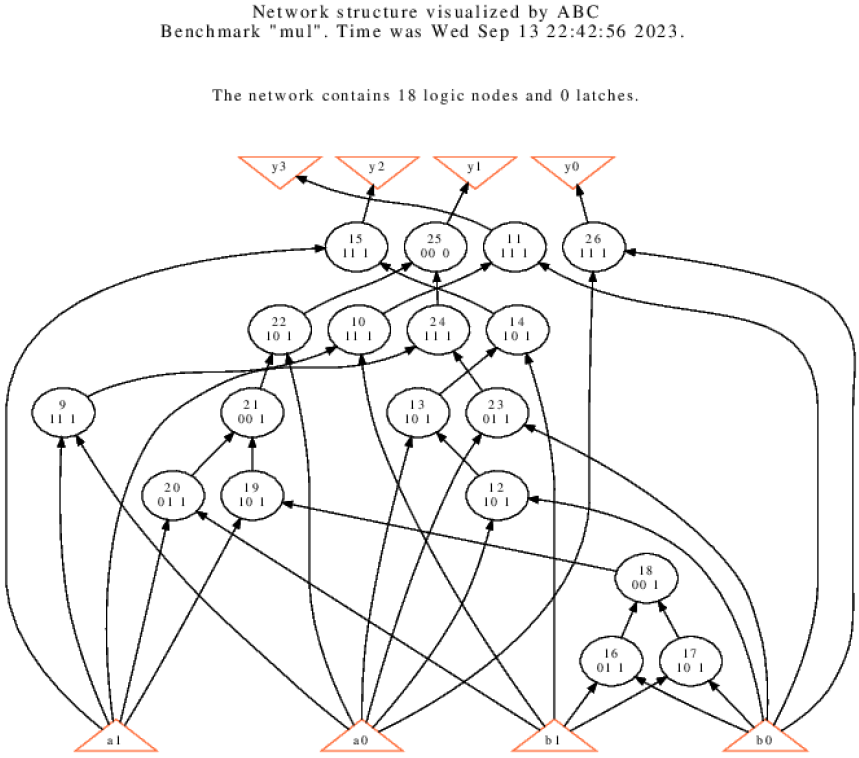


The 2-bit unsigned multiplier may be too simple that BDD and collapsed BDD has the same form. There are still some minor differences between them; “bdd” performs local function and “collapse” performs global function.

(b)

Command: logic

Command “logic” transforms an AIG into a logic network with SOPs.



Reference: https://people.eecs.berkeley.edu/~alanmi/abc/