

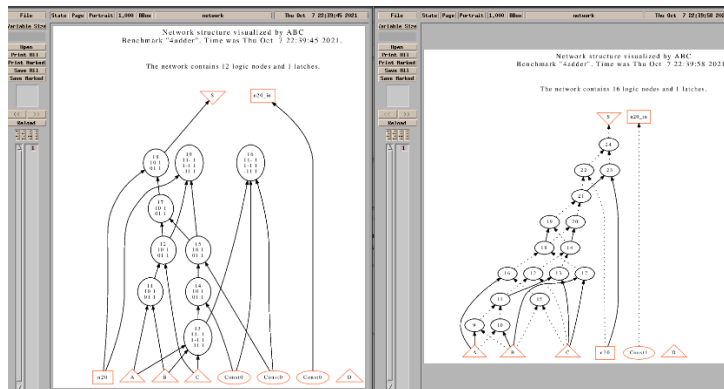
LSV Hw1

B07901078 童子瑜

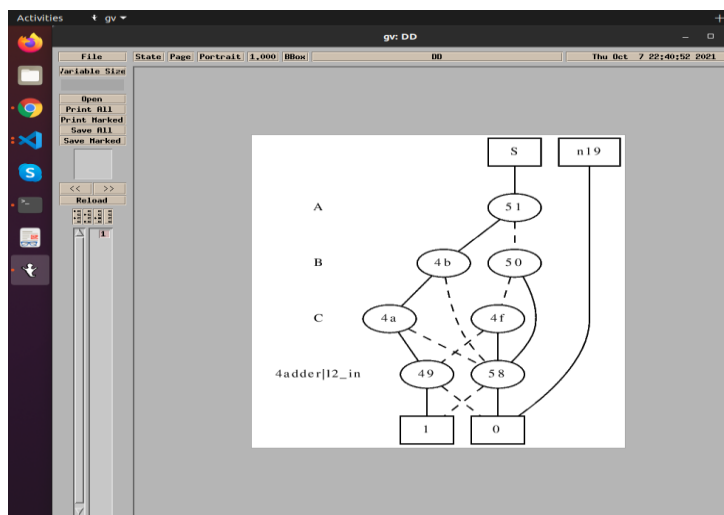
1.(b)

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Activities Terminal + 7 22:41
tzuyu@tzuyu-VivoBook-ASUSLaptop-X435EA-S435EA:~$ cd Desktop
tzuyu@tzuyu-VivoBook-ASUSLaptop-X435EA-S435EA:~/Desktop$ cd LSV/LSV-PA/
tzuyu@tzuyu-VivoBook-ASUSLaptop-X435EA-S435EA:~/Desktop/LSV/LSV-PA$ ./abc
UC Berkeley, ABC 1.01 (compiled Oct 6 2021 21:24:02)
abc 01> read ../PA1/4adder.blif
Warning: Constant-0 drivers added to 2 non-driven nets in network "4adder":
  i1_in, d
Hierarchy reader flattened 3 instances of logic boxes and left 0 black boxes.
abc 02> print_stats
4adder
      : i/o = 4/ 1 lat = 1 nd = 12 edge = 21 cube = 21 lev = 5
abc 02> show
abc 02> Warning: Cannot convert string "--Helvetica-Medium-R-Normal--*140-*-*P*-ISO8859-1" to type FontStruct
Warning: Cannot convert string "--Helvetica-Medium-R-Normal--*120-*-*P*-ISO8859-1" to type FontStruct
Warning: Cannot convert string "--Helvetica-Medium-R-Normal--*100-*-*P*-ISO8859-1" to type FontStruct
Warning: Cannot convert string "--Helvetica-Bold-R-Normal--*120-*-*P*-ISO8859-1" to type FontStruct
abc 02> strash
abc 03> show
abc 03> Warning: Cannot convert string "--Helvetica-Medium-R-Normal--*140-*-*P*-ISO8859-1" to type FontStruct
Warning: Cannot convert string "--Helvetica-Medium-R-Normal--*120-*-*P*-ISO8859-1" to type FontStruct
Warning: Cannot convert string "--Helvetica-Medium-R-Normal--*100-*-*P*-ISO8859-1" to type FontStruct
Warning: Cannot convert string "--Helvetica-Bold-R-Normal--*120-*-*P*-ISO8859-1" to type FontStruct
abc 03> collapse
abc 04> show_bdd_g
abc 04> Warning: Cannot convert string "--Helvetica-Medium-R-Normal--*140-*-*P*-ISO8859-1" to type FontStruct
Warning: Cannot convert string "--Helvetica-Medium-R-Normal--*120-*-*P*-ISO8859-1" to type FontStruct
Warning: Cannot convert string "--Helvetica-Medium-R-Normal--*100-*-*P*-ISO8859-1" to type FontStruct
Warning: Cannot convert string "--Helvetica-Bold-R-Normal--*120-*-*P*-ISO8859-1" to type FontStruct
abc 04>
```

Result of Step3,5



Result of Step7



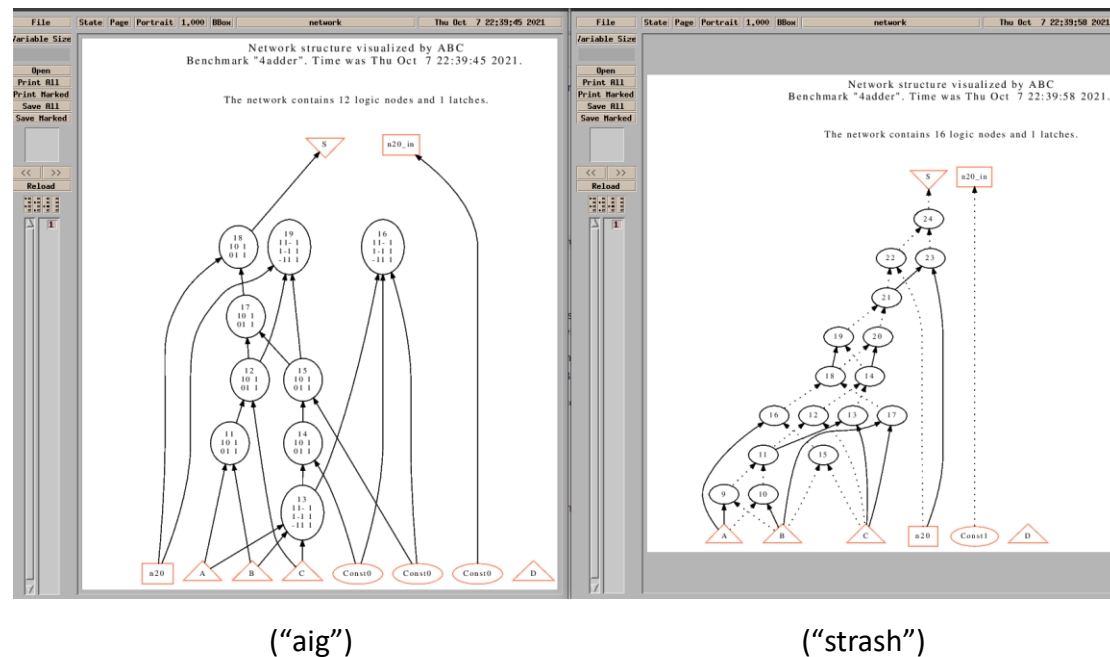
2(a).

(1).

Command “aig” : Unsorted. Converts local functions of the nodes to AIGs

Command “strash” : Transforms the current network into an AIG by one-level structural hashing. The resulting AIG is a logic network composed of two-input AND gates and inverters represented as complemented attributes on the edges.

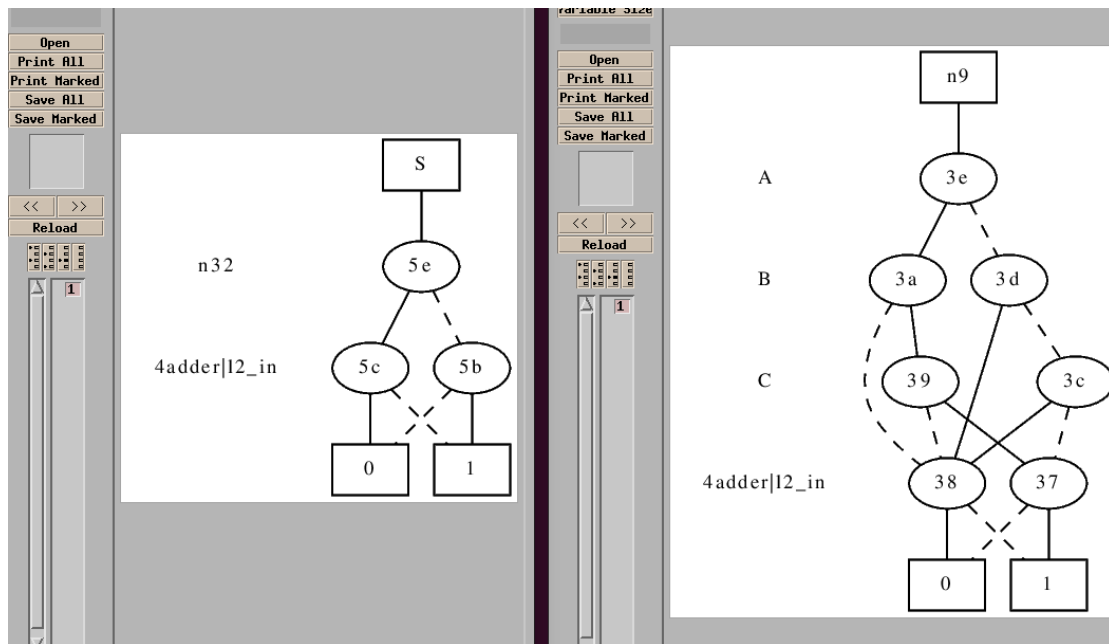
Structural hashing is a purely combinational transformation, which does not modify the number and positions of latches.



(2).

Command “bdd” : Unsorted. Converts local functions of the nodes to BDDs.

Command “collapse” : Recursively composes the fanin nodes into the fanout nodes resulting in a network, in which each CO is produced by a node, whose fanins are CIs. Collapsing is performed by building global functions using BDDs and is, therefore, limited to relatively small circuits. After collapsing, the node functions are represented using BDDs.



("bdd")

("collapse")

2(b).

By using command "logic", we can convert a structurally hashed AIG to a logic network with node function expressed in SOP.