

ROBDD

Reads a single-output Boolean function in PLA format and outputs the corresponding ROBDD in pictorial DOT format.

Requirement

- gcc/clang with C++17 supported
- CMake

Build

```
mkdir build
cd build
cmake -DCMAKE_BUILD_TYPE=Release ..
cmake --build .
```

Support Platforms

GCC/Clang

Run

```
./main [input_pla] [output_dot]
```

Feature

	Name	Description
✓	Read file	Read the content of the pla file.
✓	Handle commands	Handle the commands from read from the pla file.
✓	ROBDD	Reduce the Binary Decision Diagram.
✓	Output file	Output the dot format file's ROBDD.
✓	Output picture	Outputs the corresponding ROBDD in pictorial DOT format.

Test Result

Case 1 ($F = bcd + a'b + abcd' + a'c'd'$)

[example/case3](#)

Input PLA

```
.i 4
.o 1
.ilb a b c d
.ob F
.p 4
-111 1
01-- 1
1110 1
0-00 1
.e
```

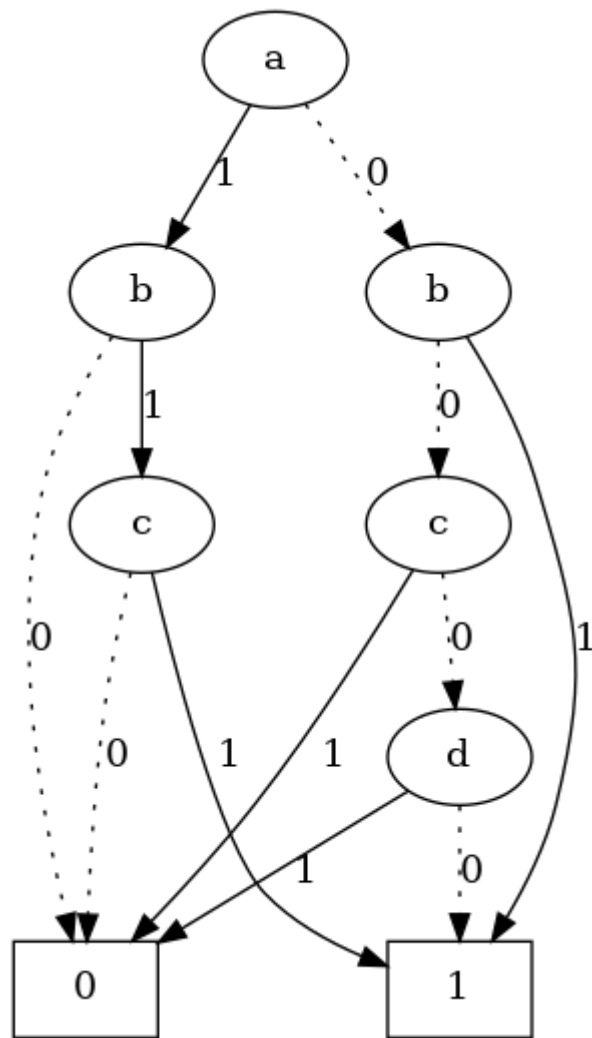
Output Dot

```
digraph ROBDD {
    {rank=same 1}
    {rank=same 2 3}
    {rank=same 4 7}
    {rank=same 8}

    0[label=0, shape=box]
    1[label="a"]
    2[label="b"]
    3[label="b"]
    4[label="c"]
    7[label="c"]
    8[label="d"]
    16[label=1, shape=box]

    1->2[label=0, style=dotted]
    1->3[label=1, style=solid]
    2->4[label=0, style=dotted]
    2->16[label=1, style=solid]
    3->0[label=0, style=dotted]
    3->7[label=1, style=solid]
    4->8[label=0, style=dotted]
    4->0[label=1, style=solid]
    7->0[label=0, style=dotted]
    7->16[label=1, style=solid]
    8->16[label=0, style=dotted]
    8->0[label=1, style=solid]
}
```

Generated PNG



Case 2 ($F = bcd'e + a'bd + b'c'd'e + abcd'e' + a'c'd'e$)

[example/case4](#)

Input PLA

```

.i 5
.o 1
.ilb a b c d e
.ob F
.p 5
-1101 1
01--1 1
-0011 1
11100 1
0-001 1
.e

```

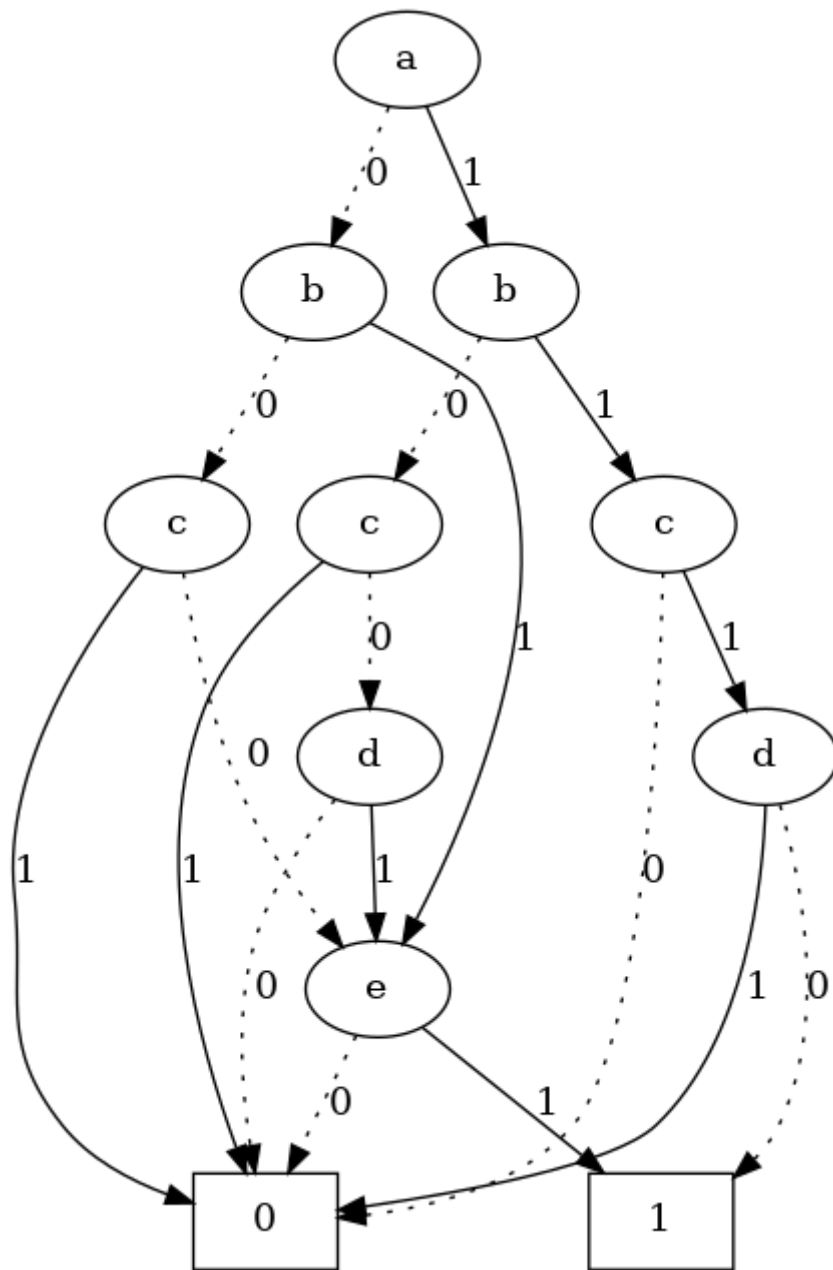
Output Dot

```
digraph ROBDD {
    {rank=same 1}
    {rank=same 2 3}
    {rank=same 4 6 7}
    {rank=same 12 15}
    {rank=same 16}

    0[label=0, shape=box]
    1[label="a"]
    2[label="b"]
    3[label="b"]
    4[label="c"]
    6[label="c"]
    7[label="c"]
    12[label="d"]
    15[label="d"]
    16[label="e"]
    32[label=1, shape=box]

    1->2[label=0, style=dotted]
    1->3[label=1, style=solid]
    2->4[label=0, style=dotted]
    2->16[label=1, style=solid]
    3->6[label=0, style=dotted]
    3->7[label=1, style=solid]
    4->16[label=0, style=dotted]
    4->0[label=1, style=solid]
    6->12[label=0, style=dotted]
    6->0[label=1, style=solid]
    7->0[label=0, style=dotted]
    7->15[label=1, style=solid]
    12->0[label=0, style=dotted]
    12->16[label=1, style=solid]
    15->32[label=0, style=dotted]
    15->0[label=1, style=solid]
    16->0[label=0, style=dotted]
    16->32[label=1, style=solid]
}
```

Generated PNG



Support

Email: allen0523win@gmail.com

Email: B11130225@mail.ntust.edu.tw