

## B10915065 PROJECT2

1.

4 variables PLA files:

$$F = bcd + a'b + b'd + abcd' + a'b'cd'$$

```
ROBDD > 4var.pla
1 .i 4
2 .o 1
3 .ilb a b c d
4 .ob t
5 .p 5
6 -111 1
7 01-- 1
8 -0-1 1
9 1110 1
10 0010 1
11 .e
12
13 F = bcd + a'b+b'd+abcd'+a'b'cd'
```

OBDD.DOT (4variables)

```
digraph OBDD {
    {rank=same 1 }
    {rank=same 2 3 }
    {rank=same 4 5 6 7 }
    {rank=same 8 9 10 11 12 13 14 15 }
    0 [label=0, shape=box]
    1 [label="a"]
    2 [label="b"]
    3 [label="b"]
    4 [label="c"]
    5 [label="c"]
    6 [label="c"]
    7 [label="c"]
```

8 [label="d"]  
9 [label="d"]  
10 [label="d"]  
11 [label="d"]  
12 [label="d"]  
13 [label="d"]  
14 [label="d"]  
15 [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 -> 5 [label="1",style=solid]  
3 -> 6 [label="0",style=dotted]  
3 -> 7 [label="1",style=solid]  
4 -> 8 [label="0",style=dotted]  
4 -> 9 [label="1",style=solid]  
5 -> 10 [label="0",style=dotted]  
5 -> 11 [label="1",style=solid]  
6 -> 12 [label="0",style=dotted]  
6 -> 13 [label="1",style=solid]  
7 -> 14 [label="0",style=dotted]  
7 -> 15 [label="1",style=solid]  
8 -> 0 [label="0",style=dotted]  
8 -> 16 [label="1",style=solid]  
9 -> 16 [label="0",style=dotted]  
9 -> 16 [label="1",style=solid]  
10 -> 16 [label="0",style=dotted]  
10 -> 16 [label="1",style=solid]  
11 -> 16 [label="0",style=dotted]  
11 -> 16 [label="1",style=solid]  
12 -> 0 [label="0",style=dotted]  
12 -> 16 [label="1",style=solid]  
13 -> 0 [label="0",style=dotted]  
13 -> 16 [label="1",style=solid]  
14 -> 0 [label="0",style=dotted]  
14 -> 0 [label="1",style=solid]

```

15 -> 16 [label="0",style=dotted]
15 -> 16 [label="1",style=solid]
}

```

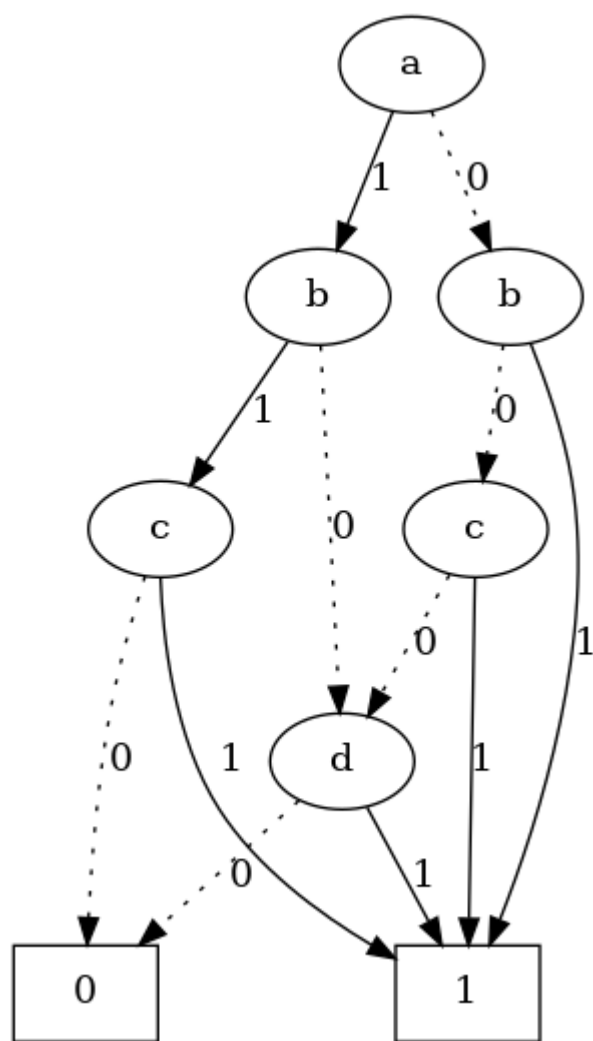
ROBDD.DOT ( 4 variables)

```

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"]
    8 [label="d"]
    7 [label="c"]
    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 -> 8 [label="0",style=dotted]
    3 -> 7 [label="1",style=solid]
    4 -> 8 [label="0",style=dotted]
    4 -> 16 [label="1",style=solid]
    8 -> 0 [label="0",style=dotted]
    8 -> 16 [label="1",style=solid]
    7 -> 0 [label="0",style=dotted]
    7 -> 16 [label="1",style=solid]
}

```



ROBDD (4variables)

2.

5 variables PLA file:

$F = bcd'e + a'b + b'de + a'c'd'e + abe'$

```
ROBDD > 5var.pla
1 .i 5
2 .o 1
3 .ilb a b c d e
4 .ob F
5 .p 5
6 -1101 1
7 01- - 1
8 -0-11 1
9 0-001 1
10 11- -0 1
11 .e
12
13 F = bcd'e+a'b+b'de+a'c'd'e+abe'
```

OBDD.DOT (5variables)

```
digraph OBDD {
    {rank=same 1 }
    {rank=same 2 3 }
    {rank=same 4 5 6 7 }
    {rank=same 8 9 10 11 12 13 14 15 }
    {rank=same 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 }
    0 [label=0, shape=box]
    1 [label="a"]
    2 [label="b"]
    3 [label="b"]
    4 [label="c"]
    5 [label="c"]
    6 [label="c"]
    7 [label="c"]
    8 [label="d"]
    9 [label="d"]
    10 [label="d"]
}
```

11 [label="d"]  
12 [label="d"]  
13 [label="d"]  
14 [label="d"]  
15 [label="d"]  
16 [label="e"]  
17 [label="e"]  
18 [label="e"]  
19 [label="e"]  
20 [label="e"]  
21 [label="e"]  
22 [label="e"]  
23 [label="e"]  
24 [label="e"]  
25 [label="e"]  
26 [label="e"]  
27 [label="e"]  
28 [label="e"]  
29 [label="e"]  
30 [label="e"]  
31 [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 -> 5 [label="1",style=solid]  
3 -> 6 [label="0",style=dotted]  
3 -> 7 [label="1",style=solid]  
4 -> 8 [label="0",style=dotted]  
4 -> 9 [label="1",style=solid]  
5 -> 10 [label="0",style=dotted]  
5 -> 11 [label="1",style=solid]  
6 -> 12 [label="0",style=dotted]  
6 -> 13 [label="1",style=solid]  
7 -> 14 [label="0",style=dotted]  
7 -> 15 [label="1",style=solid]  
8 -> 16 [label="0",style=dotted]

8 -> 17 [label="1",style=solid]  
9 -> 18 [label="0",style=dotted]  
9 -> 19 [label="1",style=solid]  
10 -> 20 [label="0",style=dotted]  
10 -> 21 [label="1",style=solid]  
11 -> 22 [label="0",style=dotted]  
11 -> 23 [label="1",style=solid]  
12 -> 24 [label="0",style=dotted]  
12 -> 25 [label="1",style=solid]  
13 -> 26 [label="0",style=dotted]  
13 -> 27 [label="1",style=solid]  
14 -> 28 [label="0",style=dotted]  
14 -> 29 [label="1",style=solid]  
15 -> 30 [label="0",style=dotted]  
15 -> 31 [label="1",style=solid]  
16 -> 0 [label="0",style=dotted]  
16 -> 32 [label="1",style=solid]  
17 -> 0 [label="0",style=dotted]  
17 -> 32 [label="1",style=solid]  
18 -> 0 [label="0",style=dotted]  
18 -> 0 [label="1",style=solid]  
19 -> 0 [label="0",style=dotted]  
19 -> 32 [label="1",style=solid]  
20 -> 32 [label="0",style=dotted]  
20 -> 32 [label="1",style=solid]  
21 -> 32 [label="0",style=dotted]  
21 -> 32 [label="1",style=solid]  
22 -> 32 [label="0",style=dotted]  
22 -> 32 [label="1",style=solid]  
23 -> 32 [label="0",style=dotted]  
23 -> 32 [label="1",style=solid]  
24 -> 0 [label="0",style=dotted]  
24 -> 0 [label="1",style=solid]  
25 -> 0 [label="0",style=dotted]  
25 -> 32 [label="1",style=solid]  
26 -> 0 [label="0",style=dotted]  
26 -> 0 [label="1",style=solid]  
27 -> 0 [label="0",style=dotted]

```

27 -> 32 [label="1",style=solid]
28 -> 32 [label="0",style=dotted]
28 -> 0 [label="1",style=solid]
29 -> 32 [label="0",style=dotted]
29 -> 0 [label="1",style=solid]
30 -> 32 [label="0",style=dotted]
30 -> 32 [label="1",style=solid]
31 -> 32 [label="0",style=dotted]
31 -> 0 [label="1",style=solid]
}

```

ROBDD.DOT (5variables)

```

digraph ROBDD {
    {rank=same 1 }
    {rank=same 2 3 }
    {rank=same 4 7 }
    {rank=same 9 15 }
    {rank=same 16 28 }
    0 [label=0, shape=box]
    1 [label="a"]
    2 [label="b"]
    3 [label="b"]
    4 [label="c"]
    9 [label="d"]
    7 [label="c"]
    16 [label="e"]
    28 [label="e"]
    15 [label="d"]
    32 [label=1, shape=box]

    1 -> 2 [label="0",style=dotted]
    1 -> 3 [label="1",style=solid]
    2 -> 4 [label="0",style=dotted]
    2 -> 32 [label="1",style=solid]
    3 -> 9 [label="0",style=dotted]
    3 -> 7 [label="1",style=solid]
    4 -> 16 [label="0",style=dotted]
    4 -> 9 [label="1",style=solid]
    9 -> 0 [label="0",style=dotted]
}

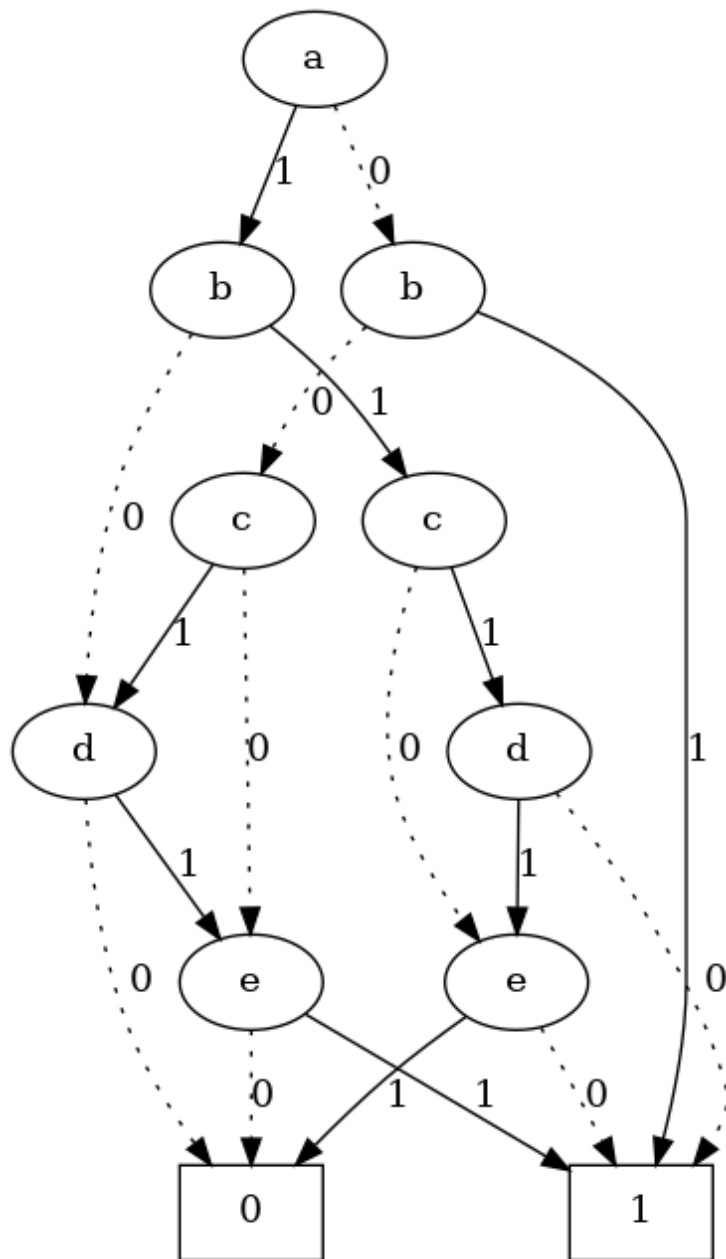
```



```

9 -> 16 [label="1",style=solid]
7 -> 28 [label="0",style=dotted]
7 -> 15 [label="1",style=solid]
16 -> 0 [label="0",style=dotted]
16 -> 32 [label="1",style=solid]
28 -> 32 [label="0",style=dotted]
28 -> 0 [label="1",style=solid]
15 -> 32 [label="0",style=dotted]
15 -> 28 [label="1",style=solid]
}

```



ROBDD (5variables)

