CSCE 625
Programming Assignment #4

PROGRAM TRANSCRIPTS

//For Sammy's Sport Shop problem

```
$ ./a.out sammys.kb
0: -C1W -L1W
1: -C1Y -L1Y
2: -C1B -L1B
3: -C2W -L2W
4: -C2Y -L2Y
5: -C2B -L2B
6: -C3W -L3W
7: -C3Y -L3Y
8: -C3B -L3B
9: C1B C1W C1Y
10: C2B C2W C2Y
11: C3B C3W C3Y
12: -C1B -C1W
13: -C1B -C1Y
14: -C1W -C1Y
15: -C2B -C2W
16: -C2B -C2Y
17: -C2W -C2Y
18: -C3B -C3W
19: -C3B -C3Y
20: -C3W -C3Y
21: -C1W -C2W
22: -C1W -C3W
23: -C1Y -C2Y
24: -C1Y -C3Y
25: -C1B -C2B
26: -C1B -C3B
27: -C2W -C3W
28: -C2Y -C3Y
29: -C2B -C3B
30: C1B C1Y -O1Y
31: C1B C1W -O1W
32: C2B C2Y -O2Y
33: C2B C2W -O2W
34: C3B C3Y -O3Y
35: C3B C3W -O3W
```

36: L1W
37: L2Y
38: L3B
39: O1Y
40: O2W
41: O3Y
42: -C2W
iteration 1, queue size 98, resolution on 0 and 36
resolving -C1W v -L1W and L1W
43: -C1W generated from 0 and 36
iteration 2, queue size 99, resolution on 4 and 37
resolving -C2Y v -L2Y and L2Y
44: -C2Y generated from 4 and 37
iteration 3, queue size 100, resolution on 8 and 38
resolving -C3B v -L3B and L3B
45: -C3B generated from 8 and 38
iteration 4, queue size 102, resolution on 33 and 40
resolving C2B v C2W v -O2W and O2W
46: C2B v C2W generated from 33 and 40
iteration 5, queue size 111, resolution on 46 and 42
resolving C2B v C2W and -C2W
47: C2B generated from 46 and 42
iteration 6, queue size 115, resolution on 47 and 5
resolving C2B and -C2B v -L2B
48: -L2B generated from 47 and 5
iteration 7, queue size 114, resolution on 47 and 15
resolving C2B and -C2B v -C2W
iteration 8, queue size 113, resolution on 47 and 16
resolving C2B and -C2B v -C2Y
iteration 9, queue size 112, resolution on 47 and 25
resolving C2B and -C1B v -C2B
49: -C1B generated from 47 and 25
iteration 10, queue size 114, resolution on 47 and 29
resolving C2B and -C2B v -C3B
iteration 11, queue size 113, resolution on 33 and 42
resolving C2B v C2W v -O2W and -C2W
50: C2B v -O2W generated from 33 and 42
iteration 12, queue size 118, resolution on 50 and 40
resolving C2B v -O2W and O2W
iteration 13, queue size 117, resolution on 49 and 9
resolving -C1B and C1B v C1W v C1Y
51: C1W v C1Y generated from 49 and 9
iteration 14, queue size 126, resolution on 51 and 43
resolving C1W v C1Y and -C1W

52: C1Y generated from 51 and 43
iteration 15, queue size 130, resolution on 52 and 1
resolving C1Y and -C1Y v -L1Y
53: -L1Y generated from 52 and 1
iteration 16, queue size 129, resolution on 52 and 13
resolving C1Y and -C1B v -C1Y
iteration 17, queue size 128, resolution on 52 and 14
resolving C1Y and -C1W v -C1Y
iteration 18, queue size 127, resolution on 52 and 23
resolving C1Y and -C1Y v -C2Y
iteration 19, queue size 126, resolution on 52 and 24
resolving C1Y and -C1Y v -C3Y
54: -C3Y generated from 52 and 24
iteration 20, queue size 127, resolution on 49 and 30
resolving -C1B and C1B v C1Y v -O1Y
55: C1Y v -O1Y generated from 49 and 30
iteration 21, queue size 132, resolution on 55 and 39
resolving C1Y v -O1Y and O1Y
iteration 22, queue size 131, resolution on 50 and 5
resolving C2B v -O2W and -C2B v -L2B
56: -L2B v -O2W generated from 50 and 5
iteration 23, queue size 131, resolution on 56 and 40
resolving -L2B v -O2W and O2W
iteration 24, queue size 130, resolution on 51 and 23
resolving C1W v C1Y and -C1Y v -C2Y
57: C1W v -C2Y generated from 51 and 23
iteration 25, queue size 137, resolution on 57 and 43
resolving C1W v -C2Y and -C1W
iteration 26, queue size 136, resolution on 54 and 34
resolving -C3Y and C3B v C3Y v -O3Y
58: C3B v -O3Y generated from 54 and 34
iteration 27, queue size 142, resolution on 58 and 41
resolving C3B v -O3Y and O3Y
59: C3B generated from 58 and 41
iteration 28, queue size 147, resolution on 59 and 45
resolving C3B and -C3B
success! empty clause found
60: [] [59,45]
59: C3B [58,41]
58: C3B v -O3Y [54,34]
54: -C3Y [52,24]
52: C1Y [51,43]
51: C1W v C1Y [49,9]
49: -C1B [47,25]

47: C2B [46,42]
46: C2B v C2W [33,40]
33: C2B v C2W v -O2W [input]
40: O2W [input]
42: -C2W [input]
25: -C1B v -C2B [input]
9: C1B v C1W v C1Y [input]
43: -C1W [0,36]
0: -C1W v -L1W [input]
36: L1W [input]
24: -C1Y v -C3Y [input]
34: C3B v C3Y v -O3Y [input]
41: O3Y [input]
45: -C3B [8,38]
8: -C3B v -L3B [input]
38: L3B [input]

Total number of resolutions (iterations of the main loop) : 28
Max queue size : 147

Report:
Total number of resolutions (iterations of the main loop) : 28
Max queue size : 147

//For given example in question (example1.kb)

$ ./a.out example1.kb
0: -P -Q R S
1: -A -R
2: A
3: P
4: Q
5: -S
iteration 1, queue size 5, resolution on 1 and 2
resolving -A v -R and A
6: -R generated from 1 and 2
iteration 2, queue size 5, resolution on 0 and 4
resolving -P v -Q v R v S and Q
7: -P v R v S generated from 0 and 4
iteration 3, queue size 8, resolution on 7 and 3
resolving -P v R v S and P

8: R v S generated from 7 and 3
iteration 4, queue size 10, resolution on 8 and 5
resolving R v S and -S
9: R generated from 8 and 5
iteration 5, queue size 11, resolution on 9 and 6
resolving R and -R
success! empty clause found
 10: [] [9,6]
  9: R [8,5]
   8: R v S [7,3]
    7: -P v R v S [0,4]
     0: -P v -Q v R v S [input]
     4: Q [input]
    3: P [input]
   5: -S [input]
  6: -R [1,2]
   1: -A v -R [input]
   2: A [input]

Total number of resolutions (iterations of the main loop) : 5
Max queue size : 11

Report:
Total number of resolutions (iterations of the main loop) : 5
Max queue size : 11