1. $n:$ number of variable
   $d:$ size of domain

	Time	Space
(a) DFS	$O((nd)^n)$	$O(n^2 d)$
(b) Backtracking	$O(d^n)$	$O(n)$

2.

$$\{\ \}$$

$$|$$

$$\{\ NT = blue\ \}$$

$$\{\ \cdots\ \atop SA = red\ \}\qquad\qquad \{\ \cdots\ \atop SA = green\ \}$$

$$|$$

$$\{\ \cdots\ \atop Q = green\ \}$$

$$|$$

$$\{\ \cdots\ \atop NSW = blue\ \}$$

$$|$$

$$\{\ \cdots\ \atop WA = green\ \}$$

$$|$$

$$\{\ \cdots\ \atop V = green\ \}$$

$$\{\ \cdots\ \atop T = red\ \}\qquad \{\ \cdots\ \atop T = green\ \}\qquad \{\ \cdots\ \atop T = blue\ \}$$

3. Level...① MRV: X_1, X_2, O (two legal values)
      Degree: X_1: 5   (unassigned neighbors)
              X_2: 5
              O: 4
      choose X_1
② MRV: X_2, O (two legal values)
      Degree: X_2: 4   (unassigned neighbors)
              O: 3
      choose X_2
③ MRV: O (two legal values)
      choose O
④ MRV: T, E (one legal value)
      degree: T: 0   (unassigned neighbors)
              E: 0
      choose T
⑤ MRV: E (one legal value)
      choose E
⑥ MRV: N, W (ten legal values)
      degree: N: 1   (unassigned neighbor)
              W: 1
      choose N
⑦ choose W

Level	1	2	3	4	5	6	7
Variable	X_1	X_2	O	T	E	N	W

4. (a)

After Forward checking

B	C	D
G	R	GB

(b) Initial content of queue:

B→C B→P C→B C→D D→B D→C

After AC-3

B	C	D
G	R	B