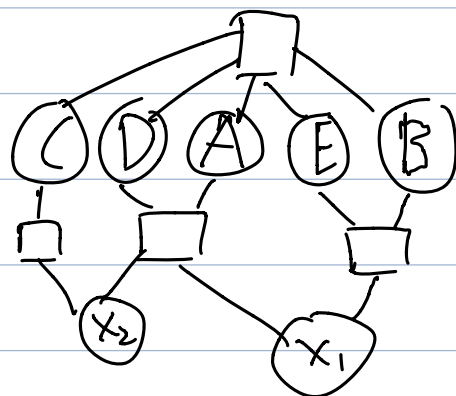
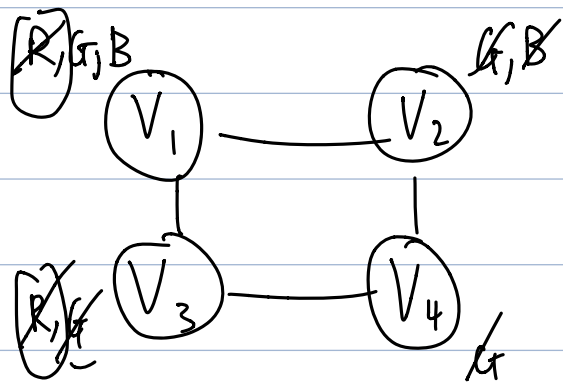


1.	Standard Search Problem	Constraint Satisfaction Problem
Similarity	<ul style="list-style-type: none"> <li>- Both requires heuristics which is used to find optimal sol<sup>n</sup>.</li> <li>- Both have a goal test.</li> </ul>	
Differences	<ul style="list-style-type: none"> <li>- Interested in sequence of action to the goal</li> <li>- Actions (path) have various costs, depths</li> <li>- SCP cannot be formulated as a CSP</li> </ul>	<ul style="list-style-type: none"> <li>- Interested in the goal itself, not the sequence of actions there</li> <li>- All actions (path) at the same depth</li> <li>- CSP can be formulated as a SCP</li> </ul>

2. Variables: A B C D E X<sub>1</sub> X<sub>2</sub>  
Domains: {0, 1, 2, 3, 4, 5, 6, 7, 8, 9}  
Constraints: - all diff (A, B, C, D, E)  
-  $B + B = E + 10X_1$   
-  $A + A + X_1 = D + 10X_2$   
-  $X_2 = C$





(Backtrack)

③

$V_1$  R

$V_2$  G

$V_3$  R

$V_3$  G

$V_4$  G

$V_2$  B

$V_3$  R

$V_3$  G

$V_4$  G

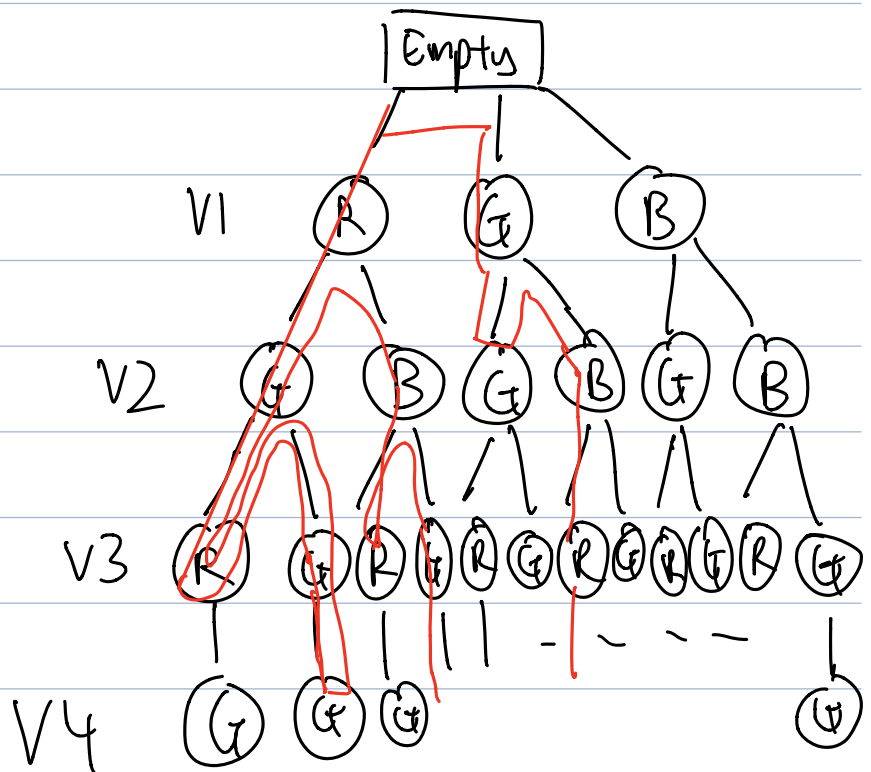
$V_1$  G

$V_2$  G

$V_2$  B

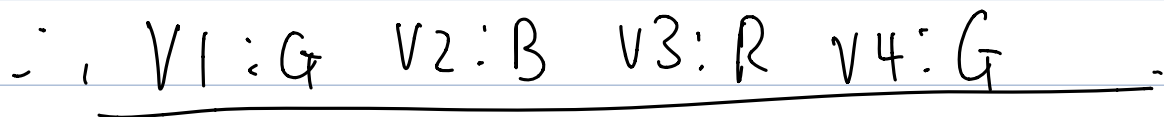
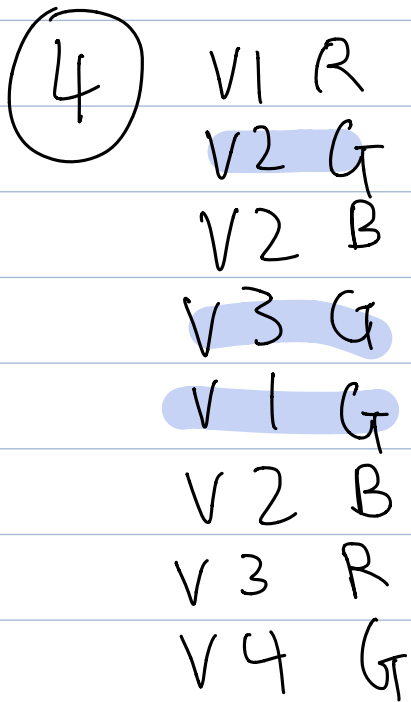
$V_3$  R

$V_4$  G

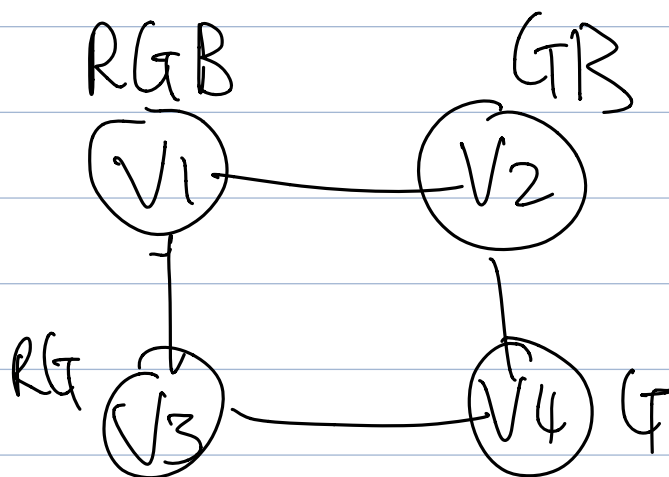


G — B  
R — G

$\therefore V_1: G, V_2: B, V_3: R, V_4: G$



5.



Queue

~~$V1 \rightarrow V2$~~  :  $D1 = RGB$ ,  $D2 = GB$   
 ~~$V2 \rightarrow V1$~~  :  $D2 = GB$ ,  $D1 = RGB$   
 ~~$V4 \rightarrow V2$~~  :  $D4 = G$ ,  $D2 = GB$   
 ~~$V2 \rightarrow V4$~~  :  $D2 = GB$ ,  $D4 = G$   
 ~~$V1 \rightarrow V3$~~  :  $D1 = RGB$ ,  $D3 = RG$   
 ~~$V3 \rightarrow V1$~~  :  $D3 = RG$ ,  $D1 = RGB$   
 ~~$V3 \rightarrow V4$~~  :  $D3 = RG$ ,  $D4 = G$   
 $V4 \rightarrow V3$  :  $D4 = G$ ,  $D3 = R$   
 $V1 \rightarrow V2$  :  $D1 = RGB$ ,  $D2 = B$   
 $V4 \rightarrow V2$  :  $D4 = G$ ,  $D2 = B$   
 $V1 \rightarrow V3$  :  $D1 = RG$ ,  $D3 = R$   
 $V2 \rightarrow V1$  :  $D2 = B$ ,  $D1 = G$   
 $V3 \rightarrow V1$  :  $D3 = R$ ,  $D1 = G$

$\therefore D1 = G, D2 = B, D3 = R, D4 = G$

ARC

$V1 \rightarrow V2$   
 $V2 \rightarrow V1$   
 $V4 \rightarrow V2$   
 $V2 \rightarrow V4$   
 $V1 \rightarrow V3$   
 $V3 \rightarrow V1$   
 $V3 \rightarrow V4$   
 $V4 \rightarrow V3$