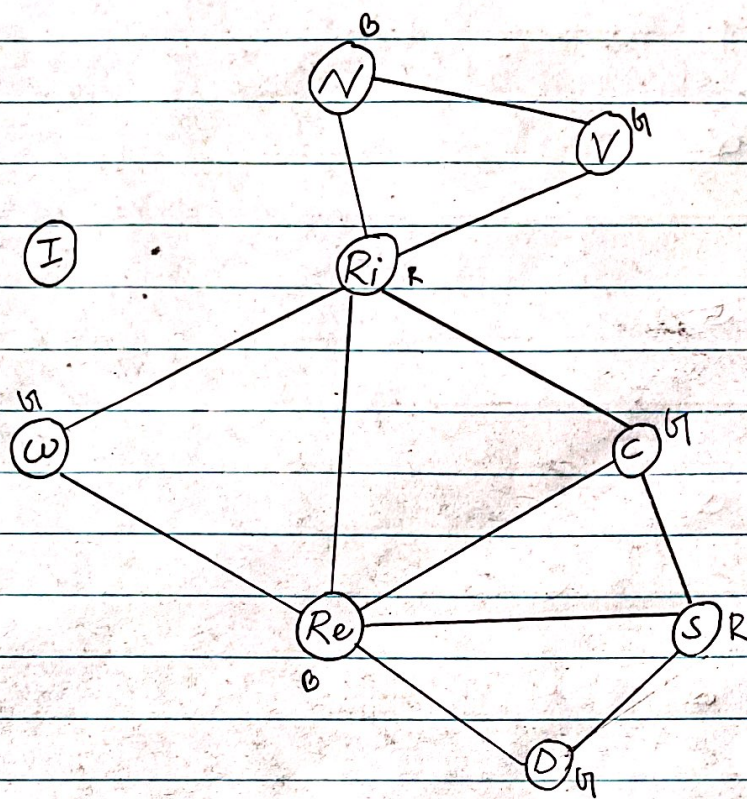Nabin Shrestha

(1)

Variables = { N, V, Ri, I, ω, C, Re, S, D }

Domain = { Red, Green, Blue }.

Constraints = { N≠Ri, V≠Ri, Ri≠ω, Ri≠C, N≠V, ω≠Re, Ri≠Re, Re≠C, Re≠S, Re≠D, S≠C, S≠D }

$$\text{ratio} = \frac{\text{low remaining value}}{\text{high heuristic value}}$$

Variables	N	V	Ri	I	W	Re	C	S	D
initials	3/0	3/2	3/5 Red	3/0	3/2	3/5	3/3	3/3	3/2
	2/1	2/1		3/0	2/1	2/4 Blue	2/2	3/3	3/2
	2/1	2/1		3/0	1/0 Green		1/1 Green	2/2	2/1
	2/1	2/1		3/0	1/0			1/1 Red	2/1
	2/1	2/1		3/0	1/0 Green				1/0 Green
	2/1 Blue	2/1		3/0 Red					
		1/0 Green							

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	Initial domain			Variables			
	N	V	Ri'	I	c	Re	c
Ri = R	Bq	Bq	Rq0	Bq	Bq	Bq	Rq0
N = q	q	θ	Rq0	Rq	Bq	Bq	Rq0
W = θ	q	θ	R	Rq0	θ	q	θ

(d)

→ No, we cannot use structure of the problem to make it more efficient

(e)

Variable	N	V	R:Ri	I	W	C	Re	S	θ
	Blue	Green	Red	Red	Green	Blue	Green	Red	Green

Task 2

character	code
S	9
E	5
N	6
8	7
M	1
O	0
Y	2
R	8

```
    S   E   N   D
+   M   O   R   E
M   O   N   E   Y
```

```
    9   5   6   7
+   1   0   8   5
1   0   6   5   2
```

$$D + E = Y + 10 \cdot c_1$$
$$N + R + c_1 = E + 10 \cdot c_2$$
$$E + O + c_2 = N + 10 \cdot c_3$$
$$S + M + c_3 = O + 10 \cdot c_4$$
$$F = c_4$$