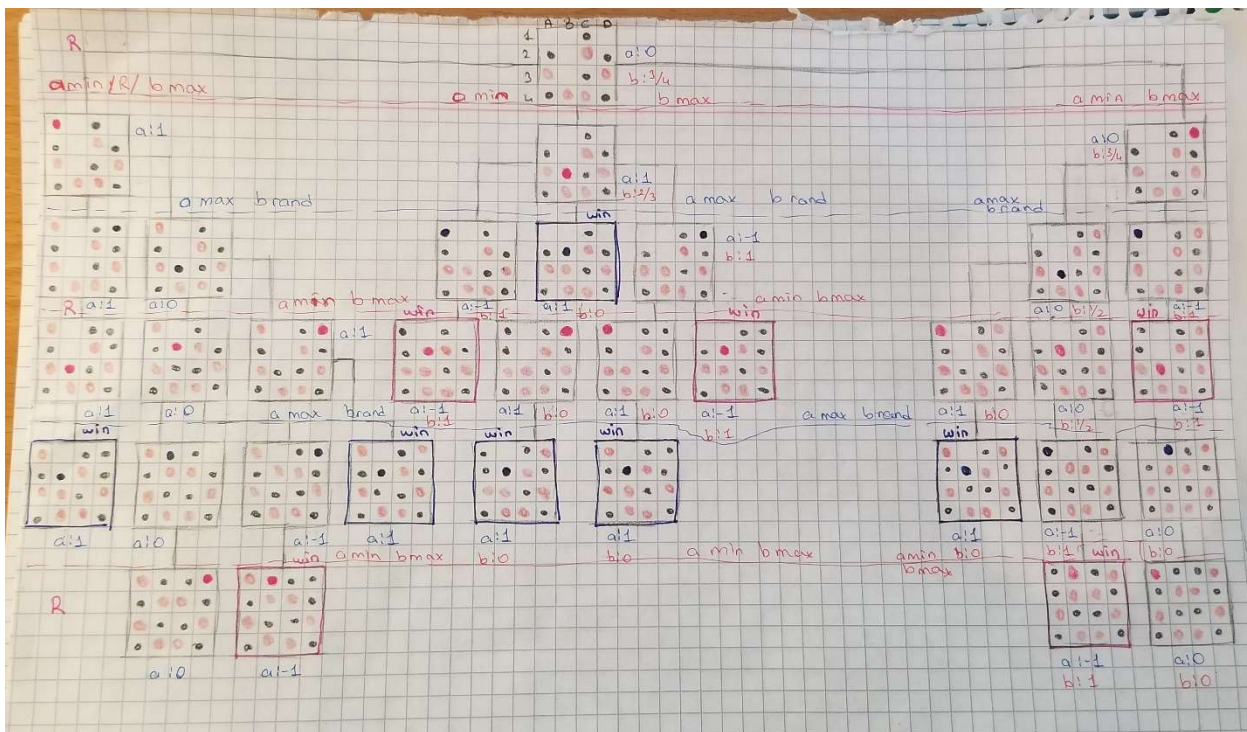


Tree of Q2:



## Homework 2

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1-)

a-) I think using forward checking would be easier for this problem.

2-)

a-) path: red(1,D) - blue(3,B) - red(2,B) - blue(1,B) - red(1,A)

conclusion: It's a tie.

b-) There are 3 options because blue is randomized

path 1: r(1,D)  $\rightarrow$  3/4 - b(1,A)  $\rightarrow$  rand - r(3,B)  $\rightarrow$  1

conclusion: red wins.

path 2: r(1,D)  $\rightarrow$  3/4 - b(3,B)  $\rightarrow$  rand - r(2,B)  $\rightarrow$  1/2 - b(1,B)  $\rightarrow$  rand - r(1,A)

conclusion: it's a tie.

path 3: r(1,D)  $\rightarrow$  3/4 - b(3,B)  $\rightarrow$  rand - r(2,B)  $\rightarrow$  1/2 - b(1,A)  $\rightarrow$  rand - r(1,B)  $\rightarrow$  1

conclusion: red wins.

3-) KB

a-)  $\forall x \text{ literature}(x) \vee \text{game}(x) \vee \text{cinema}(x)$

$\forall x \text{ cinema}(x) \Rightarrow \text{like}(x, \text{popcorn})$

$\forall x \text{ literature}(x) \Rightarrow \neg \text{like}(x, \text{cola})$

$\text{like}(\text{Baris}, \text{cola})$

$\text{like}(\text{Baris}, \text{popcorn})$

$\text{like}(\text{Ayse}, \text{cola})$

$\neg \text{like}(\text{Ayse}, \text{popcorn})$

$\forall y \neg \text{like}(\text{Ayse}, y) \Rightarrow \text{like}(\text{cem}, y)$

b-) KB in CNF

Resolution: KB  $\wedge \neg \alpha \rightarrow$  unsatisfiable

1.  $\text{literature}(x) \vee \text{game}(x) \vee \text{cinema}(x)$

2.  $\neg \text{cinema}(x) \vee \text{like}(x, \text{popcorn})$

3.  $\neg \text{literature}(x) \vee \neg \text{like}(x, \text{cola})$

4.  $\text{like}(\text{Ayse}, \text{cola})$

5.  $\neg \text{like}(\text{Ayse}, \text{popcorn})$

6.  $\neg \alpha: \neg \text{game}(x)$

1, 6  $\rightarrow$  7.  $\text{literature}(x) \vee \text{cinema}(x)$

2, 7  $\rightarrow$  8.  $\text{like}(x, \text{popcorn}) \vee \text{literature}(x)$

3, 8  $\rightarrow$  9.  $\neg \text{like}(x, \text{cola}) \vee \text{like}(x, \text{popcorn})$

4, 9  $\rightarrow$  10.  $\text{like}(x, \text{popcorn})$

5, 10  $\rightarrow$  11.  $\emptyset \rightarrow$  KB is unsatisfiable

1-) Numberized blocks in code  $\Rightarrow$

Please use the left bottom corners of blocks when you give (x,y) coordinate of block

