Exercise 1.7 Two Children Paradox - Birthday Party!

We know that we meet a lady who is the mother of one of the boys present. We don't meet the other boy. We use A to L to represent months, upper letter to represent boys, lower letter to represent girls

So she has a boy born in July,recorded G(g for seventh month, upper for boy). She has two children named x(appears) and y(unknown)

1 Considering those cases:

1.1 The other child is absent from this meeting since he or she is unqualified and no child will forget this meeting as long as he or she can attend it.

Condition :x=G,y!=G

So we have such cases:AG,BG,CG,DG,EG,FG,HG,IG,JG,KG,LG, 11

aG,bG,cG,dG...lG 12

Ga, Gb,Gc....Gl 12

Overall we have conditions 12+12+11=35, and we have conditions with girls 12+12=24, probability 24/35

1.2 The other child is absent from this meeting and the child will never appear no matter when he is born since he forget the meeting.

Condition x=G, y can be any number.

Probability=2/3.

1.3 The boy is absent with a probability of P(forget) to forget the meeting,or the child is unqualified.

Condition:When P(forget)' happens, it comes to 1.1, when P(forget) happens, it comes to 1.2

P=P(girl|forget)+P(girl| forget')=2/3*p(forget)+24/35*(1-p(forget))=24/35-2/105*P(forget)

1.4 There is a possibility P(present)that the other child is present while his mother don't take the child with her when meeting you. Suppose if a child is present he must be G.

Condition:Only when y's P(present') happens go to cases above, otherwise P(g|present) is zero.

P=(24/35-2/105*P(forget))*P(present')