Figure 1: Q01: L_1 = (a+b)*a

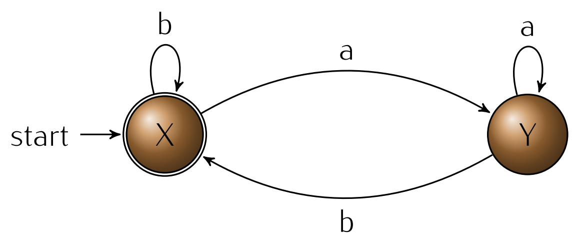


Figure 2: Q01: L_2= b(a+b)*

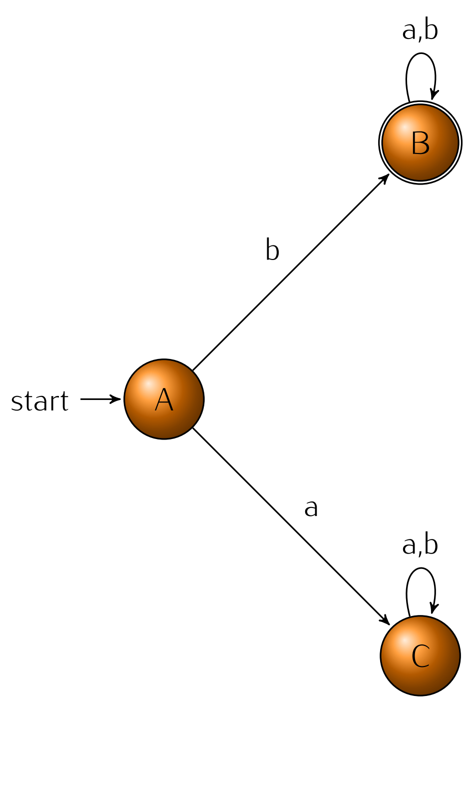


Figure 3: Q01: $L_1 \bigcap L_2$

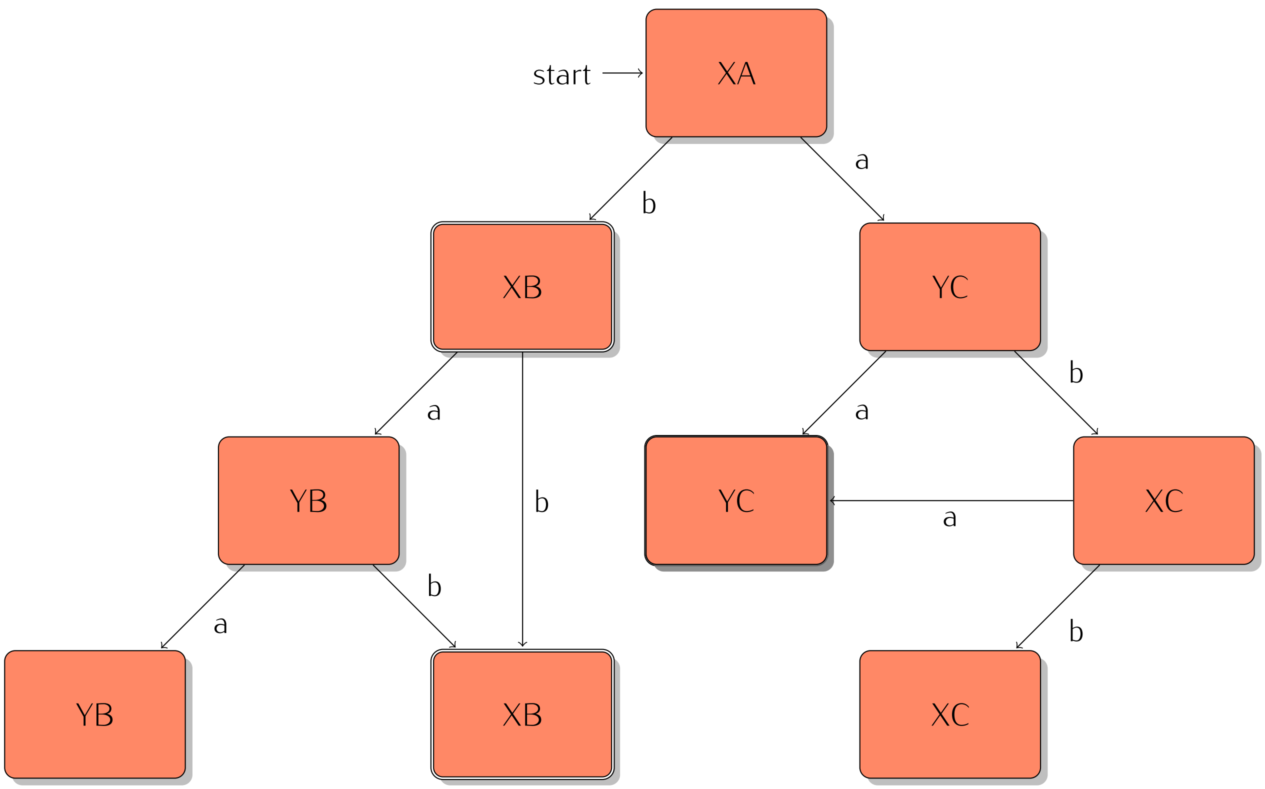


Figure 4: Q01: L_3 = b(b+aa*b)*

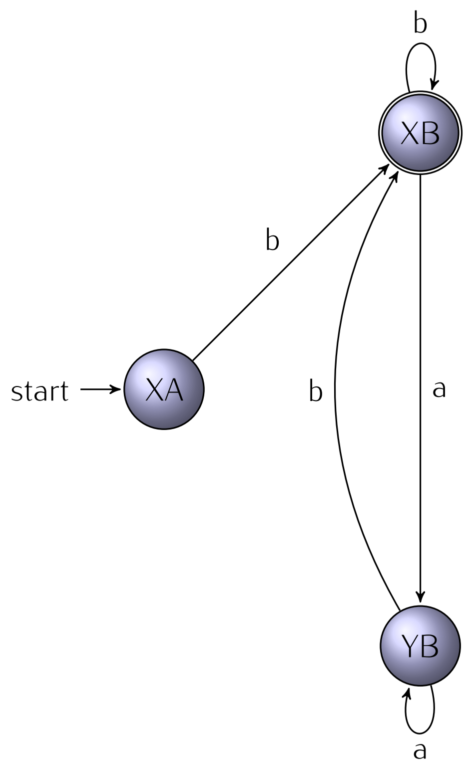


Figure 5: Q02: L_1 = (a+b)b(a+b)*

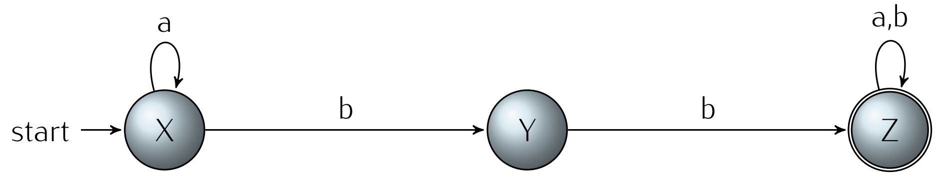


Figure 6: Q02: L_2= b(a+b)*

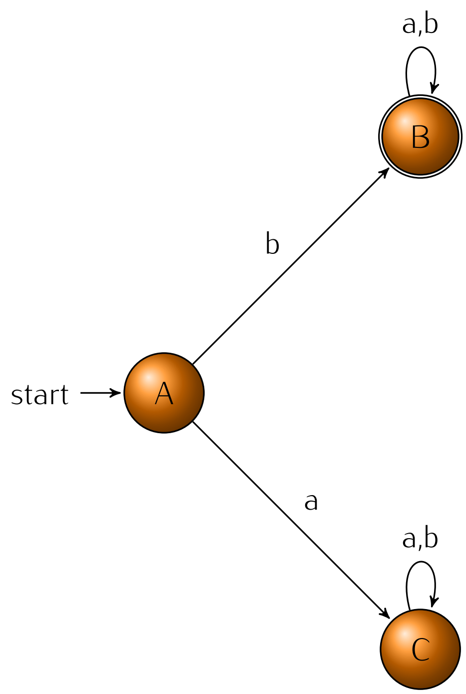


Figure 7: Q02: $L_1 \bigcap L_2$

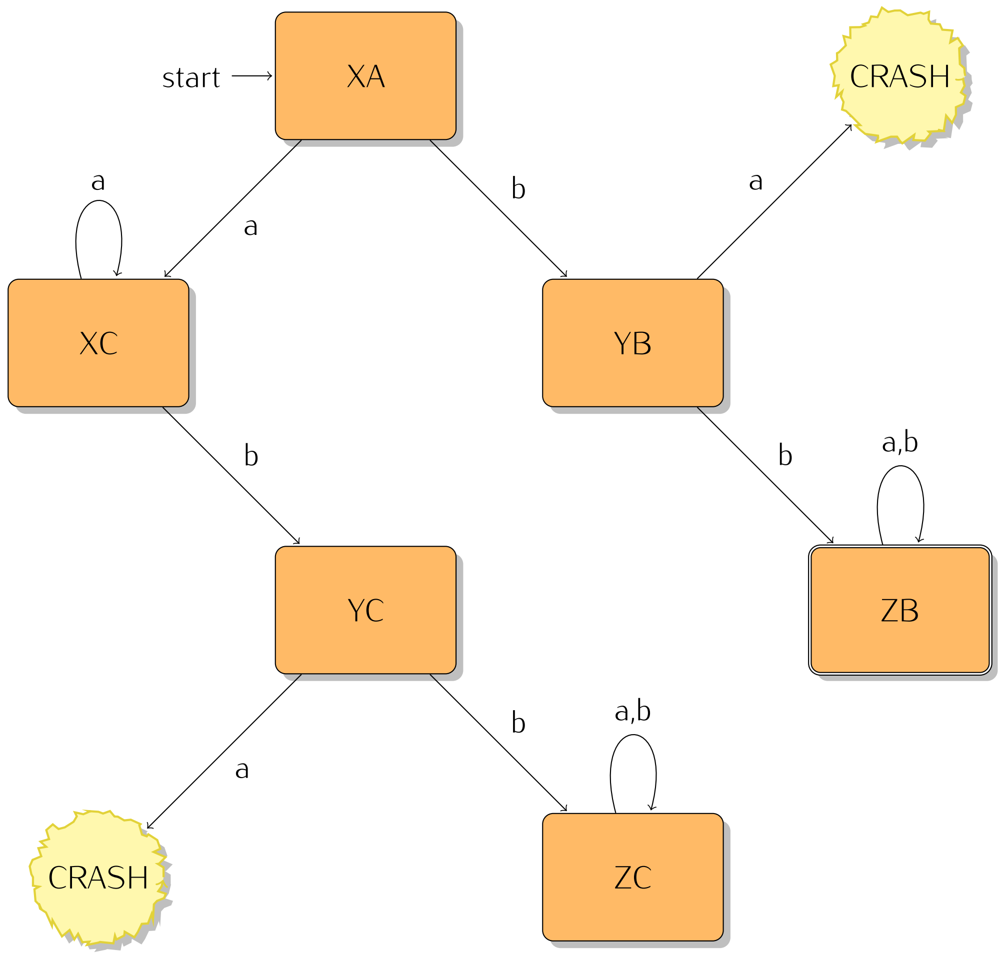


Figure 8: Q02: L_3 = ab(a+b)*

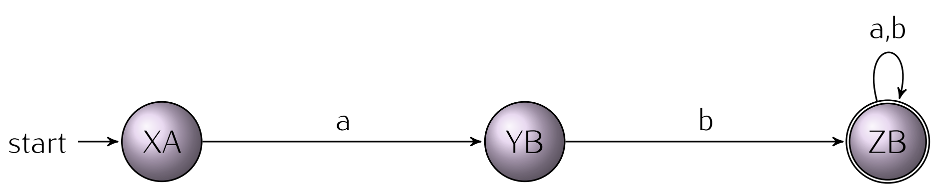


Figure 9: Q03: L_1 = (b+ab)*(a+Λ)

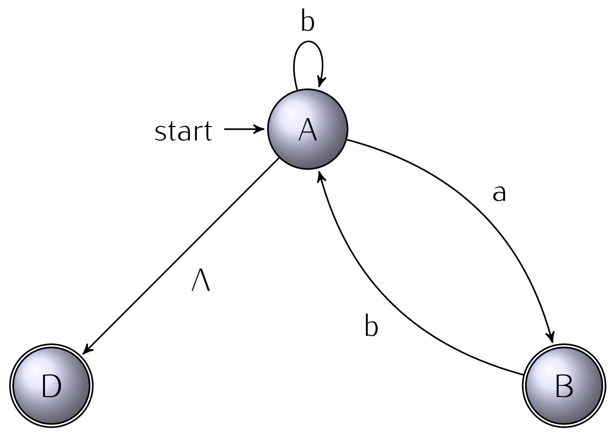


Figure 10: Q03: L_2 = (a+b)*aa(a+b)*

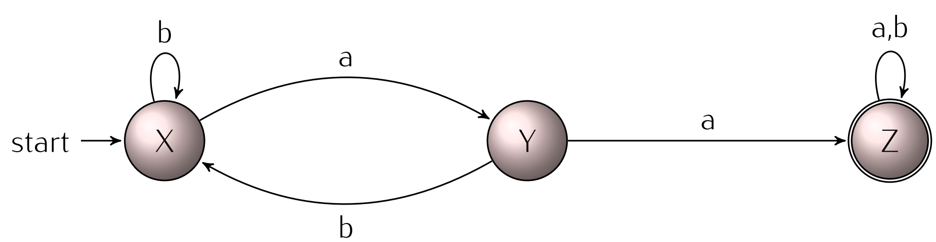


Figure 11: Q02: $L_1 \bigcap L_2$

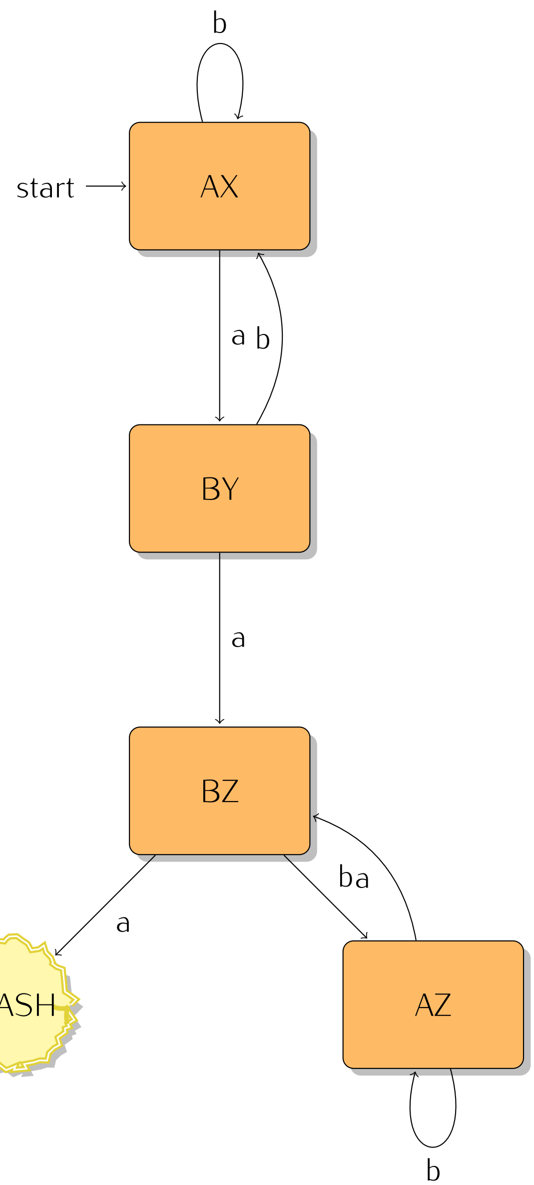


Figure 12: Q03: $L_3 = (b+ab)^*aa(bb^*a)^*$

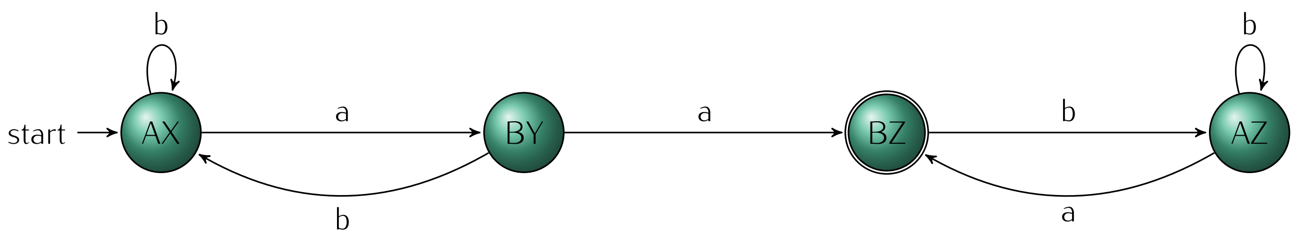


Figure 13: Q04: L_1 = (aa+ab+ba+bb)*

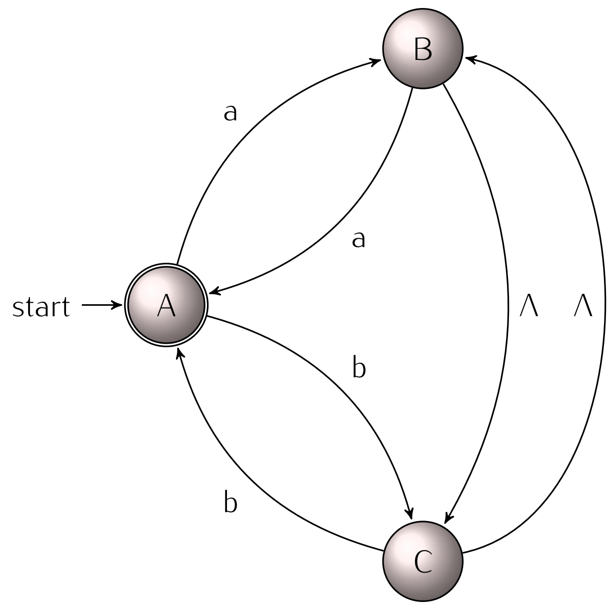


Figure 14: Q04: L_2= b(a+b)*

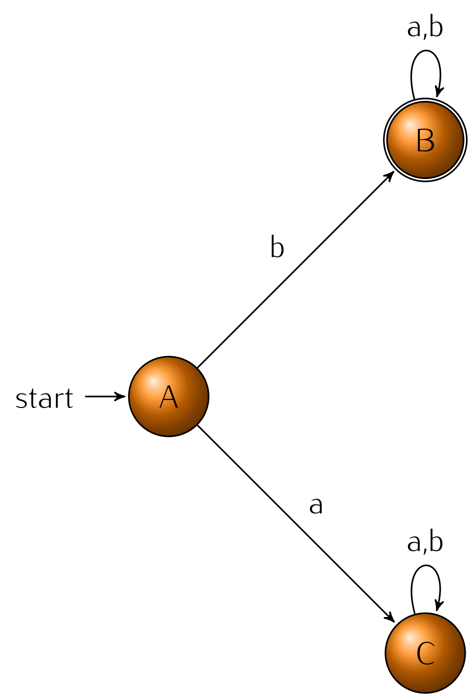


Figure 15: Q04: $L_1 \bigcap L_2$

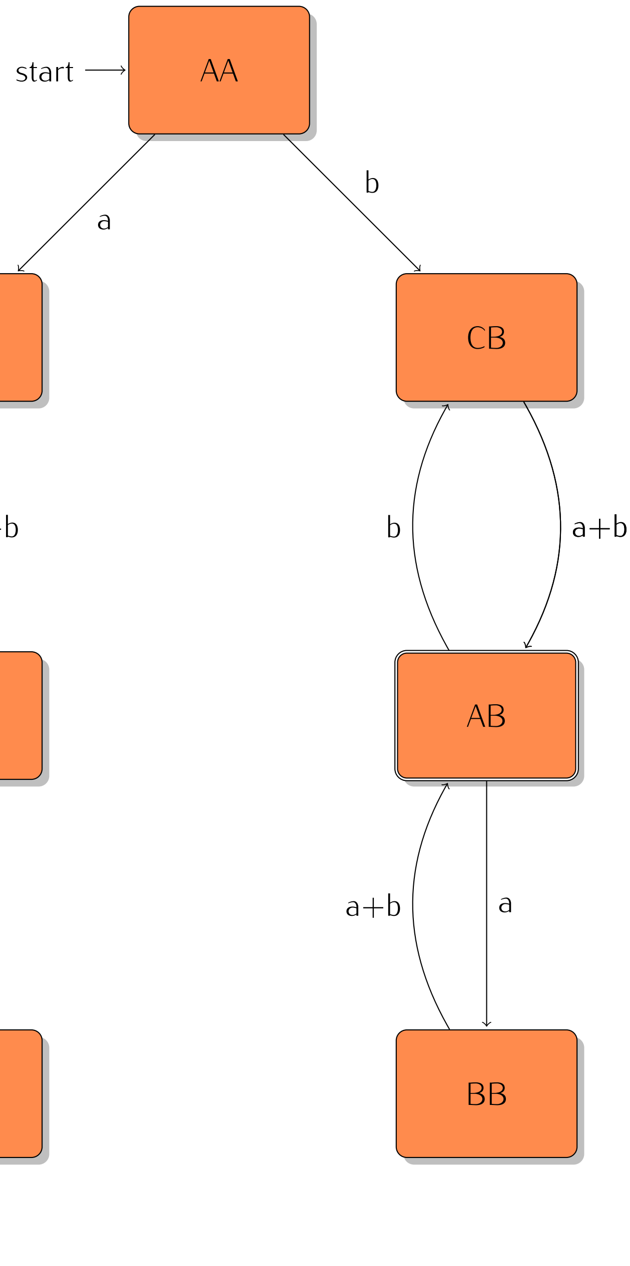


Figure 16: Q04: L_3= b(a+b)(b(a+b)+a(a+b))

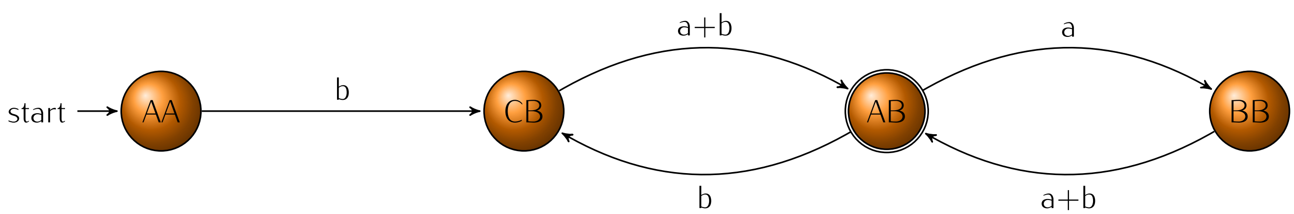


Figure 17: Q05: L_1 = (aaa+bbb)*

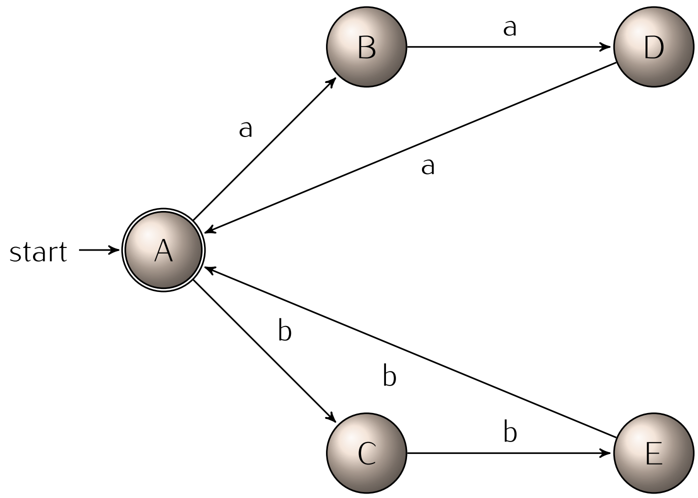


Figure 18: Q05: L_2= a(a+b)*

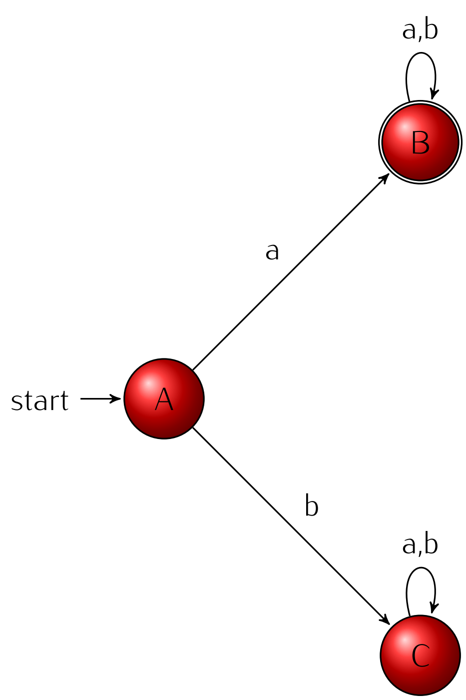


Figure 19: Q05: $L_1 \bigcap L_2$

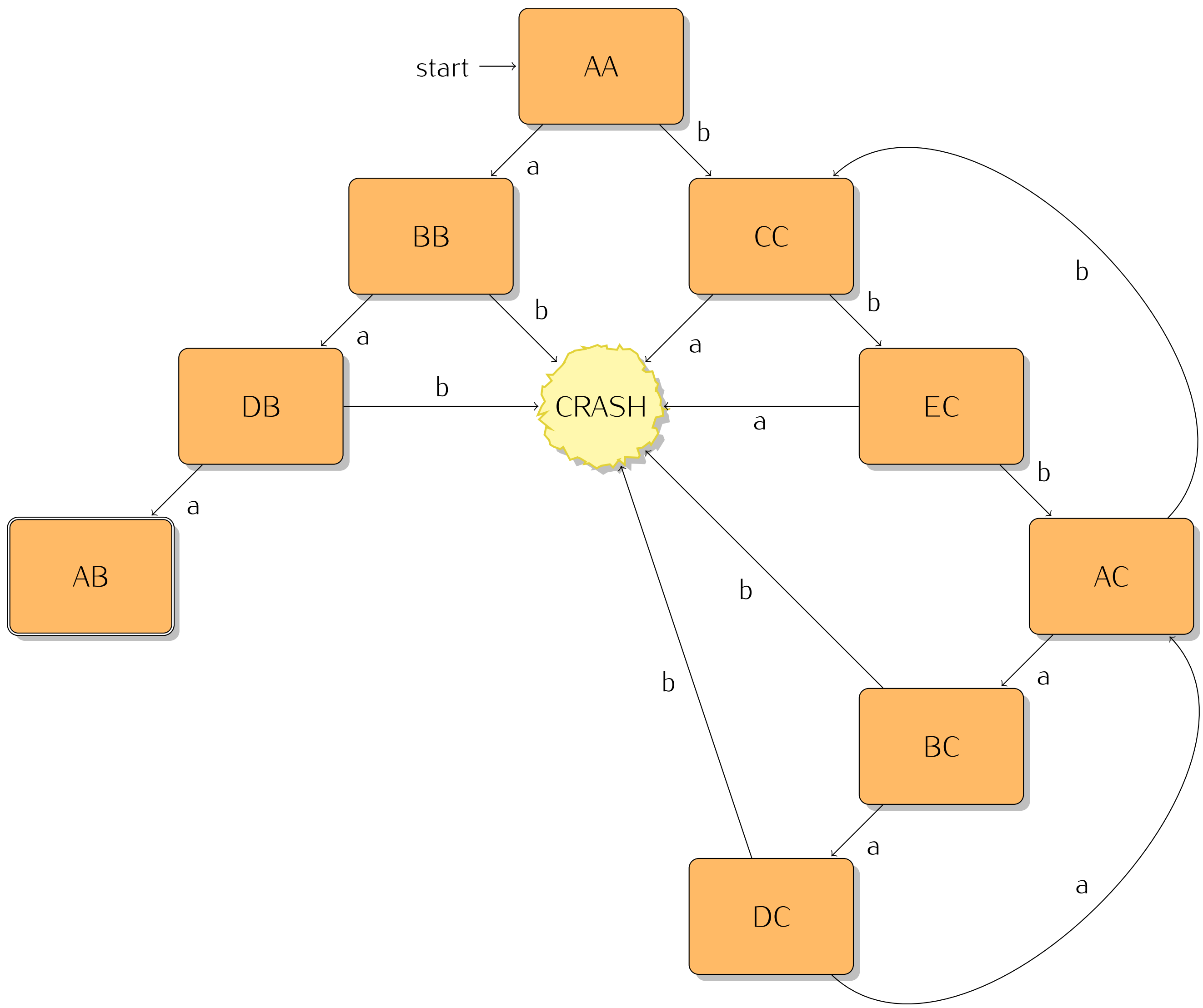


Figure 20: Q05: L_3= aaa

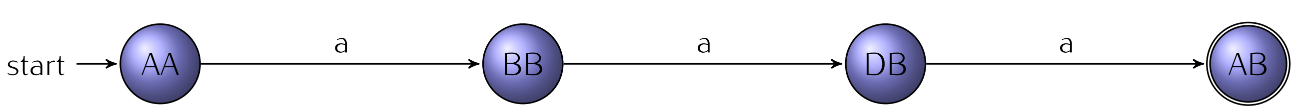


Figure 21: Q06: FA_1

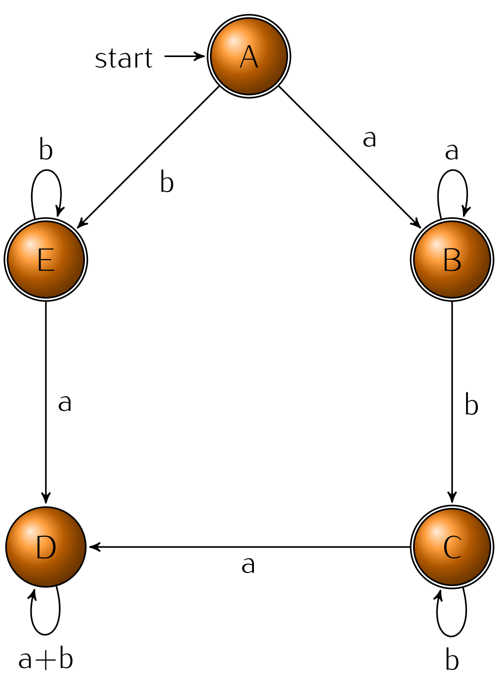


Figure 22: Q06: FA_2

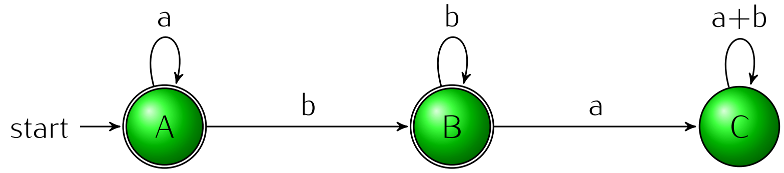
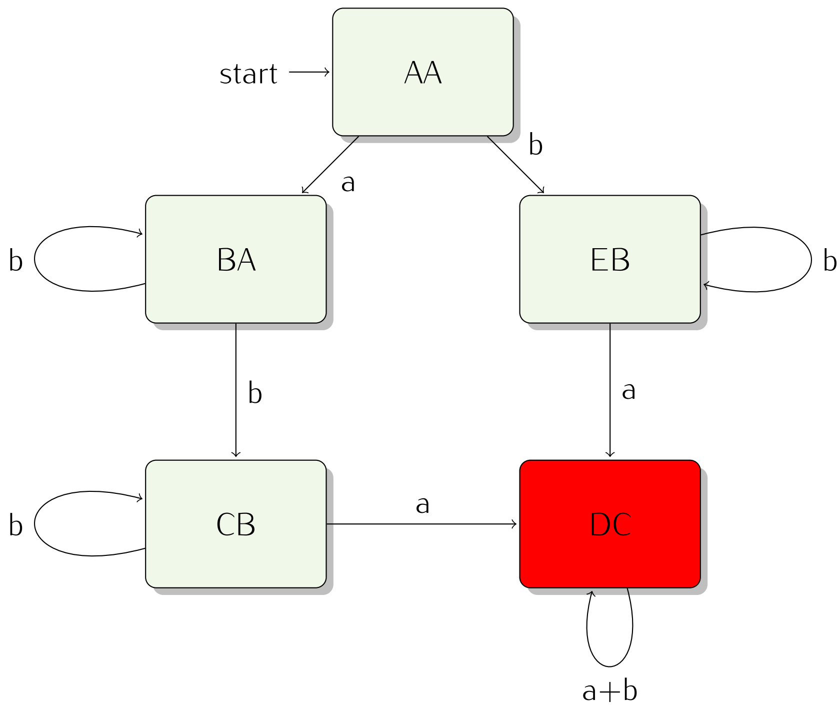


Figure 23: Q06: $L_1 \bigcap L_2$



Not acceptable by $L_1 \bigcap L_2$: DC
Acceptable by $L_1 \bigcap L_2$: AA, BA, CB,EB

Figure 24: Q07: FA_1

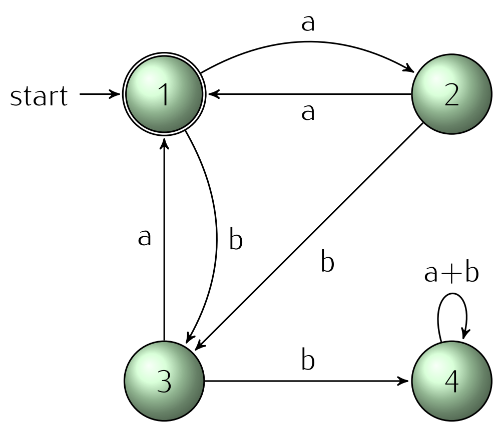
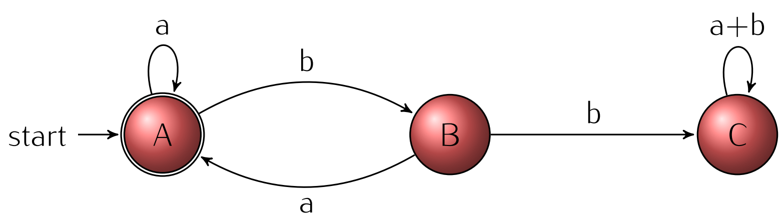


Figure 25: Q07: FA_2



The following are equivalent due to the below proofs in Figures 26-31:

Figure 26: Q07: FA'_1

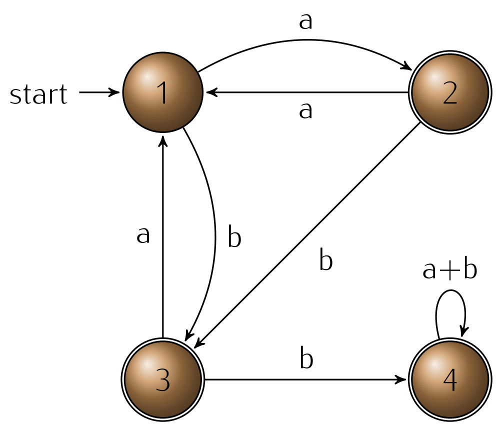


Figure 27: Q07: FA_2

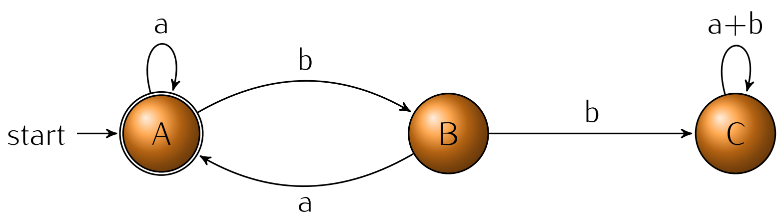


Figure 28: Q05: $(FA'_1 + FA_2)'$ No final states

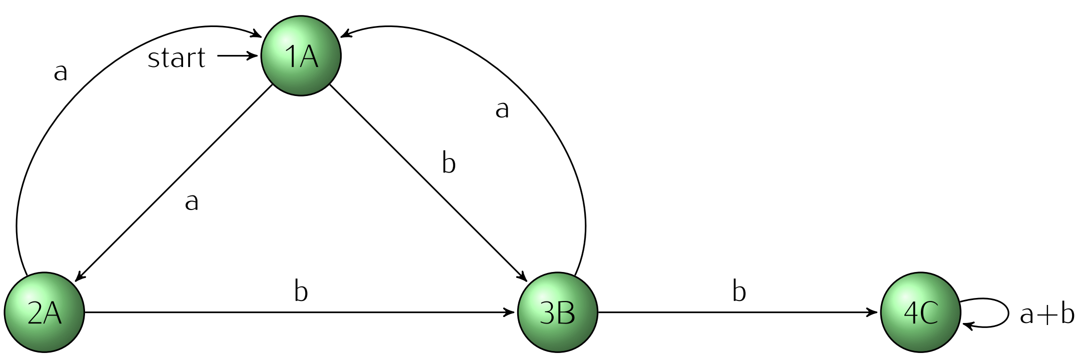


Figure 29: Q07: FA_1

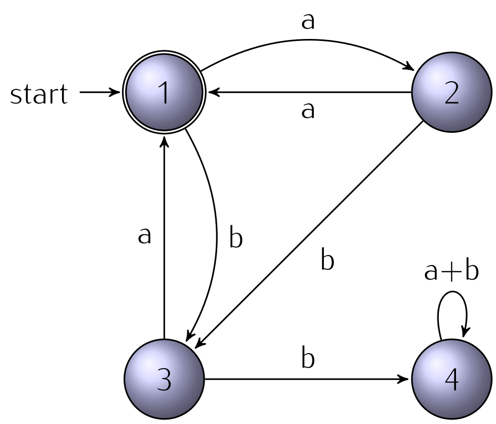


Figure 30: Q07: FA'_2

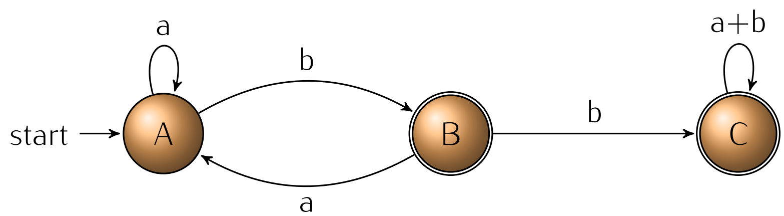


Figure 31: Q05: $(FA_1 + FA'_2)'$ No final states