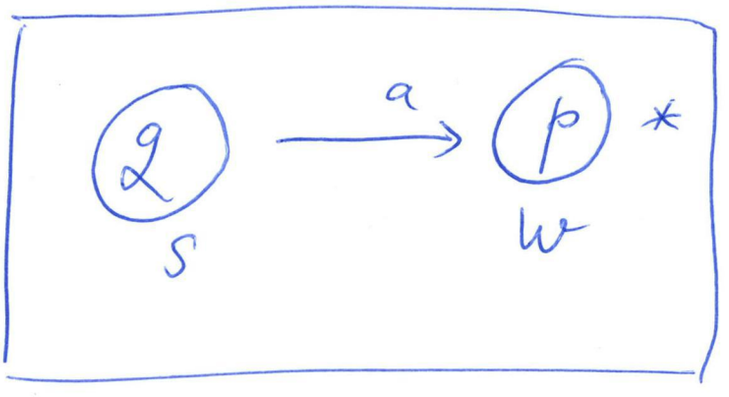
Mock Final

Q1. $\Box_a \varphi \not\Longrightarrow B_a^{\varphi} \varphi$.

Take $\varphi := p$, $\psi := q$,

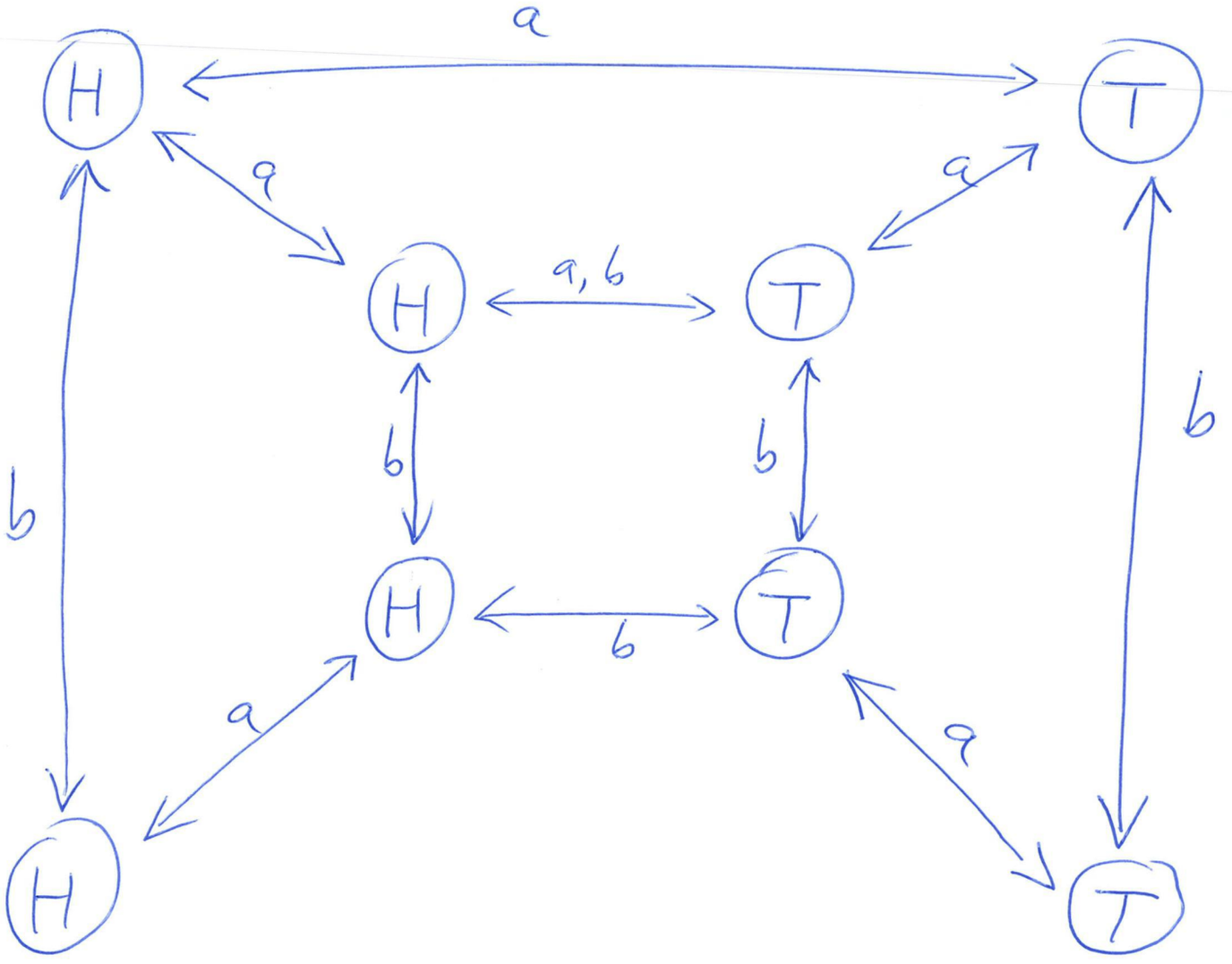
model:



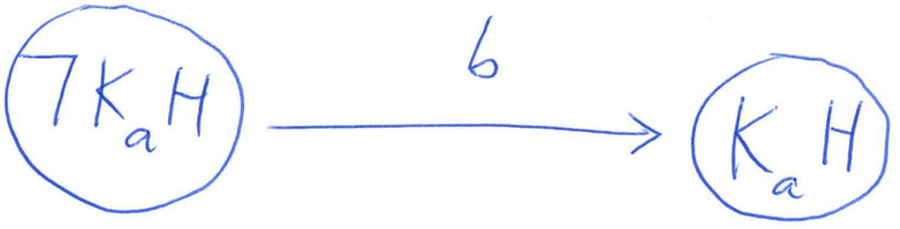
$w \models \Box_a p$

$w \not\models B_a^q p$ (in fact, $w \models B_a^q \neg p$)

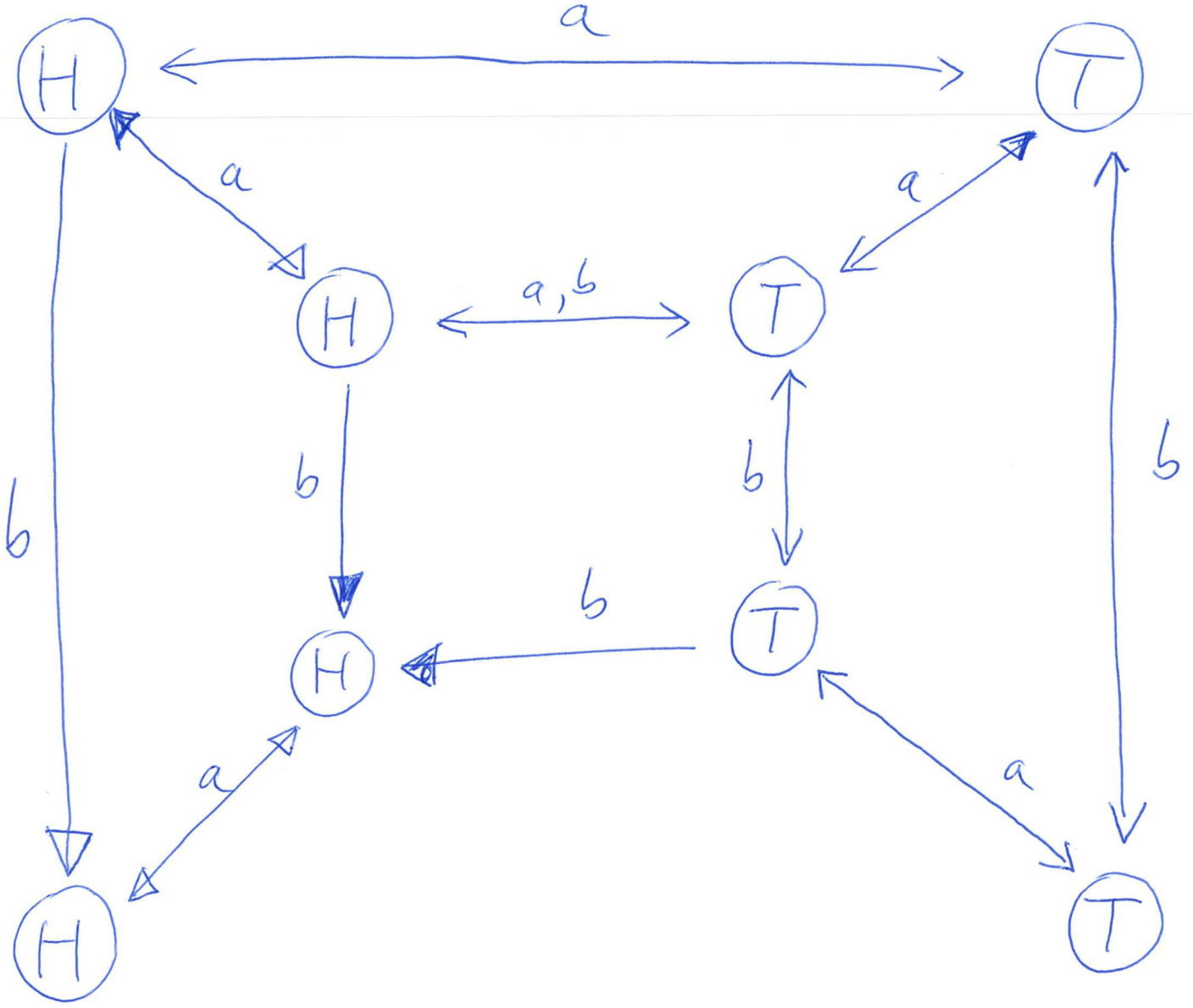
Q2. (1).



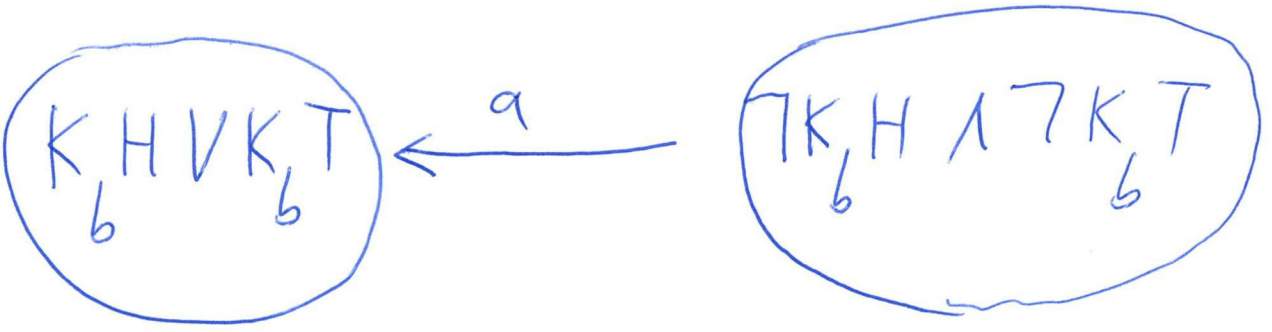
(2)



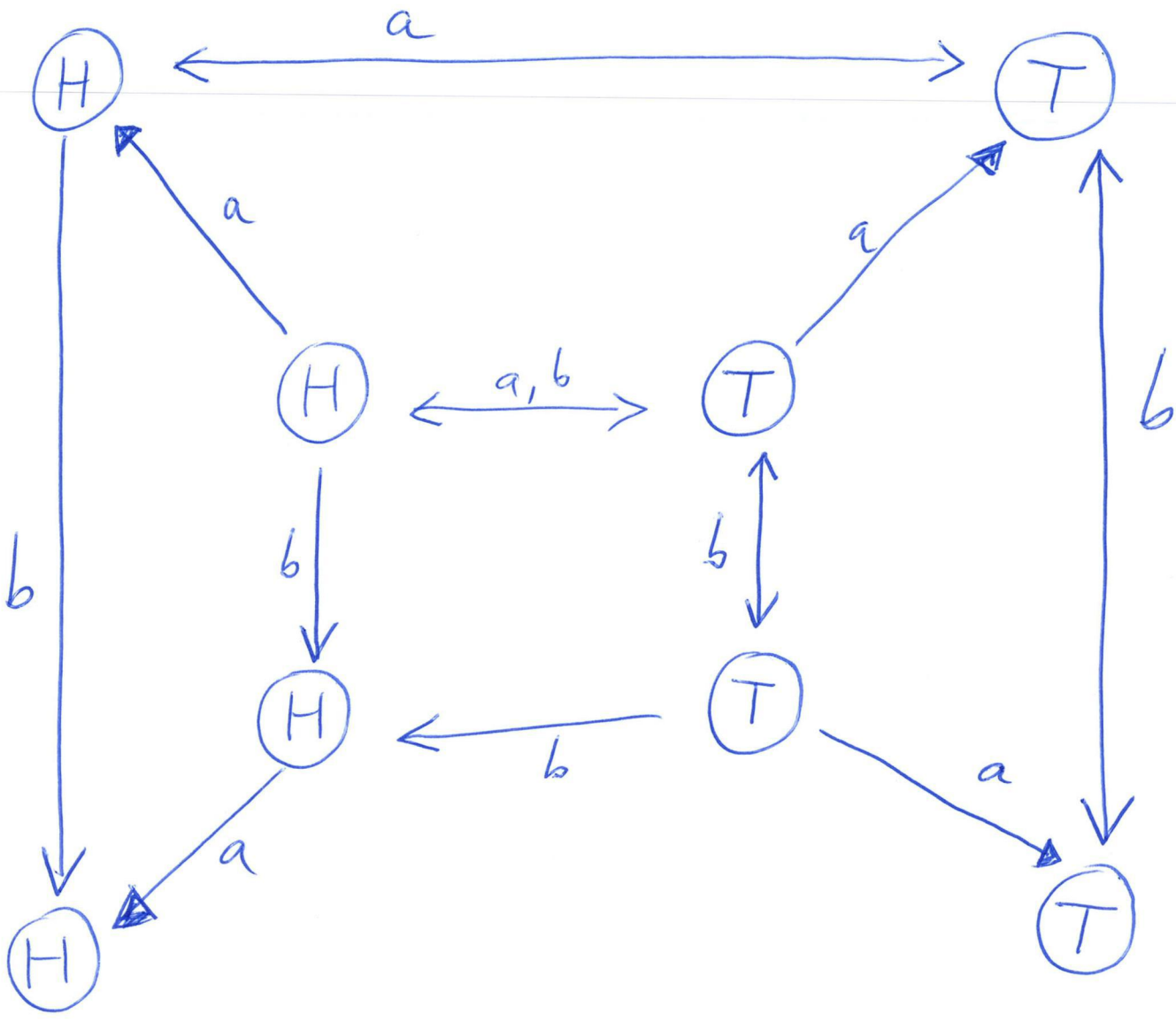
(3).



(4).

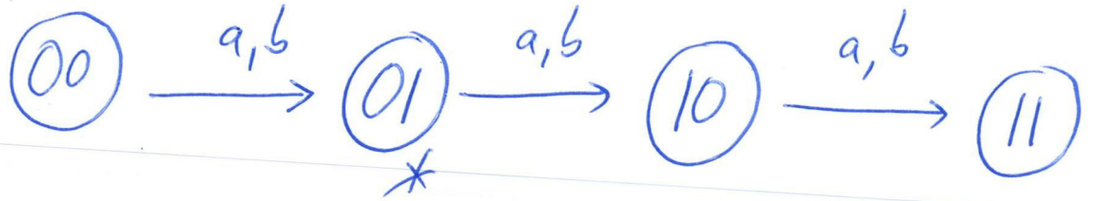


(5).



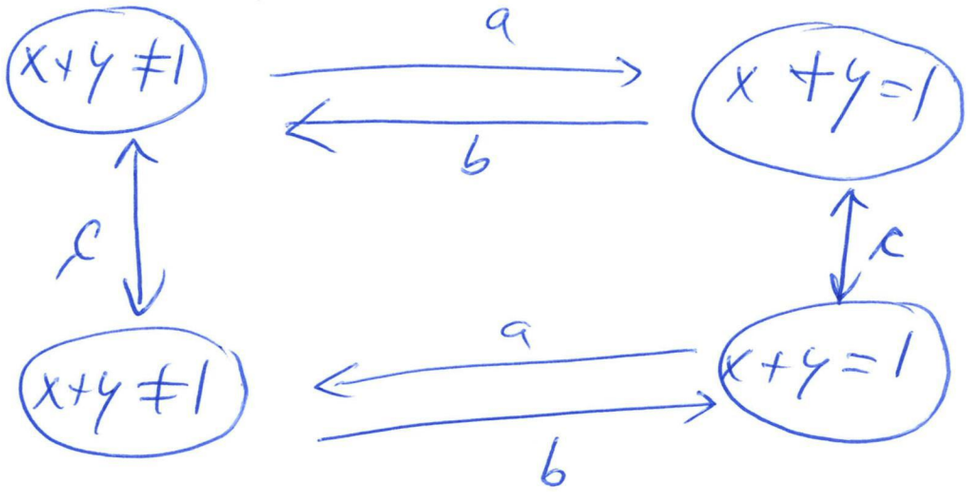
Q3.

(1).

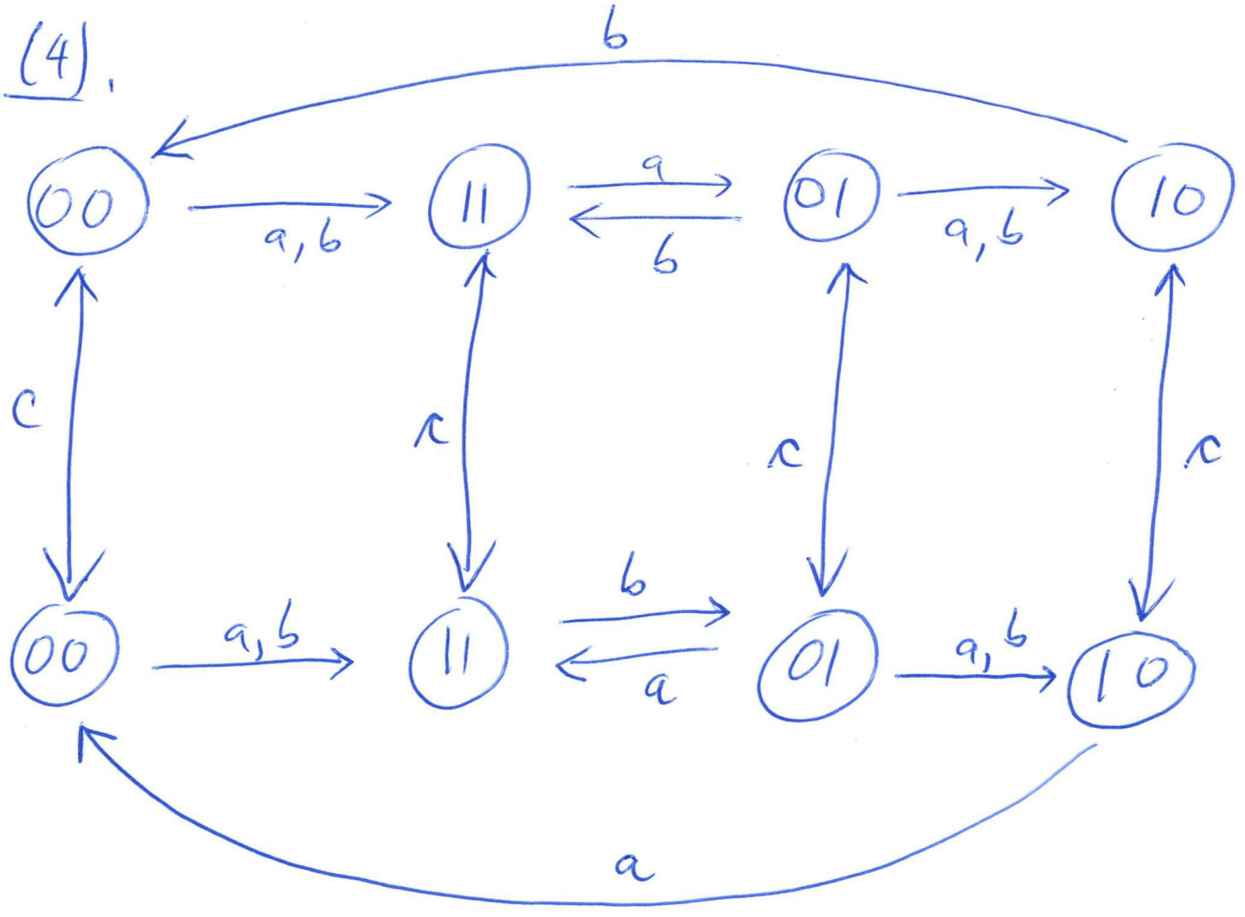


(2). (0,1) is the real world, so $\boxed{x=0,\ y=1}$

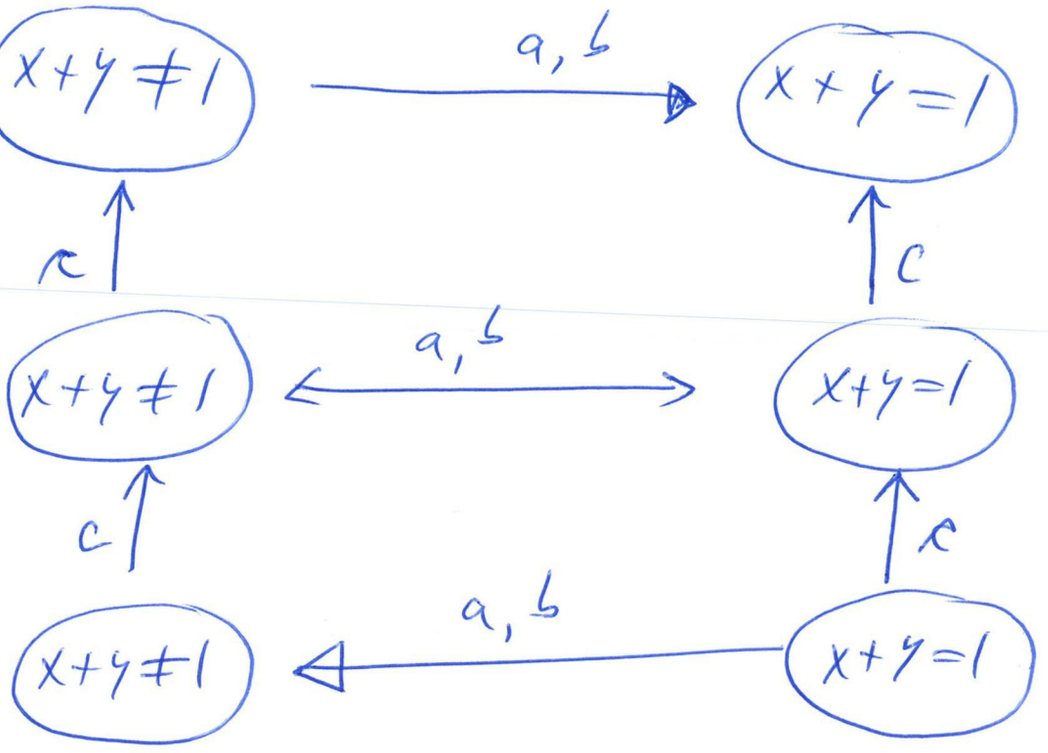
(3).



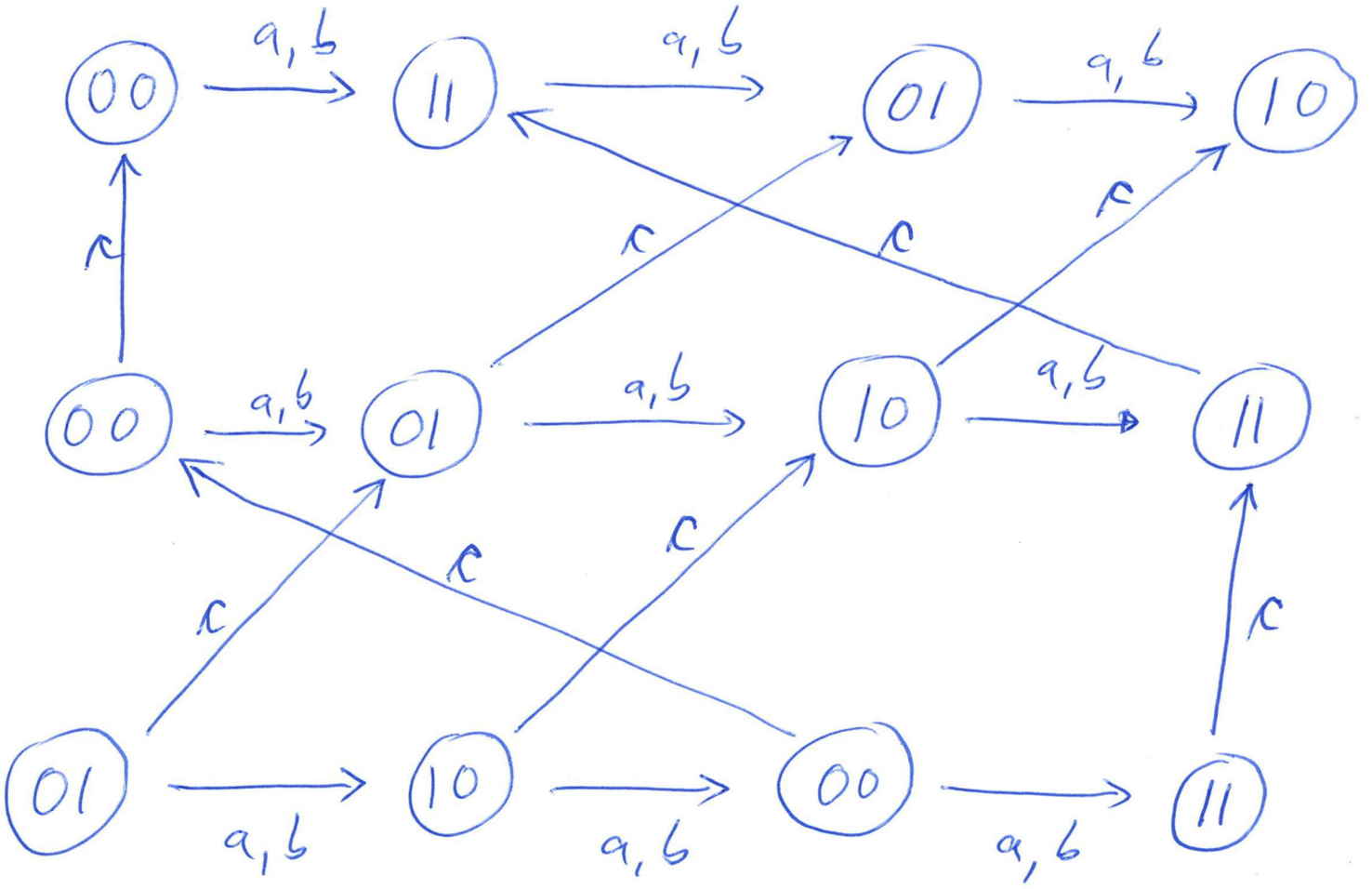
(4).



(5).


x+y≠1
a, b
x+y=1
c
c
x+y≠1
a, b
x+y=1
c
c
x+y≠1
a, b
x+y=1

(6).


00
a, b
11
a, b
01
a, b
10
c
c
c
c
00
a, b
01
a, b
10
a, b
11
c
c
c
c
01
a, b
10
a, b
00
a, b
11