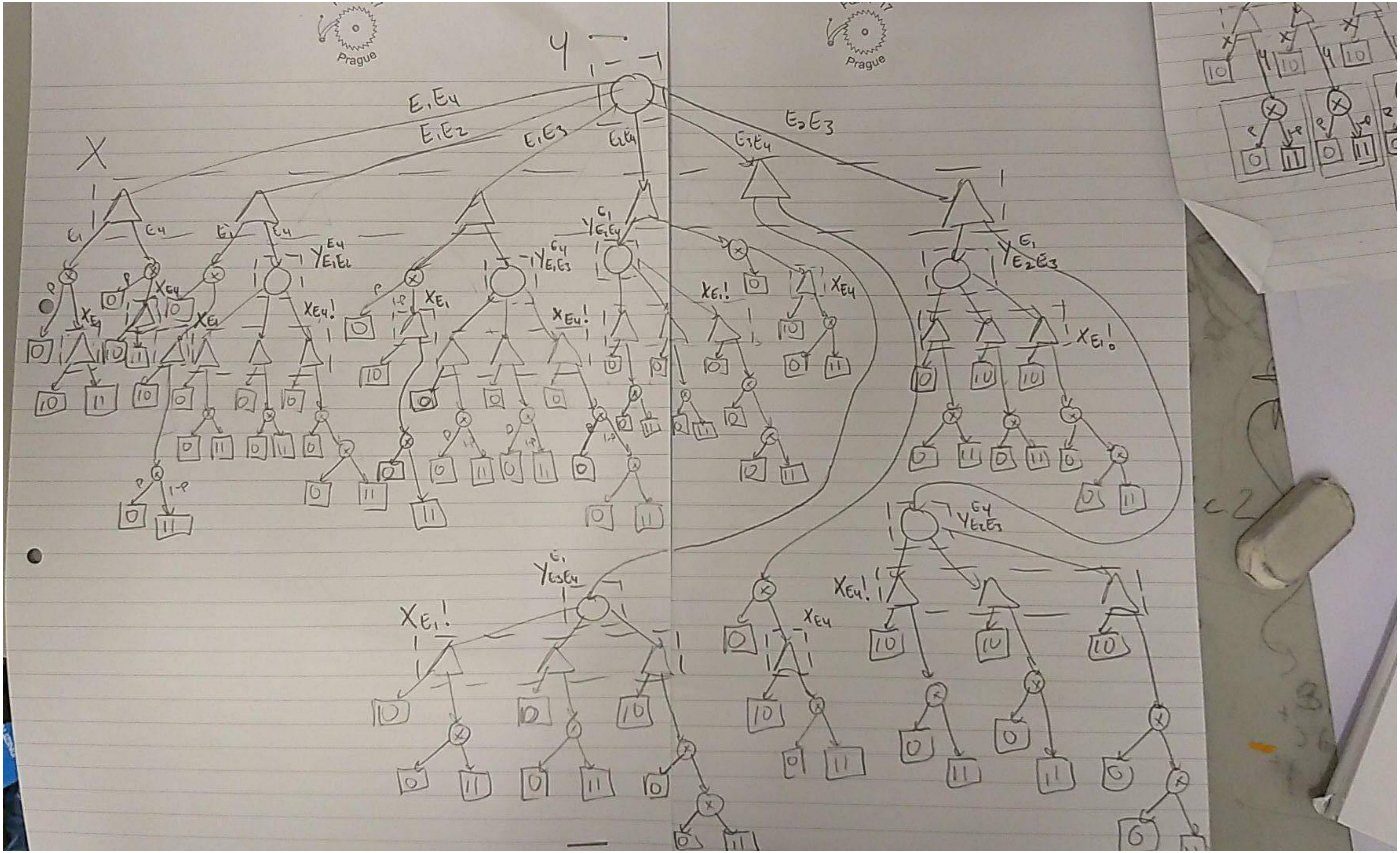
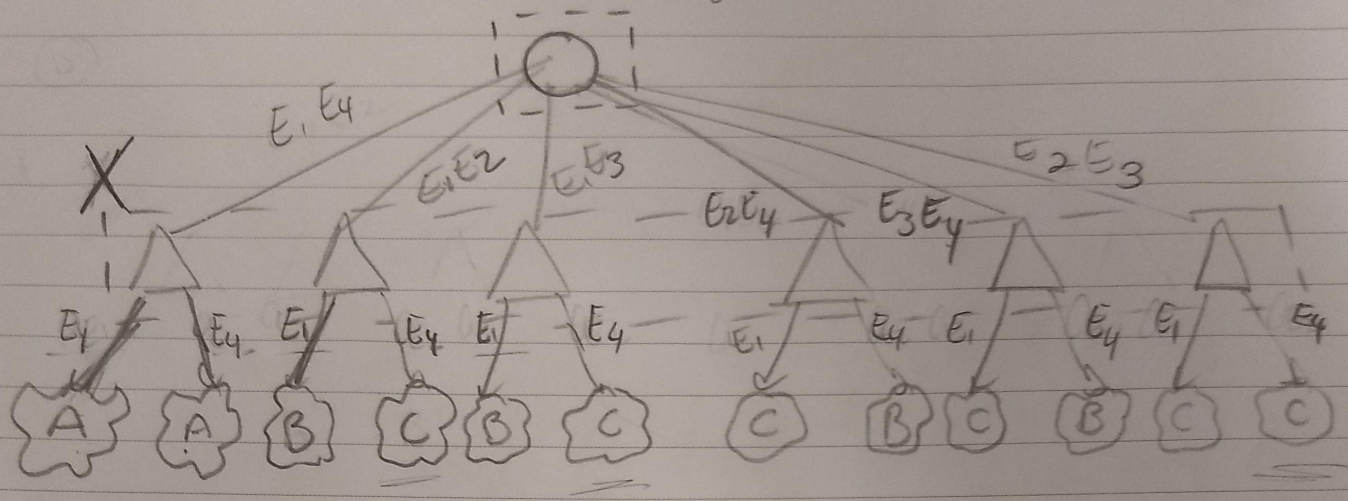
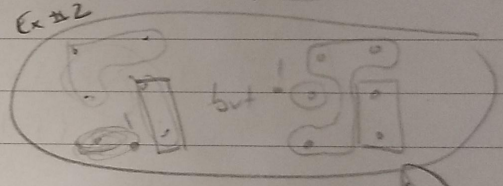

Prague
Y
X
E_1E_4
E_1E_2
E_1E_3
E_2E_3
$Y^{E_4}_{E_1E_2}$
$Y^{E_4}_{E_1E_3}$
$Y^{E_1}_{E_2E_4}$
$Y^{E_1}_{E_2E_3}$
$Y^{E_4}_{E_2E_3}$
$Y^{E_1}_{E_3E_4}$
X_{E_4}
X_{E_1}
$X_{E_4}!$
$X_{E_1}!$
p
1-p
0
11
10



$$D\ v(X\_IgE) \geq \underbrace{5r(E_1E_4)}_{A} + \underbrace{5r(E_1E_3)+5r(E_1E_2)}_{B}$$
$$D\ v(X\_IgE_4) \geq 5r(E_1E_4) + 5r(E_3E_4)+5r(E_2E_4)$$

$$E_2\ v(X\_IgE) \geq \underbrace{5.5\,r(E_1E_4)}_{A} + \underbrace{2.75\,r(E_1E_2) + 2.75\,r(E_1E_3)}_{B}$$
$$E_2\ v(X\_IgE_4) \geq 5.5\,r(E_1E_4) + 2.75\,r(E_3E_4) + 2.75\,r(E_2E_4)$$



NFC

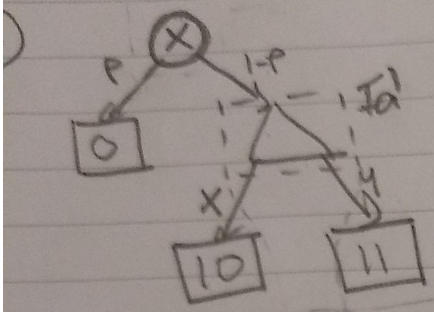
$$r[E_1E_4]+r[E_1E_2]+r[E_1E_3]+r[E_2E_4]+r[E_3E_4]+r[E_2E_3] = 1$$
$$0 \leq r[E_1E_4] \leq 1 \quad 0 \leq r[E_1E_3] \leq 1 \quad 0 \leq r[E_3E_4] \leq 1$$
$$0 \leq r[E_1E_2] \leq 1 \quad 0 \leq r[E_2E_4] \leq 1 \quad 0 \leq r(E_2E_3] \leq 1$$

$$r[E_1E_2] = r[E_1E_2, E_1E_3] + r[E_1E_2, E_2E_3] + r[E_1E_2, E_1E_2]$$
$$r[E_1E_3] = r[E_1E_3, E_1E_2] + r[E_1E_3, E_2E_3] + r[E_1E_3, E_1E_3]$$
$$r[E_2E_3] = r[E_2E_3, E_2E_1] + r[E_2E_3, E_1E_3] + r[E_2E_3, E_2E_3] + r[E_2E_3, E_2E_4] + r[E_2E_3, E_4E_3]$$
$$r[E_2E_4] = r[E_2E_4, E_2E_3] + r[E_2E_4, E_3E_4] + r[E_2E_4, E_2E_4]$$
$$r[E_3E_4] = r[E_3E_4, E_2E_3] + r[E_3E_4, E_2E_4] + r[E_3E_4, E_3E_4]$$

$$r[E_2E_3] = \begin{cases} r[E_2E_3, E_2E_1] + r[E_2E_3, E_1E_3] + r[E_2E_3, E_2E_3] \\ r[E_2E_3, E_2E_4] + r[E_2E_3, E_4E_3] + r[E_2E_3, E_2E_3] \end{cases}$$

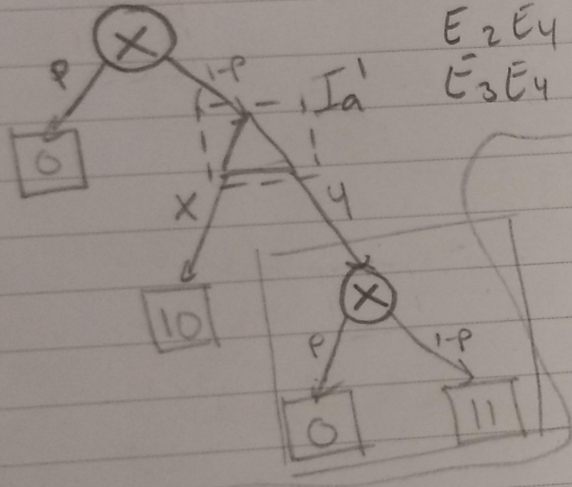
Process alarm NFCs to account for disjoint sets

Divide game into generic parts

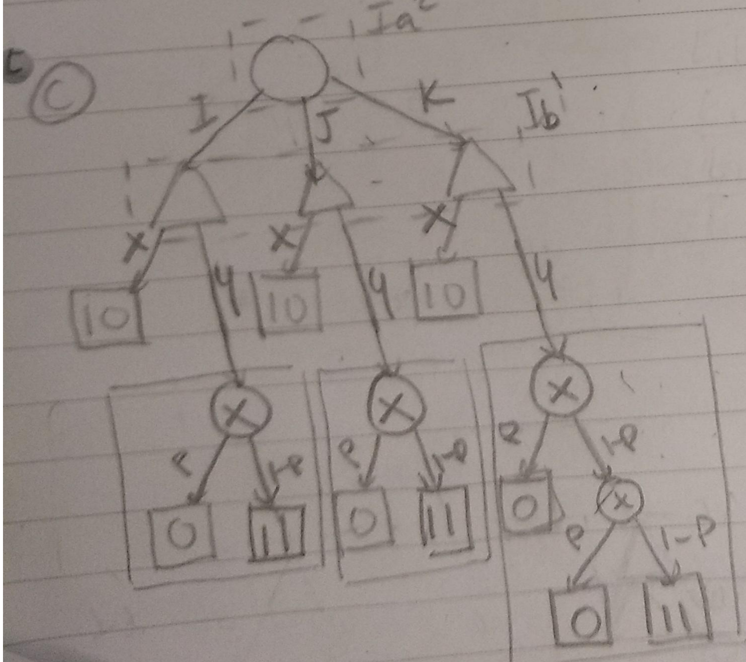


E_1E_4 — E_1: $v(X\_I_q E_1)$; E_4: $v(X\_I_q E_4)$ → D: $\boxed{10} \cdot (1-p)$; E_2: $\boxed{11} \cdot (1-p)$

E_1E_2, E_1E_3 — E_1: $v(X\_I_q E_1)$
E_2E_4, E_3E_4 — E_4: $v(X\_I_q E_4)$
→ D: $\boxed{10} \cdot (1-p)$; E_2: $\boxed{11} \cdot (1-p)^2$



E_1E_2, E_1E_3, E_2E_3 — E_4: $v(X\_I_q E_4!)$
E_2E_4, E_3E_4, E_2E_3 — E_1: $v(X\_I_q E_1!)$
→ D: $\boxed{10} \cdot (1-p)$; E_2: $\boxed{11} \cdot (1-p)$, $\boxed{11} \cdot (1-p)^2$



$D: v(X - I_q E_q!) \geq 10 \cdot r[E_1E_2, E_1E_3] + 10 \cdot r[E_1E_3, E_2E_3] + 10 \cdot r[E_1E_2, E_1E_2]$
$+ 10 \cdot r[E_1E_3, E_1E_2] + 10 \cdot r[E_1E_3, E_2E_3] + 10 \cdot r[E_1E_3, E_1E_3]$
$+ 10 \cdot r[E_2E_3, E_2E_1] + 10 \cdot r[E_2E_3, E_1E_3] + 10 \cdot r[E_2E_3, E_2E_3]$

$E_2: v(X - I_q E_4!) \geq 5.5r[E_1E_2, E_1E_3] + 2.75r[E_1E_2, E_2E_3] + 5.5r[E_1E_2, E_1E_2]$
$+ 5.5r[E_1E_3, E_1E_2] + 2.75r[E_1E_3, E_2E_3] + 5.5r[E_1E_3, E_1E_3]$
$+ 5.5r[E_2E_3, E_2E_1] + 5.5r[E_2E_3, E_1E_3] + 2.75r[E_2E_3, E_2E_3]$

$D: v(X - I_q E_1!) \geq 10 \cdot r[E_2E_4, E_2E_3] + 10 \cdot r[E_2E_4, E_3E_4] + 10 \cdot r[E_2E_4, E_2E_4]$
$+ 10 \cdot r[E_3E_4, E_2E_3] + 10 \cdot r[E_3E_4, E_2E_4] + 10 \cdot r[E_3E_4, E_3E_4]$
$+ 10 \cdot r[E_2E_3, E_3E_4] + 10 \cdot r[E_2E_3, E_4E_3] + 10 \cdot r[E_2E_3, E_2E_3]$

$E_2: v(X - I_q E_1!) \geq 2.75 \cdot r[E_2E_4, E_2E_3] + 5.5 \cdot r[E_2E_4, E_3E_4] + 5.5 \cdot r[E_2E_4, E_2E_4]$
$+ 2.75 \cdot r[E_3E_4, E_2E_3] + 5.5 \cdot r[E_3E_4, E_2E_4] + 5.5 \cdot r[E_3E_4, E_3E_4]$
$+ 5.5 \cdot r[E_2E_3, E_2E_4] + 5.5 \cdot r[E_2E_3, E_4E_3] + 2.75 \cdot r[E_2E_3, E_2E$

$E_1\ v(x) \geq v(X - I_q E_1) + v(X - I_q E_1!)$
$E_4\ v(x) \geq v(X - I_q E_4) + v(X - I_q E_4!)$

$\min v(x)$