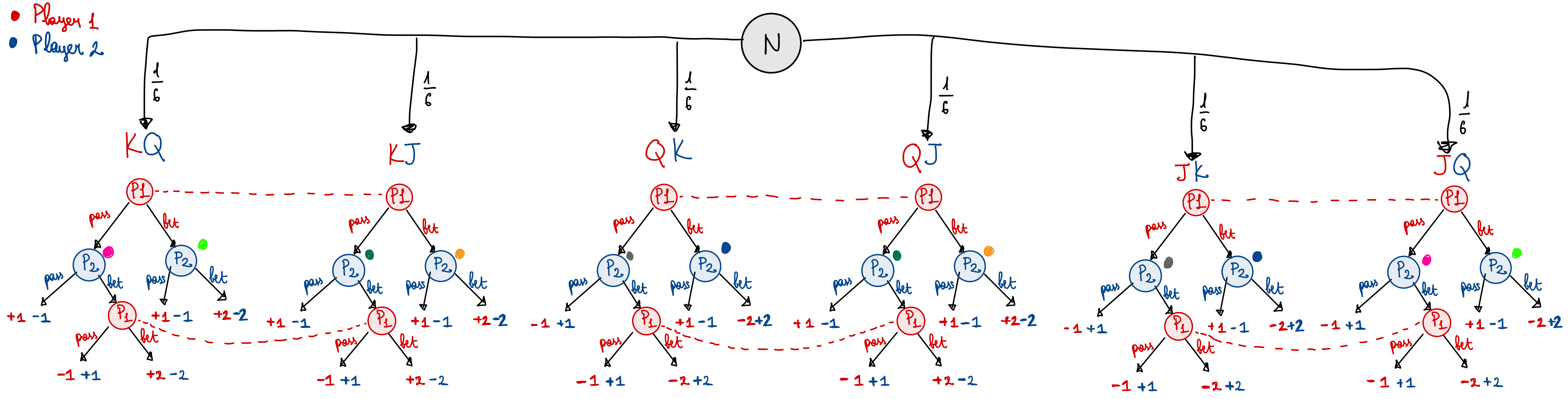

$\boxed{---}$ equal information sets for player 1

We can do the same for player 2: for this we need identical card and history.

because player does not know the card of opponent $\rightarrow$

$\frac{1}{2}\left[\frac{1}{2}2+\frac{1}{2}1\right]+\frac{1}{2}\left[0\cdot 2+1+1\right]$

$\frac{1}{2}\left[\frac{2}{3}2+\frac{1}{3}1\right]+\frac{1}{2}\left[\frac{1}{3}\cdot 2+\frac{2}{3}1\right]$

$$Pr(K \mid Qb) = \frac{\text{pr. that } P_1 \text{ would } b \text{ if he was dealt a } K}{\underbrace{\text{pr. that } P_1 \text{ would } b \text{ overall}}} = \frac{\overbrace{\frac{1}{2}\cdot\frac{2}{3}}^{\text{bet if K}}}{\underbrace{\frac{1}{2}\cdot\frac{2}{3}}_{\text{bet if K}}+\underbrace{\frac{1}{2}\cdot\frac{1}{3}}_{\text{bet if J}}} = \frac{2}{3}$$

probability that P_1 was dealt a K given that Qb for P_2

probability of getting to this node for P_2

So P_1 has 6 information sets and P_2 has 6 information sets:

	strategy		beliefs		utilities		
P_1	bet	pass	H	L	bet	pass	
K	2/3	1/3	1/2	1/2	5/4	3/2	4/3
Q	1/2	1/2	1/2	1/2	-1/2	-1/3	-5/12
J	1/3	2/3	1/2	1/2	-5/4	-1	-13/12
Kpb	1	0	2/3	1/3	+2	-1	+2
Qpb	1/2	1/2	3/4	1/4	$\frac{3}{4}\cdot(-2)+\frac{1}{4}\cdot 2$ -1	-1	-1
Jpb	0	1	3/5	2/5	-2	-1	-1

$$Pr(Q \mid Kpb) = \frac{\frac{1}{2}\cdot\frac{1}{3}\cdot\frac{2}{3}}{\frac{1}{2}\cdot\frac{1}{3}\cdot\frac{2}{3}+\frac{1}{2}\cdot\frac{1}{3}\cdot\frac{1}{3}}$$

P_2 has Q; P_1 passes with K; P_2 bets with Q after pass $= 2/3$

P_2 bets with J after pass

these will be cancelled out (only for this game)

$$P(K \mid Qpb) = \frac{\frac{1}{2}\cdot\frac{1}{2}\cdot 1}{\frac{1}{2}\cdot\frac{1}{2}\cdot 1+\frac{1}{2}\cdot\frac{1}{2}\cdot\frac{1}{3}} = \frac{3}{4}$$

	strategy		beliefs		utilities		
P_2	bet	pass	H	L	bet	pass	
Kb	1	0	3/5	2/5	+2	-1	+2
Kp	1	0	3/7	4/7	17/14	+1	17/14
Qb	1/2	1/2	2/3	1/3	-2/3	-1	$-\frac{5}{6}$
Qp	2/3	1/3	1/3	2/3	0	+1/3	-1/9
Jb	0	1	4/7	3/7	-2	-1	-1
Jp	1/3	2/3	2/5	3/5	-11/10	-1	-31/30

$$P(K \mid Jpb) = \frac{\frac{1}{2}\cdot\frac{2}{3}\cdot 1}{\frac{1}{2}\cdot\frac{2}{3}\cdot 1+\frac{1}{2}\cdot\frac{2}{3}\cdot\frac{2}{3}} = \frac{3}{5}$$

$\frac{2}{3}\cdot(-2)+\frac{1}{3}\cdot(+2) = -\frac{2}{3}$

$\frac{3}{7}\left(\frac{1}{2}\cdot 2+\frac{1}{2}\cdot 1\right)+\frac{4}{7}(1\cdot 1) = \frac{17}{14}$

$\frac{2}{3}\cdot(-1)+\frac{1}{3}(-1) = -1$

$\frac{1}{3}(-2)+\frac{2}{3}(-1) = 0$

$\frac{4}{7}(-2)+\frac{3}{7}(-2) = -2$

$\frac{2}{5}(-2)+\frac{3}{5}\left(\frac{1}{2}(-2)+\frac{1}{2}(1)\right) = \frac{-11}{10}$

$$Pr(K \mid Qp) = \frac{\frac{1}{2}\cdot\frac{1}{3}}{\frac{1}{2}\cdot\frac{1}{3}+\frac{1}{2}\cdot\frac{2}{3}} = \frac{1}{3}$$

$$P(Q \mid Kb) = \frac{\frac{1}{2}\cdot\frac{1}{2}}{\frac{1}{2}\cdot\frac{1}{2}+\frac{1}{2}\cdot\frac{1}{3}} = \frac{1}{1+2/3} = \frac{3}{5}$$

$$Pr(K \mid Jb) = \frac{\frac{1}{2}\cdot\frac{2}{3}}{\frac{1}{2}\cdot\frac{2}{3}+\frac{1}{2}\cdot\frac{1}{2}} = \frac{\frac{2}{6}}{\frac{2}{6}+\frac{1}{4}} = \frac{4}{7}$$

$$P(Q \mid Kp) = \frac{\frac{1}{2}\cdot\frac{1}{2}}{\frac{1}{2}\cdot\frac{1}{2}+\frac{1}{2}\cdot\frac{2}{3}} = \frac{3}{7}$$

$$Pr(K \mid Jp) = \frac{\frac{1}{2}\cdot\frac{1}{3}}{\frac{1}{2}\cdot\frac{1}{3}+\frac{1}{2}\cdot\frac{1}{2}} = \frac{1/6}{1/6+1/4} = \frac{2}{5}$$