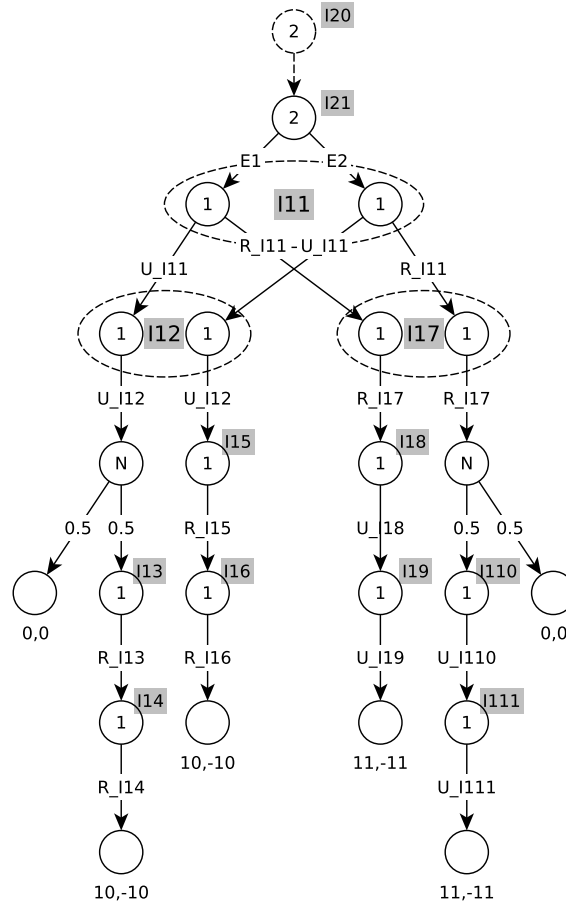


Game tree



$E1$ denotes the dangerous position on $(1, 1)$, $E2$ on $(3, 3)$. Note the labels of actions. Every action name includes the label of the information set (information sets are labelled using grey background) where it took place. This is a good practice since it ensures identical labelling of actions leading from states of one information set. Furthermore it ensures creation of unique sequence names (there are not multiple different actions labelled as R).

Sequence-form LP

As G_1 is rather sparse I will state only the values for compatible sequence pairs.

$$\begin{aligned}
g_1([E1], [U_{I_{11}} U_{I_{12}}]) &= 0 \\
g_1([E1], [U_{I_{11}} U_{I_{12}} R_{I_{13}} R_{I_{14}}]) &= 5 \\
g_1([E1], [R_{I_{11}} R_{I_{17}} U_{I_{18}} U_{I_{19}}]) &= 11 \\
g_1([E2], [R_{I_{11}} R_{I_{17}}]) &= 0 \\
g_1([E2], [R_{I_{11}} R_{I_{17}} U_{I_{110}} U_{I_{111}}]) &= 5.5 \\
g_1([E2], [U_{I_{11}} U_{I_{12}} R_{I_{15}} R_{I_{16}}]) &= 10
\end{aligned}$$

Now the LP representation itself.

$$\begin{aligned}
&\max_{v, r_1} v(I_{20}) \\
&s.t. \quad [] : v(I_{20}) \leq v(I_{21}) \\
&\quad [E1] : v(I_{21}) \leq 5r_1([U_{I_{11}} U_{I_{12}} R_{I_{13}} R_{I_{14}}]) + 11r_1([R_{I_{11}} R_{I_{17}} U_{I_{18}} U_{I_{19}}]) \\
&\quad [E2] : v(I_{21}) \leq 5.5r_1([R_{I_{11}} R_{I_{17}} U_{I_{110}} U_{I_{111}}]) + 10r_1([U_{I_{11}} U_{I_{12}} R_{I_{15}} R_{I_{16}}]) \\
&\quad r_1([]) = 1 \\
&\quad I_{11} : r_1([]) = r_1([U_{I_{11}}]) + r_1([R_{I_{11}}]) \\
&\quad I_{12} : r_1([U_{I_{11}}]) = r_1([U_{I_{11}} U_{I_{12}}]) \\
&\quad I_{13} : r_1([U_{I_{11}} U_{I_{12}}]) = r_1([U_{I_{11}} U_{I_{12}} R_{I_{13}}]) \\
&\quad I_{14} : r_1([U_{I_{11}} U_{I_{12}} R_{I_{13}}]) = r_1([U_{I_{11}} U_{I_{12}} R_{I_{13}} R_{I_{14}}]) \\
&\quad I_{15} : r_1([U_{I_{11}} U_{I_{12}}]) = r_1([U_{I_{11}} U_{I_{12}} R_{I_{15}}]) \\
&\quad I_{16} : r_1([U_{I_{11}} U_{I_{12}} R_{I_{15}}]) = r_1([U_{I_{11}} U_{I_{12}} R_{I_{15}} R_{I_{16}}]) \\
&\quad I_{17} : r_1([R_{I_{11}}]) = r_1([R_{I_{11}} R_{I_{17}}]) \\
&\quad I_{18} : r_1([R_{I_{11}} R_{I_{17}}]) = r_1([R_{I_{11}} R_{I_{17}} U_{I_{18}}]) \\
&\quad I_{19} : r_1([R_{I_{11}} R_{I_{17}} U_{I_{18}}]) = r_1([R_{I_{11}} R_{I_{17}} U_{I_{18}} U_{I_{19}}]) \\
&\quad I_{110} : r_1([R_{I_{11}} R_{I_{17}}]) = r_1([R_{I_{11}} R_{I_{17}} U_{I_{110}}]) \\
&\quad I_{111} : r_1([R_{I_{11}} R_{I_{17}} U_{I_{110}}]) = r_1([R_{I_{11}} R_{I_{17}} U_{I_{110}} U_{I_{111}}]) \\
&\quad r_1(\sigma_1) \geq 0, \quad \forall \sigma_1 \in \Sigma_1
\end{aligned}$$

The last constraint ensures that every r_1 for every sequence is non-negative.