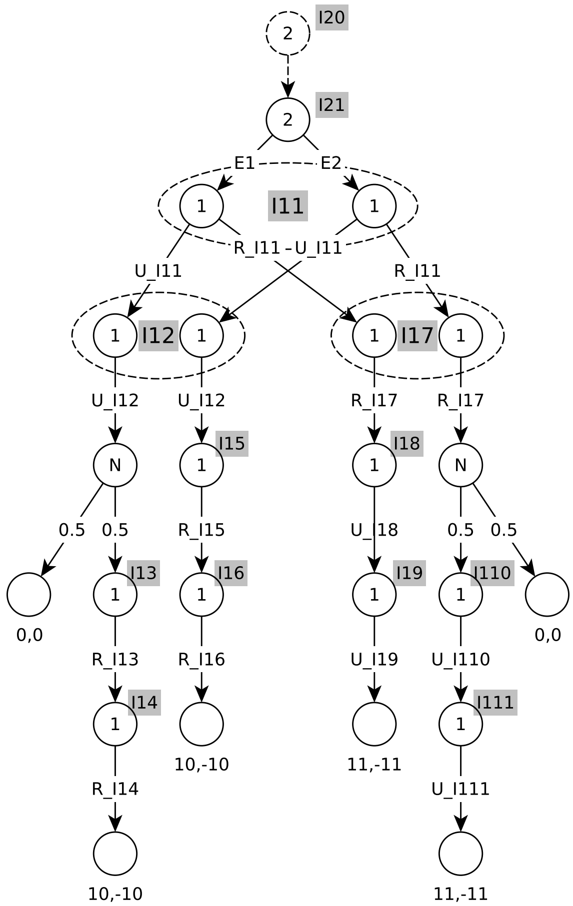
Game tree



$E1$ 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).

Conversion to normal-form

	E_1	E_2
A	5, -5	10, -10
B	11, -11	5.5, -5.5

The set of pure strategies for player 1 is $S_1 = \{(U_{I_{11}}, U_{I_{12}}, R_{I_{13}}, R_{I_{14}}, R_{I_{15}}, R_{I_{16}}, R_{I_{17}}, U_{I_{18}}, U_{I_{19}}, U_{I_{110}}, U_{I_{111}}), (R_{I_{11}}, U_{I_{12}}, R_{I_{13}}, R_{I_{14}}, R_{I_{15}}, R_{I_{16}}, R_{I_{17}}, U_{I_{18}}, U_{I_{19}}, U_{I_{110}}, U_{I_{111}})\}$, and for player 2 $S_2 = \{(E_1), (E_2)\}$. For clarity we will substitute the pure strategies for player 1 as $S_1 = \{A, B\}$

Normal-form LP

$$
\begin{aligned}
\min_{\delta_1} \quad & U_2 \\
s.t. \quad E_1 : -5\delta_1(A) - 11\delta_1(B) &\leq U_2 \\
E_2 : -10\delta_1(A) - 5.5\delta_1(B) &\leq U_2 \\
\delta_1(A) + \delta_1(B) &= 1 \\
\delta_1(A) &\geq 0 \\
\delta_1(B) &\geq 0
\end{aligned}
$$

The $\delta_1(a)$ was used as the probability that the pure strategy a will occur given the mixed strategy δ_1, since the original σ_1 is confusing as we denoted sequence using σ.