

rv-disjoint^{11,40}

rv-disjoint($p; n; X; Y$)

$$\begin{aligned} &\equiv_{\text{def}} \forall i: \{0..n^-\}. \\ &\quad (\forall s_1, s_2: (\{0..n^-\} \rightarrow \text{Outcome}). \\ &\quad (\forall j: \{0..n^-\}. (\neg(j = i)) \Rightarrow (s_1(j) = s_2(j))) \Rightarrow (X(s_1) = X(s_2))) \\ &\quad \vee (\forall s_1, s_2: (\{0..n^-\} \rightarrow \text{Outcome}). \\ &\quad (\forall j: \{0..n^-\}. (\neg(j = i)) \Rightarrow (s_1(j) = s_2(j))) \Rightarrow (Y(s_1) = Y(s_2))) \end{aligned}$$

clarification:

rv-disjoint($p; n; X; Y$)

$$\begin{aligned} &\equiv_{\text{def}} \forall i: \{0..n^-\}. \\ &\quad (\forall s_1: (\{0..n^-\} \rightarrow \text{p-outcome}(p)), s_2: (\{0..n^-\} \rightarrow \text{p-outcome}(p)). \\ &\quad (\forall j: \{0..n^-\}. (\neg(j = i \in \mathbb{Z})) \Rightarrow (s_1(j) = s_2(j) \in \text{p-outcome}(p))) \\ &\quad \Rightarrow (X(s_1) = X(s_2) \in \mathbb{Q})) \\ &\quad \vee (\forall s_1: (\{0..n^-\} \rightarrow \text{p-outcome}(p)), s_2: (\{0..n^-\} \rightarrow \text{p-outcome}(p)). \\ &\quad (\forall j: \{0..n^-\}. (\neg(j = i \in \mathbb{Z})) \Rightarrow (s_1(j) = s_2(j) \in \text{p-outcome}(p))) \\ &\quad \Rightarrow (Y(s_1) = Y(s_2) \in \mathbb{Q})) \end{aligned}$$