

Jawaban Latihan Reasoning with Propositional Logic

Agent melangkah ke posisi [2,1] menerima persepsi
[None, Breeze, None, None, None]

$$R_{11} : B_{2,1}$$

$$R_{12} : \neg S_{2,1}$$

•) Breeze

Aturan permainan

$$R_{13} : B_{2,1} \Leftrightarrow P_{2,2} \vee P_{3,1}$$

Biconditional elimination pada R_{13}

$$R_{14} : (B_{2,1} \Rightarrow P_{2,2} \vee P_{3,1}) \wedge (P_{2,2} \vee P_{3,1} \Rightarrow B_{2,1})$$

And elimination pada R_{14}

$$R_{15} : B_{2,1} \Rightarrow P_{2,2} \vee P_{3,1}$$

Modus Ponens R_{15} dan R_{11}

$$B_{2,1} \Rightarrow P_{2,2} \vee P_{3,1}$$

$$B_{2,1}$$

$$R_{16} : P_{2,2} \vee P_{3,1} \quad (\text{ada pit di posisi } [2,2] \text{ atau } [3,1])$$

$$R_{12} : \neg S_{2,1}$$

→ steady

Aturan permainan

$$R_{17} : S_{2,1} \Leftrightarrow W_{2,2} \vee W_{3,1}$$

Biconditional elimination pada R_{17}

$$R_{18} : (S_{2,1} \Rightarrow W_{2,2} \vee W_{3,1}) \wedge (W_{2,2} \vee W_{3,1} \Rightarrow S_{2,1})$$

And elimination pada R_{18}

$$R_{19} : W_{2,2} \vee W_{3,1} \Rightarrow S_{2,1}$$

Logical equivalence contrapositive pada R_{19}

$$R_{20} : \neg S_{2,1} \Rightarrow \neg (W_{2,2} \vee W_{3,1})$$

Modus Ponens R_{20} dan R_{12}

$$\neg S_{2,1} \Rightarrow \neg (W_{2,2} \vee W_{3,1})$$

$$\neg S_{2,1}$$

$$R_{21} : \neg (W_{2,2} \vee W_{3,1})$$

Aturan De Morgan pada R_{21}

$$R_{22} : \neg W_{2,2} \wedge \neg W_{3,1}$$

And elimination R_{22}

$$R_{23} : \neg W_{2,2}$$

$$R_{24} : \neg W_{3,1}$$

~~$S_{2,1}$~~

Agent melangkah ke posisi [1,2] menerima percept
[Stench, None, None, None, None]

$$R_{25} : S_{1,2}$$

$$R_{26} : \neg B_{1,2}$$

→ Stench

Aturan permainan

$$R_{27} : S_{1,2} \Leftrightarrow W_{1,3} \vee W_{2,2}$$

Biconditional elimination pada R_{27}

$$R_{28} : (S_{1,2} \Rightarrow W_{1,3} \vee W_{2,2}) \wedge (W_{1,3} \vee W_{2,2} \Rightarrow S_{1,2})$$

And elimination pada R_{28}

$$R_{29} : S_{1,2} \Rightarrow W_{1,3} \vee W_{2,2}$$

Modus Ponens R_{29} dan R_{25}

$$S_{1,2} \Rightarrow W_{1,3} \vee W_{2,2}$$

$$\underline{S_{1,2}}$$

$$R_{30} : W_{1,3} \vee W_{2,2}$$

Resolusi R_{30} dan R_{24}

$$\underline{W_{1,3} \vee W_{2,2} , \neg W_{2,2}}$$

$$R_{31} : W_{1,3} \quad (\text{Ada wumpus di posisi [1,3]} \checkmark)$$

.) Breeze

Aturan permainan

$$R_{32}: B_{1,2} \Leftrightarrow P_{1,3} \vee P_{2,2}$$

Conditional elimination pada R_{32}

$$R_{33}: (B_{1,2} \Rightarrow P_{1,3} \vee P_{2,2}) \wedge (P_{1,3} \vee P_{2,2} \Rightarrow B_{1,2})$$

And elimination pada R_{33}

$$R_{34}: P_{1,3} \vee P_{2,2} \Rightarrow B_{1,2}$$

Logical equivalence for contrapositives pada R_{34}

$$R_{35}: \neg B_{1,2} \Rightarrow \neg (P_{1,3} \vee P_{2,2})$$

Modus Ponens R_{35} dengan R_{24}

$$\begin{array}{l} \neg B_{1,2} \Rightarrow \neg (P_{1,3} \vee P_{2,2}) \\ \neg B_{1,2} \end{array}$$

$$R_{36}: \neg (P_{1,3} \vee P_{2,2})$$

Aturan De Morgan pada R_{36}

$$R_{37}: \neg P_{1,3} \wedge \neg P_{2,2}$$

And elimination pada R_{37}

$$R_{38}: \neg P_{1,3}$$

$$R_{39}: \neg P_{2,2}$$

Resolusi R_{39} dengan R_{16}

$$\begin{array}{l} P_{2,2} \vee P_{3,1} \\ \neg P_{2,2} \end{array}$$

$$R_{40}: P_{3,1} \quad (\text{Ada pit diatriksi } [3,17]) \checkmark$$

Jawaban Tugas Reasoning with First Order Logic

$\text{keponakan}(x, y) \wedge \text{Menikah}(x, y) \Rightarrow \neg \text{Sah}(\text{Menikah}(x, y))$

$\text{Saudaratembar}(x, y) \Rightarrow \text{Saudarakandung}(x, y)$

$\text{AnakKandung}(x, y) \wedge \text{Saudarakandung}(y, z) \Rightarrow \text{keponakan}(x, z)$

$\text{Menikah}(\text{Wati}, \text{Andi})$

$\text{AnakKandung}(\text{Wati}, \text{Budi})$

$\text{Saudaratembar}(\text{Budi}, \text{Andi})$

Inferensi dengan forward chaining:-

