

Exercise 8 from WF122

Our next exercise we have used before:

$$(0) \quad [X \Rightarrow \mathbf{true}] \quad .$$

Since the only given properties of **true** in WF122 relate it to \equiv , \neq , \vee , and \wedge , we should rewrite (0) by unfolding \Rightarrow in terms of these. This yields the following attempts:

$$\begin{aligned} & X \Rightarrow \mathbf{true} \\ \equiv & \quad \{ \Rightarrow \text{ into } \neg/\vee \} \\ & \neg X \vee \mathbf{true} \\ \equiv & \quad \{ \text{predicate calculus} \} \\ & \mathbf{true} \end{aligned}$$

and:

$$\begin{aligned} & X \Rightarrow \mathbf{true} \\ \equiv & \quad \{ \Rightarrow \text{ into } \equiv/\vee \} \\ & \mathbf{true} \equiv X \vee \mathbf{true} \\ \equiv & \quad \{ \text{predicate calculus} \} \\ & \mathbf{true} \equiv \mathbf{true} \\ \equiv & \quad \{ \text{predicate calculus} \} \\ & \mathbf{true} \end{aligned}$$

and:

EX8-1

$X \Rightarrow \mathbf{true}$
 $\equiv \{ \Rightarrow \text{ into } \equiv / \wedge \}$
 $X \equiv X \wedge \mathbf{true}$
 $\equiv \{ \text{predicate calculus} \}$
 $X \equiv X$
 $\equiv \{ \text{predicate calculus} \}$
 $\mathbf{true} \quad .$

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That was an exercise in just writing down “the only thing I could do” .

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