

Problem 1

p	$\neg p$	$(p \wedge \neg p)$	r	$((p \wedge \neg p) \rightarrow r)$
T	F	F	T	T
T	F	F	F	T
F	T	F	T	T
F	T	F	F	T

Problem 2

p	$\neg p$	$(p \wedge \neg p)$	r	$\neg r$	$((p \wedge \neg p) \rightarrow r)$
T	F	F	T	F	T
T	F	F	F	T	T
F	T	F	T	F	T
F	T	F	F	T	T

Problem 3

1	$(p \rightarrow (p \rightarrow r))$	Premise
2	p	Premise
3	$(p \rightarrow r)$	1, 2 M.P.
4	r	2, 3 M.P.

Problem 4

Give a configuration of worlds and access restrictions where $(\Box p \wedge \neg \Diamond p)$.

The configuration of worlds where this is true would be a null universe, where none of the worlds can see one-another. In the trivial description of this universe, $\mathbb{U} = \{w_1\} : w_1 = \emptyset$. We also define our accessibility relation R such that $R(w_1) = \emptyset$.