

# Knowledge

## Phil 143 Worksheet

Let  $A \subseteq \text{Agt}$  be a set of agent symbols. For each of the formulas below, determine whether or not that formula is valid over symmetric epistemic frames. If it is valid over symmetric epistemic frames, prove it. If not, construct a symmetric epistemic model that falsifies the formula.

1.  $\neg\varphi \rightarrow E_A \neg E_A\varphi$
2.  $\neg\varphi \rightarrow S_A \neg S_A\varphi$
3.  $\neg\varphi \rightarrow D_A \neg D_A\varphi$
4.  $\neg\varphi \rightarrow C_A \neg C_A\varphi$