$AG(n \to EXt)$ is not expressible in LTL

Proof: Sup. it is expr. in LTL by some formula φ (LTL)

then

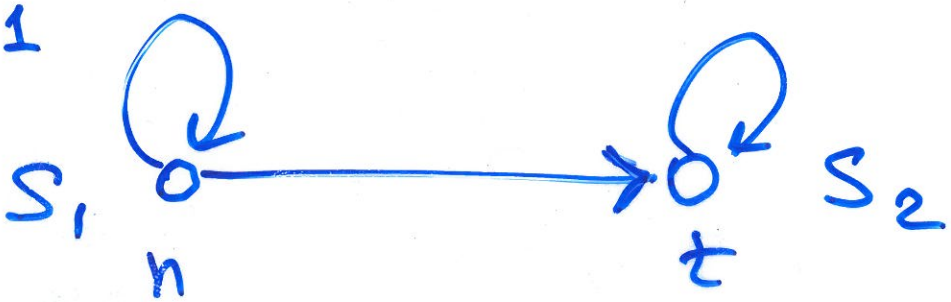
$$AG(n \to EXt) \underset{CTL^*}{\equiv} A[\varphi]$$

$$\Updownarrow \text{ def. } \equiv$$

$$\forall M \forall s \left(M, s \models AG(n \to EXt) \text{ iff } M, s \models A[\varphi] \right)$$

In particular,

M_1



Since $M_1, s_1 \models AG(n \rightarrow EXt)$, we have

$$M_1, s_1 \models A[\varphi]$$

Consider M_2:

Since $M_1, s_1 \models A[\varphi]$, we must have $M_2, s_1 \models A[\varphi]$

But $M_2, s_1 \not\models AG(n \rightarrow EXt)$!

Contradiction.