

2025: Problem Set 2 solution

- ❖ **Q1:** Condition 1 is reachable. Condition 2 is not reachable.

queries:

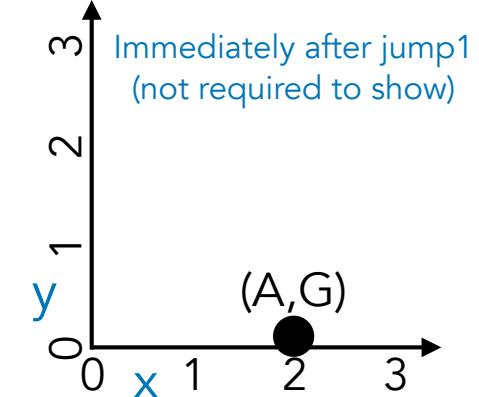
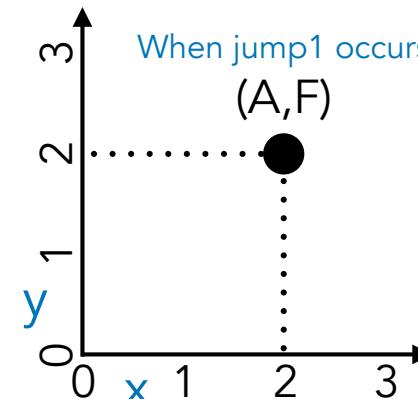
$E \diamond (sys1.B \text{ and } sys2.F \text{ and } sys1.x=1 \text{ and } sys1.y=1)$
 $E \diamond (sys1.B \text{ and } sys2.G \text{ and } sys1.x=1 \text{ and } sys1.y=1)$



- ❖ **Q2:** 3 jumps to reach condition 1

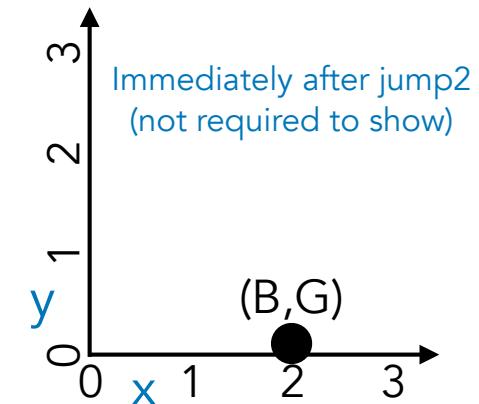
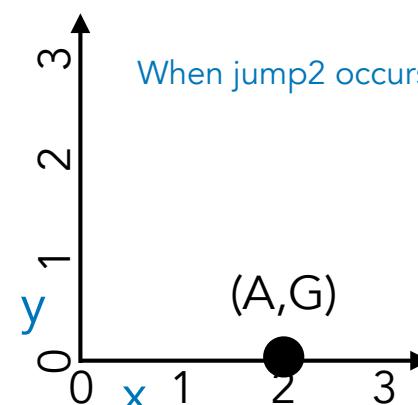
❖ jump 1:

sys2 jumps $F \rightarrow G$
 $(sys1 \text{ jumps } A \rightarrow A)$



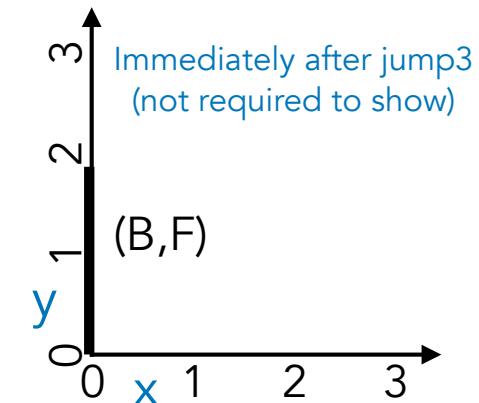
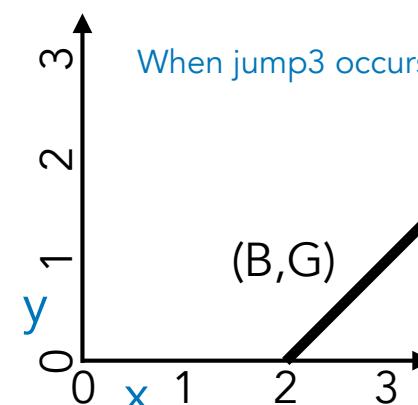
❖ jump 2:

sys2 does not jump
 $(sys1 \text{ jumps } A \rightarrow B)$



❖ jump 3:

sys2 jumps $G \rightarrow F$
 $(sys1 \text{ jumps } B \rightarrow B)$



If jump3 is drawn using rectangular clock regions as defined in class, instead of the diagonal line reported by UPPAAL, that is also acceptable as an answer