Exercises PV : CTL Model Checking

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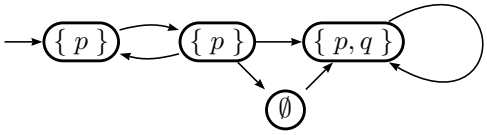
October 31, 2018

1. Consider the following Kripke structure:



   (a) Do LTL model checking to verify the LTL property $\Diamond\Box p$.

   (b) Can the above property be expressed in CTL? How about in CTL*?

   (c) Do CTL model checking to verify $\mathbf{EF}(p \wedge q)$.

   (d) Ok, now try these properties:

   - $\mathbf{EF}\ \neg p$
   - $\mathbf{AG}\ p$
   - $\mathbf{E}[p\ \mathbf{U}\ (\mathbf{AG}\ p)]$
   - $\mathbf{A}[p\ \mathbf{U}\ (\mathbf{AG}\ p)]$
   - $\mathbf{AFAG}\ p$

2. Consider again the Kripke structure in No. 2.

   (a) How would you describe it if you are to express with a Boolean formula?

   (b) Do the model checking of the formula $\mathbf{EF}(p \wedge q)$ on the symbolic representation of your Kripke.