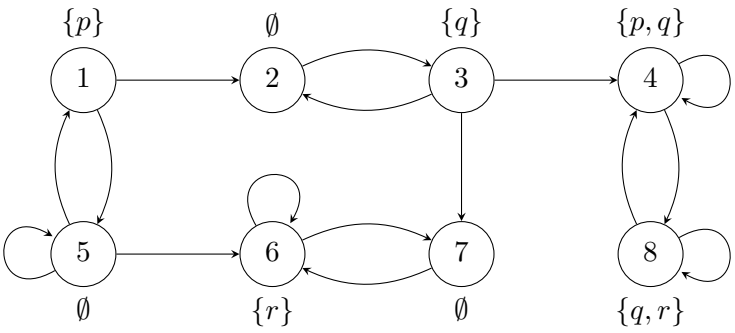
Homework 3

To hand in on October 14th at the beginning of the exercise session, or by mail at `leroux@lsv.fr`.

Answers can be written in french or in english.

Exercise 1. Let M be the Kripke structure below. For a state formula φ in CTL*, we let $[\![\varphi]\!] = [\![\varphi]\!]^M = \{s \in \{1, \dots, 8\} \mid M, s \models \varphi\}$.



Compute the following sets. Give a short explanation.

1. $[\![\mathsf{EG}\, r]\!]$
2. $[\![\mathsf{AX}\, q]\!]$
3. $[\![\varphi_1]\!]$ where $\varphi_1 = (\mathsf{EG}\, r) \vee (\neg q \wedge \mathsf{EX}\, q)$
4. $[\![\mathsf{E}\, \psi]\!]$ where $\psi = \mathsf{GF}\, \varphi_1 \to \mathsf{GF}(q \wedge \neg r)$.