

Exercise 6

Büchi Automata and LTL Model Checking

1. Build an automaton for the LTL formula $G(p \rightarrow F(q \vee c))$ and one for $F(p \wedge G(\neg q \wedge \neg c))$. Use GOAL <http://goal.im.ntu.edu.tw> to check if your automaton is correct.

GOAL allows you to

- translate an LTL into an automaton,
- check the equivalence of two automata,
- minimize an automaton using simulation relation.

In order to run goal, first download GOAL (e.g., GOAL-20111010.zip) from the homepage, then unzip it (e.g., unzip GOAL-20111010.zip) and execute the script goal in the newly created directory GOAL-20111010 to run the program:

```
./goal
```

or use the installation in my home directory by calling:

```
/home/perms/jobstmab/GOAL-20111010/goal
```

2. Consider the Kripke structure K below, compute if K satisfies $G(p \rightarrow F(q \vee c))$.

