Tom Mackinson

CMPT 440

Professor Rivas

Traffic Light DFA Project

Abstract - In this document I will describe a bit about my project and what I hope it will accomplish. Also included are the state transition diagrams, and a state transition table.

Introduction – I wanted to create a project to simulate a simple 4 way traffic light. The inspiration for this came from us talking about it in class, as one of the example projects, and from another class, mobile security. In mobile security we discussed how often Traffic Lights have very weak security, and it is quite easy, although very illegal, to hack into a traffic light and change the light. Because of this I decided that a traffic light would be a simple, yet very real and very interesting example to look into.

Detailed System Description – This system will simulate the changing lights on a 4 way traffic light. This means that there are 2 sets of lights, one going north-south, the other going east-west. This means that this problem is essentially a union of 2 different DFAs, and the only accepting state is when one light is green and the other is red. While this does mean that it is very easy to reach an accepting state, a traffic light has to operate for a very long period of time, and without any errors.

Conclusion – While this project is still in progress, it should be an interesting look at how a simple DFA can perform in many long running tests. I will also do more research once my own work is done, into how an actual traffic light works, and how the real world system operates.