

CS 376 : Assignment 6

Modeling and Simulation of Petri Nets

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29 October 2014

1 Introduction

A tourist agency is setting up boat sightseeing tour where the boats are autonomous vehicles. You have been employed by the agency to design a control system that drives the boat along the channels as described in the following map.

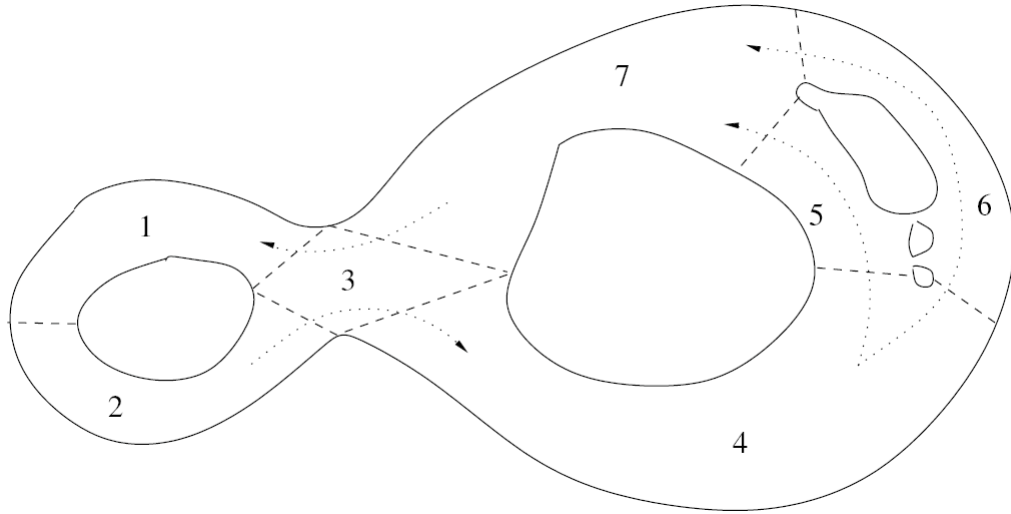


Figure 1: Boat Tour

2 Single Boat Indeterminate Path

Model the problem of a single boat with a Petri net and describe in detail what each place and transition represents

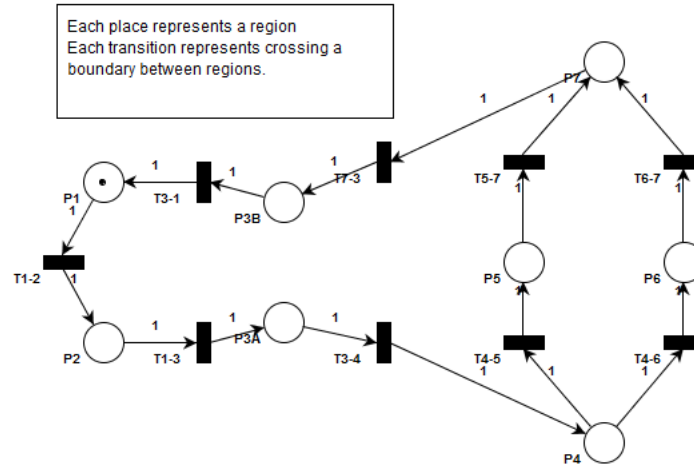


Figure 2: Single Boat with Indeterminate Path

3 Single Boat Determinate Path

Assume that the tourist agency wants that the boat passes alternatively through sector 5 and 6. Modify the Petri net in (a) so that this constraint is satisfied.

4 Two Boats Place Exclusion

Assume there are two boats. Specify a Petri net such that only one boat can access sector 3 at a time.

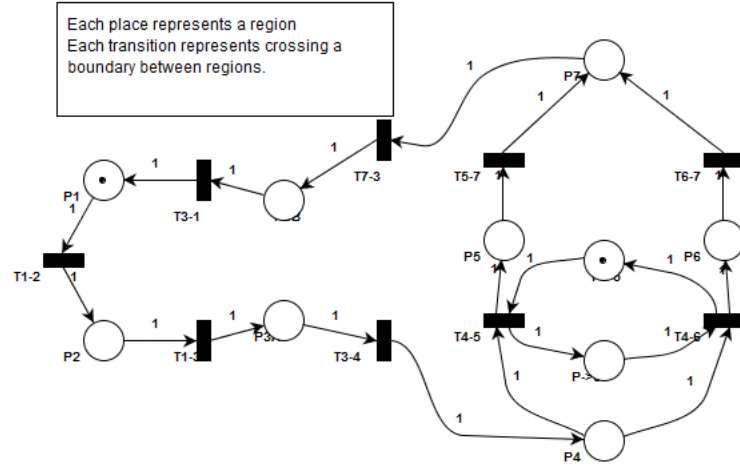


Figure 3: Single Boat with Determinate Path

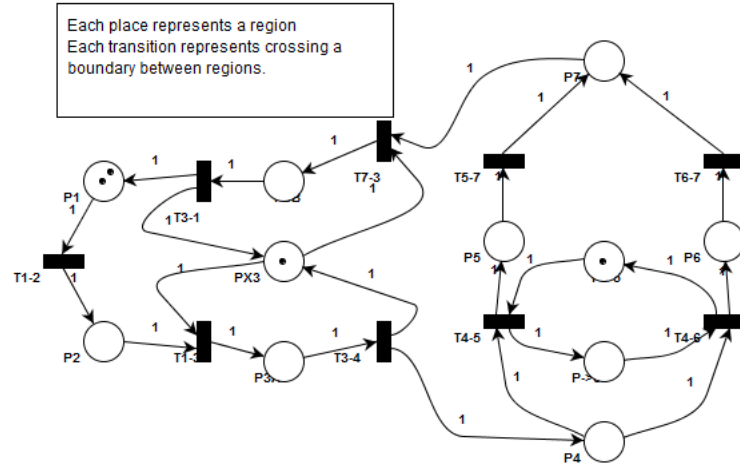


Figure 4: Two Boat with Exclusion Zone and Determinate Path