Study Guide for Midterm One
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Contents

1　Siska Lectures

2 Textbook Readings

2.1 Chapter 1

Summary:

2.2 Chapter 2

Summary:
Finite state machines can be thought of as black boxes that have a graphical representation. Starting at a particular node, each input given can change the current state of the machine. Changing state can be seen as moving along to another node, or simply looping on the current node, making no further progress. We also have two distinctions for each node:

- Accepting state: desired position (there can be more than one)

- Unaccepted state: undesired position

With FSMs, we can draw to different categories:

- NFA: Non-deterministic finite automa

- DFA: Deterministic finite automa

Deterministic refers to the path taken in a state machine given a particular input. Let say, for example you give the string $w_1 = cccaaa to the following FSM$:

Figure 2.4
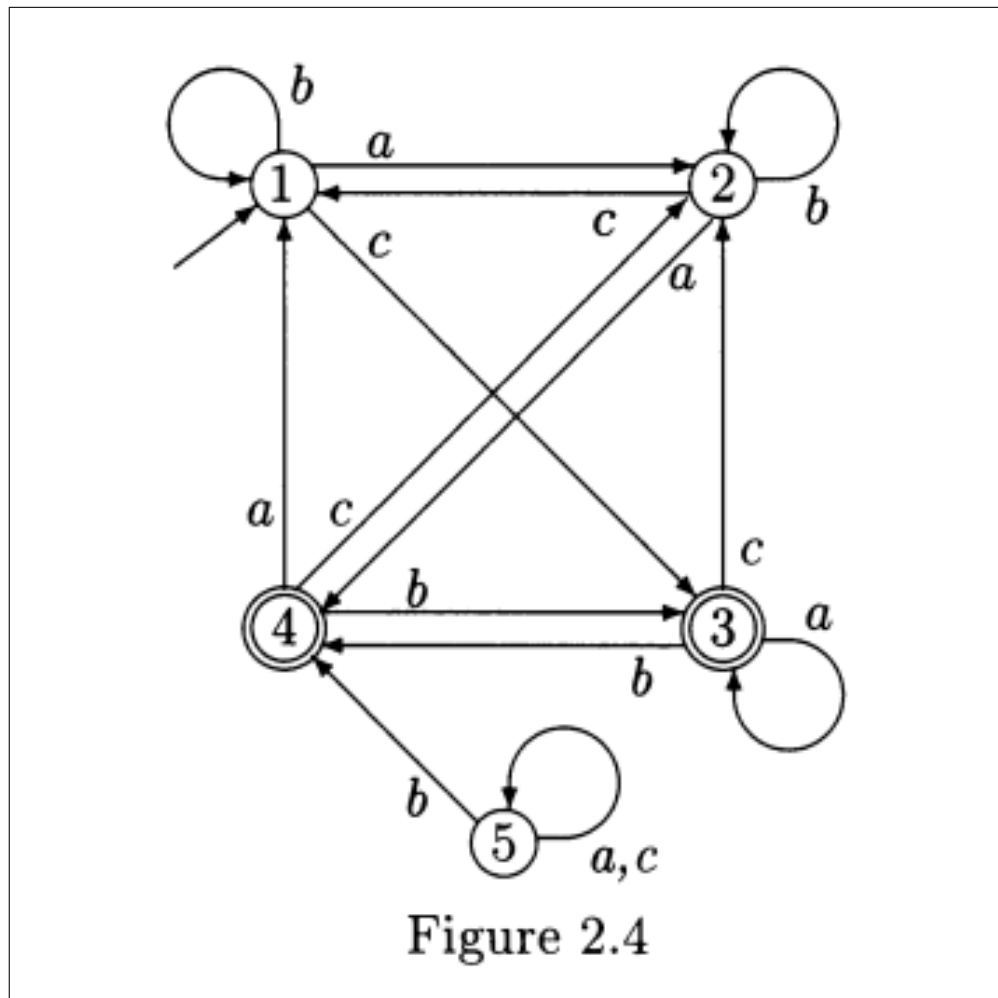
The current path can be constructed:

Figure 2.5(b)
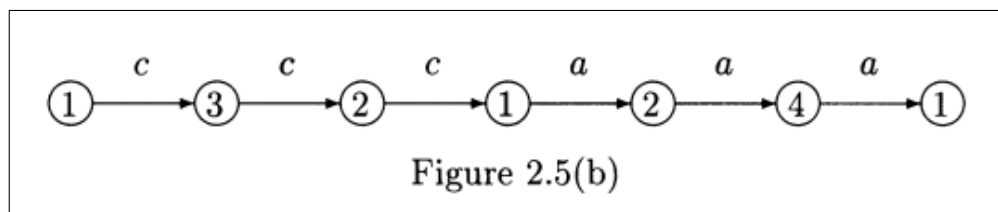
From my understanding, this mapping is a **DFA**. Meaning since we know the input we will know the given path taken by that input

However, there are some machines where you don't know the path the machine can take. These are NFAs and they have the state-transition function of: