CPSC-406 Report

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Abstract

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1 Introduction

2 Introduction

3 Week by Week

3.1 Week 1

HW1 – DFA Exercises

Exercise 1 We are given two DFAs A_1 and A_2.

Accepted Words Table
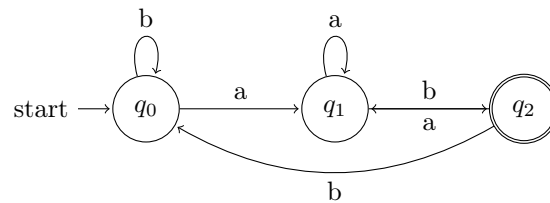
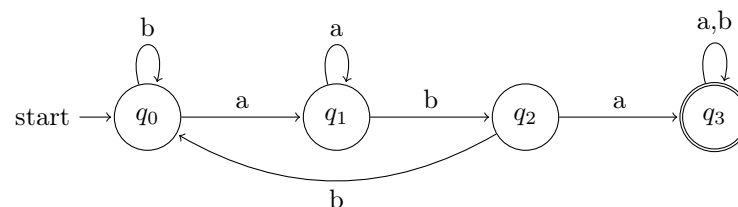| w	Accepted by A_1?	Accepted by A_2?
aaa	No	Yes
aab	Yes	No
aba	No	No
abb	No	No
baa	No	Yes
bab	No	No
bba	No	No
bbb	No	No

Language Descriptions

- $L(A_1)$: all strings over $\{a, b\}$ that start with a and end with an odd number of b's.

- $L(A_2)$: all strings over $\{a, b\}$ that end with at least two consecutive a's.
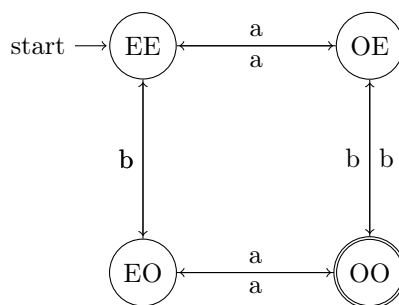
Exercise 2 – Designing DFAs

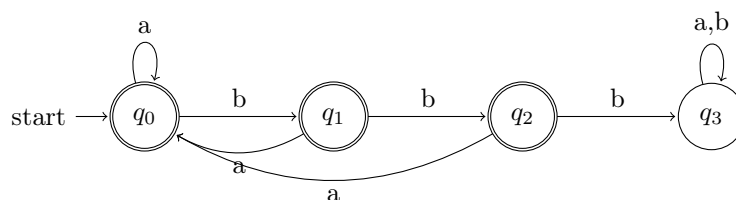**1. Words that end with ab**

2. Words that contain aba

3. Odd number of a's and odd number of b's   States represent parity: $(a\text{-parity}, b\text{-parity})$.
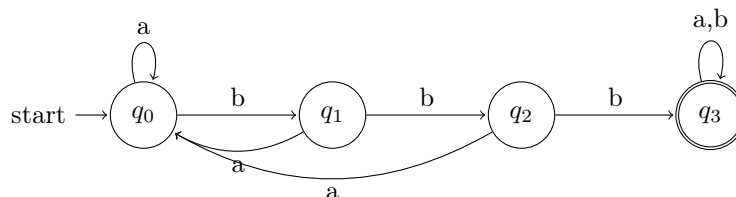

4. Even number of a's and odd number of b's   Same automaton as above, but accepting state is EO.

5. Any three consecutive characters contain at least one a   Equivalent to forbidding substring bbb.

6. Words that contain bbb

Observation

- Problems 3 and 4 use the same parity structure; only the accepting state changes.
- Problems 5 and 6 use the same "count consecutive b's" structure; one treats reaching three b's as rejection, the other as acceptance.
- Problems 1 and 2 track progress toward matching a pattern.

4   Synthesis

5   Evidence of Participation

6   Conclusion

References

[BLA] Author, Title, Publisher, Year.