Problem Set 4

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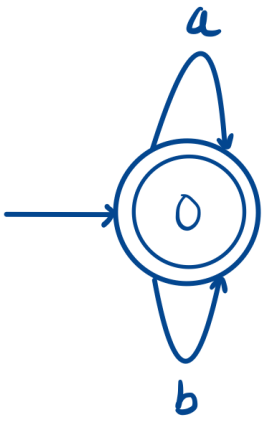
Exercise 1

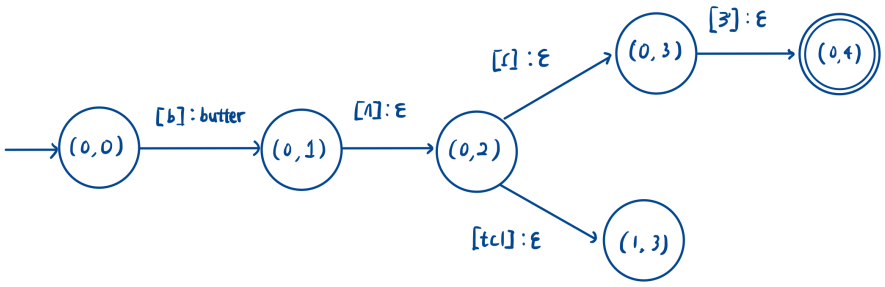


$(a|b)^* a$

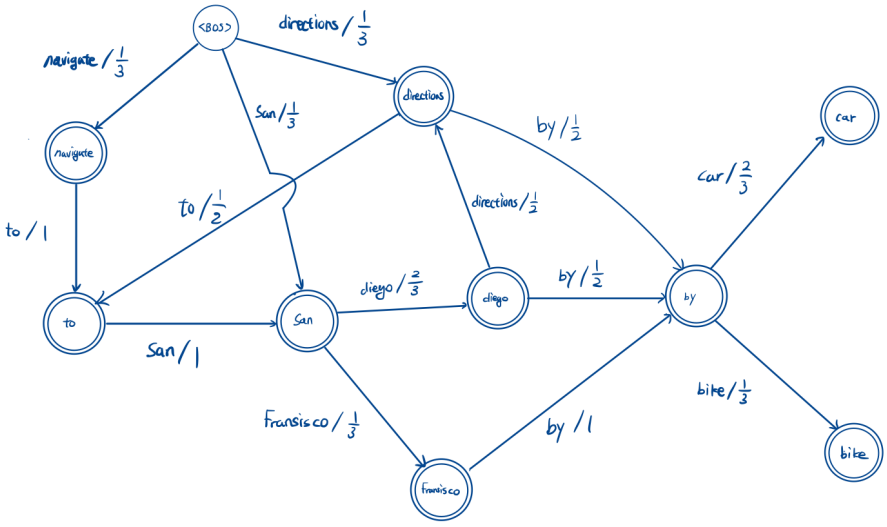
Exercise 2

- FSA B can recognize the language $(a|b)^*ab$.
- For the FSA C, all the incoming transitions to the state 1 have the label a, and the terminating state (state 2) has the only one incoming transition that has the label b. Therefore we can conclude that the FSA C can recognize languages that ends with "ab". Moreover, all of its transitions only have label a and b, so we can conclude that FSA C can recognize the language $(a|b)^*ab$.
- According to the two observations above, both FSA B and FSA C can recognize the language $(a|b)^*ab$, and therefore FSA B is equivalent to FSA C.

Exercise 3



Exercise 4



Exercise 5

- The best WER for small LM: 27.33%
- The best WER for medium LM: 24.65%