

# CSCI 340 — Homework 6

Dr. Schwartz

1. For each of the following pairs, find a RE and FA that define  $L_1 \cap L_2$

(i).  $(a + b)^*a$                        $b(a + b)^*$

(ii). Odd-length strings     $a(a + b)^*$

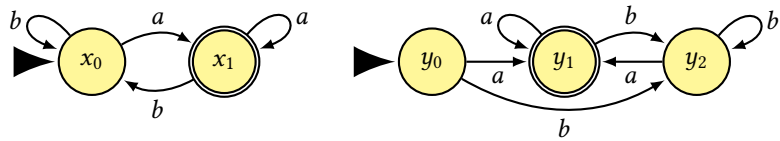
2. Use the pumping lemma, show each are non-regular

(i).  $a^n b^{n+1}$

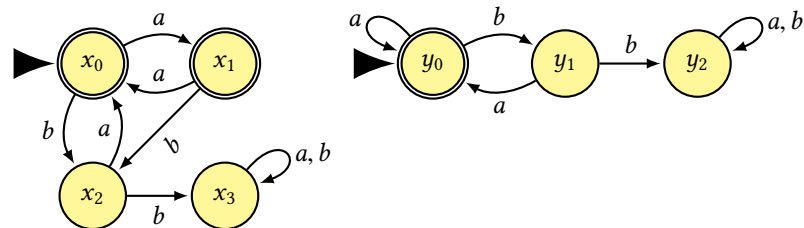
(ii).  $a^n b^n a^n$

3. Show the following FAs are equivalent:

(i).

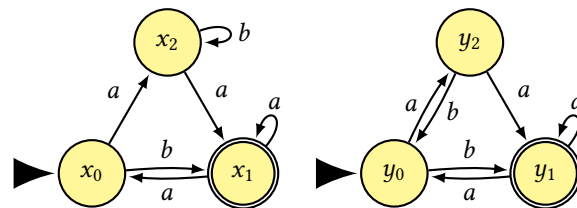


(ii).

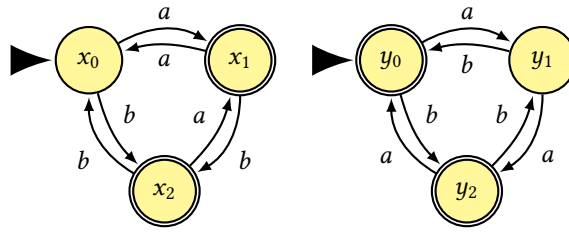


4. Using the method of intersecting each machine with the complement of each other, determine whether two machines accept the same language (or not)

(i).

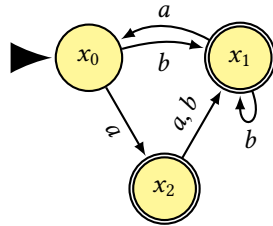


(ii).



5. Do the following FAs accept a finite or infinite language? Justify.

(i).



(ii).

