

Name: \_\_\_\_\_

Grade: \_\_\_\_\_ &lt;-- instructor use

1. Given a language  $L$ , two strings  $w$  and  $x$  in  $\Sigma_L^*$  are indistinguishable with respect to  $L$ , written  $w \approx_L x$ , iff

(English statement):

(first-order logic statement):

2. Show that  $\approx_L$  is an equivalence relation

3. Given  $\approx_L$ , show how to construct a minimal DFSM  $M$  that accepts  $L$ .

$K =$

$s =$

$A =$

$\delta( \quad , a) =$

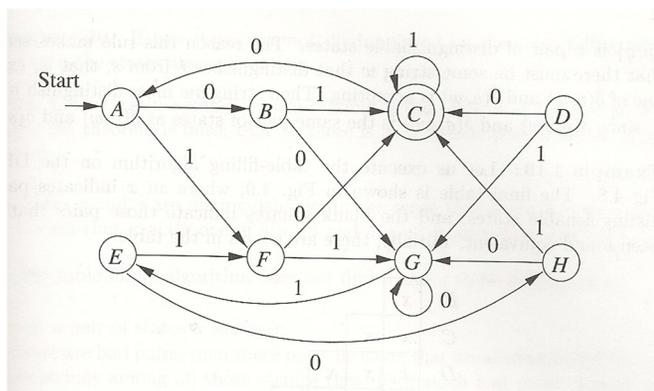
4. In order to show that  $L = L(M)$ , we must show that  $\forall s, t \in \Sigma^*$ ,

5. Base case:

6. Induction step (continue on the back)

Assume true if  $|s| = k$ , Consider what happens if  $|s| = k+1$ , that is  $s = yc$ , where  $y \in \Sigma^*$  and  $c \in \Sigma$ .

7. How to minimize a given DFSA



8. (1) Tell your instructor about anything from today's session (or from the course so far) that you found confusing or still have a question about. If none, please write "None".