CS 173, Fall 2014
Examlet 13 Part A

NETID:	

FIRST:	LAST:

Discussion: Thursday 2 3 4 5 Friday 9 10 11 12 1 2

(15 points) Recall that a phone lattice is a state diagram representing sequences of letters. Each edge in a phone lattice has a single letter on it. In a "deterministic" state diagram, if you look at any state s and any letter a, there is never more than one edge labelled a leaving state s.

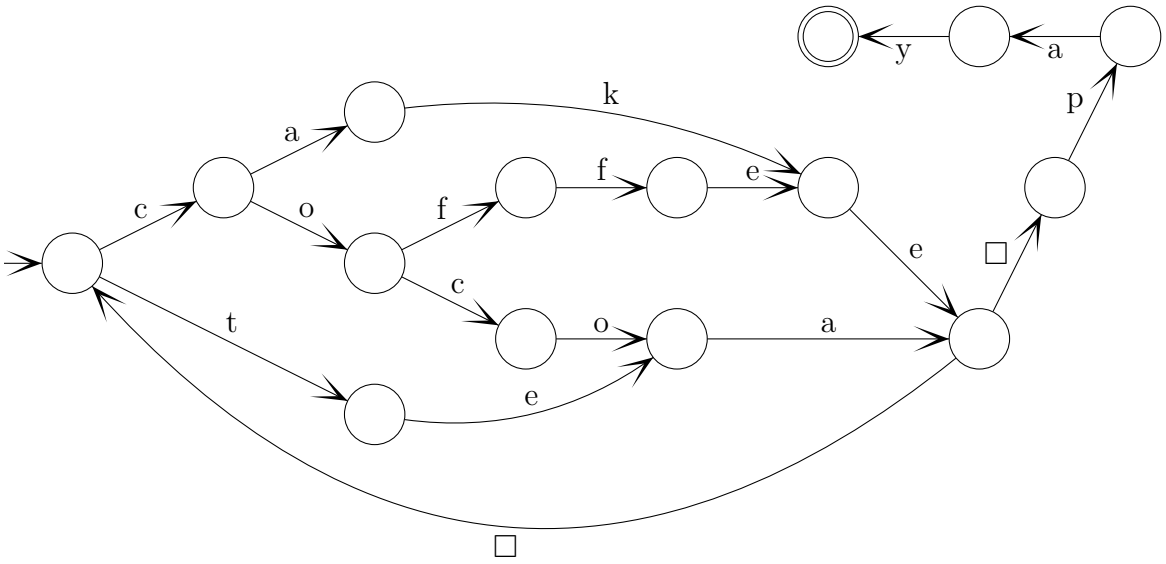
Mickey is a speech understanding system which understands sequences of customer commands. A customer can ask for any number of food items, one at a time, ending with the word "pay". Mickey understands four words for food items: "cocoa", "coffee", "cake", and "tea". There must be a pause (which we'll represent by the letter □) between each pair of words.

Draw a phone lattice that models what Mickey understands, using no more than 19 states and, if you can, no more than 16.

Solution:

Some aspects of the intended design weren't completely clear from the problem statement. So, for example, it wasn't clear whether the client should be able to say just "pay" with no preceding words requesting food. So a number of variations on the following will be accepted for full credit.

Here is an almost correct solution, close enough for full credit. The only bug is that it's slightly non-deterministic: two transitions on □ from one state.



Here is a solution that fixes the non-determinism in the above.