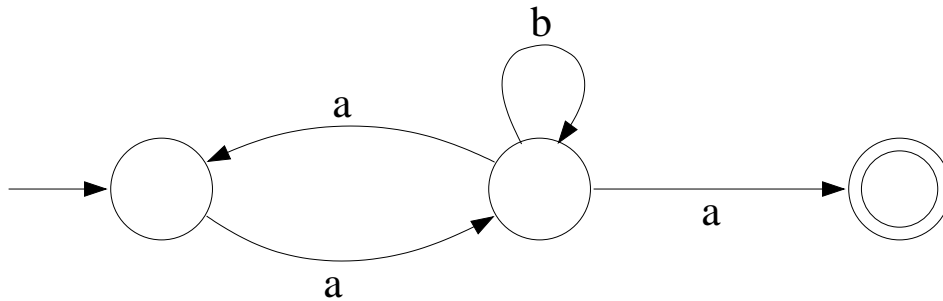


Homework 3

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You will not hand in the answers to this homework assignment. Instead, at the beginning of class on **17 October 2002** you will be asked to solve one of the problems as a closed notes, closed book quiz. The question to be solved will be randomly selected.

1. Describe in English the language of the following N DFA.



2. Write the regular expression for the previous N DFA.
3. Describe in English the language of the following regular expression.

$$(ab)^*(ba)^*|ab^*$$

4. Using the construction provided in class, convert the previous regular expression into an N DFA with epsilon transitions.
5. Draw a *deterministic* finite automata with four states which recognizes the strings containing a 's and b 's where the number of times ab appears is even.
6. Write an `egrep` program that examines the file `/usr/dict/words` and finds all words that have alternating consonants and vowels. Try it on the `csug` systems and provide as part of the quiz, one of the words.