

G. Farin

Homework # 4

due: 4/23, midnight

All Turing machines to be attached as JFLAP files.

1. Let L be the language over $\{a, b\}$ where each b is immediately preceded by an even number of a 's. Create a standard TM which accepts L by final state. Explain the design of the machine.
2. Let L be the language over $\{a, b, c\}$ where each string in L contains the substring abc at least twice. Create a nondeterministic TM which decides L . Explain the design of the machine.
3. Let L be the language over $\{a, b\}$ in which there are more a 's than b 's. Create a standard TM which accepts all strings in L by halting. Explain the design of the machine.
4. Design a two-tape TM which lexicographically enumerates the language over $\{a, b\}$ given by $L = \{w \mid w = a^*b\}$. Explain the design of the machine.