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// 1/25/2020
// CS331
// Assignment1.pdf

Exercise 1
- Here is the secret message:
-
- The Magic Words are Squeamish Ossifrage

Exercise 2
- Java has static type checking.
- This means that it checks the types prior to runtime, ensuring that no type errors occur during the execution of the program.

Exercise 3
- a and f are the only two, since the language produced by the grammar consists of strings that have zero or more x's followed by exactly one f, followed by one or more o's, and only a and f match this description.

Exercise 4
- The language produced by the grammar consists of strings that have one or more a's, followed by the same number of b's as a's, followed by an even number of c's, including zero as an even number.

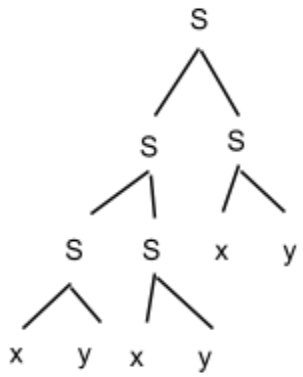
Exercise 5
- c, d, e, and g all match the regular expression.

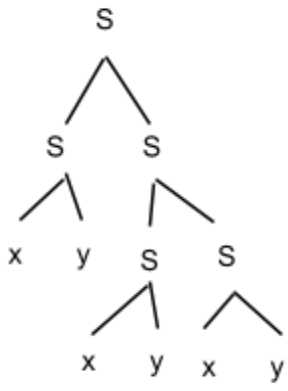
Exercise 6
- (a|b)*a(a|b)*

Exercise 7

a.
- S
- SS
- xyS
- xyxy

b.
- S
- SS
- Sxy
- xyxy





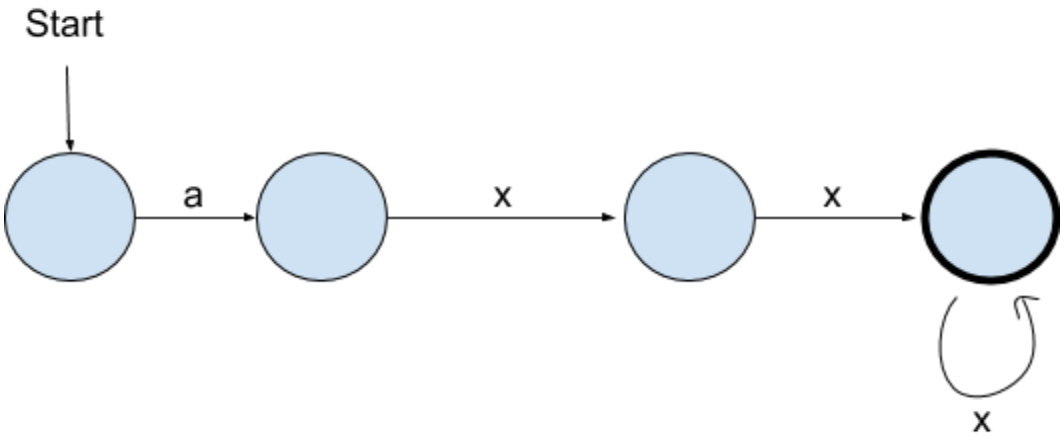
c. xyxyxy

d. S → Sxy | xy

Exercise 8

a. axxx*

b.



c. S → axxA
A → xA | ε

d. This grammar is not ambiguous because for each word that can be generated there is only one parse tree.

Exercise 9

<reg-exp> ::= <reg-exp> “*” | “(“ <reg-exp> “)” | <reg-exp> “|” <reg-exp> |
<reg-exp> <reg-exp> | <single-char> | <epsilon>

Sorry about the wrapped line, not sure what could be done about that