CS 310 Homework #5   DUE: Oct 20, **4:45pm**   **CS310_Hmwk5_PUNETID**

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2.1
a   a
b   (a)
c   (a+a)
d   ((a+a)*a)

2.4
b   {w | w starts and ends with different symbols}
d   {w | the length of w is even and the two middle symbols are different}
e   {w | w = x1x^r ; x $\in$ {0,1}*} # w is a palindrome with a 1 in the center.
f   {w | w is the empty string}

2.6
b The complement of the language {b^{2*n}a^n | n >= 0}
d   Same as book.

2.8
        Use the (non-creepy) sentence: **the girl sees the flower with the boy**

2.9 Give a CFG for the following language
        { a^{n}b^{j}c^k | n = j or n = k where n, j, k >= 0 }

2.13   a & b

2.15
2.16
2.19

2.22 C = { x#y | x, y $\in$ {0,1}* and x != y and length of x = length of y}

~~Show that C is a context free language.~~
Show that C is or is not regular.

D = { x#y | x, y $\in$ {0,1}* and x != y }

Show that D is a context free language.
Show that D is or is not regular.

Type your solutions into Google Docs. Draw pictures when necessary. ASCII art is acceptable for pictures, or you can use the Insert Drawing function in Google Docs, or maybe JFLAP. Start early, come see me with questions.