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CS4110
Homework 5
Due October 12

P01. Context Free Grammar

Consider the CFG
S → aXaXa
X → aX | bX | Λ

What is the language this CFG generates?

We can try a few out:

aXaXa
a**aX**a**bX**a
aa**bX**ab**/**a
aab/\aba

This looks like a language that starts with a, ends with a, and will have at least one more a in the center. Between these three as there can be more as or bs

=> **a(a+b)*a(a+b)*a**

P02. Context Free Grammar

Find a CFG for the language defined by the following regular expression: a*b*

S → aS | bT | /
T → bT | /

Make sure it works:
S
aS
aaS
aaaS
aaabT
aaabbT
aaabb/\
aaabb *it works*

S
bT
bbT
bb/\ *it works*

S
aS
aaS
aaaS
aaa/\ *it works*