Questions for EZQuiz 4

- "Formal contrapositive of pumping lemma with all 4 quantifiers", from pumping lemma handout.

- "Rephrasing the formal contrapositive as a game", from pumping lemma handout. You can omit the parts in parentheses.

- Linz examples 4.9, 4.12, and 4.13 (pp118–120). Note that for 4.12 and 4.13, you may assume without proof that $a^n b^n$ is not regular, and use the elegant proofs (via a homomorphism for 4.12, and using closure properties for 4.13). Don't bother with the direct application of the pumping lemma for these last two examples.

- Definition of a context-free grammar (p126).

- Given the grammar of example 5.6 (p131), you need to be able to answer the following two questions about figures 5.2 and 5.3: (i) Is this a partial derivation tree, or a derivation tree? (ii) What is the yield of the tree?

- State the relationship between context free grammars, derivation trees, and partial derivation trees. Solution: Theorem 5.1, page 132.

- Explain why exhaustive search parsing of the grammar $S \rightarrow SS|aSb|bSa|ab|ba$ will always terminate for any $w \in \{a, b\}^+$. Solution: example 5.8, page 138.

- State a theorem about the complexity of parsing context free grammars. Solution: theorem 5.3, page 139.

- Section 5.2, exercise 6