HW4

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1. Define a context-free grammar for the language $L = \{\ 0^n1^m0^m1^n\}$ Where S is the start production $S \to 0S1|1A0|\epsilon$ $A \to 1A0|\epsilon$

2. Define a context-free grammar for the language $L = \{\ a^nb^m : n \leq 3m\}$ Where S is the start production $S \to Bb|\epsilon$ $B \to Cb|\epsilon$ $C \to Db|\epsilon$ $D \to Db|aS|\epsilon$

3. The truth value of a logical expression is defined recursively as: Where S is the start production $S \to (A) = T|(B) = F|\neg(A) = T|\neg(B) = T$

$A \to T|(A \wedge A)|(A \vee B)|(A \vee A)|(F \vee A)|\neg(B)$

$B \to F|(B \wedge A)|(A \wedge B)|(B \vee B)|(B \wedge B)|\neg(A)$