Assignment #1

ECEN 5023, CSCI 7135

Due January 28, 2008

1. Write a detailed proof of Theorem 3.5.11.

2. Prove the following theorem for the language in Figure 3-1 of the text (containing only booleans). This kind of theorem is often called a "progress" theorem, since it says that terms that are not values can always make progress in the abstract machine.

   Theorem: For every term `t`, either `t` is a value or there exists a term $\texttt{t}'$ such that $\texttt{t} \longrightarrow \texttt{t}'$.

3. Does the theorem from the previous question hold for the full language, including the integer expressions from Figure 3-2? If yes, prove it. If no, provide a counterexample.

4. Exercise 3.5.17.