COMP2411 Assignment 5 Questions

Solutions are to be submitted at the lecture on Thu April 13. Solutions must be handwritten, printouts are not acceptable. You are reminded of the rules concerning collaboration and plagiarism on the Course outline. This assignment is worth 2% of your final mark.

Consider the following set of Horn clauses. Show that this set is unsatisfiable, using two techniques:

1. Using the algorithm discussed in lecture 9. What is the set marked at the point the algorithm stops?

2. Using SLD resolution with leftmost literal selection rule, depth first search and top to bottom choice of clauses to resolve against. Show only those branches constructed up to and including the first successful branch. (You may indicate the clauses from the input set used at each step by number, rather than displaying the clause itself.)

3. What happens to the two approaches if we add the clause $R \rightarrow T$ as the last clause?

\begin{verbatim}
1: R \land T \rightarrow A  
2: B \rightarrow A  
3: S \land U \rightarrow R  
4: W \rightarrow R  
5: \top \rightarrow B  
6: D \rightarrow S  
7: \top \rightarrow W  
8: \top \rightarrow Q  
9: S \rightarrow V  
10: U \rightarrow V  
11: \top \rightarrow U  
12: A \land Q \land V \rightarrow \bot
\end{verbatim}