Semantic Frameworks: Problem Set 3

Due before 30 Nov, by email

Problem 1

Given Veltman's semantics for epistemic modals (as given in last handout) if disjunction is defined as follows $c[\neg A \vee B] = c[A] \cup c[B]$ then explain in general what $c[\neg B \vee \Diamond B]$ is when A and B are both atomic formula and c contains worlds where A is true and worlds where B is true (i.e. $c[\neg B]$ and $c[B]$ both do not equal $\emptyset$). What about $c[\neg B \vee \Diamond B][\neg B \vee \Diamond B]$

Problem 2

Let A and B be trivalent formulas. $T(A)$ is a bivalent formula that is true iff A is true, $T(B)$ is a bivalent formula that is true iff B is true. $F(A)$ is a bivalent formula that is true iff A is false, $T(B)$ is a bivalent formula that is true iff B is false. In general $P(\alpha) = T(\alpha) \vee F(\alpha)$. Suppose our truth table for conjunction goes as follows.

$\wedge$	T	F	U
T	T	F	U
F	F	F	U
U	U	F	U

State $T(A \wedge B)$ (i.e. a bivalent formula true iff $A \wedge B$ is true) in terms of $T(A)$, $T(B)$, $F(A)$, and $F(B)$. Also state $F(A \wedge B)$, and $P(A \wedge B)$. Describe in words the presupposition projection properties of this connective.