Logic and Conversation
Assignment 2

Please return the assignment in pdf by email to: floris.roelofsen@gmail.com
Due date: Monday 12/11

1 DPL

1. Show that conjunction is not idempotent in DPL, as defined in def. 41 of the paper. That is, show that it is not the case that for every formula ϕ, $[\![\phi\ ;\ \phi]\!] = [\![\phi]\!]$.

2. Consider the following sentence:

   (1) Every player who had a card, put it on the table.
   $\forall x.((Px\,;\,[y]\,;\,Cy\,;\,Hxy) \rightarrow Txy)$

   Consider a model M with:

   - $D = \{p_1, p_2, p_3, c_1, c_2, c_3, c_4\}$
   - $I_M(P) = \{p_1, p_2, p_3\}$
   - $I_M(C) = \{c_1, c_2, c_3, c_4\}$
   - $I_M(H) = \{\langle p_1, c_1\rangle, \langle p_3, c_2\rangle, \langle p_3, c_3\rangle, \langle p_3, c_4\rangle\}$
   - $I_M(T) = \{\langle p_1, c_1\rangle, \langle p_3, c_2\rangle\}$

   Let g be an assignment that maps x to p_1 and y to c_1, and suppose that there are no variables in the language other than x and y.

   (a) Compute, step-by-step, whether $\langle g, g\rangle$ is in $[\![(1)]\!]$.

   (b) Does DPL derive a strong or a weak reading for (1)? Explain.

2 Generalized quantifiers

1. [Selective quantification] Consider the following sentence:

   (2) Most players who had a card, put it on the table.
   $\mathbf{most}_x^{wk}((Px\,;\,[y]\,;\,Cy\,;\,Hxy)\ ,\ Txy)$

Assume a selective treatment of $\mathbf{most}_x^{wk}(\phi\ ,\ \psi)$, as defined on page 25 of the paper. Let M and g be as above. Show how to compute, step-by-step, whether $\langle g, g\rangle$ is in $[\![(2)]\!]$.

2. [Decomposed quantification] Consider the following discourse:

(3) Most movies are about a man and a woman.
He usually seduces her.

(a) Specify a model M and two contexts (i.e., sets of assignments) G and H such that $G[\![(3)]\!]^M H$ in PCDRT. You do not have to give a detailed proof, but do give an explanation showing that you understand how the system works.

(b) Specify a model M and a context G such that $[\![(3)]\!]^M$ does not map G to any output context in PCDRT. Again, you do not have to give a detailed proof, but do give an explanation showing that you understand how the system works.