EXERCISE 4

Human Reasoning and Computational Logic

Steffen Hölldobler, Emmanuelle Dietz Saldanha

European Master's Program in Computational Logic — winter semester 2017/18

Problem 4.1

Show that the following proposition holds under the Weak Completion Semantics:

Proposition 5 If $I \models \mathsf{wc}\,\mathcal{P}$ then $I \models \mathcal{P}$.

Does the other direction, If $I \models \mathcal{P}$ then $I \models \mathsf{wc}\,\mathcal{P}$, hold as well? Motivate your answer.

Problem 4.2

Show that the following proposition holds:

Proposition 6 Every continuous mapping is monotonic.

Does the other direction hold? Motivate your answer.

Problem 4.3

Show that the following lemma holds:

Lemma 10 Let X be a directed set and Y be a finite subset of X. Then X contains an upper bound of Y.

Problem 4.4

Show that the following proposition holds:

Proposition 12 Let C be a finite complete partial order and f a monotonic mapping on C. Then f is continuous.