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HKGAB4 - Lab 3-4

Linköping University
IDA
CogSci Line

Lab 3-4 : Conjunction, Disjunction, and Negation.

1 Goal

The goal of these labs is to familiarize you with propositional logic. In particular, we focus on

- Extending our atomic language to include the logical connectives conjunction, disjunction and negation. We then evaluate complex sentences.
- Considering the idea of truth-functionality via the use of truth tables and a special evaluation game built into Tarski's World. In addition, we consider the concepts of satisfiability and logical truth.
- Studying several methods of proof, in particular, proof by contradiction and reasoning by case.
- Studying the relation between negation, conjunction, and disjunction.

2 Preparation

The following should be done before the actual lab session:

- Read Chapter 3.1-8.
- Prepare for problems 3.11-3.12 by trying to write the natural language sentences in LFOL.
- Prepare for problems 3.30-3.33 by determining whether you need a proof or not. If not, do the proofs before the labs.

3 Lab Exercises

The following lab exercises are obligatory. Those with a (*) next to them should be saved on your diskettes. For those of you using the IBM PC version of Tarski's World, use the names under the IBM column.

Exercise	SaveAs (Apple)	SaveAs (IBM)
3.1		
3.3		
3.4		
3.5		
3.6 (*)	World 3.6	3-6.wld
3.7 (*)	World 3.7.1	3-7-1.wld
	World 3.7.2	3-7-2.wld
3.8 (*)	Sentences 3.8	3-8.sen
3.11 (*)	Sentences 3.11	3-11.sen
3.12 (*)	Sentences 3.12	3-12.sen
3.13		
3.30 (*)	World 3.30	3-30.wld
3.31 (*)	World 3.31	3-31.wld
3.32 (*)	World 3.32	3-32.wld
3.33 (*)	World 3.33	3-33.wld

For exercise 3.8, in addtion to saving the sentence file on the diskette, hand in a printout of the sentence file.

For exercises 3.30-33, either a world file or proof is required. Where a proof is required, hand in the written proof and do not create a world file on the diskette. The grader will check that the proper files are absent.

4 Saving your exercises on diskettes

Recall our discussion about the importance of saving files properly, so the grader will work properly!

5 Deadlines

You may work in pairs or threes, but each student should hand in his or her diskette individually by

- March 25, 1996.

We in turn will try to have the graded exercises back to you by

- March 27, 1996.

Exercises handed in after this date can at best get a grade of *Godkänd*, providing they are done correctly. Late arrivals will also determine whether additional oral examinations are necessary at the end of the course. The intention with the deadlines is to give you direct feedback, not to make things difficult for you!