Schedule Logic, Language and Philosophy Course

version 1.0

Fall,2022

# **Preliminary**

Basic parameters:

* The course runs for 16 weeks
* Assessment consists of 2 intermediate exams
* Each week has two meetings, of 95 minutes

Manuscript *Logic, Language and Philosophy* by Fenrong Liu and Martin Stokhof. The course will be taught in English.

The course is supplemented by philosophical material that illustrates the philosophical relevance of the various logical concepts and techniques.

# **Assessment**

Assessment consists of:

* Exam 1: 30 points
* Exam 2: 30 points
* Homework assignments: 30 points
* Presentation: 10 points

# **Schedule**

The schedule is organised by week in order to introduce sufficient flexibility in planning and execution. There is additional flexibility in that every exam is preceded by a ‘review & quiz’ section that could also be used as a reserve.

The specification for each week contains:

* *Topics*: the logical concepts and techniques that are treated
* *Theme*: the philosophical theme associated with those concepts and techniques
* *Reading*: the draft chapters where the topics are explained
* *Exercises*: the relevan exercises
* *Additional reading*: reading material that is related to the theme

**Week 1: why logic?**

# Topics

Informal characterisations of argument, argument scheme, validity; historical backgrounds; examples

*Theme*

Usefulness and limitations of application of logic in philosophy

*Reading*

Book, chapter 1, 2

*Exercises*

Not applicable

# Additional reading

Frege: preface from *Begriffsschrift*; Russell: ‘Logic as the Essence of Philosophy’ in *Our Knowledge of the External World* (chapter 2, pp. 26–48)

# Proposition logic

## Week 2: syntax

*Topics*

Truth functional connectives, truth tables; translation; syntax

*Theme*

Truth-functional, non-truth-functional and nonsensical connectives

*Reading*

Chapters 3, 4

*Exercises*

1, 2, 3, 4, 5

*Additional reading*

Prior: The Runabout Inference Ticket; Belnap: Tonk, Plink and Plonk

## Week 3: semantics

*Topics*

Valuations; equivalence; tautology, contradiction, contingency.

*Theme*

Paradoxes of material implication: the limits of truth-functionality

### Reading

Chapter 5, 6 *Exercises*

6, 7, 8

### Additional reading

Suber: Paradoxes of Material Implication; Sanford: introduction to *‘If P then Q’ Conditionals and the Foundations of Reasoning* (introduction)

**Week 4: validity**

*Topics*

Validity, counterexamples; functional completeness

*Theme*

Relationship between logic and natural language, logical consequence

### Reading

Chapter 7, 8 *Exercises*

*Additional reading*

Tarski, The Semantics of Conception of Truth

# Natural deduction

## Week 5: proposition logic

### Topics

Derivability versus validity; introduction rules and elimination rules; conjunction, implication, disjunction

*Theme*

Deduction and Meaning

### Reading

Chapter 9, 10 *Exercises*

### Additional reading

R.J.G.B. de Queiroz, On Reduction Rules, Meaning-as-use, and Prooftheoretic Semantics

## Week 6: proposition logic (cont.)

*Topics*

Negation

*Theme*

Deduction and Meaning (cont.)

### Reading

Chapter 9, 10 *Exercises*

### Additional reading

R.J.G.B. de Queiroz, On Reduction Rules, Meaning-as-use, and Prooftheoretic Semantics

**Week 7: summary & exam**

# Predicate logic

## Week 8: syntax

*Topics*

Atomic sentences, domains, quantification; translation; scope and binding

*Theme*

Quantication and existence; nominalism and universalism

### Reading

Chapter 12, 13 *Exercises*

*Additional reading*

Quine: On What There Is

## Week 9: semantics, validity

*Topics*

Substitutional semantics; validity, counterexamples

*Theme*

Quantification in natural language

*Reading*

*Exercises*

*Additional reading*

# Predicate logic with identity

## Week 10: identity

*Topics*

Identity, descriptions, cardinals

*Theme*

Reference and existence

*Reading*

*Exercises*

*Additional reading*

Russell: On Denoting

## Week 11: properties of relations

*Topics*

Properties of relations; orders

*Theme*

Construing properties from relations

*Reading*

*Exercises*

*Additional reading*

Strawson: On Referring

## Week 12: natural deduction, predicate logic

*Topics*

Quantifiers

*Theme*

Deduction and Meaning (cont.)

*Reading*

*Exercises*

*Additional reading*

Engel: Logic, Reasoning and the Logical Constants

## Week 13: soundness and completeness

*Topics*

Soundness and completeness

*Theme*

Meta-logic

*Reading*

*Exercises*

*Variations and limitations*

## Week 14: many-valued logic

### Topics

Strong and weak three-valued logics (L ukaciewics, Kleene); four-valued logics (Bochvar)

### Theme

Future contingent propositions; presupposition and presupposition failure *Reading*

### Additional reading

Aristotle: *De Interpretatione IX* (chapter 9);

Anscombe: Aristotle and the Sea Battle

## Week 15: Pragmatics; summary

*Topics*

Conversational and conventional implicatures

*Theme*

The limits of literal meaning and the limits of logic

*Reading*

*Exercises*

*Additional reading*

Grice: Logic and Conversation

## Week 16: exam