

Spring semester, 2017
Instructor: J. Horty

PHIL 808a:
Topics in Philosophical Logic
Syllabus version: #2
April 3, 2017

Description

This course is a graduate-level survey of a variety of topics in philosophical logic. The course will have three parts. First, we'll review some fundamental results of classical propositional and first-order logic, presented in different ways and from different perspectives. The purpose of this part of the course is to make sure everyone is on the same page, and to discover and fill in gaps in background knowledge. Second, we'll take a high-level tour through some of the main extensions of and alternatives to classical propositional logic, also from a variety of perspectives. These extensions will include some modal, conditional, and tense logics; the alternatives will include intuitionistic, many-valued, and relevance logics, and possibly also some defeasible logics. The purpose of this part of the course is to give you a sense of the scope of philosophical logic. Finally, once we've finished this tour of the countryside, we'll settle down and look at few topics in more depth. These are yet to be determined, but may include contemporary logics of agency, recent work in deontic logic, recent work in defeasible reasoning, vagueness, paradoxes, or other topics of interest to students enrolled in the class. The purpose of this part of the course is to illustrate the insights to be gained by applying logical tools to philosophical problems.

Prerequisites:

You should know basic logic, as in Philosophy 170, as well as some basic set theory, as in sets, relations, and functions—although the latter can be picked up. We'll talk about prerequisites on the first day. Since the purpose of the course is to catch you up on an area of philosophical research you might be interested in, but that can seem offputting to some, I want to adapt the course to the students that show up, rather than using a bunch of scary prerequisites to drive you away.

Time and place

Thursdays from 4:30 till 7:00, in Skinner 1112.

Office, phones, etc.

Office: Skinner Building, Rm. 1101. Office phone: I don't think I have an office phone anymore. Cell phone: 301-408-8963. You are welcome to call my cell, but please keep it between 9:00am and 8:00pm. Email: horty@umiacs.umd.edu. Note: I'm not good at answering complicated questions by email, and would much rather meet in person or talk on the phone for that, but email is fine for quick administrative things, and for setting up appointments. I'll let you know my exact office hours once they've sorted themselves out.

Course materials

Central texts:

- Graham Priest. *An Introduction to Non-Classical Logic (second edition)*. Cambridge University Press (2008).
- Theodore Sider. *Logic for Philosophy*. Oxford University Press, xiv+289 pp.
- Richmond Thomason. *Symbolic Logic: An Introduction*, Macmillan Company (1970).

In addition, there will be a number of other papers, most of them easily accessible on the web, though if there are any problems finding them I'll make copies available.

Course work

At the beginning I'll do most of the lecturing, but as we move on, and especially as we get into more philosophical material, everyone in the class will have to help present. It's better of one person doesn't do all the teaching.

All students who want credit for the course must turn in routine homework assignments, typically each week. The homeworks will not be graded, but I will check them over. You are welcome to collaborate on your homeworks—but you must then write them up independently.

In addition there will be a few exams, with both in-class and take-home components. The exams will be low-key, with many problems drawn directly from previous homework assignments. The exact weighting among the exams will be determined once I see what the initial results look like, but my goal is to do whatever is best for you.

Finally, I'll ask you to write a short paper on a topic of your choice, though I'll give you plenty of suggestions. The paper can be expository, formal, or philosophical.

Course topics

The topic list is tentative. We are not going to cover all of these things, and we may cover other things. But I wanted to begin with one route the course might take.

1. Review of classical logic
 - (a) Propositional logic: informal semantics and proof theory
Readings: Priest [Sections 1.1–1.10], Sider [Sections 2.1–2.8], Thomason [Chapters 3–5]
Background and related material: Gentzen [14], Pelletier [25]

- (b) Propositional logic: formal semantics, soundness, completeness
Readings: Priest [Section 1.11], Sider [Sections 2.9], Thomason [Chapters 6 and 7]
- (c) Predicate logic: informal semantics and proof theory
Readings: Priest [Sections 12.1–12.7], Sider [Chapters 4 and 5.1–5.3], Thomason [Chapters 8–10]
- (d) Predicate logic: formal semantics, soundness, completeness
Readings: Priest [Section 12.8–12.10], Thomason [Chapters 11 and 12]
Background and related material: Sider [Section 5.4–5.5]
- (e) Free logic
Readings: Priest [Chapter 13], Sider [Section 5.6]

2. In the modal tradition

- (a) Basic modal logic
Readings: Priest [Chapter 2 and Sections 3.1–3.6], Sider [Chapter 6 and Sections 7.1–7.2]
Background and related material: Copeland [8] Føllesdal and Hilpinen [13], van Fraassen [31], Gowans [15]
- (b) Tense logic
Readings: Priest [Section 3.6], Sider [Section 7.3], Thomason [28]
Background and related material: Belnap and Green [4] Macfarlane[23], Thomason [28], Thomason [29], Thomason [30]
- (c) Conditional logics
Readings: Priest [Chapters 4 and 5], Sider [Chapter 8]
Background and related material: Stalnaker [26], Lewis [21]
- (d) Agency and action
Readings: Belnap and Perloff [5], Horty and Belnap [18]
- (e) Action, knowledge, and obligation
Readings: Cariani, Kaufmann, and Kaufmann [6], Carr [7], Kolodny and MacFarlane [20], Horty [17], Horty and Pacuit [19]

3. Intuitionistic, many-valued and relevance logics

- (a) Intuitionistic logic
Readings: Priest [Chapter 6]
Background and related material: Belnap [2] Dummett [10, Selections], Dummett [9], Dummett [12, Selections], Heyting [16, Selections]
- (b) Many-valued logics
Readings: Priest [Chapter 7], Sider [Section 3.4]
Background and related material: Belnap [3]

- (c) First degree entailment
 Readings: Priest [Chapter 8]
 Background and related material: Belnap [3], Lewis [22]
- (d) Relevance logics
 Readings: Priest [Chapters 9 and 10]
 Background and related material: Anderson and Belnap [1], Meyer [24]

References

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