

Achille Varzi

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Office hours: W 9:00–11:00

General Outline

An introduction to the main extensions and alternatives to classical logic. The focus will be on theories that depart from classical logic with regard to the principle of *bivalence* (every statement is either true or false) or to the principle of *non-contradiction* (no statement is both true and false), or both—including sentential and predicate versions of many-valued logics, fuzzy logics, partial logics, free logics, inclusive logics, and paraconsistent logics. Details of the semantics and proof-theories of these logics will be considered, as well as the underlying philosophical rationales.

Prerequisites

One term of formal logic (V3411/G4415, *Introduction to Symbolic/Formal Logic*, or G4801, *Mathematical Logic I*) and a willingness to master technicalities and to work at a certain level of abstraction.

Requirements

The final grade is determined as follows: (a) class participation (15%); (b) two take home tests (20% each); (c) final examination/paper (45%).

Readings

The main readings (consisting for the most part of survey papers) will be available in a packet. In addition, some original papers of historical, philosophical, or technical interest will be available in my office for duplication.

There are two recent introductory books on Non-Classical Logic: one by Graham Priest (*An Introduction to Non-Classical Logic*, Oxford University Press, 2001) and one by John Bell et al (*An Introduction to Classical and Alternative Logics*, Broadview Press, 2001). These books cover only part of the relevant material and in ways that depart from the approach followed in the course. However, they make good complementary reading and copies will be available on reserve at Butler Library.

If things work out, I am also planning to prepare PowerPoint lecture notes. These will be available on the web at the site http://www.columbia.edu/~av72/non_classical_logics, where other course material will also be posted.

Tentative schedule

- Week 1. Introduction: Classical Logic and “Deviant” Logics
— S. Haack: *Deviant Logic*, Chapters 1 and 2
- Week 2. The Principle of Bivalence
— S. Blamey: “Partial Logic”, Section 2
— N. Rescher: *Many-Valued Logic*, Chapter 1
- Week 3. Partial Logics and Many-Valued Logics 1: Theories
— G. Malinowski, “Many-Valued Logics”
- Week 4. Partial Logics and Many-Valued Logics 2: Developments
— G. Malinowski, “Many-Valued Logics” (cont’d)
— A. Urquhart: ‘Basic Many-Valued Logic’ (optional)
- Week 5. Fuzzy Logics
— H. T. Nguyen & E. A. Walker: *A Course in Fuzzy Logic*, Chapter 4.
- Week 6. Supervaluationism
— B. Van Fraassen: ‘Presuppositions, Supervaluations, and Free Logic’, Sections 1–3.
- Week 7. Free and Inclusive Logics 1: Motivations
— S. Haack: *Deviant Logic*, Chapter 7
- Week 8. Free and Inclusive Logics 2: Theories
— E. Bencivenga: “Free Logic”
- Week 9. Free and Inclusive Logics 3: Models
— E. Bencivenga: “Free Logic” (cont’d)
- Week 10. The principle of Non-Contradiction
— P. Grim: “What Is a Contradiction?”
- Week 11. Paraconsistent and dialethic logics 1: Motivations
— G. Priest & R. Routley: “Preliminary History of Paraconsistent and Dialectic Approaches” (excerpts)
- Week 12. Paraconsistent and dialethic logics 2: Theories and Models
— B. Brown, “On Paraconsistency”
— G. Priest: *Paraconsistent Logic* (optional)
- Week 13. Subvaluationism
— A. Varzi: “Supervaluationism and Paraconsistency”
- Week 14. Concluding Remarks