PHIL G4451: History of Logic: From De Morgan to Frege — Spring 2014

Tuesday, 12:10-2:00pm, 716 Philosophy Hall

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Description
The roots of logic may be traced to Aristotle, who systematized and codified the subject in a way that was not significantly surpassed for over two millennia. Logic was revived in the mid-nineteenth century, at the beginning of a revolutionary period when the subject developed into a rigorous discipline whose exemplar was the exact method of proof used in mathematics. The development of so-called “symbolic” or “mathematical” logic during this period is the most significant in the two-thousand-year history of logic, and is arguably one of the most important and remarkable events in human intellectual history. The aim of this course is to provide a critical reconstruction of such a development along with an assessment of its philosophical significance. After some general background devoted to the history of the subject from Aristotle to Leibniz and beyond, the course will focus on the work of such logicians as Augustus De Morgan, George Boole, William Jevons, John Venn, and Ernst Schröder, which may be seen collectively as setting the stage for the definitive step in the revolution that resulted in logic as we know it today—Gottlob Frege’s Begriffsschrift.

Requirements
Prerequisites: one term of symbolic logic or instructor permission. The final grade is determined as follows: class participation (10%), two take home tests (20% each), final paper (50%). Students taking the class for R-credit are not required to write the final paper.

Outline (tentative)
Jan 21  Introduction: Logic in the history of philosophy
Jan 28  Aristotelian logic
Feb 4   Beyond Aristotle: from the Stoics to Leibniz, Euler, Hamilton, and Mill
Feb 11  The nineteenth-century revolution: logic as algebra (introduction)
Feb 18  Augustus De Morgan (Formal Logic, 1847)
Feb 25  George Boole (Mathematical Analysis of Logic, 1847)
Mar 4   George Boole (Investigation of the Laws of Thought, 1854)
Mar 11  William Stanley Jevons (Pure Logic, 1864, and Elementary Lessons in Logic, 1870)
Mar 25  John Venn (Symbolic Logic, 1881)
Apr 1   Ernst Schröder (Vorlesungen über die Algebra der Logik, 1890–1905)
Apr 8   Charles Sanders Peirce
Apr 15  Alfred North Whitehead and his Treatise on Universal Algebra (1898)
Apr 22  Charles Lutwidge Dodgson, a.k.a. Lewis Carroll
Apr 29  Frege and the birth of contemporary logic
Readings

Excerpts from the main works by the authors covered in class will be made available through CourseWorks.

There will be no textbook, although the following volumes provide useful background: