Second-order logic

(Cariani/MacFarlane)

This exam focuses on philosophical issues surrounding second-order logic. The main focus is on Boolos’s project of devising interpretations for the second-order quantifiers that go beyond the standard objectual/substitutional dichotomy. Boolos’s suggestion is that plural quantifiers in natural language provide a way of understanding second-order quantifiers that has some significant advantages over both the objectual and the substitutional understanding. The reading list includes a representative fragment of the literature that this project has spawned—representing both the ‘critical’ and the ‘sympathetic’ camp. Papers (4) and (15) deal with an independent, but related issue: the legitimacy of quantification over domains that are too large to form a set, and in particular the legitimacy of quantification over absolutely everything. Stewart Shapiro’s Foundations without Foundationalism provides technical and philosophical background on second-order logic—as well as an extended discussion of the philosophical significance of the expressive power of second-order Languages and of the strong incompleteness of their logics (this discussion echoes (6), and is also analyzed in (5)).

2. G. Boolos “To Be is to Be the Value of a Variable (or Some Values of Some Variables)”, in Journal of Philosophy, 81, 1984, 430-50.
15. S. Shapiro Foundations without Foundationalism, ch.1-5, 8.