

## Philosophy Preliminary Examination Prospectus for Benjamin Johnson

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### Relevance of Gödel's Incompleteness Theorems to Mechanism about the Mind

Gödel's incompleteness results combined with results by Turing and others imply certain limitations on Turing machines. Turing suggests that these limitations apply to humans as well, but Lucas and Penrose disagree. In various forms, they argue that Gödel's results show that no Turing machine can be an adequate model of the human mind, precisely because Gödel's theorems imply a limitation on Turing machines that do not apply to humans. Against this claim, Benacerraf, Chihara, Webb, Chalmers, and others assert that Gödel's theorems show no such thing. In various forms, they argue that the type of arguments put forward by Lucas and Penrose do nothing to undermine mechanism, (the idea that the human mind can be adequately described as a machine), claiming to various extents that these and similar arguments attempting to refute mechanism by appealing to Gödel's results fail to be valid. Other authors, such as Copeland, Shapiro, and Sieg, have the more modest goals of clarifying various relevant issues. In short, various authors have a variety of perspectives on the extent of implication Gödel's results have on the relationship between human cognition and various types of mechanical

procedures. These perspectives and the underlying ideas will be the topic of my examination.

### Reading List

Turing, "Computing Machinery and Intelligence", 1950

Lucas, "Minds, Machines, and Gödel", 1961

Benacerraf, "God the Devil, and Gödel", 1967

Chihara, "On Alleged Refutations of Mechanism Using Gödel's Incompleteness Results", 1972

Webb, *Gödel's Theorems and Church's Thesis: A Prologue to Mechanism*, 1976

Lucas, "Minds, Machines, and Gödel: A Retrospect", 1996

Penrose, *Shadows of the Mind*, (Part I), 1994

Chalmers, "Minds, Machines and Mathematics", 1995

Penrose, "Beyond the doubting of a Shadow: A Reply to Commentaries on 'Shadows of the Mind'", 1996

Sieg, "Mechanical Procedures and Mathematical Experience", 1994

Shapiro, "Incompleteness, Mechanism, and Optimism", 1998

Copeland, "Narrow versus Wide Mechanism: Including a Re-examination of Turing's View on the Mind – Machine Issue", 2000