

## **Reader's Guide to A Logical Foundation for Potentialist Set Theory**

[note: The online only appendixes (starting with appendix E) are a little hard to find on the CUP website. Click 'expand' under the resources tab at the publisher's website or just download them here.]

### **Why be a potentialist?**

-Chapter 2 introduces what I take the main motivations for potentialism to be (a worry about how to think about the height of the actualist hierarchy of sets and problems justifying replacement)

-- Chapter 2 Section 5 (perhaps hubristically) states a view about Dummett's motivation for accepting something like indefinite extensibility vs. mine.

### **What version of potentialism should we favor?**

Here I fire some opening shots in what I hope will be a lively family feud between the two main schools of some potentialist set theory.

- Chapter 3 says a bit about what I take the problems for extant versions of my favored "Putnamian" (aka minimalist) potentialism to be.
- Chapter 4 introduces and explains the conditional logical possibility operator (a novel feature of my version of minimalist potentialism), and broadly indicates how we might use it to reformulate potentialist set theory in a way that solves these problems.
- Chapter 5 (sections 5.6 and 5.6) of the book raise a bunch of worries about Linnebo and Studd's alternative "Parsonian" (aka dependence theoretic) potentialism.
- Chapter 8 Section 12 gives the key/most controversial modal axiom for my justification of Replacement (and Chapter 7 explains the crucial notion of content restriction used in stating most of my axioms)

### **Justifying Replacement in a slightly(!) more intuitive way.**

Chapters 1.3-1.5 and 2.4 set up the problem, covering why might one want a more intuitive justification for the axiom of replacement, and the weaknesses of extant justifications.

Chapters 4 and 6 present my potentialist paraphrases of set theoretic axioms (including replacement)

Chapter 7 and 8 present the axioms for reasoning about conditional logical possibility used in the proof.

Chapter 9.4 explains the proof at a high level (but see referenced sections of the online appendix for technical details)

## **Applied Mathematics and Pure Mathematics as the Study of Conditional Logical Possibility**

I've argued that a modal (and hence nominalist) approach to pure set theory is independently motivated. But what about applied mathematics?

-Chapters 10-14 explore using the conditional logical possibility operator (introduced to capture pure set theory) to nominalistically paraphrase scientific theories and thus answer quinean

indispensability arguments. I argue that Quine-Putnam challenges can be answered (in a way that resembles but slightly improves on Field's X) BUT important problems about grounding and reference remain.

-Chapters 15-17 present the neo-carnapian/quantifier variance realism about mathematical objects I favor.