

# TABLE OF CONTENTS

*Acknowledgments* xi

*Note on the Cover* xiii

*A Note on Citations* xv

Introduction 3

## 1. Logicism and Conceptual Analysis 7

1.1. INTRODUCTION TO ANALYSIS AND PROOF 7

1.2. ANALYSIS AND PROOF IN 1879 12

1.2.1. Derivation, Proof, and Definition 12

1.2.2. Conceptual Analysis 13

1.3. ANALYSIS IN 1881 18

1.4. ANALYSIS IN 1884 19

1.5. GRUNDGESETZE 22

1.6. THE GENERAL PICTURE 23

## 2. Thoughts 28

2.1. THOUGHTS AND LANGUAGE 28

2.2. SENSE AND REFERENCE 37

2.3. THE STRUCTURE OF SENSE 39

2.4. THOUGHTS AND LANGUAGE AGAIN 45

2.5. WHERE WE ARE 50

## 3. Thoughts and Sharp Boundaries 55

3.1. THE ISSUE 55

3.2. THE TEXTS 56

3.3. PIECEMEAL DEFINITION AND NEW OBJECTS 62

|                                                       |     |
|-------------------------------------------------------|-----|
| 3.4. ORDINARY DISCOURSE                               | 68  |
| 3.5. CAESAR                                           | 70  |
| 3.6. QUANTIFICATION                                   | 72  |
| 3.7. CONCLUSION                                       | 75  |
| <br>4. The Analysis of Arithmetic                     | 77  |
| 4.1. THE ISSUE                                        | 77  |
| 4.2. ANALYSIS AS THOUGHT-PRESERVING?                  | 79  |
| 4.3. REFERENCE-PRESERVATION AND ANALYSIS              | 82  |
| 4.4. DUMMETT ON WHAT'S PRESERVED                      | 87  |
| 4.5. WHAT'S PRESERVED                                 | 89  |
| 4.5.1. The Case of Directions                         | 89  |
| 4.5.2. Numbers                                        | 92  |
| 4.5.3. Arithmetic                                     | 95  |
| 4.5.4. Alternative Reductions                         | 101 |
| 4.6. CONCLUSIONS                                      | 102 |
| <br>5. Analysis and Consistency: The Case of Geometry | 108 |
| 5.1. INTRODUCTION                                     | 108 |
| 5.2. FREGE-HILBERT                                    | 109 |
| 5.3. HILBERT'S METHOD                                 | 110 |
| 5.4. FREGE'S OBJECTIONS                               | 112 |
| 5.5. CONSISTENCY AND CONCEPTS                         | 121 |
| 5.6. ANALYSIS AND CONSISTENCY                         | 123 |
| 5.7. THE 1906 PASSAGE                                 | 125 |
| 5.8. ULTIMATE ANALYSES?                               | 128 |
| 5.9. CONCLUDING REMARKS                               | 130 |
| <br>6. Frege and Models                               | 135 |
| 6.1. MODELS AND CONSISTENCY                           | 135 |
| 6.2. MODELS AND ENTAILMENT                            | 137 |
| 6.3. IMPLICATIONS                                     | 144 |
| 6.4. SUMMING UP                                       | 146 |
| <br>7. Metatheory                                     | 149 |
| 7.1. FREGE'S METATHEORY                               | 149 |
| 7.2. UNIVERSALISM AND METATHEORY                      | 156 |
| 7.2.1. The Issue                                      | 156 |
| 7.2.2. Internal Tensions                              | 162 |

7.3. SOUNDNESS, COMPLETENESS, AND CONSISTENCY 165

7.4. CATEGORICITY 167

7.5. CONCLUSION 170

8. Conclusion 175

*Bibliography* 183

*Index* 189