

Errata for Modal Logic for Philosophers

(Those marked * are suggestions for improvement.)

*Godel's name lacks the umlaut throughout

*p. 10 The rule $A / \sim\sim A$ needs a name

p. 15 line 10: The proof at top of page should not have vertical line to right of "10."

p. 20 line 2: for "7 is obtained by" put "8 is obtained by"

p. 33 line 6 from top (6t). Strictly speaking this line should be replaced with two:

$p \vdash p$ (Hyp)

$p, q \vdash p$ (Reit)

p. 51 line 10 from bottom (10b) in the third column: the uppercase "H" should be in boldface

p. 54 line 7 for "conclusion" read "consequent"

*p.69 In exercise 3.4b replace the two occurrences of "A" with "C"

p. 79 line 2 from top (2t): for "where q is F" put "where r is F"

p. 85 second diagram for the world label "v" put "u"

p. 91 Exercise 4.8e: Delete rightmost ")", insert ")" between "q" and "/"

p. 110 Exercise 5.8: Delete first occurrence of "symmetric,"

p. 113 line 11 from bottom (11b): Insert ")" between "B" and "="

p. 113 7b: for "Right Hand Symmetry" put "Left Hand Symmetry"

p. 113 6b: for "Rwuv" put "Rvwu"

p. 113 line 3b: for "prove" put "provide"

p. 119 first diagram: Insert " $\sim q$ " and label " $(\Box T)$ " just below " $p \rightarrow q$ "

p. 119 second diagram: The second line should read " $p \rightarrow \Box p$ "

p. 120 first diagram: The third line should read " $p \rightarrow \Box p$ "

p. 124 line 2 b: for "q is KB-invalid" put " $\sim q$ is KB-invalid"

p. 124 bottom diagram: The sentence on the right hand branch should read " $\Diamond \Box p$ "

p. 125 first three diagrams: The sentence on the right hand branch should read " $\Diamond \Box p$ "

p. 126 line 10t for "from w to v" put "from v to w"

p. 126 2 lines above bottom diagram: insert " \Box " before " $\sim(\Box p \vee \Box \sim p)$ "

p. 129 line 9t For "If wRv and vRu" put "If wRv and wRu"

p. 130 line 3b: for "wRv" put "wRv and wRu"

p. 136 -140 in each diagram: " $\Box p \rightarrow q$ " should be corrected to " $\Box(p \rightarrow q)$ " This must be corrected twice in each diagram, for a total of 16 corrections.

*p. 145 Exercise 7.5 Clarify what the conclusions would be for the arguments in question

p. 146 The premise for the rule (\rightarrow F) should be $\sim(A \rightarrow B)$ Parentheses are missing in two occurrences.

p. 149 11b: The item heading the rightmost subproof should read “ $\sim q$ ” rather than “ q ”

p. 151 5b: For “derived” read “derivable”

***p. 158** Students have requested a worked out example in the text.

p. 159 Exercise 7.16 last two lines: for “(OM)” put “($\Box M$)” (3 corrections)

p. 160 Exercise 7.17 The third line of the diagram: for “ $\sim \Box \sim q$ ” put “ $\sim \Box \sim \Box q$ ”

p. 161 1 5b: for “the axiom ($\Box M$): $\Box(\Box A \rightarrow A)$ ” put “ $\Box(A \rightarrow \Box \Diamond A)$ ”

p. 162 In the bottom diagram the first 3 lines in world w should read:

$\Diamond(\Diamond \Box p \& \Box \sim q)$

$\sim \sim \Diamond(p \rightarrow q)$

$\Diamond(p \rightarrow q)$

These 3 corrections must be made in world w of each of the three trees

p. 163 Exercise 7.21 d: for “ $\sim \Box \Box \sim \Box \Box q$ ” put “ $\Box \Box \sim \Box \Box q$ ”

***p. 163** It would be good to provide a solution to Exercise 7.21d

p. 169 10t: for “ $\sim A$ ” put “ $\sim A$ ” (delete space)

p. 169 14t: for “ $\& A$ ” put “ $\& A$ ” (delete space)

***p. 169-170** The proof should be simplified.

p. 177 Add the label “ w ” to the second diagram

p. 187 3t: for “ $a_v(B)=F$ ” put “ $a_{v'}(B)=F$ ” (subscript bold v followed by prime)

p. 187 7b: Comma missing between “model” and “it”

p. 190 Paolo Crivelli points out that the issue for K4 trees discussed here would apply to K5 trees, and so that claim on p. 189 that (5) trees serve as a decision procedures would have to be false. A better discussion of when trees serve as decision procedures in needed.

p. 193 5t: Delete “ a ”

***p. 193** second full paragraph: Strictly speaking the discussion needs to talk of instances of the axiom (I), so either this should be revised, or a convention introduced for talking of a proof of an axiom.

p. 195 8b: for “ M is an” put “ M is a (possibly)”

p. 197 1b: for “ M_j ” put “ M_{j+1} ”.

p. 200 14b: for “extension of V .” put “extension of V , $\sim A$.”

p. 201 8b. for “and $a_w(A)=F$ ” put “and $a_v(A)=F$ ”

p. 207 4t: for (CR \Diamond)” put “(CR \Diamond)” “ R ” is boldface

- *p. 207 12t: What if none of the members of V is in U ? Mention that the conjunction $\sim(\diamond V_1 \& \dots \& \diamond V_i)$ amounts to \perp when the list $\diamond V_1, \dots, \diamond V_i$ is empty. Say that this convention is understood whenever negations of conjunctions of lists of sentences that might be empty are mentioned.
- p. 208 5b: for “assume $H \vdash \perp$ ” put “assume $X \vdash \perp$ ”
- *p. 208 2b Explain why it is ($\&Out$) rather than ($\&In$) that is used here.
- p. 209 2b: for the two occurrences of “ $\Box U_n$ ” put “ U_n ”
- p. 210 23b: for “consistency” put “soundness”
- p. 211 4b: for “h and k” put “h and i”
- *p. 215 Exercise 10.3 “(CD)” is used in two different ways: for a propositional axiom (p. 115) and for a quantifier condition (p. 253) So one of these needs to be relabeled throughout.
- p. 216 2b: for “($\diamond^k T$)” put “($\diamond^k F$)”
- p. 220 In the two diagrams, for “ v ” in the top sentence in world v put “ V ” (two corrections)
- p. 249 9t: for “used” put “use”
- *p. 255 5t: Mentioning axiom E_t might be more clear.
- p. 257 19b: insert “.” after “worlds”
- p. 264 It would help to add here mention of what is meant by the system qS
- p. 269 6b: Insert “(“ before “The condition”
- p. 273 15b: for “a list” put “a set of lists”
- * p. 277 ff When mentioning non-rigid terms, make it clear when this means non-rigid terms that are not constants.
- *p. 279 18t It might be better not to use the term “replacing” when substitution is meant.
- p. 280 1b: for “ and” put “ ,”
- p. 286 8b: for “clause is would” put “clause would”
- p. 294 9t: for “as a special” put “as special”
- p. 299 8b: for “becomes and” put “becomes an”
- p. 301 9b: delete the first occurrence of “and”
- p. 304 2b for “ $\forall x Fx$ ” put “ $\forall x Px$ ”
- p. 308 3t: The second line of the diagram should be: $\sim \forall y (c \approx y \rightarrow Py)$
- p. 309 b1-b2: For “a new” put “another”
- p. 325 6b: for “to appeal need” read “need to appeal”
- p. 332 5b: for “required for systems” put “required for some systems”
- *p. 334 7t: The name “($t \approx In$)” is used before it has been introduced in line 6b of this page.
- p. 335 14b: for “or any” put “for any”

- p. 439 4t and 5t for " $\mathbf{a}_w(\exists x x \approx t)$ " put " $\mathbf{a}_w(\exists x x \approx t) = T$ " (two corrections)
- p. 343 9t: for "For teach" put "For each"
- p. 347 13b: for "For teach" put "For each"
- p. 353 14b for " \mathbf{f}_w " put " $f(w)$ " (w is bold)
- p. 357 17b: for "For teach" put "For each"
- p. 360 5t: for "For teach" put "For each"
- p. 363 2t: for " $(\exists I)$ " put " $(\exists i)$ "
- p. 363 4t: for " $H \text{ toS } C$ " put " $H \vdash_{\text{toS}} C$ " (missing turnstyle)
- p. 363 14t: for " $H \text{ toS } C$ " put " $H \vdash_{\text{toS}} C$ " (missing turnstyle)
- p. 372 3t: for "and (&Out) that $MUM' \vdash \forall x Ax$ " put " , (Reit) and (&In) that $MUM' \vdash L \neg \forall x Ax$ "
- p. 434 3t for "reflective" put "reflexive"
- p. 436 Exercise 9.3 line 2: " $w(\Box \sim A) = F$ " for put " $\mathbf{a}_w(\Box \sim A) = F$ "