Errata for *Symbolic Logic: Syntax, Semantics and Proof* (2013) by David W. Agler

Last Updated: 4/30/2014

Below is a list of the typographical errors in *Symbolic Logic: Syntax, Semantics and Proof*. The publisher ran a 2nd printing of the book sometime after 5/27/13 that includes all of the non-grey corrections.

Corrections marked in grey were found post 5/27/13 (i.e. after the second printing).
Corrections marked in turquoise are found *only* in the 2nd printing.

*Thanks go out to the many great students in my PHIL012 (Symbolic Logic) courses for catching these typographical errors. They include: Christopher Allaman, Charles Banks, Ashley Brooks, Angel Bingham, Delores Casey, Alli Charney, Chris Connard, Aurora Cooper, Maureen Dunn, Elliannies Duran, Ariel Endresen, Nayib Felix, Joy Garcia, Robin Hager, Rachel Heilman, Catherine Hendricks, Michael Humphries, Lyric Joseph-Armstrong, Alex Kirk, Tira Koebler, Edward Lackner, Ivan Maldonado, Helena Murphy, Anne-Marie Pietersma, Jennifer Pronko, Cynthia Roebuck, Brooke Santkiewicz, Ariel Valdez, and Kathy Weden.

Chapter 1

p.9, above 2nd table. Change "In everyday speech, the parts of an **arguments**" to "In everyday speech, the parts of an argument"
p.22, C. Conceptual Questions. #5. Delete the asterisk (*) on "5".

Chapter 2

p.31, toward top of page (definition of Conjunction= df.). *Rewrite for clarity*: "If the truth values of both of the conjuncts are true, then the complex proposition (the conjunction) is true."
p.33, "One way of translating (4_E) is by a single letter, since (4_E) is a proposition" replace with "One way of translating (5_E) is by a single letter, since (5_E) is a proposition"
p.34, last paragraph, replace (1)s with (2)s and replace (2)s with (3)s.
p.40, line 1, remove "do" in "In order to do achieve"
p.42, middle of page in block quote, line 3. Change "R∨¬Mis" to "R∨¬M is"
p.44, Exercise Set C, #6, change "¬J¬∧(R∨R)" to "¬J¬∧(R∧R)"
p.45, last line: replace "∧" with "∨"
p.46, line 4 after **PvQ**. Change "the proposition to the right of the caret" to "the proposition to the right of the wedge"
p.54, 5th line from the top, replace "Toronto is not the largest city in Ontario" with "Toronto is not the largest city in Canada"
p.57, 6th line up from the bottom "Liz will be ... she is an automobile accident" should be "... she is in an automobile accident"
p.57, 4th line up from the bottom " '**P** unless **Q**' as '**P∨Q' "** should read " '**P** unless **Q**' as '**¬P∨Q' "**
p.58, in row that reads "**not P** unless **Q**", to the immediate right, it should read "**¬P∨Q**"
p.58, in row that reads "**P** unless **Q**", formula to the right should read "(**P∨Q**)∧¬(**P∧Q**) or ¬(**P↔Q**)"
p.59, D. Basic Translation, #2: should read "... Mary is a happy woman" not "happy women"
p.62, in table at bottom, in row involving "not P unless Q", change "**P∨Q**" to "**¬P∨Q**"

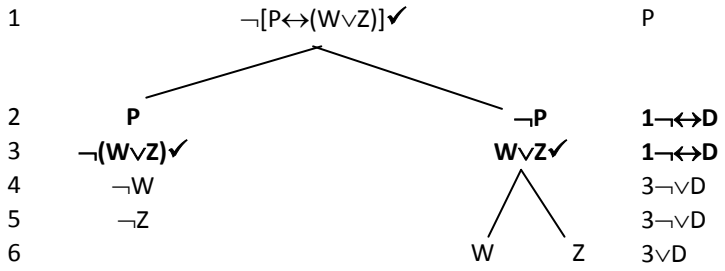
Chapter 3

p.67, 2nd full paragraph under Z∧¬J, replace two instances of "B" with "J"
p.68, Exercise Set #1, Section A, #7, delete *v*(C)=T.

p.85, in table at the top, in the 3rd column / 5th row (under P→Q), change from "F" to "T".
p.93, End-of-Chapter Exercises, D, #4, change "P→M, ¬P ⊢ ¬M" to "P→M, ¬M ⊢ ¬P"
p. 97, definition of invalidity: change "valid" to "invalid"
p.99, 1st paragraph, 2nd to last line, first word, replace "economical" with "economically"

Chapter 4

p.108, 2nd to last sentence, replace "Consider (2)" with "Consider (3)"
p.116, last paragraph, replace 'C∨D' with 'C∧D'.
p.120, bottom of page, replace all "∨"s with "→" sign.
p.119, Solutions to Starred Exercises in Exercise Set #2, Problem #5, remove check mark from P^(PvZ) at line 1
p.122, 1st line in 4.3.3. Negated Conjunction Decomposition: replace ": when both of the conjuncts are false" with ": when both of the conjuncts are true"
p.122, bottom of page, replace "P→(W∧Z)" with "P↔(W∧Z)"
p.124, 2nd tree, right branch, line 3 should be "WvZ". From here, line 3 should be decomposed with "W" on one branch and "Z" on the other branch. Decomposition rule should be "3∨D" rather than "3∧D". Delete line 7. The tree is reproduced here:



p.124, bottom of page, paragraph before final example; replace "¬[¬P∨¬Z)]" with "¬(¬P∨¬Z)"
p.125, #7, remove sign for negation in "¬R→(RvL)"; should be "R→(R∨L)"
p.126 #3, right branch, line 3 should be "¬M" rather than "M"
p.133 #3, line #1, remove checkmark after "A∨B"
p.139, last line on page: should read "Thus, the right branch is closed." rather than "Thus, we consider the left branch closed."

Chapter 5

p.162, last full sentence on page; delete "a" in "for a the derivation rule."
p.164, first sentence in last full paragraph; rewrite as "If conjunction introduction were formulated only by using propositional letters instead of metalinguistic variables, then it would only be an acceptable rule for deriving premises 'P' and 'Q.'
p.165, below example that involves "John is angry", 2nd sentence, replace "to derive a second proposition" with "to derive a third proposition"
p.166, top of page, line 4, column 3, replace "3→D" with "3¬∧D"
p.169, problem #7, line 2, replace "(P→Q)∧T" with "(P→Q)∧Y"
p.169, example at bottom of page, line 4 ½ , add line number in first column 5. Change line 5 to line 6.
p.174, first example, line #1, third column, change "P/Q" to "P / P→Q"
p.175, example #2 and #3 from the top (3rd column), replace "A/A→D" in both with "A/S→D"
p.176, bottom of page in box "Conditional Elimination", fourth column, move "→E" so that it is adjacent with (to

the immediate right of “Q”

p.179, first table on page should look as follows:

1	P		P
2		S	A
3		P∧S	1,2∧I

p.179, second table on page, line 3, replace “P∧W” with “P∧S”

p.180, #1, line 1, third column, should be “P / C” rather than “P / B→C”

p.182, top example, line #3, column #3, replace “A/¬I” with “P, ¬P”

p.183, 2nd example, line #3, column #3, replace “A/¬E” with “P, ¬P”

p.186, first example, line 4, third column; replace “2,4→E” with “2,3→E”

p.188, table for Biconditional Elimination”, rule has “**P**” and “**Q**” directly under “P↔Q”, these should be left aligned.

p.188, second to last example: line #1; replace “(P↔Q)↔(R↔T)” with “(P↔Q)↔(R→T)”

p.189, last example on page; replace “P↔Q, Q, P ⊢ (P∨¬Z)↔(¬Z∨P)” with “P↔Q, Q ⊢ (P∨¬Z)↔(¬Z∨P)”

p.189, line #8, third column, replace “4-5,5-6↔I” with “4-5,6-7↔I”

p.191, problem #9, line #5, third column, replace “2,4→D” with 2,4→E”

p.192, continuation of #9, line #7, third column, replace “6,3→D” with “3,6→E”

p.198, Solution to Ex. #1, line 2, column #3, replace “P/¬P” with “P”

p.201, third full paragraph, replace “Since ‘¬(P∧P)’ is the goal” with “Since ‘¬(P∧¬P)’ is the goal”

p.202, middle of page, replace "(P∨R)→P" in "R ⊢ (P∨R)→P" and at line #1 with "(P∨R)→R"

p.205, top of page, replace “¬(¬P¬∧¬Q)” with “¬(¬P∧¬Q)”

p.206, Exercise Set #6, problem #4, replace “⊢ P∨¬P” with “⊢ ¬¬(P∨¬P)”

p.214, middle of page, line #2, 3rd column, replace “2DeM” with “1DeM”

p.219, 3rd example on page, replace line #6 “¬R” with ¬R∧¬M, and replace line #7 (3rd column) “5DeM” with “6∧E”

p.219, under 5.6.1, 1st paragraph, 2nd sentence: replace “In many case” with “In many cases”

p.225, #13, line #4, 3rd column; replace “1,3DS” with “1,2DS”

p.227, #42, replace “(B→C)→¬(D→E), C ⊢ ¬E” with “(¬B∨C)→¬(D→E), C ⊢ ¬E”

p.228, #39, remove line 4 and renumber line 5 as “4”

p.228, #42, replace “(B→C)→¬(D→E), C ⊢ ¬E” with “(¬B∨C)→¬(D→E), C ⊢ ¬E” AND replace line #1 with “(¬B∨C)→¬(D→E)”

p.228, #41, line 4, 3rd column, replace "1→E" with "1,3→E"

p.230, #55 replace problem with the following:

F∨[(G∧D)∧M] ⊢ (F∨M)∨R

1	F∨[(G∧D)∧M]	P / (F∨M)∨R
2	¬[(F∨M)∨R]	A / contra
3	¬(F∨M)∧¬R	2DeM
4	¬(F∨M)	3∧E
5	¬F∧¬M	4DeM
6	¬F	5∧E
7	¬M	5∧E
8	(G∧D)∧M	1,6DS
9	M	8∧E

10	¬M	7R
11	(F∨M)∨R	2-10¬E

p.230, #53, line #12, third column: replace "2,9" with "9,11DS"
p.233, #73, line #9, right column: replace "7∨E" with "7∧E"
p.233, #73, line #7, third column, to DEM, add "+DNx2"
p.234, #79, line 6, third column should be 2-5¬E
p.234, #79, line 11, third column, change "7-10→I" to "7-10¬I"
p.235, first proof on page, #2, 3rd column, replace "1∧E" with "1DN"
p.236, #88, line 4, 3rd column, replace "1→E" with "1,3→E"

Chapter 6

p.249, 1st line; delete "such a language"
p.249 , first sentence in second full paragraph: replace "In additional to names" with "In addition to names"
p.252, in last full paragraph on page, last sentence, change ""a instance of a variable." to "an instance of a variable."
p.261, 2nd line from top, labeled #5, should be "If '¬Qa' and '(∀x)Rx' are wffs" rather than ""If '¬Qa' and '(∀x)**P**x' are wffs"
p.261, second example, line 5: should be: '(∃y) Gy' is a wff rather than '(∃x) Gy' is a wff & replace "Lines 1,5" with "Lines 1,4"
p.261, second example, line 6 '(∃y) Gy' are wffs rather than '(∃x) Gy' are wffs
p.252, last full paragraph on page, last sentence, change ""a instance of a variable." to "an instance of a variable."
p.257, Section 6.3.2, 2nd paragraph, 2nd sentence, replace "we learn to how to" with "we learn how to"
p.262, Exercise Set #2, C, #2, replace "Raa→Pa" with "Ra→Paa
p.262, Exercise Set #2, #4, replace "(∃x)Px" with "(∃x)Pxx"
p.262, Solution Set B, #5, add sentence "the variable "x" is in the scope of (∃w)"
p.263, Solution Set C, #1, replace: "name (rule i). 'Paa' is a one-place predicate" with "name (rule i). 'Paa' is a two-place predicate"
p.263, Section 6.4.1, 1st paragraph, 3rd line up from the bottom, replace "of integers" with "integers"
p.267, last paragraph, 5th line down, replace "the name designate" with "the name designates"
p.267, 4th line up from the bottom, replace "simpler values of" with "simpler"
p.268, 4th line up from the bottom, replace " '8" with "8"
p.268-269, need to bold several letters throughout these pages. Here they are:

- p.268, 2nd to last paragraph (1st line): for any name '**a**,"
- p.268, 2nd to last paragraph (1st line): "***α**-variant* or ***α**-varies*"
- p.268, 2nd to last paragraph (2nd line): "interprets '**a**' "
- p.268, 2nd to last paragraph (3rd line): "assigns to '**a**' (i.e.,"
- p.268, 2nd to last paragraph (4th line): "all **a**-variant"
- p.268, 2nd to last paragraph (5th line): "all assign '**a**' to an object"
- p.268, 2nd to last paragraph (6th line): "they assign to '**a**.'"
- p.268, 2nd to last paragraph (table at bottom of page): all a's in single quotation marks should be bolded
- p.269, first full paragraph: all a's in single quotations marks should be bolded

p.269, Exercise Set #3, B, #2: replace "(∀x)Lxy" with "(∀x)(∀y)Lxy"
p.270, B., #1: should be *v*(∀x)Lxx=F rather than *v*(∀x)Lxx=T
p.270 B., #3: should be *v*(∃x)¬Lxx=T rather than *v*(∃x)¬Lxx=F
p.270, last line on page: delete second (3).
p.272, middle of the page (3B*), replace "it will be also be happy" with "it will also be happy"
p.272, 3rd sentence from the bottom reads "Notice that in the case of (5), which is "(∀x)(Zx→Hx),', the formula should read "¬(∀x)(Zx→Hx),' "
p.276, in table, 2nd line, change "is moveable" to "is movable"
p.277, #7, should be "and everyone hates him or herself" rather than "and everyone hates everyone"
p.279, table that reads "English Sentence", rows #2, #3, #5 replace outermost parentheses with brackets
p.279, table that reads "English Sentence", row #6, formula should read (∀x)(∃y)[(Hx∧Zy→¬Lxy]
p. 280, 2nd set of formulas on page, under (∃x)(∀y)Lxy, there is (∀y)(∃x)Lxy. This should read: "(∀x)(∃y)Lxy"
p. 280, sentence in the last paragraph that reads " '(∀y)(∃y)Lxy' expresses the proposition" should read " '(∀x)(∃y)Lxy' expresses the proposition"
p. 280, prompts for Exercise A and B read "translate the predicate logic expressions below into English" when they should read "translate the following English sentences into the language of predicate logic"
p. 280, Exercise Set #5, set B, after "Lxy: x loves y", add "s: Sally"

Chapter 7

p.288, second example on page, line 6, column #3, replace "2→D" with "5→D"
p.289, bottom example on page, replace "(∃x)(Py→Ry)" with "(∃y)(Py→Ry)" in the formula above the example and in line #1
p.290 (correction from previous page), line #1, replace "(∃x)(Py→Ry)" with "(∃y)(Py→Ry)"
p.292, first example on page, line 4, column #3, replace "1∀D" with "3∀D"
p.292, Exercise Set #1, Exercise #3, replace "(∃x)(Px∧¬Qx), (∀x)Px→(∀x)Qx" with "(∃x)(Px∧Qx), (∀x)Px→(∀x)Qx" (this influences the answer on p.293 (see below)
p.293, exercise #3, replace "(∃x)(Px∧¬Qx), (∀x)Px→(∀x)Qx" with "(∃x)(Px∧Qx), (∀x)Px→(∀x)Qx", line #1: replace "(∃x)(Px∧¬Qx)" with "(∃x)(Px∧Qx)", line #3 replace "Pa∧¬Qa" with "Pa∧Qa", and line #5, replace "¬Qa" with "Qa".
p.293, exercise #3, 1st line in the description below the tree. Replace "forms of a" with "forms a"
p.295, first example: there are two #8's on the page, replace second "8" with "9"
p.298, middle example, line 3, 3rd column, replace "1∃D" with "2∃D"
p.299, first example on page, line 9, column #3, replace "4→D" with "5→D"
p.301, line 10 contains a mistake that impacts the rest of the tree; recreated here is the rest of the tree to fix the mistake in line 10:

1	¬(∀x)(∃y)(Pxy) ∧ (∀y)¬(∃x)(Rxy)✓	P
2	¬(∀y)(∀x)(Rxy)✓	P
3	(Rab ∧ Rba) ∧ Pab✓	P
4	Rab ∧ Rba✓	3 ∧D
5	Pab	3 ∧D
6	Rab	4 ∧D
7	Rba	4 ∧D
8	¬(∀x)(∃y)(Pxy)✓	1 ∧D
9	(∀y)¬(∃x)(Rxy)	1 ∧D
10	(∃x)¬(∃y)(Pxy)✓	8¬∀D
11	(∃y)¬(∀x)(Rxy)✓	2¬∀D

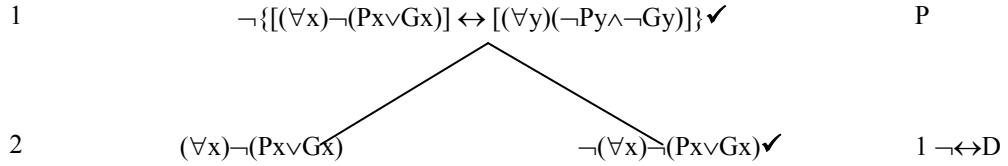
12	¬(∃y)(Pcy)✓	10∃D
13	(∀y)¬(Pcy)	12¬∃D
14	¬Pca	13∀D
15	¬Pcb	13∀D
16	¬Pcc	13∀D
17	¬(∀x)(Rxe)✓	11 ∃D
18	(∃x)¬(Rxe)✓	17 ¬∀D
19	¬Rfe	18 ∃D
20	¬(∃x)(Rxa)✓	9∀D
21	¬(∃x)(Rxb)✓	9 ∀D
22	¬(∃x)(Rxe)✓	9 ∀D
23	¬(∃x)(Rxf)✓	9 ∀D
24	(∀x)¬(Rxa)	20 ¬∃D
25	(∀x)¬(Rxb)	21 ¬∃D
26	(∀x)¬(Rxe)	22 ¬∃D
27	(∀x)¬(Rxf)	23 ¬∃D
28	¬Rab	25 ∀D

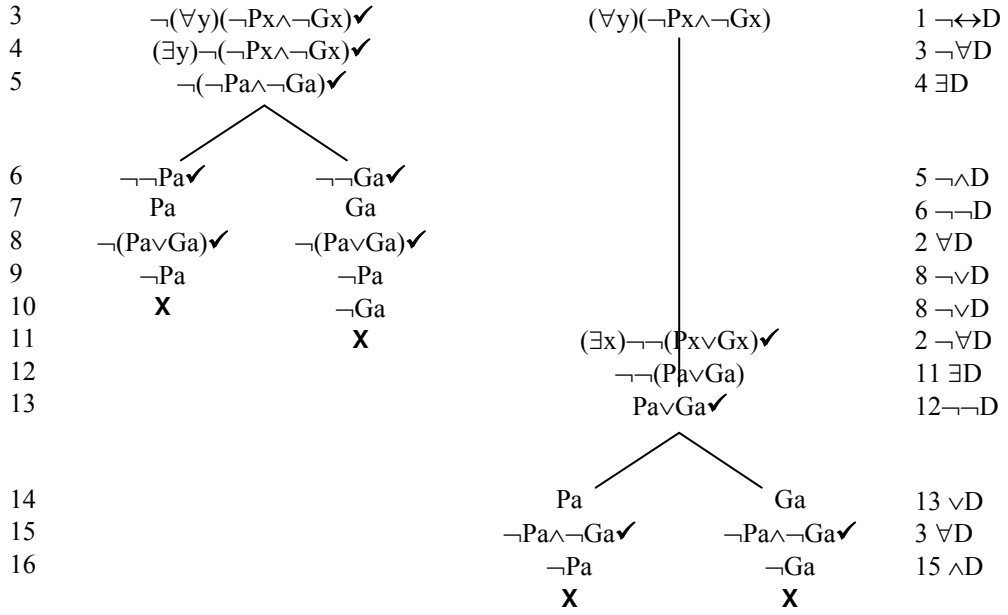
X

from here, on p.302, the second to last line should read "Rather than starting by decomposing line 24 with multiple uses of (∀D), you can decompose line 25 into line 30 using one instance of (∀D) involving '**P**(b/*x*).'"
p.302, Exercise Set #8, replace "(“x)(Px→Qx)" with "(∀x)(Px→Qx)"
p.303, #5, center column, place check marks (✓) to the formulae on line #3 and #7
p.304, #11, lines 6-7, change justification (3rd column) from "2∧D" to "4∧D"
p.305-306, last example on page that extends to p.306, there is mistake in the justification of line #6 that causes a problem in line #7; replace line #6 with "¬(Qa∨¬Rb)". As this changes how the rest of the problem is solved, the answer is reproduced below:

1	(∃x)¬(∀y)[Px→(Qx∨¬Ry)]✓	P
2	¬(∀y)[Pa → (Qa∨¬Ry)]✓	1∃D
3	(∃y)¬[Pa → (Qa∨¬Ry)]✓	2¬∀D
4	¬[Pa → (Qa ∨ ¬Rb)]✓	3∃D
5	Pa	4¬→D
6	¬(Qa ∨ ¬Rb)✓	4¬→D
7	¬Qa	6¬∨D
8	¬¬Rb	6¬∨D

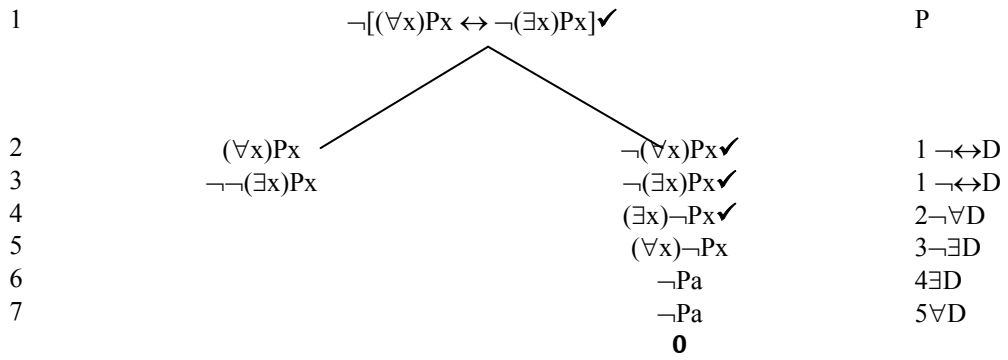
p.308, #6, change "(∃x)[(Fx∧Px)∨(∀y)(Py→Fy)]" to "(∃x)(Fx∧Px)∨(∀y)(Py→Fy)"
p.308, #9, change "(∀x)(Pxx→Paa)" to "(∀x)Pxx→Paa"
p.308, solution to #1, line #4, column #3, replace "1¬¬D" with "3¬¬D"
p.310, first example in "Section 7.3.4 Logical Equivalence", line #6, column #4, missing a justification: write in "2∀D"
p.311, line 11, replace "(∃x)(Px∨Gx)" with "(∃x)¬¬(Px∨Gx)", as this influences the rest of the problem, the entire solution is produced below:





p.311–312, Exercise Set #4, #1, change problem from "(∀x)¬Px, ¬(∃x)Px" to "(∀x)Px, ¬(∃x)Px". This has an effect on the solution:

1. * (∀x)Px, ¬(∃x)Px; not equivalent



p.313, first tree on page, line #10, justification (3rd column) should be "3¬∃D".

p.314, paragraph under definition of "Invalidity", replace "simple argument: '(∀x)Pa ⊢ Pa.'" with "simple argument: '(∀x)Px, Pa ⊢ Pa.'"

p.314, in first two examples on page, replace "(∀x)Pa" with "(∀x)Px"

p.315, example at the bottom, line #7, replace "1∀D" with "2∀D"

p.318, 6 lines up from the bottom of the page, delete "for any substitution instance"

p.320, Solutions to Starred Exercises, #1, replace "(∀x)Px→Qx)" with "¬(∀x)(Px→Qx)"

p.321, exercise #5, line #12, far-right column, replace "5→D" with "7→D"

p.321, exercise #1 (top of page), add "10" below "9" in left-hand column.

p.322, B, #1, 2nd tree on page, line #9, 3rd column, replace "6¬¬D" with "7¬¬D"

p.322, D. exercise #3, line #6, replace "4∃D" with "2∃D"

Chapter 8

p.328, after first proof, line 3, replace “an individual already” with “an individual constant already”

p.329, example at top of page, line #9, third column, replace “8,9∧I” with “7,8∧I”

p.329, 2nd sentence after heading “8.1.2 Existential Introduction (∃I)”, replace “The procedure involves introducing an existential quantified” with “The procedure involves introducing an existentially quantified”

p.332, line #4, third column, replace “2∧E” with “3∧E”

p.332, line #5s, replace 2nd line #5 with “6”

p.332, 2nd line #5 (new line #6), third column, replace “4∃I” with “5∃I”

p.333, #11, change “(∃y)(Wyc)” in “Wab∧Qbc ⊢ [(∃y(Way∧Qyc)∧(∃y)(Wyb)]∧(∃y)(Wyc)” to “(∃y)(Qyc)”

p.334, #9, first line in problem prompt, add second premise “Paa”

p.334, #11, change “(∃y)(Wyc)” in “Wab∧Qbc ⊢ [(∃y(Way∧Qyc)∧(∃y)(Wyb)]∧(∃y)(Wyc)” to “(∃y)(Qyc)”

p.334, #11, line #6, change “(∃y)Wyc” to “(∃y)Qyc”

p.334, #11, line #8, change “(∃y)(Wyc)” in “Wab∧Qbc ⊢ [(∃y(Way∧Qyc)∧(∃y)(Wyb)]∧(∃y)(Wyc)” to “(∃y)(Qyc)”

p.334, #11 in the description below the proof, 2nd line replace “Pab∧Qbc” with “Wab∧Qbc”

p.336, 1st paragraph, last line in paragraph, place single quotation marks around 'R' in "and R, while"

p.339, 3rd example, line “*k*+2”, add missing close parenthesis to formula: “(∀x){[(Ix∧Qx)∧(Ex∧Gx)]→¬Px}

p.341, 1st full paragraph after 1st proof, replace “is valid is” with “is valid”

p. 345, 1st paragraph, 3rd line: replace " '(∃x)Px' says some number is prime" to " '(∃x)Ex' says that some number is even"

p.345, 2nd proof, line 2, justification column, replace “1∀I” with “1∀E”

p.346, 1st paragraph, last line, replace "validly infer '(∃x)(Wzz)' " with "derive '(∃z)Wzz' "

p.346, 1st example, line 4, 3rd column, replace 4∃I with 3∃I

p.346, last example before Exercise Set #2, line #4, replace “(∃x)Py” with “(∃y)Py”

p.349, first example, line #6: “¬(∀x)¬(Wzz→¬Mz)” to ““¬(∀z)¬(Wzz→¬Mz)”

p.349, 4th paragraph, line 1: replace "quantified antecedent" with "quantified consequent"

p.349, last example, line #7: justification column, change “6”I” to “6∀I”

p.350, last paragraph, 2nd line, replace “it is simply an complex” with “it is simply a complex”

p.350, last proof on page, line 2, 3rd column: replace (∃x)Sb with (∃x)Sx

p.351, last example, change justification of line #8 from “3→E” to “3, 7→E”

p.351, last example, change justification of line #10 from “4,9¬→E+DN” to “4,9MT+DN”

p.352, exercise #19, change “(∃x)[Px∧(∀y)(Py→Ryx)] ⊢ (∃x)(Px∧Rxx)” to “(∃x)[Px∧(∀y)(Py→Ryxb)] ⊢ (∃x)(Px∧Rxxb)”

p.353, exercise #3, line #4 and #5, replace “(∃x)Gx” with “(∃z)Gz”

p.354, exercise #11, line #6, replace “(∀x)Fx” with “(∀x)Px”

p.354, exercise #13, line #9, change “(∀x)(Px→Mx)” to “(∀x)(Fx→Mx)”

p.354, exercise #15, line 6, change “1,5¬∨E” to “1,5DS”

p.354, exercise #15, line 9, change “7,8¬∨E” to “7,8MT”

p.355, exercise #17, line 11, change “9,10¬→E” to “9,10MT”

Appendix

p.359, 2nd and 3rd row of table (3rd column), switch “Negation (¬)” and “Conjunction (∧)”

Kindle Version (Possible Typos)

Ch.2, Section 2.4.1, above table that contains (4E*): delete “3” in “(M∨3K)∧¬(M∧K)

Ch.2, In End of Chapter Exercises, Exercise D. #6 “fiee” in “If John is hungry or a zombie, then Mary should fiee”

should be replaced with “flee”
Ch.3. Exercise Set #2, #3 ?