Corrections

There is an upsetting number of typos and thinkos in the first (and currently only) printing of *IFL*. Some are inexecusable; all are regretable. They will be corrected in the second printing if and when that happens. Many thanks to those who have sent corrections – even if their e-mails have sometimes spoilt my day! I should especially mention Xavier Botero, Nick Denyer, Dave Dividi, James Kelly and Jeff Ketland.

The mistakes are divided into Nasty Errors, and Annoying Trivia. I have relegated to the second category the mistakes which shouldn't have caused any readers trouble, but which still need to be corrected. Within each list, the horrors are listed by page number (in bold).

1 Nasty Errors

61 (7′) and (8′) have 'Q' and 'R' mixed up. (7′) should be '$(\neg \mathsf{S} \vee (\mathsf{P} \wedge \mathsf{R}))$' and (8′) should be '$\neg(\mathsf{P} \vee \mathsf{Q})$'.

96 The displayed wff 5 lines from the bottom should be '$(\neg \mathsf{P} \wedge \mathsf{Q} \wedge \neg \mathsf{R} \wedge \mathsf{S})$'.

142 First full sentence has 'false' and 'true' the wrong way round. So this should read 'For both are strictly speaking true so long as their antecedent is false and/or consequent true.' Which doesn't now strike me as a grammatically elegant sentence, but that's another matter.

264 The stated conclusion of example **B** on the fifth line should be '$\exists \mathsf{xGx}$' and not '$\exists \mathsf{xFx}$': the ensuing tree is correct, however.

276 There is a multiple foul-up with example **B**. First, the conclusion was supposed to be 'Everyone respects some logician' and its negation is

(3) $\neg\forall \mathsf{x} \exists \mathsf{y}(\mathsf{Fy} \wedge \mathsf{Mxy})$

(the text has 'Fx'). And second, the premiss (1) $\forall \mathsf{x} \exists \mathsf{y}(\mathsf{Fy} \wedge \mathsf{Lxy})$ is wrongly instantiated in the text as

(7) $\exists \mathsf{y}(\mathsf{Fa} \wedge \mathsf{Lay})$

where there should be

(7) $\exists y(Fy \wedge Lay)$

These two errors propagate through the proof but happen to cancel each other out so that the tree fortuitously closes. Which is, I guess, why I didn't spot the errors. (The corrected version of the whole passage is in Section 3 of these corrections.)

278 (1) on line 8 should be '$\forall x(Fx \supset Gx)$', and not '$\forall x(Fz \supset Gx)$'. The tree proceeds as if the correct were there.

306 In the last line but four of Section 32.4, there's 'Indiscernibility of Identicals' where it should of course be 'Identity of Indiscernibles'. [Ouch!]

313 In example 12, at each occurrence, '$\neg x = b$' should be '$\neg y = b$'.

315 In Exercises 33, B 7, the identity sign is a misprint for the material equivalence, so it should be '$\forall x \forall y \forall z(Rxyz \equiv Rxzy)$'. And in B 5: the identity sign is wrong and whole the expression is nonsensical. I can't recall what was intended: a minimal repair could be $\forall x \forall y(Rxyz \supset x = y)$.

335 Despite however many people having read through these pages before publication, the translation of the example in Section 35.4 is wrong. What can I say? I just couldn't believe my eyes when this was pointed out to be (first by Jeff Ketland). This is exactly the sort of mistake that I warn students about in lectures!

Inside the conclusion, to render 'there are exactly two …', there *of course* should be another conjunct, '$\neg x = y$', to ensure that we do indeed have two different things here. See Section 33.3. Ouch.

The tree for the argument as translated is correct. But in the correct translation, the conclusion has another conjunct, '$\neg x = y$', inside the scope of the quantifiers. With this addition, the new tree will still close.

Here's why. After we have done the same instantiations that take us to line (15) in the current proof, there will be another conjunct inside the brackets, i.e. '$\neg a = b$'. And when we unpack the big negated multi-conjunction, we'll get a new branch with '$\neg\neg a = b$' on it. This very quickly closes since it gives '$a = b$', and we have (5) '$\forall x \neg(Fx \wedge Gx)$', (9) '$Fa$', (11) '$Gb$' already on the trunk.

To see this spelt out more carefully, see Section 4 of these corrections.

338 Exercise B2: add a final closing bracket to get a wff.

2 Annoying Trivia

49 Line 6 of last paragraph of Section 6.3; delete 'recognize'.

80 Second bullet point on the page, last line, should read 'the disjunction $(A \vee B)$'.

97 Line 6 up from bottom should start 'atom or a negated atom, and ...'

109 Line 4 up. I shouldn't have used the *open-ended* '$\neg$P, $\neg$P′, $\neg$P″, $\neg$P‴, …' to represent a finite list of fifty premisses. That use of '…' usually symbolizes an infinite sequence.

156 In Exercises 16, no. 5, the last premiss was supposed to be $(\neg R \vee S)$. In no. 6, the conclusion was supposed to be $((Q \vee R) \wedge P)$. Obviously, the examples can be done as they stand: but the replacements suggested here make for better examples.

197 Line 4 up has 'in a a world'; so delete one 'a'!

219 Section 24.1, first line 'intmeanserpretations' should be 'interpretations'. [A complete mystery how that one got through!]

225 Line 6: 'beingz' needs a letter deleted!

227 Exercise A 14, There are stray occurrences of 'Bethan' and 'Caradoc' instead of (say) 'Myfanwy' and 'Ninian'.

241 The penultimate line of the exercises: '**QL**$^=$' should be simply '**QL**'.

249 The exercises are numbered '1, 2, 4, 5 …' with '3' accidentally omitted! Also, the last couple of exercises in the current set are really redundant, and ought to get deleted.

286 Line 3 of Section 30.1 should start 'constructed **QL** tree closes, then'.

329 There is a stray concluding bracket at the end of the wff G.

341 Line 4 of sec. 36.2: for consistency '§4' should be '§36.4'.

344 Last complete paragraph. 'Gwyneth has no daughters'. Well, now she famously has baby Apple; so maybe that will teach me not to use indulgent examples like that …!

349 Line 5: replace '$\wedge$' by '$\vee$': oops.

3 Repairing Example B, p. 276

The full treatment of the example should read as follows:

Consider next

B Everyone admires some logician; whoever admires someone respects them. So everyone respects some logician.

The translation of the premisses and negated conclusion shouldn't cause trouble by now (just note that the second premiss means that for *any* pair, if the first admires the second, then the first respects the second):

(1) $\forall x \exists y(Fy \wedge Lxy)$
(2) $\forall x \forall y(Lxy \supset Mxy)$
(3) $\neg \forall x \exists y(Fy \wedge Mxy)$

Checking off (3), the next steps are more or less automatic.

(4) $\exists x \neg \exists y(Fy \wedge Mxy)$
(5) $\neg \exists y(Fy \wedge May)$ √
(6) $\forall y \neg(Fy \wedge May)$

We *could* instantiate (6) using 'a', but that would be pointless. So let's next instantiate (1) and (2) instead:

(7) $\exists y(Fy \wedge Lay)$
(8) $\forall y(Lay \supset May)$

Instantiating the existential quantification first (following our rule of thumb), and remembering to use a new constant, we get

(9) $(Fb \wedge Lab)$

Using this new constant to instantiate the two remaining universal quantifiers at (6) and (8), we get

(10) $\neg(Fb \wedge Mab)$
(11) $(Lab \supset Mab)$

Finally the tree closes using the familiar connective rules:

(12) Fb
(13) Lab
(13) ¬Fb ¬Mab
*
(14) ¬Lab Mab
* *

4 Repairing Example O, p. 335

The treatment of the example should start as follows:

(1) $\exists x(Fx \wedge \forall y(Fy \supset y = x))$
(2) $\exists x(Gx \wedge \forall y(Gy \supset y = x))$
(3) $\neg\exists x(Fx \wedge Gx)$
(4) $\neg\exists x\exists y(([\{Fx \vee Gx\} \wedge \{Fy \vee Gy\}] \wedge \neg x = y) \wedge \forall z[\{Fz \vee Gz\} \supset \{z = x \vee z = y\}])$

Of course, (4) can be bracketed in different but equivalent ways. First, then, we eliminate the negated quantifiers, and then instantiate the existentials:

(5) $\forall x\neg(Fx \wedge Gx)$
(6) $\forall x\neg\exists y(([\{Fx \vee Gx\} \wedge \{Fy \vee Gy\}] \wedge \neg x = y) \wedge \forall z[\{Fz \vee Gz\} \supset \{z = x \vee z = y\}])$
(7) $(Fa \wedge \forall y(Fy \supset y = a))$
(8) $(Gb \wedge \forall y(Gy \supset y = b))$

Now unpack the conjunctions in (7) and (8)

(9) Fa
(10) $\forall y(Fy \supset y = a)$
(11) Gb
(12) $\forall y(Gy \supset y = b)$

Next, instantiate (6) with a name, and deal with the resulting negated wff.

(13) $\neg\exists y(([\{Fa \vee Ga\} \wedge \{Fy \vee Gy\}] \wedge \neg a = y) \wedge \forall z[\{Fz \vee Gz\} \supset \{z = a \vee z = y\}])$
(14) $\forall y\neg(([\{Fa \vee Ga\} \wedge \{Fy \vee Gy\}] \wedge \neg a = y) \wedge \forall z[\{Fz \vee Gz\} \supset \{z = a \vee z = y\}])$
(15) $\neg(([\{Fa \vee Ga\} \wedge \{Fb \vee Gb\}] \wedge \neg a = b) \wedge \forall z[\{Fz \vee Gz\} \supset \{z = a \vee z = b\}])$

We should now disentangle (15), which is a negated conjunction.

(16) $\neg([\{Fa \vee Ga\} \wedge \{Fb \vee Gb\}] \wedge \neg a = b)$ $\neg\forall z[\{Fz \vee Gz\} \supset \{z = a \vee z = b\}]$

Unpacking the left-hand branch:

(17) $\neg([\{Fa \vee Ga\} \wedge \{Fb \vee Gb\}]$ $\neg\neg a = b$

Unpacking the new negated conjunction on the left-hand branch, we get

(18) $\neg\{Fa \vee Ga\}$ $\neg\{Fb \vee Gb\}$
(19) $\neg Fa$ $\neg Fb$
(20) $\neg Ga$ $\neg Gb$
$*$ $*$

On the next right, we can continue

(18′) $a = b$
(19′) Ga from 11, 18
(20′) $\neg(Fa \wedge Ga)$ from 5
(21′) $\neg Fa$ $\neg Ga$
$*$ $*$

Now we need to continue working on the far right-hand branch. But that goes exactly as in the book (apart from adding one to all the line numbers). So we are done!