

A Course in Model theory¹
Errata

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October 29, 2017

¹Cambridge University Press, 2012

We thank M. Junker, A. Berarducci, A. Blumensath, D. Müller, D. Pierce and I. Goldbring for bugreports.

- In some places, the use of the word *either* is not justified. Even though it should not cause confusion, remove the word in Exercise 8.2.6.
- Definition 1.2.10, Footnote 5: we replace each *bound* occurrence by an unused variable.
- Exercise 2.3.1, part 2: The structure is $(\mathbb{Q}, P_r, Q_r)_{r \in \mathbb{R}}$.
- Exercise 2.3.2, part 1: The theory of *infinite* K -vector spaces...
- In the proof of Theorem 3.1.8, b) \Rightarrow a) should add that \mathfrak{A} and \mathfrak{B}^0 are models of T_1 and T_2 , respectively,
- The Morleyisation of T as discussed after Definition 3.2.1 should use 0-ary relation symbols. Otherwise it does not have quantifier elimination if T is consistent, incomplete and L has no constants.
- Exercise 3.2.1, part 1: For any T -ec-structure $\mathfrak{M} \dots$
- Theorem 3.2.5:
In c) we may assume that \mathfrak{A} is *finitely generated*. This is used in later applications.
- Proof of Theorem 3.3.22, third paragraph: Replace $g(a, da, \dots, d^{n-1}a) \neq 0$ by $g(b, db, \dots, d^{n-1}b) \neq 0$.
- In Exercise 3.3.1, replace

$$\bigwedge_{i \neq j} \quad \text{by} \quad \bigwedge_{i, j} .$$

- Exercise 3.3.2: The model theoretic algebraic closure is defined in Section 5.6.
- The first paragraph of Section 4.2 misleadingly claims a connection between the Compactness Theorem and the compactness of the space of types.
- In Definition 5.2.5, do not assume that T is countable.
- Proof of Lemma 6.3.2:
Choose \bar{b}^{2i} algebraically independent over $a\bar{b}^0 \dots \bar{b}^{2i-1}$ (not only algebraically independent over $\bar{b}^0 \dots \bar{b}^{2i-1}$).
- Proof of Lemma 6.3.6:
Replace
This implies that $\text{diff}(a_1, a_2)$ only depends on $\text{tp}(a_1, a_2)$.
by
Independence of the model implies that $\text{diff}(a_1, a_2)$ only depends on $\text{tp}(a_1, a_2)$.

- Definition 8.1.1, part 1: ... there is some $m \in M$ with $\phi(x, m) \in p$.
- The definition before Corollary 7.2.7 should read: *We call q a forking extension if q forks over A .*
- Proof of Corollary 8.1.8: the formula should read

$$\models \exists x, y \phi(x, y, c) \wedge \phi_1(x, a', h'_1) \wedge \phi_2(y, b', h'_2).$$

- Proof of Lemma 8.3.5, last paragraph: a is a realization of $p \upharpoonright Mb$.
- Exercise 8.3.5: A type p being stable should be defined as: *for no formula $\phi(x, y)$ there are elements a_0, a_1, \dots satisfying $p(x)$ and b_0, b_1, \dots such that $\models \phi(a_i, b_j) \Leftrightarrow i < j$.*
- Proof of Lemma 8.4.10: ... $c_1 \dots c_m \in \text{acl}(e)$.
- Proof of Theorem 8.5.10: in the second to last paragraph, it should read
Let μ be the cardinal given by WEAK BOUNDEDNESS applied to p .
- Exercise 8.5.2: Let $p \in S(B)$ and $q \in S(B)$ be two different types which do not fork over $A \subset B \dots$
- Before Lemma 10.4.1: ... induced by M and N .
- Before Theorem 10.4.8: ... we say that $M \in \mathcal{K}_\mu$ is \mathcal{K}_μ -saturated if for all finite $A \leq M$ and *finite* strong extensions C of $A \dots$
- Exercise 10.4.2: It should read $\dots(-1)^{|\Delta|+1} \dots$
- Definition B.4.10: The reader should keep in mind that we define procyclic fields to be perfect.
- After Remark C.1.1: A pregeometry in which points and the empty set are closed, i.e., in which

$$\text{cl}(\emptyset) = \emptyset \quad \text{and} \quad \text{cl}(x) = \{x\} \quad \text{for all } x \in X,$$

is called *geometry*.

- Discussion after Definition C.1.9: Add the sentence
Note that the proof shows that $\text{trd}(K) \geq 3$ actually suffices.
- Append the following sentence to the proof of Lemma C.1.11:
Since c cannot be in the closure of $\{a_1, \dots, a_{n-2}\} \cup (A \cap B)$, we know by induction that $\{a_1, \dots, a_{n-2}, c\}$ is independent over B , which contradicts $c \in B'$.
- Replace the last paragraph before Exercise C.1.11 by
The arguments on page 205 show also that a field of transcendence degree at least 4 is not locally modular. Just replace F by a subfield of transcendence degree 1.

- Solution to Exercise 6.2.8: ... and $\phi(x, a_1) \vee \cdots \vee \phi(x, a_n)$...
- Solution to Exercise 7.1.3: ... implies a conjunction $\bigwedge_{\ell < d} \phi_\ell(x, b)$ of formulas which *divide* over A .