August 22, 2015

Errata (comments; fix-up of typos and errors) to

Krzysztof Ciesielski, *Set Theory for the Working Mathematician*,
London Math Society Student Texts **39**, Cambridge University Press, 1997.
(n^i means page n line i from the top; n_i means page n line i from the bottom.)

7^1 – "distinguish" should be "distinguished."

p. 11, Ex. 2 – For part (a) it must be assumed that $\mathcal{F} \neq \emptyset$.

p. 43, Ex. 7 – Solution requires Theorem 4.3.2, from latter Section 4.3.

62^7 – Displayed statement requires explanation something like:

> Indeed, if f is a bijection between β and $|\beta|$ then $f \restriction \alpha$ is a bijection between α and $f[\alpha]$. So $\alpha \approx f[\alpha] \approx \mathrm{Otp}(f[\alpha])$ and so $|\alpha| = |f[\alpha]| = |\mathrm{Otp}(f[\alpha])| \leq \mathrm{Otp}(f[\alpha]) \leq |\beta|$, where the last inequality follows from Corollary 4.2.6 as $f[\alpha] \subset |\beta|$.

67_{7-12} – The comment "In fact, . . . of choice" is false! Remove it all together.

95_{4-9} – The proof of $\Sigma^0_\beta \subset \Sigma^0_\alpha$ and $\Pi^0_\beta \subset \Pi^0_\alpha$ does not use induction.

p. 97, Ex. 5 – Remove it. Requires more involved technique.

p. 110, Ex. 1 – May be too easy: if h is a function from Ex. 1 Sec. 7.1 and f is as in the exercise then $g = [h \restriction (\mathbb{R} \setminus C)] \cup f$ is as required.

p. 111, Ex. 4 – Too easy. Just take $X = \mathbb{R} \setminus \mathbb{Q}$ and Y – the Cantor set.

p. 111, Ex. 5 – Replace "for every continuous function $g\colon \mathbb{R} \to \mathbb{R}$ the set $\{x \in \mathbb{R}\colon f(x) = g(x)\}$ has cardinality less than $\mathfrak{c}$" with "$f \restriction X$ is discontinuous for every $X \in [\mathbb{R}]^{\mathfrak{c}}$."

p. 154, Ex. 6 and 7 – Both statements are false. In each of these exercises replace "Show that for every family $\mathcal{A}$ of countable subsets of κ such that $|\mathcal{A}| < \mathfrak{c}$" with

> Let $\mathcal{A}$ be a family of countable subsets of κ such that the set $\{A \in \mathcal{A}\colon |A \cap C| = \omega\}$ is at most countable for every countable set C. Show that if $|\mathcal{A}| < \mathfrak{c}$ then

165_{13} – Replace "$\min\{\beta\colon y \in R(\beta + 1)\}$" with "$\min\{\beta\colon y \in R(\beta)\}$."

179_6 – Replace "$F(x) = \{y \in Y\colon \exists p^y \in \mathbb{P}\ (\langle \widehat{\langle x, y\rangle}, p^y\rangle \in \tau)\}$" with "$F(x) = \{y \in Y\colon \exists p^y \in \mathbb{P}$ compatible with p_0 such that $\langle \widehat{\langle x, y\rangle}, p^y\rangle \in \tau\}$."

179_2 – Replace "then $p = p^y \leq p_0$" with "then there exists a p extending p^y and p_0."