Errata

Last Updated: April 29, 2009

Here are the currently known errors in *Chapter Zero, 2e*. Some of these errors may have been corrected in some printings of the book. As I find more, I will update the errata section that can be found on this website. You might check the website periodically to get updates. If you find errors, I would appreciate hearing about them.

- Pg. xii (Preface)—the last two words of the third line should be "second edition" instead of "first edition."

- Pg. 7—Beginning of the next to the last paragraph should read "Your goal is *to* figure out . . . ." The word "to" was omitted.

- Pg. 18—The first line, second sentence after the table showing the truth values for A $\implies$ B reads "As you remember, each line of the truth table gives all possible . . . "

  It *should read* "As you remember, the lines of the truth table give all possible . . . "

- Pg. 30—Example 1.10.1 . . . "Assume that $x^3 + 37$ has a real root . . . " should read "Assume that $x^3 - 37$ has a real root." Alternatively, all the minus signs in the proof should be plus signs.

- Pg. 31—Middle of the page... the line right after (So far, so good....) reads "$29 = 2^4 + 2^3 + 2 + 1$." It should, instead, read "$27 = 2^4 + 2^3 + 2 + 1$."

  Pg. 37—Problem 5(c)is incorrect as stated. Please substitute the following

  A truth table shows that (A $\implies$ (B $\vee$ C)) is apparently equivalent to ((A $\implies$ B) $\vee$ (A $\implies$ C)). Find an example of a statement that shows these are not, in fact, equivalent in general. Is the truth table lying? What's going on?

  (Hint: think about the quantifiers that are ignored by the truth table.)

- Pg. 50—in the second bullet after 2.4.11. "established" is missing an "a."

- Pg. 54—Problem 3, part (b). "disjoint" is missing an "i."

- Pg. 54—Problem 4, parts (b) and (c). The range of the indexing sets should be the **positive** rational numbers.

- Pg. 54—Problem 6. The first line reads " . . . you proved that set difference distributes over . . . " it *should* read " . . . you proved that set difference does not distribute over . . . ."

- Pg. 55, 8(c): This is not really a typo, but the notation sometimes confuses students; it may be helpful to add parentheses so that

$$\mathcal{P}(B_U^{\mathcal{C}}) \setminus \{\emptyset\} \subseteq \mathcal{P}(B)_{\mathcal{P}(U)}^{\mathcal{C}}$$

becomes

$$\left(\mathcal{P}(B_U^{\mathcal{C}}) \setminus \{\emptyset\}\right) \subseteq (\mathcal{P}(B))_{\mathcal{P}(U)}^{\mathcal{C}}.$$

- Pg. 57—4 lines from the bottom ... in the paragraph beginning "Let $S_4 = \{a_1, a_2, a_3, a_4\}$ be any set with four elements." The second sentence should read "Then S_4 has one more element than ..."

- Pg. 58—In the middle of the page in the second line of the paragraph following the "theorem,"—"For $n = 41$, ..." should read "For $n = 40$, ..."

- Pg. 68—In the gray box: "In the case of the relations ..." should be "In the case of the relation ...."

- Pg. 70—Definition 4.2.5. The word "tricotomy" in the definition is written "trichotomy," instead.

- Pg. 71, third to the last line "Two partial orders are same if ..." should be "Two partial orders are the same if ...."

- Pg. 87—4.4.4 # 6. E^* should be a subset of E.

- Pg. 90—4.4.16. Needs to specify that $n \geq 2$.

- Pg. 108—Theorem 5.1.16 is incorrect as written. It should read: "If $f : X \to Y$ is a function, then there is an onto function $f^* : X \to \mathcal{R}an(f)$ such that ...."

- Pg. 111—Theorem 5.2.7. The last line reads "... is a function if and only if ..." *it should read* "... is a function from B to A if and only if ...."

- Pg. 114—Exercise 5.3.9. There is an extra comma in the offset text. It should read
$$c \in f(Y) \text{ provided that } ...$$

- Pg. 132—Problem 13(b). The sentence reads:
$$... f(f^{-1}(T)) ...$$

Instead, it should read:
$$... f^{-1}(f(T)) ...$$

- Pg. 133 — Problem 16. The second sentence reads:
Define $\mathcal{F} : \mathcal{P}(B) \to \mathcal{P}(B)$ ...

It should, instead, read:

> Define $\mathcal{F} : \mathcal{P}(B) \rightarrow \mathcal{P}(A) \ldots$

- Pg. 135—Problem 27 (a) reads ... "Prove that $(\mathbb{N}, +)$ and $(\mathbb{R} \setminus \{0\}, \cdot)$ are groups." It should, instead, read $(\mathbb{Z}, +)$ since $(\mathbb{N}, +)$ is not, in fact, a group. "Prove that $(\mathbb{N}, +)$ is not a group and that $(\mathbb{Z}, +)$ and $(\mathbb{R} \setminus \{0\}, \cdot)$ are groups."

- Pg. 137—end of the first paragraph. "For instance, 7 and 9, 29 and 31 ..." should instead read "For instance, 5 and 7, 29 and 31 ...."

- Pg. 140—Theorem 6.2.6. The first line of the theorem should read "Let a and $b \in \mathbb{Z}$." The integer c is not needed in the theorem.

- Pg. 166—Theorem 7.3.10 part(2) should read "Every denumerable union of non-empty finite sets is denumerable." (The statement is false if all but finitely many of the sets is empty.)

- Pg. 169—Problem 7.4.10. The problem should read: "Let X be a set. Let $K \subseteq X$. We define a function $\chi_K : X \rightarrow \{0, 1\}$ ..." The rest of the problem is stated correctly.

- Pg. 176—Problem 5 begins "Let K be any set and let $\mathcal{F}$ be the set of all functions with domain K." It *should* begin "Let K and Y be sets, and let $\mathcal{F}$ be the set of all functions with domain K and codomain a subset of Y."

- Pg. 189—Hint for theorem 8.4.12. Between the second and the third sentences add the words: "Assume (by invoking theorem 8.4.11, if necessary) that x is a rational number. Then start with $\sqrt{2}$ . . . "