Errata for
Combinatorics: A Guided Tour
First Printing

David R. Mazur

This document will be updated every few months or as needed. Regarding line references, "line $+k$" is the k-th line from the top of the page, while "line $-k$" is the k-th line from the bottom. Page/line references listed in **BOLD CAPS** address substantive errors that affect meaning or understanding. The others are more minor and usually of a typographical or usage nature.

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Update of November 24, 2009

- Page 198, line -1
  Change "How may" to "How many"
- **PAGE 229, LINE** $+8$
  Change the sentence beginning "Both are 3-regular graphs..." to "Both of these graphs are important because they often serve as counterexamples to or testing grounds for new theories."
  (The Grötsch graph is clearly not 3-regular. Perhaps I was thinking that both are 3-connected?)
- **PAGE 235, LINE** $+17$
  Change "while the rest of the $B_{k,4} = 0$." to "while the rest of the $B_{1,k} = 0$."
- Page 247, line -5
  Change "he number" to "the number" in Theorem 6.2.9
- Page 366, line $+13$ and $+14$
  Make the title of Fisher's paper consistent with the other titles (quotation marks, comma after)
- Page 366, line -13
  Insert quotation mark before $R(4, 5)$
- **PAGE 379, LINE** -13
  Change "$\delta + 1$ colors" to "$\Delta + 1$ colors" in the hint to Exercise 3 of Section 6.3

Update of January 5, 2010

- Page xi, line $+16$
  Change "most most" to "most"
- **PAGE 104, LINE** -6
  Change "exactly k points." to "exactly 6 points."
- **PAGE 115, LINE** $+15$
  Change "If you recall the die-rolling example of the last section—In how many ways can we get a sum of 18 when five dice are rolled?" to "If you recall the distribution problem of the last section—In how

many ways can we distribute 15 identical objects to six distinct recipients if each recipient receives at least one object?"

- **PAGE 139, LINE** +15
In Exercise 2(b), change "$b_n = 4(a_{n-1} - a_{n-2})$" to "$b_n = 4(b_{n-1} - b_{n-2})$"

- Page 162, line −13
Change the lowercase f's to uppercase F's

- **PAGE 260, LINE** −14
Change Exercise 12 to "How many real-valued roots does $p(G, k)$ have, at least? Come up with a reasonable lower bound in terms of known graph parameters and justify it."

Update of August 24, 2010

- **PAGE 5, LINE** −7
Change "and $d_i = 0$." to "and $d_i = 0$ otherwise."

- **PAGE 18, LINE** +3
Change "D for every possible choice of U." to "U for every possible choice of D."

- Page 18, line −3
Change "begin counted" to "being counted"

- **PAGE 93, LINE** +14
In Exercise 7(b), change "for any n," to "for any $n \geqslant 1$,"

- **PAGE 248, LINE** −7
In Exercise 7, change "counting the trees" to "counting the forests"

- **PAGE 280, LINE** −18
In Exercise 12, change "$(14, 8, 7, 3, 3)$" to "$(14, 8, 7, 4, 3)$"

- Page 304, line +14
Looks like a space is needed after "or" in "being 0 or1."

- **PAGE 304, LINE** +16
Change "Hamming $(7, 4, 3)$ code" to "Hamming $(7, 2^4, 3)$ code"

- Page 304, line −1
Delete one "portion" in Question 306

- Page 305, line −4
Change "Assume A is a 0-1 matrix" to "Assume G is a 0-1 matrix"

- Page 315, line −3
Delete "where e is odd." (This is implied by Theorem 7.5.7.)

- **PAGE 316, LINES** +6 **TO** +9
Replace Exercise 4 by "Let A be the 7×14 matrix whose columns are the codewords of the Hamming $(7, 2^4, 3)$ code, except for the all-0 and all-1 codewords. Define A' to be the 8×14 matrix obtained from A by adjoining an extra row, where the entries in this row are determined so that each column of A' contains an even number of 1s. Prove that A' is the incidence matrix of a 3-$(8, 4, 1)$ design."

- **PAGE 343, LINE** −2
Replace "$(d, d), (e, e)$" by "$(d, d), (d, e), (e, e)$"

- Page 344, lines +9 to +11
In Exercise 7, change to boldface $\mathbf{L}_1$, $\mathbf{L}_2$, $\mathbf{L}_3$ instead of italicized L_1, L_2, L_3.

- **PAGE 377, LINE** -13
  Delete "1. (b) only the identity permutation" altogether

- Page 380, line -4
  Replace "possiblity" by "possibility"

- **PAGE 381, LINE** $+15$
  Change "$\binom{8}{0} + \binom{8}{1} + \binom{8}{2} + \binom{8}{3}$" to "$\sum_{i=0}^{4} \binom{8}{i}$"

- **PAGE 382, LINE** $+3$
  Change "n is prime." to "n is a power of a prime."

Update of January 16, 2012

- **PAGE 85, LINE** -4
  Change "the onto functions" to "the functions"

- **PAGE 132, LINE** $+5$
  Change "$c_n = 3a_{n-1} + 3^n$" to "$c_n = 3c_{n-1} + 3^n$"

- **PAGE 302, LINE** -16
  In Question 302, change the last part to "along with the five radius-1 codeword spheres to see why it is not a 1-error-correcting code."

- **PAGE 345, TRAVEL NOTES**
  Tom Trotter brought to my attention that the existence question regarding 3-dimensional circle orders has been resolved. Delete the entire second paragraph of the Travel Notes and change it to the following:

  Circle and box orders are examples of so-called geometric containment orders. Exercise 11 shows that 2-dimensional posets are circle orders. What about 3-dimensional posets? This question was posed in 1984 by Fishburn & Trotter and remained open for 15 years. In 1988, Scheinerman & Wierman gave an infinite, 3-dimensional poset that is not a circle order, and Trotter (1992) shows that every finite, 3-dimensional poset is a regular n-gon order for all $n \geqslant 3$. Finally in 1999, Felsner, Fishburn & Trotter demonstrated the existence of a finite, 3-dimensional poset that is not a circle order. Their paper actually gives a significant generalization of the original question: for each positive integer n, there exists a finite, 3-dimensional poset that cannot be expressed as a sphere order in $\mathbb{R}^n$. (See Felsner, S., Fishburn, P. C., and Trotter, W. T. (1999). "Finite three dimensional partial orders which are not sphere orders," *Discrete Mathematics*, **201**, 101-132.)

- **PAGE 356, LINE** $+10$
  Change "$\mu_1(x_1, y_1)\mu(x_2, y_2)$" to "$\mu_1(x_1, y_1)\mu_2(x_2, y_2)$" in the display in Theorem 8.6.1

- **PAGE 373, LINE** -3
  Change "14." to "15." since the hint given is for Exercise 15.

Update of March 10, 2014

- **PAGE 136, LINE** $+8$
  Change "$\alpha_0, \alpha_1, \alpha, \beta$" to "$a_0, a_1, \alpha, \beta$"

- **PAGE 174, LINE** $+16$
  Change "$y = e^{F(x)+C}$" to "$y = Ce^{f(x)}$" and also change "C is a constant" to "C is a real number"

- **PAGE 233, LINE** $+8$
  Change the two sentences "But notice in G that every edge ... so $G \ncong H$." at the end of the paragraph to "In H there exists an edge joining two vertices of degree 2. No such edge exists in G, so $G \ncong H$."