Typos in Chapters 1-9 of "An Introduction to Quantum Computing"

Mark W. Coffey
Department of Physics
Colorado School of Mines
Golden, CO 80401
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Chapter 1

p. 4, line 14, T units of time

p. 4, line -19. Remark. RAM usually stands for random access memory. The current usage in this line "RAM machine" is redundant.

p. 9, line just after (1.4.5): NOT operator

p. 9, on the right side of (1.4.6), the components p_0 and p_1 should be interchanged

p. 10, 7 lines below (1.4.9): if the control bit is 1

p. 12, caption of Fig. 1.5, line 2: denoted $x_0 \wedge x_1$

p. 13, line 2, "previous section" should read "section 1.3"

p. 13, 2 lines above Exercise 1.5.1: we achieve

Chapter 2

p. 30, line above (2.4.1): satisfies

Chapter 3

p. 44, line just below (3.2.7): column vectors

p. 45, on the right side of (3.2.12): $e^{-iH(t_2-t_1)/\hbar}$

p. 45, Exercise 3.2.1 should be reworded. E.g.: Show that (3.2.12) is a solution of the Schrödinger equation when the Hamiltonian is independent of time.

p. 45, line below Exercise 3.2.1: $e^{-iH(t_2-t_1)/\hbar}$

p. 52, line 4 of Exercise 3.4.4 "computational" in place of "computation"

Chapter 4

p. 64, two lines below Exercise 4.2.1: 4.2.1 instead of 4.2.7

p. 71, line after Corollary 4.3.1: Theorem instead of Lemma

Chapter 5

Section 5.1, Fig. 5.1. There is an apparent inconsistency here. If we apply U_{ab}, we instead obtain for the last line of the caption the state $|\beta_{ba}\rangle$. NB: This is then consistent with the classical bits in the table on p. 79 listed in the order ba.

Chapter 6

p. 94, line two below the start of Section 6.3: Fourier

p. 95, line four: there is an extraneous "function"

p. 96, four lines below (6.3.8): $|1 \oplus f(1)\rangle$ should read $|0 \oplus f(1)\rangle$.

p. 98, line 7 of Ex. 6.3.1: "for certainty" should either read "with certainty" or "for certain".

p. 99, line 1: "chapter" instead of "section"

p. 106, Exercise 6.5.2. Add the phrase "of dimension m" after "let S be a vector subspace of Z_2^n". In the third line, "2-dimensional" should read "1-dimensional". [Also, in the online Errata list for part (b), "it" should read "in".]

p. 108, line below (6.5.7): $|\vec{y} + S\rangle = \sum_{\vec{s} \in S} \frac{1}{\sqrt{2^m}} |\vec{y} \oplus \vec{s}\rangle$

Chapter 7

p. 113, the second equality of (7.1.18) should read

$$\frac{1}{\sqrt{2^n}} \sum_{y=0}^{2^n-1} e^{2\pi i \omega y} |y\rangle = \frac{1}{\sqrt{2}}(|0\rangle + e^{2\pi i (0.x_n)}|1\rangle) \otimes \frac{1}{\sqrt{2}}(|0\rangle + e^{2\pi i (0.x_{n-1}x_n)}|1\rangle) \otimes \cdots \otimes \frac{1}{\sqrt{2}}(|0\rangle + e^{2\pi i (0.x_1 x_2 \cdots x_n)}|1\rangle).$$

p. 115, the left side of (7.1.23) should have the factor $1/\sqrt{2^3}$.

p. 120, Exercise 7.1.4. The second part should be labeled (b).

p. 122, line 2, $1/(\log r \log r)$ should read $1/\log\log r$. Remark. It would seem desirable to indicate that the corresponding probability is due to a number theoretic property of the Euler totient function $\phi(r)$.

p. 129, two lines below equation (7.2.9): $j = 0, 1, \ldots, 2^n - 1$.

p. 134, the condition on s on the second line of (7.3.4) needs to be modified: $s = 0$, $s = N$.

p. 143, the line just above (7.4.4) is missing a factor of $1/\sqrt{r}$ multiplying the sum

p. 144, under Discrete Logarithm Algorithm. Steps 4 and 5 should be interchanged in order to be consistent with Fig. 7.17.

Chapter 8

p. 157, lines 3 and 4: $|\psi\rangle = \frac{1}{\sqrt{N}} \sum_{x=0}^{N-1} |x\rangle$.

p. 157, line 5: $\sqrt{N}$ instead of $1/\sqrt{N}$

p. 158, Exercise 8.1.4 last line: μ should read 2μ.

p. 170, line 12, define instead of defined.

p. 171, equation (8.3.7): θ should be replaced by 2θ.

p. 171, line -5: $\exp(-i\theta)$ for the second phase factor

p. 172, Fig. 8.20. Q^x instead of G^x acting on the second register seems more consistent with the text

p. 174, last line: U_g

p. 175, line 4, has an extraneous) near the end.

p. 175-176, equations (8.4.3)-(8.4.5). Presented are density matrices, and not states.

Chapter 9

p. 179, line 13, "within in" should read "within"

p. 179. Remark for 6 lines later. It might be useful to some readers to cite Ref. [SS71] here.

p. 179. Remark for bottom of this page and top of next. These notations O, Ω, and Θ have been used extensively earlier in the book. It could be useful to many readers to have them given much earlier.

Bibliography

p. 261, [BBHT98], 1998 instead

p. 262, [BHMT00], H. E. Brandt

p. 262, [BHT98], 1998 instead

p. 262, [BL95]. Use [BL98] instead?

p. 265, [Gri97], probabilistic

p. 267, [NC00], Nielsen

p. 268, [Pre],˜for % 7E

p. 269, [Wel88], 1988 instead