PART D

Errata

Errata in the First Printing

The following people deserve our thanks for pointing out errors in the first printing: Michael Anderson, Aaron Edsinger, Barry Hayes, John Hwang, Dean Kelley, Mark MacDonald, Alan Morgan, Rodrigo Philander, Andrew Quan, and Keith Swanson.

Page 16: Figure 1.13: The right-to-left arc should emanate from the dot in the rightmost cell.

Page 24: Equation (2.1): The lower limit of the summation is $i = 1$ (dot on i missing).

Page 33: Lines 4–5 of text: The phrase "by one proof of the inductive step we prove each of the steps" should be italicized for emphasis.

Page 44: Exercise 2.4.1, line 4: transform E_1 (not E).

Page 52: Line 7 of Exercise 2.5.3: $x = 2^{2^{k-1}}$, not 2^{2^k}.

Page 77: Line 3: The declaration of `LISTTYPE` should precede the declaration of `CELL`.

Page 78: Line (6) of Fig. 2.32(b) should be replaced by `if list <> NIL then` and the following line should have no `else`.

Page 81: Line 5 of Fig. 2.33: The declaration of `LIST` should precede the declaration of `CELL`.

Page 101: Exercise 3.5.7: $\log n$ should be $\log_2 n$ for specificity.

Page 109: Example 3.18. The general definition of the tree and its construction must precede the example.

Page 115: Exercise 3.7.3(a) should read: "Making the bound for the while-loop a function of i (in particular of the factors of i)."

Page 119: Line -4: Period after "Section 2.8".

Page 119: Line -3: "procedure" (not "function") `foo`.

Page 120: Last line of first paragraph: "then *one* or more of the Q's."

Page 133: Line 23: The upper limit of the summation is $n-2$, not $n-1$. Line 24: "values of g from 2 to n," not "1 to n." Line 25: delete the term $g(1)$ from the sum.

Page 135: Line 13: Delete second "the."

Page 142: Add to bibliography: Hartmanis, J. and R. E. Stearns [1965]. "On the computational complexity of algorithms," *Trans. AMS* **117**, pp. 285–306. This is the paper referred to as Hartmanis and Stearns [1964] on line 9.

Page 165: Lines 15–16: Figure 4.2 should be 4.3.

Page 186: Line 3: "using" rather than "Using."

Page 188: Line 3: The operators, in order, refer to record, pointer, and array.

Page 201: Line 3: "Electronic" should be "Electronics."

Page 221: Line 21: In the type declaration, `rightmostChild` should be `right-Sibling`.

Page 261: Lines 10–12: This definition of "balanced" omits the condition that all possible nodes are present down to the next-to-last level.

Page 262: Line below the type declaration: "Throughout."

Page 263: Line 10: The if-statement should be

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if i > 1 then if A[i] > A[i DIV 2] then begin
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Page 266: Equation (5.2): "$T(i/2^j)$" instead of "$T(i/2^i)$."

Page 267: Exercise 5.10.9, line 3: We cannot implement `bubbleUp`; we need parent pointers.

Page 310: Example 6.14, line 6–7: "Since that entry is 2, we set $L(4,5)$ to 3.

Page 313: Exercise 6.9.3, line 3: Count calls to $L(1,1)$, not $L(0,0)$. Strictly speaking, $L(0,0)$ is never called recursively. Also, the hint needs to go at the end of the exercise.

Page 337: 6 lines below Fig. 7.5: "insertion" should be "intersection."

Page 339: Figure 7.6: In some implementations of Pascal, mutual recursion will give an error. See the discussion in the notes for Chapter 7.

Page 364: Line 4: Semicolon after `end`.

Page 365: Line -16: "$c \neq a$" should be "$c \neq b$."

Page 367–369: Type `VARIETY` should be changed to `PVARIETY` to avoid conflict with the field name `variety`.

Page 383–384: Example 7.42: This proof has a major bug. First, we need to use the digits 1 and 8 in place of 0 and 9, so in line 2, the number r begins, $.8118\cdots$.

Then, when considering how r_j differs from r, we must observe that the difference in position j is at least $4/10^{j+1}$ (not $5/10^{j+1}$) and no more than $8/10^{j+1}$. The difference due to all positions higher than j is between 0 and $1/10^{j+1}$, as in the text, for a net of between $3/10^{j+1}$ and $9/10^{j+1}$. Then, we must observe that in positions before j, r_j and r either agree, or differ by at least $1/10^j$. Thus, r_j and r differ by at least $1/10^{j+1}$.

Page 441: Exercise 9.2.1(b): "simple" should be "acyclic."

Page 441: Exercise 9.2.1(e): Add "do not repeat cycles that differ only in the starting point (see Exercise 9.2.8)."

Page 442: Exercise 9.2.9 should read: "Show that the relation S defined on the nodes of a directed graph by uSv if and only if $u = v$ or there is some cycle that includes both u and v is an equivalence relation."

Page 476: Exercise 9.6.6, line 3: 2^n should be 2^{n-1}. Also, on line 4, add the term 8 to the series.

Page 496: Line -7 of the box: Right bracket missing in "`dist[v,u]`."

Page 501: Exercise 9.9.6: Ask for only the acyclic 2-paths.

Page 501: Exercise 9.9.8: "cycle-free" should be "acyclic."

Page 506: Exercise 9.10.2: Replace "the graphs" by "undirected versions of the graphs (treat arcs as edges)".

Page 506: Exercise 9.10.3: Figure 9.5, instead of Fig. 9.4. Also, remove the parenthetical comment "Treat arcs as edges."

Page 515: Figure 10.5: The three rightmost arcs have the wrong label. The arcs $d \to c$ and $c \to c$ should be labeled 1 and the arc $c \to d$ needs label 0.

Page 523: Four lines below Fig. 10.13: Replace "the other characters" by "another character."

Page 527: The title of the section is "From Nondeterminism to Determinism." This typo persists in the running heads on pp. 527, 529, 531, 533, and 535.

Page 535: Exercise 10.4.1: Delete part (b).

Page 535: Last line: "we can get an" instead of "we get an."

Page 559: Paragraph below Fig. 10.35: The term *important state* should be defined; it is a state with a non-ϵ arc in. Then on line -15, say "important state i to important state j" rather than just "state i to state j." On line -3 replace "states we shall need" by "important states."

Page 571: Line 5 of second paragraph: "for the language" (no "a").

Page 579: Line 19: Add "Note that if $n = 0$, then ϵ is in the language.

Page 609: Figure 11.36: There are two superfluous nodes, one labeled $<S>$ and its child labeled `e`. The former is the first of three children of a node labeled $<T>$.

Page 657: Exercise 12.8.9: The induction is on n.

Page 657: Exercise 12.8.11: Space needed after colon. Also, add "and the commutative and associative laws for `AND` and `OR`."

Page 658: Line 10 of Example 12.21: "right-hand" should be "left-hand."

Page 667: Exercise 12.10.1: Uses of substitution of equals for equals are also permitted.

Page 703: In Fig. 13.25, the three occurrences of x^{2d} and the occurrence of x^d should be x_{2d} and x_d, respectively.

Page 718: Line after Example 14.5: Remove period.

Page 720: In Fig. 14.2, the two occurrences of $\forall X$ need surrounding parentheses.

Page 733: Line 9: Parentheses needed around QX.

Page 737: Line 4: Left parenthesis missing before the second $\exists X$.

Page 753: Line -10: "Mendelson" instead of "Mendelzon."