ERRATA for Third Edition
Discrete Structures, Logic, and Computability

(3/12/2014) Page 153 line 9: Change the "$(n-1)$" on this line to "$f(n-1)$" so that the line becomes "$f(n) = f(n-1) + n$ for $n > 0$."

(1/12/2011) Page 268 line 2: Change "…which means that x and y are products of primes." to "…which means that each of x and y is either a prime or a product of primes."

(12/10/2013) Page 290 line –4 (last line in the box): The second sigma on this line should have a top limit of "$n + i$" instead of "$n + 1$".

(3/12/2014) Page 295 line –1 (last line in the box): The last term in the numerator of the expression should have an exponent of "$n + 2$" instead of "$a + 2$".

(7/21/2009) Page 296 line 8 (second line in the box): Insert a space so that "whereA_k" becomes "where A_k".

(11/5/2012) Page 306 line 14: Change "$= n(n + 1)H_n - 2n$" to "$= n(n + 1)(H_n - 1)$".

(11/5/2012) Page 308 line –8: Change "$Dx + C$" to "$Dx + E$" in the numerator of the last expression.

(3/29/2011) Page 339 lines 5 to 7: Change the four decimal numbers $0.6, 0.4, 0.3, 0.7$ to $0.9, 0.1, 0.4, 0.6$, respectively. In other words, change

"0 to 1 is 0.6, so the probability of moving from 0 to 0 is 0.4. We'll assume that the probability of moving from 1 to 1 is 0.3, so the probability of moving from 1 to 0 is 0.7."

to

"0 to 1 is 0.9, so the probability of moving from 0 to 0 is 0.1. We'll assume that the probability of moving from 1 to 1 is 0.4, so the probability of moving from 1 to 0 is 0.6."

(7/22/2009) Page 349 Exercise 13b: Insert space so that "thatP^2" becomes "that P^2".

(12/3/2012) Corrections to "The Polynomial Problem" on pages 353 and 354:

Page 353 line –8: Replace "where C is the list" with "where C is the nonempty list"

Page 353 line –7: Replace this line with the following two lines:

$$\text{poly}(C, x) = \text{if length}(C) = 1 \text{ then head}(C)$$
$$\text{else head}(C) + x \cdot \text{poly}(\text{tail}(C), x).$$

Page 353 lines –1 and –2: Replace these last two lines of the page with the single line

$$= a + x \cdot (b + x \cdot (c + x \cdot (d))).$$

Page 354 lines 4, 5, and 6: Replace these three lines with the following lines:

performed by poly(C, x) when C has length $n + 1$. If $n = 0$, then length(C) = 1 so we obtain

$$\text{poly}(C, x) = \text{head}(C).$$

Therefore, $T(0) = 0$ since no arithmetic operations are performed. If $n > 0$, then length(C) > 1 so we obtain

Page 354 line 9: Replace "has $n - 1$ elements," with "has n elements,".

Page 354 line −12: Replace "494" with "495".

(7/25/2009) Page 373 in Box (5.50): In Part (a) close up the space so that "Θ ($f(n)$)" becomes "$\Theta(f(n))$".

(7/25/2009) Page 373 in Box (5.50): In Part (c) insert a space so that "=$\Theta(g(n))$" becomes "= $\Theta(g(n))$".

(7/21/2009) Page 377 in Box: Change "... f *is little oh* of g." to "... $f(n)$ is *little oh* of $g(n)$."

(11/3/2009) Page 389 line 1: Change "$\alpha = \log_b{}^a$" to "$\alpha = \log_b a$".

(7/20/2009) Page 390 Exercise 12: Change "(5.65)" to "(5.66)".

(7/21/2009) Page 390 Exercise 13: Change "(5.65)" to "(5.66)".

(7/28/2009) Page 422 in Box (6.7): Change "Conjuction" to "Conjunction".

(6/12/2011) Page 422 lines −6 to −7: Replace

"(i.e., DN and the extra rules in DS and Add)"

with

"(i.e., both DN rules and either one of the DS rules)"

(3/29/2011) Page 425 lines −1 to −4: Change the following four lines

4.	B	2, 3, DS
5.	C	4, 5, MP
6.	$B \wedge C$	5, 6, Conj
	QED	1–7, CP.

to

4.	B	1, 2, DS
5.	C	3, 4, MP
6.	$B \wedge C$	4, 5, Conj
	QED	1–6, CP.

(3/29/2011) Page 426 in Example 6.11: Change

    4.   *A*   2, Simp

to

    4.   *A*   3, Simp

(7/22/2009) Page 427 line –19: Insert a space so that "*C*that" becomes "*C* that".

(6/12/2011) Page 432 lines 3 to 4: Replace

    "(i.e., DN and the additional rules in DS and Add)"

with

    "(i.e., both DN rules and either one of the DS rules)"

(6/12/2011) Page 432 lines 5 to 6: Delete the two occurrences of "three" so that the sentence becomes,

    "The next examples show how to derive these rules."

(6/12/2011) Page 433 Example 6.21: Delete the entire example. In other words, delete all the lines of this example.

(8/10/2009) Page 440 Example 6.30: Change the first proof that starts on the third line of the page. The original text is the following:

1.	¬ (*A* ∨ *B*)	*P*
2.	*A*	*P* [for ¬ *A*]
3.	*A* ∨ *B*	2, Add
4.	False	1, 3, Contr
5.	¬ *A*	2–4, IP
6.	*B*	*P* [for ¬ *B*]
7.	*A* ∨ *B*	6, Add
8.	False	1, 7, Contr
9.	¬ *B*	6–8, IP
10.	¬ *A* ∧ ¬ *B*	5, 9, Conj
	QED	1, 5, 9, 10, CP.

Change the preceding original text to the following:

1.	¬ (*A* ∨ *B*)	*P*
2.	¬ ¬ *A*	*P* [for ¬ *A*]
3.	*A*	2, DN
4.	*A* ∨ *B*	3, Add
5.	False	1, 4, Contr
6.	¬ *A*	2–5, IP
7.	¬ ¬ *B*	*P* [for ¬ *B*]

8.	*B*	7, DN
9.	*A* ∨ *B*	8, Add
10.	False	1, 9, Contr
11.	¬ *B*	7–10, IP
12.	¬ *A* ∧ ¬ *B*	6, 11, Conj
	QED	1, 6, 11, 12, CP.

(7/22/2009) Page 452 Exercise 4: Change "prove subsequent" to "prove a subsequent".

(3/29/2011) Page 467 in the box labeled "Truth Value of a Wff":

Replace the line numbered 1 with two new lines numbered 1 and 2 as shown below. Then replace the old line numbers 2 and 3 with the numbers 3 and 4, respectively. The result should be the following four lines:

1. An atom has the truth value of the proposition obtained from its interpretation.

2. Truth values for ¬ *U*, *U* ∧ *V*, *U* ∨ *V*, *U* → *V* are obtained by applying truth tables for ¬, ∧, ∨, → to the truth values for *U* and *V*.

3. ∀*x W* is true if and only if $W(x/d)$ is true for every $d \in D$.

4. ∃*x W* is true for if and only if $W(x/d)$ is true for some $d \in D$.

(7/25/2009) Page 792 Line 5 (the subheading): Change "LR(*k*) *Grammars*" to "LR(*k*) Grammars".

(7/23/2009) Page 858 line 8 (the subheading): Change "Decidability" to "Deterministic Context-Free Languages".

(9/5/2010) Page 889 line 2 of answer to Exercise 14b (the rightmost of the two graphs on that line): Replace the rightmost graph (which is identical to the leftmost graph) with the following different graph:
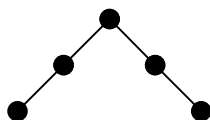
(9/5/2010) Page 919 line –10 (in the third line of answer to Exercise10c): Replace the first expression "(True ∨ ¬ *B*)" with "(True ∨ *B*)".

(7/23/2009) Page 939 line 3 (also the line numbered with 3 in the answer to Exercise 10):
There is a missing "*y*" after the second occurrence of "∀". In other words, the expression should look like,

$$\neg \, \forall x \, \forall y \, (q(x, y) \rightarrow \neg \, s(y))$$

(8/12/2009) Page 998 Index (column 2): Insert the new index entry "Discharged premise, 424" as a new second line of the column. If this causes paging reflow to occur, you can delete the entry "divisible, 6" in the same column.

(6/12/2011) Page 1007 Index (column 1): Change "Resolvant" to "Resolvent". Also make the changes for the occurrences that appear in Chapter 9 and Section 14.3.

(7/23/2009) Page 1008 Index (column 1): Change the page number for the "Structural induction" entry from 286 to 268.