Errata

November 21, 2003

Chapter 1

Page 6, cpation to Figure 1.2 (Marcelo Weinberger, HPL):
The caption under Figure 1.2 should be

Figure 1.2. Suffix tree built from the first five suffixes $S_1, \ldots, S_5$ of $X = 1010010001\ldots$.

On page 11, line -7 (Mark Ward, Purdue):
change "two bits" to "one bit".

On page 16, line 1 (Mark Ward, Purdue):
change "P" to "H".

On page 21 (Mark Ward, Purdue):
change "$1 \leq i \leq l$ and $1 \leq j \leq s$" to "$1 \leq i \leq s$ and $1 \leq j \leq l$".
change "$C_{\max}(l, s)$" to "$C_{\max}(s, l)$".
change "$l \times s$ grid-like" to "$s \times l$ grid-like".
change "edge from $(i-1, j)$" to "edge from $(i, j-1)$".
change "edge from $(i, j-1)$" to "edge from $(i-1, j)$".
change "$E = (l, s)$" to "$E = (s, l)$".

Chapter 2

On page 37, line -6 (Mark Ward, Purdue):
change "$\mathrm{Res}[f(z);\ z=0] = \frac{1}{\ln 2}$" to "$\mathrm{Res}[f(z);\ z=0] = -\frac{1}{\ln 2}$".

On page 39, line 5 (Mark Ward, Purdue):
change "$f(z) \leq B$" to "$|f(z)| \leq B$".

Chapter 3

Page 53, line +6 (myself, class CS 590):
The equation on line +6 should read as

$$\sum_{k=r}^{s} (-1)^{k-r} \binom{k}{r} \binom{s}{k} = \binom{s}{r} \sum_{l=0}^{s-r} (-1)^{l} \binom{s-r}{l} = \begin{cases} 1 & \text{if } r = s \\ 0 & \text{otherwise.} \end{cases}$$

Page 66, line +1:
The equation on the first line on page 66 should read

$$\mathsf{Pr}\{A(n,k)\} = \sum_{m=1}^{n} (-1)^{m+1} \sum_{1 \leq t_1 < \ldots < t_m \leq n} \mathsf{Pr}\{A_{t_1} \ldots A_{t_m}\} = \sum_{m=1}^{n} (-1)^{m+1} S_m(n),$$

Page 68, second displayed formual (Moritz G. Mass, Technische Universität München): It should read as follows:

$$\Pr\{C_i > k + j_1 + \cdots + j_{i-1}\} = \sum_{j_1=1}^{k} \cdots \sum_{j_{i-1}=1}^{k} P^{k+j_1+\cdots+j_{i-1}} = P^k \left(\frac{P}{1-P}\right)^{i-1} (1-P^k)^{i-1}.$$

Page 70, Exercise 3.7 (Jia-Hong Wu):
The first equation should read as

$$\phi(n) = n \sum_{k=0}^{r} (-1)^k \sum_{1 \le j_1 < \ldots < j_k \le r} \frac{1}{p_{j_1} \cdots p_{j_k}} = n \prod_{i=1}^{r} \left(1 - \frac{1}{p_i}\right).$$

Chapter 4

Example 4.2, page 77 (myself, class CS 590):
The second equation on page 77 should read

$$\mathbf{Var}[O_n] = \sum_{i=1}^{n-m+1} \mathbf{Var}[I_i] + \sum_{1 \le i < j \le n-m+1} \mathbf{Cov}[I_i I_j] \le \sum_{i=1}^{n-m+1} \mathbf{E}[I_i] + \sum_{1 \le i \ne j \le n-m+1} \mathbf{Cov}[I_i I_j].$$

The fourth inequality (line -12) should read

$$\mathbf{Var}[O_n] \le (n-m+1)P(H) + \sum_{|j-i| \le m} \mathbf{E}[I_i] \le (n-m+1)P(H) + 2mnP(H).$$

The last inequality (line -10) should read

$$\Pr\{|O_n/\mathbf{E}[O_n] - 1| > \varepsilon\} \le \frac{(n-m+1+2mn)P(H)}{\varepsilon^2 (n-m+1)^2 P^2(H)} \to 0.$$

Example 4.4, page 79 (Moritz G. Mass, Technische Universität München):
The first three lines of the example should read:
... consider $Y = X_1 + \cdots + X_n$ where $X_i \in \{-1, 0, 1\}$ are i.i.d. and $\Pr\{X_i = -1\} = \Pr\{X_i = +1\} = p/2$ while $\Pr\{X_i = 0\} = 1 - p$.

Table 4.1, page 91 (myself):
The last displayed equation should be

$$\mathsf{A}^k \mathbf{x} = \langle \mathbf{l}_1, \mathbf{x} \rangle \mathbf{r}_1 \lambda_1^k + \sum_{i=2}^{V} q_i(k) \langle \mathbf{l}_i, \mathbf{x} \rangle \mathbf{r}_i \lambda_i^k$$

Page 98, line -3:
The inequality in line -3 on page 98 should read:

$$\mathsf{Pr}\{T_n(w) \geq k\} \leq \mathsf{Pr}\{T_{n-2}(w) \geq k\} + 2p_{\max}^k \mathsf{Pr}\{T_{n-1}(w) \geq k-1\},$$

Exercise 4.12, page 105 (J-H Wu, CS 590):
The first equation in Exercise 4.12 should be

$$C_i = \sum_{j=1}^{m} equal(X_{i+j-1}, Y_j),$$

Chapter 5

Page 140 line +21:
The inequality in line +21 should be: $l - (m-1) \leq U_l \leq l + 1$.

Chapter 6

Page 165 line -4 (Moritz G. Mass, Technische Universität München):
The formula for $P(B_D(X_1^k))$ should be:
$P(B_D(X_1^k)) = \sum_{\hat{x}_1^k \in B_D(X_1^k)} \mathsf{Pr}\{\hat{x}_1^k\}$

Page 198, Equation (6.91):
This equation should be

$$e^{-k(1+\varepsilon)h} \leq \mathsf{Pr}\{Y_1^k(i) = y_1^k\} = P(y_1^k) \leq e^{-k(1-\varepsilon)h}, \qquad y_1^k \in \mathcal{G}_k^{\varepsilon}.$$

Chapter 8

Lemma 8.16, Equation (8.78), page 332:
The first equation in Lemma 8.16 should read

$$\frac{1}{\sqrt{2\pi}} \int_{-\infty}^{\infty} x^k e^{-tx^2} dx = \begin{cases} 0 & k = 1, 3, 5, \ldots \\ \frac{t^{-1/2-k/2} k!}{(k/2)! 2^{k+1/2}} & k = 0, 2, 4, 6, \ldots \end{cases}$$