Linear Algebra and Probability
For Computer Science Applications
Errata

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1. p. 5. Before the second for loop add

\[
\begin{align*}
&\text{>> a = 1;} \\
&\text{>> b = 1;}
\end{align*}
\]

2. p. 60 In the system of equations, in the first equation “\(t_1(3)\)” should be “\(t_1(-3)\)”. In the second equation “\(t_1(1)\)” should be “\(t_1(-1)\)”.

3. p. 82 Definition 4.2. The final capital S should be script \(S\).

4. p. 83, second bullet point. The two occurrences of \(\bar{v}\) should both be \(\bar{u}\).

5. p. 89, line before Theorem 4.23: \(\bar{c}\) should be \(\bar{\bar{v}}\).

6. p. 150 line \(-4\). The inequalities should be \(-x + y - 3z > -2\) and \(-x + y - 3z < -2\) (that is, the right hand side of both inequalities is \(-2\) rather than \(2\).

7. p. 141 line \(-12\) (including the formulas): “then \(s\) is only the line from \(p\) to \(q\) only if . . .” should be “then \(s\) is only the line from \(p\) to \(q\) if and only if . . .”

8. p. 158 In the last inset formula, third term, the last multiplicand should be \(\bar{v}\) rather than \(\bar{u}\). That is, this term should be \(\bar{u}^T R^T R \bar{v}\).

9. p. 225, 2nd line from the bottom: “at least two heads” should be “exactly two heads.”

10. p. 226, 7 lines from bottom (not including the inset formula): “total number of combinations” should be “total number of permutations”.

11. p. 228, inset formula, second line, second factor in the product, first term in the denominator should be \(k_2\). That is, this line should read

\[
\begin{align*}
&\frac{n!}{k_1! (n-k_1)!} \cdot \frac{(n-k_1)!}{k_2! (n-k_1-k_2)!} \cdot \frac{(n-k_1-k_2)!}{k_3! (n-k_1-k_2-k_3)!} \cdots
\end{align*}
\]

12. p. 230 line 1: “Section 8.3” should be “Section 8.2”.

13. p. 232, final formula in section 8.5: Union should be intersection throughout. Also “E2” and “E3” in the middle of the formula should be “E2”, and “E3” respectively. That is, the formula should read:

\[ P(E_1 \cap E_2 \cap \ldots \cap E_k) = P(E_1|E_2 \cap \ldots \cap E_k) \cdot P(E_2|E_3 \cap \ldots \cap E_k) \cdot \ldots \cdot P(E_{k-1}|E_k) \cdot P(E_k). \]

14. p. 241 equation 8.10: OR(X]F) should be OR(X | F).

15. pp. 254-256. Assignment 8.3 contains an error; fixing it elegantly requires a significant rewriting. An improved version can be found at http://www.cs.nyu.edu/faculty/davise/MathTechniques/Prog8-3.pdf

16. p. 263, last para before section 9.3.1, 2nd and 3rd line: “. . . a 0.25 probability of a net utility of 4 + (-20) = 16; the expected net utility is therefore 0.75 \cdot -1 + 0.25 \cdot -16 = -4.75.” should be “. . . a 0.25 probability of a net utility of (-5) + (-20) = -25; the expected net utility is therefore 0.75 \cdot -1 + 0.25 \cdot -25 = -5.5.”

17. p. 266 third inset formula:

\[ \text{Outcome}(A) = [20 \ldots ] \]

should be

\[ \text{Outcome}(A) = [30 \ldots ] \]

18. p. 266 fourth inset formula:

\[ P(\text{Outcome}(A)=20) \ldots \]

should be

\[ P(\text{Outcome}(A)=30) \ldots \]

19. p. 275, caption to Figure 9.4. ”solid line” should be ”dashed line”.

20. p. 293, Exercise 9.3, second line. “P(X = 1) = 0.5; P(X = 2) = 0.4;” should be “P(X = 0) = 0.5; P(X = 1) = 0.4.”

21. p. 293, Problem 9.1, second line. “doctors office” should be “doctor’s office”.

22. p. 333 Example 11.3 line 6: “posts” should be “posits”.

23. p. 336, Exercise 11.2 last sentence: “As in Exercise11.2” should be “As in Exercise 11.1”.

24. p. 339 line −14. “whether the point is in Q” should be “whether the point is in R”.

25. p. 339 line −9. “standard deviation 50 \sqrt{p(1-p)/n}” should be “standard deviation 100 \sqrt{p(1-p)/n}”.

26. p. 339 line −7. “95% confidence interval [5.22, 6.10]” should be “95% confidence interval [5.21, 6.11]”.

27. p. 339 line −3. “confidence interval [2.64, 3.44]” should be “confidence interval [2.80, 3.44]”.

28. p. 342 line −6. “standard deviation of \sqrt{p(1-p)/N}” should be “standard deviation of |Q| \sqrt{p(1-p)/N}”.

29. p. 345, section 12.5, line 1: \[ \sum_{x \in Q} f(x) \] should be \[ \sum_{x \in Q} f(x) \].