

## ERRATA TO “LINEAR ALGEBRA DONE WRONG”

**p. 187:** In the chain of equalities in the beginning of the page there should be  $\frac{1}{4}$  in front of every summation symbol  $\sum$ . The chain of equalities should be as

$$\begin{aligned}
 (N^*N\mathbf{x}, \mathbf{y}) &= (N\mathbf{x}, N\mathbf{y}) = \frac{1}{4} \sum_{\alpha=\pm 1, \pm i} \alpha \|N\mathbf{x} + \alpha N\mathbf{y}\|^2 \\
 &= \frac{1}{4} \sum_{\alpha=\pm 1, \pm i} \alpha \|N(\mathbf{x} + \alpha\mathbf{y})\|^2 \\
 &= \frac{1}{4} \sum_{\alpha=\pm 1, \pm i} \alpha \|N^*(\mathbf{x} + \alpha\mathbf{y})\|^2 \\
 &= \frac{1}{4} \sum_{\alpha=\pm 1, \pm i} \alpha \|N^*\mathbf{x} + \alpha N^*\mathbf{y}\|^2 \\
 &= (N^*\mathbf{x}, N^*\mathbf{y}) = (NN^*\mathbf{x}, \mathbf{y})
 \end{aligned}$$

**p. 169:** The first sentence in the last paragraph should read: “It turns out that it is always possible to write a representation similar (3.3) with unitary  $V$  and  $W$  instead of  $\tilde{V}$  and  $\tilde{W}$ , and in many situations it is more convenient to work with such a representation.” (“turns” instead of “turn” and  $a$  is inserted before the last “representation”)

**pp. 4, 22:** “vice versa”, not “vise versa”

**p. 254:** Should be “... matrix  $A$  has either left or right inverse...”, not “... matrix  $A$  has either left of right inverse...”

**p. 25:** In the last line it should be “students”, not “student”.

**p. 244:** In the last line it should be “present” instead of “resent”.

**p. 211:** The first displayed equation should read

$$\mathbf{b}'_k(\mathbf{v}) = \mathbf{b}'_k\left(\sum_j \alpha_j \mathbf{b}_j\right) = \sum_j \alpha_j \mathbf{b}'_k(\mathbf{b}_j) = \alpha_k.$$

**p. 2:** The second remark should read:

**Remark.** It is not hard to show that zero vector  $\mathbf{0}$  is unique. It is also easy to show that given  $\mathbf{v} \in V$  the inverse vector  $-\mathbf{v}$  is unique.

It is also easy to see that properties 5, 6 and 8 imply that  $\mathbf{0} = \mathbf{0}\mathbf{v}$  for any  $\mathbf{v} \in V$ , and that  $-\mathbf{v} = (-1)\mathbf{v}$ .

**p. 166:** The lines 3–4 from below should read

“If  $\dim X \leq \dim Y$  this isometry can be extended to an isometry from the whole  $X$  to  $Y$  (if  $\dim X = \dim Y$  this will be a unitary operator).” (an isometry, not the isometry).

**p. 168:** There should be period at the end of the definition.

**p. 45:** The last displayed equation should read as

$$\mathbf{x} = \begin{pmatrix} 1 - 2x_2 \\ x_2 \\ 2 - 5x_4 \\ x_4 \\ 3 \end{pmatrix} = \begin{pmatrix} 1 \\ 0 \\ 2 \\ 0 \\ 3 \end{pmatrix} + x_2 \begin{pmatrix} -2 \\ 1 \\ 0 \\ 0 \\ 0 \end{pmatrix} + x_4 \begin{pmatrix} 0 \\ 0 \\ -5 \\ 1 \\ 0 \end{pmatrix}$$

**p. 47:** Formula in line 8 from below should read  $E = E_N \dots E_2 E_1$  (no commas).

**p. 50, Proposition 3.8:** Should be "right invertible", not "right right invertible".

**p. 75:** On line 7 from below should be "coincides" instead of "coincide".

**p. 87:** On line 6 from below it should be "permutations", not "perturbations".

**p. 100:** On line 8 it should be "is significantly", not "if significantly".

**p. 119:** on line 5 it should be "shows", not "show".

**p. 121:** on line 3 it should be  $1 \leq p < \infty$  instead of  $1 < p < \infty$ .

**p. 125:** on line 2 from below it should be "We call" instead of "We cal".

**p. 148:** on 4th line in the proof of Theorem 7.1 it should be "identity", not "identyty"

**p. 165:** on line 7 from below it should read "orthonormal basis of eigenvectors", not "orthonormal basis of eigenvalues".

**p. 168:** the first line in the proof of Lemma 3.7 should read "We only need to show that  $\mathbf{v}_1, \mathbf{v}_2, \dots, \mathbf{v}_r$  are eigenvectors of  $A^*A$ ", instead of "We only need to show that  $\mathbf{v}_k$  are eigenvalues of  $A^*A$ "

**p. 223:** on line 12 from below it should be "we simply write ldots" instead of "we simply wright..."

**p. 226:** on line 5 it should read " $g_{j,k} = (\mathbf{b}_j, \mathbf{b}_k)$ ", not " $g_{j,k} = (\mathbf{v}_j, \mathbf{v}_k)$ ".

**p. 220:** In the second line of Remark 3.5 there should be  $E \subset X'$ , not  $E \subset E'$ .

Line 14: there should be "...for all  $\mathbf{x}' \in E$ ", not  $\mathbf{x}' \in X'$ "