Errata: *Replication and Evidence Factors in Observational Studies*
25 January 2023

Definition 4, page 150, of pick matrices is incorrect. The concept is simple, but misstated. The English description of pick matrices, the example in (8.2), and the uses of pick matrices later in the book are all correct. Essentially, a pick matrix is a permutation matrix formed by a certain type of reordering of the columns of an identity matrix. It is easy to visualize this reordering. Here is a correct definition of an (N, n)-pick matrix. First, for $m < N$, define an (N, m)-subidentity matrix as an $m \times N$ matrix formed by inserting $N - m$ columns of zeros among the m columns of an $m \times m$ identity matrix. So,

$$\mathbf{a} = \begin{bmatrix} 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 \end{bmatrix}$$

is a $(5, 2)$-subidentity matrix formed by inserting three columns of zeros in a 2×2 identity matrix. Notice that inserting columns of zeros does not alter the order of the columns from the identity matrix. Similarly,

$$\mathbf{b} = \begin{bmatrix} 1 & 0 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 \end{bmatrix}$$

is a $(5, 3)$-subidentity matrix. If you stack $\begin{bmatrix} \mathbf{a} \\ \mathbf{b} \end{bmatrix}$ the first matrix $\mathbf{a}$ on top of the second matrix $\mathbf{b}$ you get a permutation matrix, because of the special way that columns of zeros in $\mathbf{a}$ and $\mathbf{b}$ complement each other. Essentially, the stacked matrix $\begin{bmatrix} \mathbf{a} \\ \mathbf{b} \end{bmatrix}$ is a (N, m)-pick matrix. We can now define a pick matrix. A pick matrix is a special type of permutation matrix. An $N \times N$ permutation matrix $\mathbf{P}$ is an (N, m)-pick matrix if it can be written as $\begin{bmatrix} \mathbf{a} \\ \mathbf{b} \end{bmatrix}$ where $\mathbf{a}$ is a (N, m)-subidentity matrix and $\mathbf{b}$ is a $(N, N - m)$-subidentity matrix.