# Correction to: Linear Programming Using MATLAB®

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## Correction to:
## N. Ploskas, N. Samaras, *Linear Programming Using MATLAB®*, Springer Optimization and Its Applications 127, https://doi.org/10.1007/978-3-319-65919-0

The original version of the book was inadvertently published without updating the following corrections:

**Preface:**
On page ix, the last line reads:

April 2017

It should read:

November 2017

The updated online version of this book can be found at
https://doi.org/10.1007/978-3-319-65919-0_1
https://doi.org/10.1007/978-3-319-65919-0_2
https://doi.org/10.1007/978-3-319-65919-0_4
https://doi.org/10.1007/978-3-319-65919-0_8
https://doi.org/10.1007/978-3-319-65919-0_10
https://doi.org/10.1007/978-3-319-65919-0

 
N. Ploskas, N. Samaras, *Linear Programming Using MATLAB®*,
Springer Optimization and Its Applications 127, DOI 10.1007/978-3-319-65919-0_13

**Chapter 1:**
On page 5, 11th line from top reads:

A more efficient approach is the Primal-Dual Exterior Point Simplex Algorithm (PDEPSA) proposed by Samaras [23] and Paparrizos [22].

It should read:

A more efficient approach is the Primal-Dual Exterior Point Simplex Algorithm (PDEPSA) proposed by Samaras [23] and Paparrizos et al. [22].

**Chapter 2:**
On page 68, alignment of the following equations in Table 2.8 were as follows:

$s_0 = \sum_{j \in P} \lambda_j s_j$
  and the direction
  $d_B = -\sum_{j \in P} \lambda_j h_j$, where $h_j = A_B^{-1} A_{.j}$.

It should be as follows:

  $s_0 = \sum_{j \in P} \lambda_j s_j$
  and the direction
  $d_B = -\sum_{j \in P} \lambda_j h_j$, where $h_j = A_B^{-1} A_{.j}$.

And

if $d_B \geq 0$ then
    if $s_0 = 0$ then STOP. The LP problem is optimal.
  else
  choose the leaving variable $x_{B[r]} = x_k$ using the following relation:
  $a = \frac{x_{B[r]}}{-d_{B[r]}} = \min\left\{\frac{x_{B[i]}}{-d_{B[i]}} : d_{B[i]} < 0\right\}, i = 1, 2, \cdots, m$
  if $a = \infty$, the LP problem is unbounded.

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if $d_B \geq 0$ then
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  if $a = \infty$, the LP problem is unbounded.

**Chapter 4:**
On page 211, 15th line from top, the sentence reads:

The column "Total size reduction" in Table 4.2 is calculated as follows: $-(m_{new} + n_{new} - m - n)/((m + n)$.

It should read:

The column "Total size reduction" in Table 4.2 is calculated as follows: $-(m_{new} + n_{new} - m - n)/(m + n)$.

**Chapter 8:**
On page 345, 7th line from bottom, the sentence reads:

There are elements in vector $h_1$ that are greater than 0, so we perform the minimum ratio test (where the letter $x$ is used below to represent that $h_i l \leq 0$, therefore $\frac{x_{B[i]}}{h_{il}}$ is not defined):

It should read:

There are elements in vector $h_1$ that are greater than 0, so we perform the minimum ratio test (where the letter $x$ is used below to represent that $h_{il} \leq 0$, therefore $\frac{x_{B[i]}}{h_{il}}$ is not defined):

**Chapter 10:**
On page 439, alignment of the following equation in Table 10.1 was as follows:

$s_0 = \sum_{j \in P} \lambda_j s_j$
and the direction
$d_B = -\sum_{j \in P} \lambda_j h_j$, where $h_j = A_B^{-1} A_{.j}$.
**Step 2.1.** *(Test of Optimality).*
if $P = \emptyset$ then STOP. (LP.1) is optimal.
else
  if $d_B \geq 0$ then
    if $s_0 = 0$ then STOP. (LP.1) is optimal.

It should be as follows:

  $s_0 = \sum_{j \in P} \lambda_j s_j$
  and the direction
  $d_B = -\sum_{j \in P} \lambda_j h_j$, where $h_j = A_B^{-1} A_{.j}$.
**Step 2.1.** *(Test of Optimality).*
if $P = \emptyset$ then STOP. (LP.1) is optimal.
else
  if $d_B \geq 0$ then
    if $s_0 = 0$ then STOP. (LP.1) is optimal.