## ERRATUM Open Access



## Erratum to: Shipping Optimisation Systems (SOS): tramp optimisation perspective

Said El Noshokaty

Correspondence: selnoshokaty@elesteshary.com El Esteshary Information Systems(EIS), 637 Horreya Avenue, Genaklis, Alexandria 21411, Egypt

## **Erratum**

Unfortunately, the original PDF version of this article [1] contained some errors. The equation 8, 11, 13, 14, 15, 16, 17, 19, 22 all displayed incorrectly in the section of Appendix 1. The correct equations can be found below and the original article of PDF version has been updated to reflect this change.

$$V_{j}^{k} \ge V_{i}^{k} - \nu_{i} \sum_{\tau \in \mathcal{I}} x_{ijz}^{k}, \quad i \in L, j \in E, \text{ and } k \in S, \text{ where } \sum_{\tau \in \mathcal{I}} x_{ijz}^{k} = 1,$$
 (8)

$$V_{j}^{k} \ge V_{i}^{k} + \nu_{i} \sum_{z \in \mathbb{Z}} x_{ijz}^{k}, i \in D, j \in E, \text{ and } k \in S, \text{ where } \sum_{z \in \mathbb{Z}} x_{ijz}^{k} = 1,$$
 (11)

$$\boldsymbol{W}_{i}^{k} \geq \boldsymbol{W}^{k}, i \in D, \text{ and } k \in S, \text{ where } \sum\nolimits_{z=3,4} x_{igz}^{k} = 1, g \in G, \tag{13}$$

$$V_i^k \ge V^k, i \in D, \text{ and } k \in S, \text{ where } \sum_{z=3,4} x_{igz}^k = 1, g \in G,$$
 (14)

$$N_i^k \ge N^k, i \in D, \text{ and } k \in S, \text{ where } \sum_{z=3,4} x_{igz}^k = 1, g \in G,$$
 (15)

$$W_{i}^{k} \ge W_{0, i}^{k} \in D, and \ k \in S, where \sum_{z=1,2} x_{ijz}^{k} = 1, j \in E,$$
 (16)

$$T_{j}^{k} \geq T_{i}^{k} + t_{i} + \sum\nolimits_{z \in Z} t_{ijz}^{k} x_{ijz}^{k}, i \in E_{f}, j \in E_{g}, \text{ and } k \in S, \text{ where } t_{ifz}^{k} = 0, \text{ and } \sum\nolimits_{z \in Z} x_{ijz}^{k} = 1, \quad (17)$$

$$T_j^k \ge a_i, j \in E$$
, and  $k \in S$ , where  $\sum_{i \in Ef} \sum_{z \in Z} x_{ijz}^k = 1$ , (19)

$$T_g^k \le T^k, g \in G, k \in S, \text{ where } \sum_{z=3,4} x_{igz}^k = 1 \text{ and } i \in D,$$
 (22)

Received: 15 August 2017 Accepted: 15 August 2017 Published online: 28 August 2017

## Reference

 Said El Noshokaty (2017) Shipping Optimisation Systems (SOS): tramp optimisation perspective. J Shipp Trade 2:3. https://doi.org/10.1186/s41072-017-0021-y

