Errata: A review on data-driven linear parameter-varying modeling approaches: A high-purity distillation column case study

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I. Foreword

This note serves as a correction of typos in the published paper [1]. Despite all the efforts of the authors, such unfortunate mistakes have remained unnoticed till the final printing process. In case of other errors or comments, please do not hesitate to contact the corresponding authors.

II. Errors

A. Section 4: LPV identification using the global approach

- Under equation (21), the dimensions of θ are incorrectly specified for $1 \leq i \leq n_{\mathrm{a}}$. The correct form should read as "... and $\theta_{i,s} \in \mathbb{R}^{n_{\mathbb{Y}} \times n_{\mathbb{Y}}}$, $\theta_{n_{\mathrm{a}}+1+j,s} \in \mathbb{R}^{n_{\mathbb{Y}} \times n_{\mathbb{U}}}$ being ...".
- Under equation (26), the dimensions of θ are incorrectly specified. The correct form should read as: $\theta \in \mathbb{R}^{n_{\mathbb{U}}(n_{\mathrm{e}}+1)(n_{\psi}+1) \times n_{\mathbb{Y}}}$.
- Under equation (27), the dimensions of θ_i are incorrectly specified. The correct form should read as: $\theta_i \in \mathbb{R}^{n_{\psi} \times n_{\mathbb{Y}}}$ for $i \in \mathbb{I}_1^{n_{\mathrm{a}}}$ and $\theta_i \in \mathbb{R}^{n_{\psi} \times n_{\mathbb{U}}}$ for $i \in \mathbb{I}_{n_{\mathrm{a}}+1}^{n_{\mathrm{b}}+n_{\mathrm{a}}+1}$.
- Equation (29) should be replaced by:

$$\mathrm{vec}(\hat{\beta}) = \left(\frac{1}{N} I_{n_{\mathbb{Y}}} \otimes \Omega + \Gamma^{-1} \otimes I_N \right)^{-1} \frac{1}{N} \mathrm{vec}(Y), \tag{29}$$

  where $\otimes$ stands for the Kronecker product and vec is column-wise vectorization of a matrix.

References

[1] A. A. Bachnas, R. Tóth, A. Mesbah, and J. Ludlage, "Data-driven LPV modeling of high-purity distillation columns," *Journal of Process Control*, vol. 24, pp. 272–285, 2013.

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