



Correspondence

Correction to “Constrained model predictive control: stability and optimality”[☆]D. Q. Mayne^{a,*}, J. B. Rawlings^b^aDepartment of Electrical and Electronic Engineering, Imperial College of Science, Technology and Medicine, London SW7 2BT, UK^bDepartment of Chemical Engineering, University of Wisconsin, Madison, USA

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The purpose of this note is to correct a minor error in Mayne, Rawlings, Rao and Scokaert (2000). In the 12th line from the bottom of the first column on p. 798, please replace the equality by an inequality, yielding

$$\begin{aligned} V_{i+1}^0(x) - V_i^0(x) &\leq \ell(x, \kappa_i(x)) + V_i^0(f(x, \kappa_i(x))) \\ &\quad - \ell(x, \kappa_i(x)) - V_{i-1}^0(f(x, \kappa_i(x))) \\ &\leq 0, \quad \text{for all } x \in X_i. \end{aligned}$$

The first inequality follows from the fact that, for all $x \in X_i$,

$$\begin{aligned} V_{i+1}^0(x) &= \ell(x, \kappa_{i+1}(x)) + V_i^0(f(x, \kappa_{i+1}(x))) \\ &\leq \ell(x, \kappa_i(x)) + V_i^0(f(x, \kappa_i(x))) \end{aligned}$$

since both $\kappa_i(\cdot)$ and $\kappa_{i+1}(\cdot)$ are defined in X_i , which is a subset of X_{i+1} , and $\kappa_{i+1}(x)$ is the constrained minimizer of $\ell(x, \cdot) + V_i^0(f(x, \cdot))$ at every x in X_{i+1} .

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References

- Mayne, D. Q., Rawlings, J. B., Rao, C. V., & Scokaert, P. O. M. (2000). Constrained model predictive control: stability and optimality. *Automatica*, 36, 789–814.

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