Correction

Correction to: Pointwise Optimal Control for Diffusion Problems of Missing Data

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This erratum is to correct some definitions stated in the original article. It follows that some results which depend on these definitions has to be corrected as well.

We begin by the definition of the set of unknown data in page 3: $\mathbf{G} \subset L^2(\Sigma_0)$, a closed convex set of completion $\overline{\mathbf{G}} = L^2(\Sigma_0)$, which is not correct. Indeed, if it is closed then we obviously have $\mathbf{G} = \overline{\mathbf{G}} = L^2(\Sigma_0)$. The correct definition is the following: $\mathbf{G}$ is a vectorial subspace of $L^2(\Sigma_0)$. It follows that we choose the $\|g\|_{L^2(\Sigma_0)}^2$ norm instead of $\|g\|_{\mathbf{G}}^2$ in definition 4.1 (equation (15), section 4, page 6) and in the related equations. Notice that we have $\frac{1}{\gamma}$ coefficient and not $\frac{2}{\gamma}$ in the following pages.

We also give the correct definition of $\mathcal{U}_b$, the set of admissible controls, which is now: $\mathcal{U}_b = \{v \in L^2([0, T]); z(T) \in L^2(\Omega)\}$, a closed convex set of $L^2([0, T])$, endowed with the norm:

$$\|v\|_{\mathcal{U}_b}^2 = \|v\|_{L^2([0, T])}^2.$$

From another side, the inequality (7) in Theorem 3.1 (section 3, page 4) of the original article can be easily obtained (as to avoid the multiple constants in the proof of pages 5 and 6). Indeed, using the inequalities (1), (3) and (9), and the Theorem by Lions-Magenes [15] (Theorem 4.3, Chap. 4, page 30), there exists a constant C , depending only on T , Ω and g , such that:

$$\|\varphi\|_{L^2(0, T; H^2(\Omega))} \leq C \|\psi\|_{L^2(Q)} \quad (0.1)$$

and then (7) holds true.

The original article can be found online at <https://doi.org/10.1007/s00009-017-0919-5>.

Addition of a few minor remarks for the clarity of the text only:

Page 5, equation (9): $1/\alpha$ instead of $1/\sum_{i,j=1}^d a_{ij}$.

Page 8: Drop the sentence “where G' is the dual of G in $L^2(\Sigma_0)$ ”.

Page 9, ligne 5: Drop the sentence “but $L^2(Q) \subset \mathcal{D}'(Q)$ ”.

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