J. London Math. Soc. (2) 74 (2006) 737–738
doi:10.1112/S0024610706023635

CORRIGENDUM

THE BAIRE METHOD FOR THE PRESCRIBED SINGULAR VALUES PROBLEM

(*J. London Math. Soc.* (2) 70 (2004) 719–734)

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In the proof of Theorem 5.1 of the above-mentioned paper, the proof of Claim 1 is not correct (by a misuse of Mazur's theorem). With the same notation as in that paper, we here present the correct proof.

Claim 1. $\mathcal{M}_\alpha$ is open in $\mathcal{M}_C$.

To show that $\mathcal{M}_C \setminus \mathcal{M}_\alpha$ is closed, consider any sequence $\{u_k\} \subset \mathcal{M}_C \setminus \mathcal{M}_\alpha$ converging to u in $\mathcal{M}_C$. Denote by $M^{n\times n}$ the vector space of the $n \times n$ real matrices A with the usual norm $\|A\| = \sup\{|A(x)| \mid |x| \leqslant 1\}$. Since $\|\nabla u_k(x)\| \leqslant \sigma_1(\nabla u_k(x)) \leqslant 1$ for $x \in \Omega$ almost everywhere, the sequence $\{\nabla u_k\}$ is weakly compact in $L^2(\Omega, M^{n\times n})$, and thus a subsequence, say $\{\nabla u_k\}$, converges to some ω in the weak topology of $L^2(\Omega, M^{n\times n})$. By Mazur's theorem [**2**, p. 6] there exists a sequence of finite convex combinations $\{\nabla w_m\}$, where $w_m = \sum_{i=0}^{p_{k_m}} \lambda_i^{k_m} u_{k_m+i}$, $\{k_m\}$ is strictly increasing, $\lambda_i^{k_m} \geqslant 0$ and $\sum_{i=0}^{p_{k_m}} \lambda_i^{k_m} = 1$, which converges to ω in $L^2(\Omega, M^{n\times n})$. Hence (see Brezis [**1**, p. 150]) $\nabla u = \omega$ and there exists a subsequence, say again $\{w_m\}$, such that $\{\nabla w_m\}$ converges to $\{\nabla u\}$ almost everywhere.

As the map $g(A) = \frac{1}{n}\sum_{i=1}^{n} \sigma_i(A)$ is convex on $M^{n\times n}$ by Proposition 2.4, and $\{u_k\} \subset \mathcal{M}_C \setminus \mathcal{M}_\alpha$, we have

$$\frac{1}{m(\Omega)}\int_\Omega g(\nabla w_m(x))\,dx \leqslant \frac{1}{m(\Omega)}\sum_{i=0}^{p_{k_m}} \lambda_i^{k_m}\int_\Omega g(\nabla u_{k_m+i}(x))\,dx \leqslant 1-\alpha.$$

Letting $m \to \infty$ gives

$$\frac{1}{m(\Omega)}\int_\Omega \Big(\frac{1}{n}\sum_{j=1}^{n}\sigma_j(\nabla u(x))\Big)\,dx \leqslant 1-\alpha,$$

and thus $u \in \mathcal{M}_C \setminus \mathcal{M}_\alpha$. Therefore $\mathcal{M}_C \setminus \mathcal{M}_\alpha$ is closed and Claim 1 holds.

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Received 4 July 2006.

2000 *Mathematics Subject Classification* 35F30 (primary), 54E52 (secondary).

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