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Erratum to "On a Degenerate Quasilinear Elliptic Equation with Mixed Boundary Conditions"

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The paper [1] was in collaboration with Prof. Yasuhiko Kawai but he died at 1998. I alone write this erratum.

The proof of Lemma 5.3 is incorrect. So the equality (6.1) does not hold. We have assumed that $\partial\Omega$ and S are of class C^{ω} in Theorems 2 and 3. But we remove this assumption and replace it with the following weaker one: $\partial\Omega$ and S are of class C^2. This assumption has been set in our recent work [2], where the similar result was obtained for the equation of linear elastostatics with mixed boundary condition, concerning the regularity property of solutions.

Under the above new assumption we revise the beginning of Section 6 in [1] as follows:

Let $x'(x)$ be the original (new) coordinate, respectively, which are connected with the mapping $x = \Psi(x')$ in a neighborhood of the origin. More precisely Ψ and Ψ^{-1} are of class C^2, satisfying $\Psi(O) = O$, $\Psi(U \cap S) \subset \{x_{n-1} = x_n = 0\}$, $\Psi(U \cap \Omega) \subset \{x_n > 0\}$, $\Psi(U \cap \partial_1\Omega) \subset \{x_{n-1} > 0, x_n = 0\}$ and $\Psi(U \cap \partial_2\Omega) \subset \{x_{n-1} < 0, x_n = 0\}$.

The other notations are the same as in [1]. Under the above condition the equation (0.3) becomes

$$(|Eu|^{p-2}Eu, Ev \cdot J)_{\Sigma} + (|u|^{\alpha}u, vJ)_{\Sigma} = (f, vJ)_{\Sigma}\,, \quad v \in V(\Sigma')$$

in place of (6.2), where $Eu = (\frac{\partial x_k}{\partial x_1'}\partial_{x_k}u, \cdots, \frac{\partial x_k}{\partial x_n'}\partial_{x_k}u)$ and $J = |D(x_1', \cdots, x_n')/D(x_1, \cdots, x_n)|$ (> 0).

Accordingly (6.3) should be revised as follows:

$$(|Eu|^{p-2}Eu, EP_h(\zeta^2 w) \cdot J) + (|u|^{\alpha}u, P_h(\zeta^2 w) \cdot J) = (f, P_h(\zeta^2 w) \cdot J)\,.$$

Replacing ∇u in Section 6 with Eu newly, we proceed in parallel with the original proof. Then in place of (6.12) we have

$$\int_{\Sigma} \zeta^2(|S_h Eu|^{p-2} + |Eu|^{p-2})|P_h Eu|^2 dx \le CA\,. \tag{6.12'}$$

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