Corrigenda to “Regular and Singular Problems for Large Elastic Deformations of Tubes, Wedges, and Cylinders”

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Page 9. In the first line of Hypothesis 4.14 delete *orthonormal*. In the second line add *of unit vectors* after *products* and add the phrase *and let $\{E_\tau^*\}$ be the basis dual to $\{E_\tau\}$* after $\mathbf{z}$). Throughout the rest of the hypothesis replace $T: E_\tau$ with $T: E_\tau^*$. (These adjustments are necessary to account for the fact that μ and ν introduced in (8.42) are not components of F with respect to orthogonal dyads.)

Page 10, lines 2, 3. Replace the statement (4.16 b) with: *either* (i) $\sigma(E_\tau) T(F_n, \mathbf{z}): E_\tau^* \rightarrow -\infty \quad \forall \tau \in a \cup \ell \cup c \cup d$ *or else* (ii) $\exists \tau \in a \cup d$ *such that* $|F_n: E_\tau| \rightarrow \infty$ *and* $\exists \tau \in a \cup \ell \cup c \cup d$ *such that* $|T(F_n, \mathbf{z}): E_\tau^*| \rightarrow \infty$. (These corrections are actually used in the proof of Section 8.)

Page 24, eq. (6.15a). The parenthesis following B_β should follow B_α .

Page 25. The last term in the second line of (7.3) has an extra f .

Page 30. In the first two lines of Hypothesis 7.35 replace the sentence *Let $\mathbf{a}(\mathbf{x}) \dots$* with: *Let $\mathbf{a}(\mathbf{x})$ and $\tilde{\mathbf{a}}(\mathbf{x})$ be vectors that are linear combinations of $\mathbf{e}_1, \mathbf{e}_2, \mathbf{e}_3$ with coefficients depending only on ϱ and let $\mathbf{b}(\mathbf{x})$ and $\tilde{\mathbf{b}}(\mathbf{x})$ be vectors that are linear combinations of $\mathbf{j}_1, \mathbf{j}_2, \mathbf{j}_3 \dots$* Thereafter in the hypothesis replace $\mathbf{a} \cdot T \cdot \mathbf{b}$ with $\tilde{\mathbf{a}} \cdot T \cdot \tilde{\mathbf{b}}$. (These adjustments are made to accommodate $(\mu, \nu) \mapsto (M, N)$.)

Page 34. In (8.6) delete the caret from T_{31} and replace the first argument of K with $\mathbf{F}(\mathbf{w}_1, \mathbf{w}'_1, \varrho)$.

Pages 35–37. The second inequality of (8.13 a) and the second inequality of (8.19 a) do not follow from (7.3). To remedy this defect, replace (8.12) with

$$\bar{\mathbf{w}} = \mathbf{w}_0.$$

Then the last two lines of (8.13a) reduce to

$$\geq \int_R^1 \varrho \psi(\mathbf{F}_n^+(\varrho), \varrho) d\varrho - \int_R^1 \varrho \psi(\mathbf{F}_0(\varrho), \varrho) d\varrho - A,$$

where A is readily found. A is estimated just as A_1 and A_2 are estimated. The choice (8.18) is unnecessary. The result (8.21) is still valid.

Page 37. Equation (8.22) need not have a unique solution $\nu(\xi)$ with the indicated properties. To ensure that it does we require that ω have the property that

$$\lim_{\varepsilon \downarrow 0} \varepsilon^{-1} \int_{\omega - \varepsilon}^{\omega} f'_n(\varrho) d\varrho$$

exist and exceed n^{-1} . Then (8.26) holds only for such ω 's (but (8.27) is still valid). By using techniques like those of Step IV, we can show that the Lebesgue measure of the set of such ω 's approaches $1 - R$ as $n \rightarrow \infty$. Hence the consequence of (8.26) are the same. The details of these constructions are identical to those of [1] and are accordingly omitted here.

Page 38, line 1. Put subscript n on $\mathcal{W}$.

Line 16. Replace the inequality $0 < \xi < \infty$ with $\xi \neq 0$.

Page 41, eq. (8.56). Replace $-C$ with C^{-1} .

Page 42. Replace $-2J_*$ with $-2|J_*|$ in (8.59) and (8.60). The whole argument leading to (8.62) can be considerably simplified by observing that the inverse $\hat{\mathbf{P}}$ of a strictly monotone mapping is strictly monotone. In line 8, replace (8.58) with (8.59a).

Page 43, line 3. Insert prime on f_{**} .

Line 21. Replace (8.57) with (8.58).

Line 30. Remove the caret from the second T_{11} and put it on the third.

Page 44. The justification given for (8.72) is not valid. To obtain it, use (5.23) to express K in terms of T_{21} , M , N . Hypothesis 7.35 and inequality (8.52) ensure that $T_{21}(\mathbf{F}_n^+(\cdot), \cdot)$, $M(\mathbf{F}_n^+(\cdot), \cdot)$, $N(\mathbf{F}_n^+(\cdot), \cdot)$ on $[R + \varepsilon, 1]$ have L_1 -norms depending only on ε . Using (8.53), (8.55), (8.56) we find that for each χ in $(R, 1]$ there is a number $C(\chi)$ such that

$$\left| \int_{\chi}^1 K(\mathbf{F}_n^+(\varrho), \varrho) d\varrho \right| \leq C(\chi).$$

The use of the equation corresponding to (8.27) together with (8.73) enables us to show that this inequality holds for $\chi = R$, i.e., that (8.72) holds.

In the sentence containing (8.75) replace "no such n " with "no such sequence of n 's". The development beginning with (8.75) is readily modified to show that $f_n(R)$ and consequently $f(R)$ have a positive lower bound.

Page 45, line 15. Delete bar from $\mathbf{w}_n$.

Lines 19, 20, 22. Switch m and k .

Line 23. Delete the bars from $\mathbf{w}_n$ and $\mathbf{w}$.

Line 25. Replace (8.3) with (8.38).

The proof of Step V should also include a demonstration that the limiting equations corresponding to (8.36) also hold. The estimate (8.56) ensures that we can replace (8.35a) with

$$\bar{\mathbf{w}} = (f_n, g_n, h_n, \alpha_n + \xi \delta_0, \beta_n - \xi \gamma_0, \gamma_0, \delta_0),$$

which lies in $\mathcal{W}_n$ when $|\xi|$ is small enough. The substitution of this $\bar{\mathbf{w}}$ into (8.11) yields the equation corresponding to (8.36a) in virtue of the arbitrariness of ξ . We can then let $n \rightarrow \infty$ in this equation and in (8.35b).

Page 46, line 4. Replace (8.71) with (8.72).

A detailed, systematic, and somewhat simplified presentation of the existence theory of Section 8, incorporating the corrections described above, is implicit in Section 12 of [1].

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1. R. C. ROGERS & S. S. ANTMAN, Steady-state problems of nonlinear electro-magneto-thermo-elasticity. *Arch. Rational Mech. Anal.*, **95**, 279-323 (1986)

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