J. Plasma Phys. (2021), *vol.* 87, 175870203
Published by Cambridge University Press
doi:10.1017/S0022377821000325

LETTER

Corrigendum: 'Stepped pressure profile equilibria in cylindrical plasmas via partial Taylor relaxation [J. Plasma Physics (2006), vol. 72, part 6, pp. 1167–1171].'

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In this brief note, we correct typographic errors in 'Stepped pressure profile equilibria in cylindrical plasmas via partial Taylor relaxation [J. Plasma Physics (2006), vol. 72, part 6, pp. 1167–1171].' Equation (3.2) is in error and should read

$$B = \{0, k_i J_1(\mu_i r) + d_i Y_1(\mu_i r), k_i J_0(\mu_i r) + d_i Y_0(\mu_i r)\}. \tag{1}$$

In general, however, $Y_0(u)$, $Y_1(u)$ are complex numbers when u is a negative real number. To ensure the field is physical for real k and d coefficients, it is more consistent to write the solution for both region 1 and region i as

$$B = \{0, \mathrm{sign}(\mu_1) k_1 J_1(|\mu_1| r), k_1 J_0(|\mu_1| r)\}, \tag{2}$$

$$B = \{0, \mathrm{sign}(\mu_i)\left(k_i J_1(|\mu_i| r) + d_i Y_1(|\mu_i| r)\right), k_i J_0(|\mu_i| r) + d_i Y_0(|\mu_i| r)\}. \tag{3}$$

With this modification, (3.7) and (3.8) become

$$\Psi_i^t = \int_{r_{i-1}}^{r_i} B_z(r) r d\theta dr = \frac{2\pi}{|\mu_i|}\left[k_i r J_1(|\mu_i| r) + d_i Y_1(|\mu_i| r)\right]_{r_{i-1}}^{r_i}, \tag{4}$$

$$\Psi_i^p = \int_{r_{i-1}}^{r_i} B_z(r) L dr = -\frac{L\mathrm{sign}(\mu_i)}{|\mu_i|}\left[k_i r J_0(|\mu_i| r) + d_i Y_0(|\mu_i| r)\right]_{r_{i-1}}^{r_i}. \tag{5}$$

The equilibrium is specified by $4N+1$ parameters, not $4N+2$ as stated in the paper.

The parameters provided for figure 1 are incorrect, and should read $r_w = 1.5$, $B_{V,\theta} = 0.2362$, $B_{V,z} = 0.4000$, $r_i = \{0.2, 0.4, 0.6, 0.8, 1.0\}$, $\mu_i = \{1.5, 1.3, 1.1, 1.0, 0.8\}$, $k_i = \{0.2229, 0.2538, 0.2894, 0.3086, 0.3506\}$, $d_i = \{0, -0.0021, -0.0102, -0.0191, -0.0495\}$. These parameters were obtained by solving for k_i and d_i such that $\mathbf{J}_{i+1} - \mathbf{J}_i$ evaluated at the interface was zero, and so $q_i^i = q_i^o$. The procedure was as follows. In the core region, μ_1, k_1, d_1 is given, and so $\mathbf{J}_1(r_1)$ can be computed. We have next solved $\mathbf{J}_1(r_1) = \mathbf{J}_2(r_1) = \mu_2/\mu_0 \mathbf{B}_2(r_1)$ for k_2, d_2, which gives $\mathbf{J}_2(r_2)$. The procedure is marched out towards the edge. At the plasma–vacuum interface, we have solved $q_i^i = q_i^o$ for $B_{V,\theta}$.