Erratum: Nuclear axial currents in chiral effective field theory [Phys. Rev. C 93, 015501 (2016)]

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After the authors of Ref. [1] pointed out the incorrect chiral behavior of one of the loop corrections to the axial current ($\mathbf{j}_{5,a}$), we have reexamined the derivation of all these corrections in our formalism. As a result, an error was found in the loop function $W_3(k)$ first given in Eq. (D12) of the original paper and its earlier Erratum [2]. The correct expression is

$$W_3(k) = -\frac{1}{2}\int_0^1 dz \frac{1}{M(k,z)}, \tag{D12}$$

which is finite in the chiral limit. The error can be traced back to Eqs. (5.11) and (D4) of the original paper and its earlier Erratum [2], which should have read

$$\begin{aligned}\mathbf{j}^{(1)}_{5,a}(\text{e8}) = &-\frac{g_A^5}{16 f_\pi^4}\Big(\tau_{2,a}\big\{(\boldsymbol{\sigma}_1\times\mathbf{k}_2)\times\mathbf{k}_2\big[k_2^2 S^{(0)}(k_2) - S^{(2)}(k_2)\big] + \big[k_2^2 S^{(2)}(k_2) - S^{(4)}(k_2)\big]\boldsymbol{\sigma}_1 - \big[k_2^2 S^{(2)}_{ij}(\mathbf{k}_2) - S^{(4)}_{ij}(\mathbf{k}_2)\big]\sigma_{1j}\big\} \\ &- 4\tau_{1,a}\epsilon_{ijk}k_{2j}S^{(2)}_{kl}(\mathbf{k}_2)(\boldsymbol{\sigma}_2\times\mathbf{k}_2)_l\Big),\end{aligned} \tag{5.11}$$

and

$$\begin{aligned}\mathbf{j}^{(1)}_{5,a}(\text{e8}) = -\frac{g_A^5}{64\pi f_\pi^4}\int_0^1 dz\Bigg\{\tau_{2,a}\Bigg(&5\boldsymbol{\sigma}_1 M(k_2,z) + \frac{\mathbf{k}_2}{2}\boldsymbol{\sigma}_1\cdot\mathbf{k}_2\left[\frac{k_2^2(z\bar{z})^2}{M(k_2,z)^3} + \frac{1-7\,z\bar{z}}{M(k_2,z)}\right] \\ &+ \frac{k_2^2}{2}\boldsymbol{\sigma}_1\left[\frac{9\,z\bar{z}-1}{M(k_2,z)} - \frac{k_2^2(z\bar{z})^2}{M(k_2,z)^3}\right]\Bigg) + \frac{\tau_{1,a}}{2}(\boldsymbol{\sigma}_2\times\mathbf{k}_2)\times\mathbf{k}_2\frac{1}{M(k_2,z)}\Bigg\},\end{aligned} \tag{D4}$$

respectively. None of the other results and conclusions are affected by this error. This error propagated into a subsequent paper [3] and an Erratum relative to this second paper Ref. [4].

[1] H. Krebs, E. Epelbaum, and U.-G. Meißner, Ann. Phys. **378**, 317 (2017).
[2] A. Baroni, L. Girlanda, S. Pastore, R. Schiavilla, and M. Viviani, Phys. Rev. C **93**, 049902(E) (2016).
[3] A. Baroni, L. Girlanda, A. Kievsky, L. E. Marcucci, R. Schiavilla, and M. Viviani, Phys. Rev. C **94**, 024003 (2016).
[4] A. Baroni, L. Girlanda, A. Kievsky, L. E. Marcucci, R. Schiavilla, and M. Viviani, following Erratum, Phys. Rev. C **95**, 059902 (2017).

