Errata

The following equations were misprinted in Howard E. Brandt's paper "Charge Renormalization, Apéry's Number, and the Trefoil Knot", published in Contemporary Mathematics volume 482, "Advances in Quantum Computation", pp. 23-47. They appear correctly below.

(6.3)

$$T_1 = -\frac{1}{48p^4}\left[ie_0^2\int\frac{d^4p'}{(2\pi)^4}\frac{\mathrm{Tr}\left(\gamma_\mu\gamma p\gamma_\alpha-\gamma_\alpha\gamma p\gamma_\mu\right)\gamma_\kappa\left(\gamma_\alpha\gamma p'\gamma_\mu-\gamma_\mu\gamma p'\gamma_\alpha\right)\gamma_\kappa}{2p'^4(p-p')^2}\right]^2,$$

and using arguments involving Lorentz and charge-conjugation invariance, and again performing the trace, doing the Wick rotations, and using the Chebyshev expansion, one obtains [**10**]

(8.9)

which also has the same two crossed photon topology. It can be shown that [**10**]

$$\begin{aligned} T_4 \;=\; & 4\left(ie_0^2\right)^2\int\frac{d^4q}{(2\pi)^4}\int\frac{d^4p'}{(2\pi)^4}\mathrm{Tr}\frac{1}{i^2}\frac{\left(\gamma_\alpha\gamma p\gamma_\mu-\gamma_\mu\gamma p\gamma_\alpha\right)}{2p^4} \\ & \left[\gamma_\lambda\frac{1}{i}\left(\frac{\gamma_\alpha}{2\left(p-q\right)^2}-\frac{\left(p_\alpha-q_\alpha\right)\gamma\left(p-q\right)}{\left(p-q\right)^4}\right)\gamma_\kappa\frac{1}{i\gamma(p'-q)}\gamma_\mu\right. \\ & \frac{1}{i\gamma(p'-q)}\gamma_\lambda\frac{1}{i\gamma p'}\frac{\gamma_\kappa}{\left(p-p'\right)^2q^2}+\gamma_\lambda\frac{1}{i\gamma(p-q)}\gamma_\kappa\frac{1}{i\gamma(p'-q)} \\ & \left.\gamma_\mu\frac{1}{i\gamma(p'-q)}\left(-\frac{\gamma_\alpha}{2p'^2}+\frac{p'_\alpha\gamma p'}{p'^4}\right)\frac{\gamma_\kappa}{\left(p-p'\right)^2q^2}\right], \end{aligned} \tag{8.10}$$

for which all terms sum to zero [**10**],

$$B^{(4)}(p^2) = \frac{9}{16}\left(\frac{\alpha_0}{2\pi}\right)^2\left[\frac{2}{9}\left(\ln\left(\frac{p}{M}\right)^2\right)^2+\frac{4}{3}\ln\left(\frac{p}{M}\right)^2-\frac{4}{3}\right]. \tag{9.24}$$