Erratum to: $O(\alpha_s)$ corrections to the polar angle dependence of the longitudinal spin–spin correlation asymmetry in $e^+e^- \rightarrow q\bar{q}$

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In recalculating the results in order to expand the above work to more general final state correlations, several typographical errors have been discovered in the equations. The first error was the global sign of the unintegrated tree contribution $H_U^{2(\ell_1\ell_2)}(\text{tree})$. This part, therefore, should read

$$\begin{aligned} H_U^{2(\ell_1\ell_2)}(\text{tree}) &= -\frac{\xi N}{R_y^3 R_z} \left[40 - 36\xi - 2\xi(1-\xi)^2 \frac{1}{y^2} \right. \\ &\quad - 2(8-9\xi)(1-\xi) \frac{1}{y} - 2(12-\xi)y - 2(4-\xi)y^2 \\ &\quad + 8y^3 - 2\xi(1-\xi)^2 \frac{1}{z^2} + 6\xi(1-\xi) \frac{y}{z^2} \\ &\quad - 2\xi(3-\xi) \frac{y^2}{z^2} + \frac{2\xi y^3}{z^2} - 2(16-11\xi)(1-\xi) \frac{1}{z} \\ &\quad + 4(1-\xi)^2(2-\xi) \frac{1}{yz} + 2(24-23\xi+\xi^2) \frac{y}{z} \\ &\quad - 2(16-5\xi) \frac{y^2}{z} + 2(4+\xi) \frac{y^3}{z} - 2(16-3\xi)z \\ &\quad + 2\xi(1-\xi) \frac{z}{y^2} + 2(8-11\xi+\xi^2) \frac{z}{y} + 2(8-\xi)yz \\ &\quad \left. + 2(8-\xi)z^2 - 2\xi(1-\xi) \frac{z^2}{y^2} - 4(2-3\xi) \frac{z^2}{y} - 8yz^2 \right]. \end{aligned} \quad (29)$$

Next, the factor ξ in $H_L^2(\text{tree})$ has been factored out but has erroneously remained within the square brackets. The corrected expression is given by

$$\begin{aligned} H_L^2(\text{tree}) &= \frac{\xi N}{R_y^2} \left[12 - \xi - \frac{\xi}{y^2} + \frac{\xi^2}{y^2} - \frac{4}{y} + \frac{6\xi}{y} - 4y - 4y^2 \right. \\ &\quad - \frac{\xi}{z^2} + \frac{\xi^2}{z^2} + \frac{2\xi y}{z^2} - \frac{\xi y^2}{z^2} - \frac{12}{z} + \frac{8\xi}{z} + \frac{4}{yz} \\ &\quad - \frac{6\xi}{yz} + \frac{2\xi^2}{yz} + \frac{10y}{z} - \frac{2\xi y}{z} - \frac{2y^3}{z} - 4z \\ &\quad \left. - \frac{2z}{y} - 2yz \right]. \end{aligned} \quad (36)$$

Several typos occurred in the integrated result for $H_L^{2(\ell_1\ell_2)}(\alpha_s)$. The corrected expression reads

$$\begin{aligned} H_L^{2(\ell_1\ell_2)}(\alpha_s) &= \xi N \left[\frac{1}{4}(34-3\xi) - \frac{3}{4}\sqrt{\xi}(12+\xi) \right. \\ &\quad - \frac{1}{8v}(46-65\xi+3\xi^2) - (1+\xi)t_{14} \\ &\quad - \left(\frac{2-\xi}{2}(t_8-t_{16}) + v(t_{10}+2t_{12}) \right) \\ &\quad + \frac{1}{8v^2}(80-136\xi+35\xi^2-3\xi^3)t_{13} \\ &\quad - \frac{1}{2v^3}(4-9\xi+4\xi^2)t_{15} \\ &\quad \left. + \frac{1}{2v^2}(1-4\xi+2\xi^2+4v^3)t_3 \right]. \end{aligned} \quad (52)$$

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Finally, there was a typo in the definition of w . The correct definition is

$$w = \sqrt{\frac{1 - \sqrt{\xi}}{1 + \sqrt{\xi}}}. \quad (61)$$

We stress that quantitative results and diagrams are not influenced by these changes.

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