Erratum: Power-enhanced leading-logarithmic QED corrections to \( \mathcal{B}_q \to \mu^+ \mu^- \)

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Erratum to: JHEP10(2019)232

ArXiv ePrint: 1908.07011

The expression for \( F(\omega, \omega') \) entering (A.36) and the QED term in (4.15) is incorrect. The correct expression differs from the QCD one for this function. The corrected anomalous dimension is given in section 2.2.4 of [2]. The anomalous dimension relevant to \( \mathcal{B}_q \to \ell^+ \ell^- \) is obtained from (2.23) in this reference by setting \( Q_{M_1} = -Q_{M_2} \to Q_\ell \) and \( Q_{sp} = Q_d \to Q_\mu \). In [2], the collinear direction has been chosen for the \( M_+ \) meson, which corresponds to the anti-collinear sector of the anti-lepton in [1]. Therefore the statement after (2.30) in the published version and arXiv version 1 of [2] should read \( Q_{M_2} \to -Q_\ell \) rather than \( +Q_\ell \) and applies to \( \mathcal{B}_q \) decay rather than \( \mathcal{B}_q \). In particular, the correct anomalous dimension includes support for \( \omega < 0 \). This correction does not affect the cusp terms and hence does not affect other equations and results in the paper.

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References

[1] M. Beneke, C. Bobeth and R. Szafron, Power-enhanced leading-logarithmic QED corrections to \( \mathcal{B}_q \to \mu^+ \mu^- \), JHEP 10 (2019) 232 [arXiv:1908.07011] [inSPIRE].

[2] M. Beneke, P. Böer, J.-N. Toelstede and K.K. Vos, Light-cone distribution amplitudes of heavy mesons with QED effects, JHEP 08 (2022) 020 [arXiv:2204.09091] [inSPIRE].

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