Addendum: Five-loop renormalisation of QCD in covariant gauges

K.G. Chetyrkin,^a G. Falcioni,^b F. Herzog^b and J.A.M. Vermaseren^b

^a*II Institut für Theoretische Physik, Universität Hamburg,
Luruper Chaussee 149, 22761 Hamburg, Germany*

^b*Nikhef Theory Group,
Science Park 105, 1098 XG Amsterdam, The Netherlands*

E-mail: konstantin.chetyrkin@desy.de, gfalcion@nikhef.nl,
ferzog@nikhef.nl, t68@nikhef.nl

ADDENDUM TO: [JHEP10\(2017\)179](#)

KEYWORDS: Perturbative QCD, Renormalization Group

ARXIV EPRINT: [1709.08541](#)

Due to an oversight the authors regret not including several references where parts of their five-loop results were presented. They confirm that the relevant leading order and next-to-leading order coefficients of the polynomial in n_f of the gluon, ghost and quark anomalous dimensions as well as the beta-function are in agreement with the results of [1–3]. The authors would further like to cite [4] which is important in the establishment of the relation eq. (4.10) and in the computation of the large n_f contribution to the anomalous dimension of the operator A^2 presented in eq. (4.11).

Open Access. This article is distributed under the terms of the Creative Commons Attribution License ([CC-BY 4.0](#)), which permits any use, distribution and reproduction in any medium, provided the original author(s) and source are credited.

References

- [1] J.A. Gracey, *Quark, gluon and ghost anomalous dimensions at $O(1/N_f)$ in quantum chromodynamics*, (1993), [[https://doi.org/10.1016/0370-2693\(93\)91803-U](https://doi.org/10.1016/0370-2693(93)91803-U)].
- [2] J.A. Gracey, *The QCD β -function at $O(1/N_f)$* , *Phys. Lett. B* **373** (1996) 178 [[hep-ph/9602214](#)] [[INSPIRE](#)].
- [3] M. Ciuchini, S.E. Derkachov, J.A. Gracey and A.N. Manashov, *Computation of quark mass anomalous dimension at $O(1/N_f^2)$ in quantum chromodynamics*, *Nucl. Phys. B* **579** (2000) 56 [[hep-ph/9912221](#)] [[INSPIRE](#)].
- [4] D. Dudal, J.A. Gracey, V.E.R. Lemes, R.F. Sobreiro, S.P. Sorella and H. Verschelde, *Renormalization properties of the mass operator $A_\mu^a A_\mu^a$ in three dimensional Yang-Mills theories in the Landau gauge*, *Annals Phys.* **317** (2005) 203 [[hep-th/0409254](#)] [[INSPIRE](#)].