Erratum: Gauge and Yukawa coupling beta functions of two-Higgs-doublet models to three-loop order [Phys. Rev. D 97, 015016 (2018)]

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(Received 7 April 2020; published 20 April 2020)

DOI: 10.1103/PhysRevD.101.079903

In Eqs. (44) and (45), the coefficients of the last two terms had been interchanged in the preparation of the manuscript. They should read

$$\beta_1 = \ldots + \frac{\alpha_1^2}{(4\pi)^3}\left[\ldots - \frac{6}{5}\hat{\lambda}_{ij,kl}\hat{\lambda}_{ji,lk} - \frac{3}{5}\hat{\lambda}_{ij,kl}\hat{\lambda}_{li,jk}\right]$$

and

$$\beta_2 = \ldots + \frac{\alpha_2^2}{(4\pi)^3}[\ldots - 2\hat{\lambda}_{ij,kl}\hat{\lambda}_{ji,lk} - \hat{\lambda}_{ij,kl}\hat{\lambda}_{li,jk}].$$

Using Eq. (7) to rewrite the two combinations of quartic couplings in terms of the couplings given in Eq. (2) yields for the two structures in the above equations,

$$\hat{\lambda}_{ij,kl}\hat{\lambda}_{ji,lk} = \lambda_1^2 + \lambda_2^2 + 2\lambda_3^2 + 2\lambda_4^2 + 2|\lambda_5|^2 + 4|\lambda_6|^2 + 4|\lambda_7|^2,$$
$$\hat{\lambda}_{ij,kl}\hat{\lambda}_{li,jk} = \lambda_1^2 + \lambda_2^2 + 4\lambda_3\lambda_4 + 2|\lambda_5|^2 + 4|\lambda_6|^2 + 4|\lambda_7|^2.$$

This implies that only terms containing λ_3 and λ_4 are affected by the change. The ancillary files [1] have been updated accordingly.

We thank Anders Eller Thomsen for pointing out the inconsistency with the three-loop gauge coupling beta function for a general quantum field theory [2] and our results.

[1] https://www.ttp.kit.edu/preprints/2017/ttp17-046/.
[2] C. Poole and A. E. Thomsen, J. High Energy Phys. 09 (2019) 055.