**Erratum: Critical behavior of (2 + 1)-dimensional QED:
1/ N_f corrections in the Landau gauge
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In light of our recent paper [1], where gauge independent results for dynamical fermion mass generation were obtained, we reanalyze the results of this paper.

Consider Eq. (35) in this paper which is the exact explicit form of the SD-equation (see Eq. (3a) in this paper) in the first two orders of $1/N$ expansion:

$$1 = \frac{2\beta}{L} + \frac{1}{L^2} \left[8S(\alpha) - \frac{5}{3}\beta^2 - \frac{4}{3}(4 + 3\hat{\Pi})\beta \right] + O(L^{-3}), \quad (1)$$

where

$$\hat{\Pi} = \frac{92}{9} - \pi^2, \quad (2)$$

arises from the two-loop polarization operator in dimension $D = 3$. All definitions can be found in our papers [1,2].

The factor $S(\alpha)$ contains the contribution of the most complicated diagrams. As it was shown in [2], it is convenient to extract the most important contributions $\sim\beta$ and $\sim\beta^2$ from the complicated part $S(\alpha)$. After these calculations, the gap equation takes the equivalent form:

$$1 = \frac{2\beta}{L} + \frac{4}{3L^2} [6\tilde{S}(\alpha) + \beta^2 - (16 + 3\hat{\Pi})\beta] + O(L^{-3}), \quad (3)$$

where the new complicated part $\tilde{S}(\alpha)$ does not contain any positive β powers and can be expanded in series of α^n (and, hence, β^{-n}) starting with $n = 0$.

In this paper we have analyzed Eq. (1) at the critical point $\beta = 16$ and found the corresponding critical value L_c . The same results can also be obtained from Eq. (3).

Here we will follow another strategy (see Ref. [1]): we will proceed in computing the NLO correction to the parameter β^{-1} of the solution of the SD equation. From (3), we have:

$$\beta^{-1} = \frac{2}{L} + \frac{4}{3L^2} \left[\frac{6}{\beta} \tilde{S}(\alpha) + \beta - (16 + 3\hat{\Pi}) \right] + O(L^{-3}). \quad (4)$$

From this equation, it is clear that the first term in the brackets is of the order of $\sim 1/L$ [this can be obtained by solving Eq. (4) iteratively] and thus its contribution is of the order of $\sim 1/L^3$ and should therefore be neglected in the present analysis. So, with NLO accuracy, we obtain that:

$$\beta^{-1} = \frac{2}{L} + \frac{4}{3L^2} [\beta - (16 + 3\hat{\Pi})] + O(L^{-3}). \quad (5)$$

We are now in a position to compute β^{-1} from Eq. (5) as a combination of terms $\sim 1/L$ and $\sim 1/L^2$. This is however not so important in the present analysis. Since we are interested in the critical regime, we may derive L_c in a straightforward way from (5) [or equally from Eq. (3) with the condition $\tilde{S}(\alpha) = 0$] by setting $\beta = 16$ and keeping the terms $O(1/L^2)$. This yields:

$$L_c^2 - 32L_c + 64\hat{\Pi} = 0. \quad (6)$$

Solving Eq. (6), we have two standard solutions:

$$L_{c,\pm} = 8\left(2 \pm \sqrt{4 - \hat{\Pi}}\right). \quad (7)$$

Combining these values with the one of $\hat{\Pi}$ in Eq. (2), yields:

$$N_c = 3.17, \quad (8)$$

where “−” solutions are unphysical. The result (8) is slightly less than original one $N_c = 3.29$ in this paper.

[1] A. V. Kotikov and S. Teber, *Phys. Rev. D* **99**, 059902 (2019).

[2] A. V. Kotikov and S. Teber, *Phys. Rev. D* **94**, 114011 (2016).