**Erratum: Parametrized-4.5PN TaylorF2 approximants and tail effects to
quartic nonlinear order from the effective one body formalism
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A further error was spotted in the parametrized 5PN term of the total flux. To obtain it consistently by expanding the EOB flux one should also include the even-parity $l = 7$ multipoles—that is, (7,7), (7,5), (7,3), and (7,1)—that were omitted by mistake. Note, however, that the 5.5PN term only depends on the $\ell = 6$ modes, so that term (modulo a typo) was computed correctly. Once the $\ell = 7$ modes are included, Eq. (21) of our paper is corrected as

$$\begin{aligned} \hat{\mathcal{F}}_{5\text{PN}} = & \left\{ -\frac{1}{1-3\nu} \left[\frac{2500861660823683}{2831932303200} - \frac{10608155067013217101261}{1904961566258150400} \nu + \frac{24823886833955583083459}{3265648399299686400} \nu^2 \right. \right. \\ & + \frac{83916740839405609479263}{68578616385293414400} \nu^3 + \frac{31282558612344304720193}{3809923132516300800} \nu^4 - \frac{163716515443482656797}{35168521223227392} \nu^5 \\ & + \frac{1247153383060759670851}{1714465409632335360} \nu^6 + \gamma_E \left(-\frac{916628467}{7858620} + \frac{3232420865}{3667356} \nu - \frac{12533953163}{9168390} \nu^2 - \frac{2084604421}{3056130} \nu^3 \right) \\ & + \pi^2 \left(\frac{424223}{6804} - \frac{520672457}{1354752} \nu + \frac{1244952467}{4064256} \nu^2 + \frac{888697001}{1016064} \nu^3 - \frac{36678805}{677376} \nu^4 \right) \\ & + \left(\frac{83217611}{1122660} - \frac{11385383927}{18336780} \nu + \frac{12117535706}{4584195} \nu^2 - \frac{1327348993}{305613} \nu^3 \right) \log(2) \\ & + \left(-\frac{47385}{196} + \frac{1405755}{784} \nu - \frac{2827305}{784} \nu^2 + \frac{236925}{196} \nu^3 \right) \log(3) \\ & + \left(-\frac{916628467}{15717240} + \frac{3232420865}{7334712} \nu - \frac{12533953163}{18336780} \nu^2 - \frac{2084604421}{6112260} \nu^3 \right) \log(x) \Big] \\ & + \left(-\frac{114}{7} + \frac{55}{7} \nu \right) \nu c_{22}^{4\text{PN}}(\nu) + 4\nu c_{22}^{5\text{PN}}(\nu) + \frac{1}{9} \nu (1-4\nu) c_{21}^{4\text{PN}} + \left(-\frac{1}{56} + \frac{151}{756} \nu - \frac{97}{189} \nu^2 \right) \nu c_{21}^{3\text{PN}}(\nu) \\ & + \nu (1-4\nu) \left(\frac{1}{1344} c_{31}^{4\text{PN}}(\nu) + \frac{3645}{448} c_{33}^{4\text{PN}}(\nu) \right) + \nu (1-3\nu)^2 \left(\frac{10}{21} c_{32}^{3\text{PN}}(\nu) + \frac{10240}{567} c_{44}^{3\text{PN}}(\nu) + \frac{40}{3969} c_{42}^{3\text{PN}}(\nu) \right) \\ & \left. - \nu (1-2\nu)^2 (4\nu-1) \left(\frac{729}{560} c_{43}^{2\text{PN}} + \frac{1}{35280} c_{41}^{2\text{PN}}(\nu) + \frac{48828125}{1216512} c_{55}^{2\text{PN}}(\nu) + \frac{2187}{45056} c_{53}^{2\text{PN}}(\nu) + \frac{1}{12773376} c_{51}^{2\text{PN}}(\nu) \right) \right\} x^5. \end{aligned} \quad (1)$$

Similarly, Eq. (22) of our paper should also be amended as

$$\begin{aligned} \hat{\mathcal{F}}_{5.5\text{PN}} = & \pi \left\{ \frac{2\nu}{9} (1-4\nu) c_{21}^{3\text{PN}}(\nu) + \frac{6058253667029\nu^4}{64076044032} + \frac{70029960211823\nu^3}{85434725376} + \frac{100004171503889\nu^2}{160190110080} \right. \\ & + \nu \left(16c_{22}^{4\text{PN}}(\nu) - \frac{138140205552539713}{25630417612800} \right) + \frac{8399309750401}{101708006400} + \pi^2 \left(\frac{1015201\nu}{193536} - \frac{1605601\nu^2}{48384} \right) \\ & + \gamma_E \left(\frac{2781341\nu}{4410} + \frac{177293}{1176} \right) + \left(\frac{2360189\nu}{4410} + \frac{8521283}{17640} \right) \log(2) + \left(\frac{142155\nu}{196} - \frac{142155}{784} \right) \log(3) \\ & \left. + \left(\frac{2781341\nu}{8820} + \frac{177293}{2352} \right) \log(x) \right\} x^{11/2}, \end{aligned} \quad (2)$$

with a + sign that replaces the $\times$ that was incorrectly introduced in front of the fifth term in the published version and that was incorrectly replaced by a $-$ sign in the first erratum. These results are now fully consistent with the 5.5PN test-particle fluxes of Tanaka *et al.* [1] [Eq. (3.1) therein]. In the correct formulas above, some “4PN” labels on the c_{21} coefficient have been substituted by the correct *relative* 3PN order ones. In the paper, the residual relativistic amplitude of the (2,1) multipole (Eq. 8) is also wrong (though it was correct in the MATHEMATICA notebook used). The correct form of this object, in which the relative 3PN coefficient also appears, is given by

$$\begin{aligned} \rho_{21}(x; \nu) = & \rho_{21}^{2\text{PN}}(x; \nu) + \left(\frac{7613184941}{2607897600} - \frac{107}{105} \text{eulerlog}_1(x) + \nu c_{21}^{3\text{PN}}(\nu) \right) x^3 \\ & + \left(-\frac{1168617463883}{911303737344} + \frac{6313}{5880} \text{eulerlog}_1(x) + \nu c_{21}^{4\text{PN}}(\nu) \right) x^4. \end{aligned} \quad (3)$$

Finally, the correct TaylorF2 phase coefficient at 4PN is

$$\begin{aligned} \varphi_8 = & [1 - \log(\pi f M)] \left[c_{21}^{3\text{PN}} \left(\frac{40\nu}{81} - \frac{160\nu^2}{81} \right) + \frac{160c_{22}^{4\text{PN}}\nu}{9} - \frac{369469478275\nu^4}{16019011008} + \frac{510041481025\nu^3}{13106463552} \right. \\ & + \left(\frac{300600673165997}{576684396288} - \frac{399545\pi^2}{27216} \right) \nu^2 + \left(-\frac{5679872289503527}{1281520880640} - \frac{5322928\gamma}{3969} + \frac{9302215\pi^2}{54432} \right. \\ & - \frac{1420688 \log(2)}{441} + \frac{26325 \log(3)}{49} \left. \right) \nu - \frac{90490\pi^2}{567} - \frac{36812\gamma}{189} + \frac{2550713843998885153}{830425530654720} - \frac{26325 \log(3)}{196} \\ & \left. - \frac{1011020 \log(2)}{3969} \right] + \left(\frac{2661464\nu}{11907} + \frac{18406}{567} \right) \log^2(\pi f M). \end{aligned} \quad (4)$$

The conclusions of the paper are not affected by these corrections.

[1] T. Tanaka, H. Tagoshi, and M. Sasaki, *Prog. Theor. Phys.* **96**, 1087 (1996).