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ERRATUM

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Dear Editors!

In my paper "Boundary value problems for degenerate and degenerate fractional order differential equations with non-local linear source and difference methods for their numerical implementation" published in issue 2 in volume 11 of Ufa Mathematical Journal in 2019, a misprint was made in the formulation of Lemma 3 and the proof of this lemma was made in a wrong way.

Lemma 3 and a correct proof are provided below.

Lemma 3. *Each non-negative integrable on $[0,T]$ function $g(t)$ satisfies the inequality*

$$D_{0t}^{-2\alpha}g(t) \leqslant \frac{t^\alpha \Gamma(\alpha)}{\Gamma(2\alpha)} D_{0t}^{-\alpha}g(t). \tag{2.14}$$

Proof. We rewrite inequality (2.14) as

$$\begin{aligned} D_{0t}^{-2\alpha}g(t) - \frac{t^\alpha \Gamma(\alpha)}{\Gamma(2\alpha)} D_{0t}^{-\alpha}g(t) =& \frac{1}{\Gamma(2\alpha)} \int_0^t \frac{g(\tau)d\tau}{(t-\tau)^{1-2\alpha}} - \frac{t^\alpha}{\Gamma(2\alpha)} \int_0^t \frac{g(\tau)d\tau}{(t-\tau)^{1-\alpha}} \\ =& \frac{1}{\Gamma(2\alpha)} \int_0^t \frac{g(\tau)}{(t-\tau)^{1-\alpha}} \Big((t-\tau)^\alpha - t^\alpha\Big) d\tau. \end{aligned}$$

Since

$$(t-\tau)^\alpha - t^\alpha \leqslant 0,$$

we get

$$\frac{1}{\Gamma(2\alpha)} \int_0^t \frac{g(\tau)}{(t-\tau)^{1-\alpha}} \Big((t-\tau)^\alpha - t^\alpha\Big) d\tau \leqslant 0,$$

and hence,

$$D_{0t}^{-2\alpha}g(t) \leqslant \frac{t^\alpha \Gamma(\alpha)}{\Gamma(2\alpha)} D_{0t}^{-\alpha}g(t).$$

□