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Correction

Correction: Numerical solutions for nonlinear Volterra-Fredholm integral equations of the second kind with a phase lag

Gamal A. Mosa[1], **Mohamed A. Abdou**[2] **and Ahmed S. Rahby**[1,*]

[1] Department of Mathematics, Faculty of Science, Benha University, Egypt
[2] Department of Mathematics, Faculty of Education, Alexandria University, Egypt

* **Correspondence:** Email: a.s.rahby@fsc.bu.edu.eg; Tel: +201004756323.

A correction on

Numerical solutions for nonlinear Volterra-Fredholm integral equations of the second kind with a phase lag
by G. A. Mosa, M. A. Abdou and A. S. Rahby. AIMS Mathematics, 2021, 6(8): 8525–8543.
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These errata give the following correct statements for the corresponding statements on the cited page of our published article [1].

In page 8528, in the first line we should replace “plan” with “plane” and “Eq (2.3)” by “Eq (2.2)”. In addition, correcting of (2.4) as given below in (0.1).

$$|\lambda| < \frac{|\mu|(2q - T^2)}{A_1 D_1 \left(2qB_2 T + B_3 T^2\right)}. \tag{0.1}$$

In page 8529, correcting of $\eta_1 = \frac{T}{q} + |\frac{\lambda}{q\mu}| A_1 D_1 (qB_2 + TB_3) < 1$ in (2.10) is $\eta_1 = \frac{T^2}{2q} + \frac{|\lambda|}{q|\mu|} A_1 D_1 \left(qB_2 T + B_3 \frac{T^2}{2}\right) < 1$. Therefore, correcting (2.11) as given in (0.1).

In page 8530, correcting of (2.14) is

$$\overline{W}\phi = q\mu H(x,t) + W\phi \text{ and } \overline{W}\phi = q\mu\phi, \tag{0.2}$$

where

$$W\phi = -W_1\phi + W_2\phi + W_3\phi, \quad W_1\phi = \mu \int_0^t \phi(x,z)dz,$$

$$W_2\phi = \lambda \int_0^q \int_a^b \Theta(t,\tau) K(x,y) G(y,\tau,\phi(y,\tau)) dy d\tau,$$

and

$$W_3\phi = \lambda\int_q^{t+q}\int_a^b \Psi(t,\tau)K(x,y)G(y,\tau,\phi(y,\tau))dyd\tau.$$

Moreover, (2.15) becomes

$$\begin{aligned}||W\phi|| \le ||\mu\int_0^t \phi(x,z)dz|| + ||\lambda\int_0^q\int_a^b \Theta(t,\tau)\,K(x,y)G(y,\tau,\phi(y,\tau))dy\,d\tau|| \\ + ||\lambda\int_q^{t+q}\int_a^b \Psi(t,\tau)K(x,y)G(y,\tau,\phi(y,\tau))dy\,d\tau||.\end{aligned} \tag{0.3}$$

In addition, correcting of $\eta_2 = \frac{T}{q} + |\frac{\lambda}{q}|(qB_2 + TB_3)A_1D_2 < 1$ in (2.16) is $\eta_2 = |\mu|\frac{T^2}{2} + |\lambda|A_1D_2(qTB_2 + B_3\frac{T^2}{2}) < 1$ and correcting of the last inequality in Section 2.2.1 is $|\lambda| < \frac{2-|\mu|T^2}{(2qTB_2+B_3T^2)A_1D_2}$.

Also, (2.17) becomes

$$\begin{aligned}||\overline{W}\phi_1 - \overline{W}\phi_2|| = ||W\phi_1 - W\phi_2|| \le \eta_3||\phi_1 - \phi_2||, \\ \eta_3 = |\mu|\frac{T^2}{2} + |\lambda|A_1D_1(qTB_2 + B_3\frac{T^2}{2}) < 1.\end{aligned} \tag{0.4}$$

In page 8531, correcting of the first inequality is $|\lambda| < \frac{2-|\mu|T^2}{(2qTB_2+B_3T^2)A_1D_1}$.

Conflict of interest

The authors declare that they have no competing interests.

References

1. G. A. Mosa, M. A. Abdou, A. S. Rahby, Numerical solutions for nonlinear Volterra-Fredholm integral equations of the second kind with a phase lag, *AIMS Math.*, **6** (2021), 8525–8543. doi: 10.3934/math.2021495.