CORRECTION OF THE PAPER BY L. HATVÁNYI ENTITLED "ON CERTAIN INDICATIONS OF STABILITY WITH TWO LIAPUNOV FUNCTIONS", PMM Vol. 39, № 1, 1975

PMM Vol. 40, № 2, 1976, p. 251

An error has recently been discovered in the above paper, and I am very grateful to R. I. Kozlov for bringing this to my attention. Theorem 1.1 given in the paper is incorrect, and an example constructed by Kozlov illustrates this.

Theorem 1.1 will however become valid, if condition (1.2) appearing in it, is replaced by the following.

Assume that for any α $(0 < \alpha < H')$

$$\xi_\alpha(t) = \max\{\|\mathbf{X}(t, \mathbf{x})\| : \alpha \leqslant \|\mathbf{x}\| \leqslant H'\} \in F$$

Moreover, in the proof of Theorem 1.1 relation (1.5) must be replaced by the estimate

$$\frac{\gamma}{2} \leqslant \|\mathbf{x}(t_k'') - \mathbf{x}(t_k')\| \leqslant \int_{t_k'}^{t_k''} \|\mathbf{X}(t, \mathbf{x}(t))\| \, dt \leqslant \int_{t_k'}^{t_k''} \xi_\alpha(t)\, dt \to 0 \qquad (k \to \infty)$$

Similarly, in Theorem 2.1 condition (2.1) must be replaced by the following.

Assume that for any α, t_0 $(0 < \alpha < H',\ t_0 \geqslant 0)$

$$\xi_\alpha(t, t_0) = \max\{\|\mathbf{Y}(t, \mathbf{y}, \mathbf{z})\| : \alpha \leqslant \|\mathbf{y}\| \leqslant H',\ \mathbf{z} \in E_z(t;\ t_0)\} \in F$$

The above changes affect the formulation of Theorem 3.1 where conditions (3.2) and (3.3) must be replaced by the requirement that the condition

$$\max\left\{\sum_{i,j=1}^{n} |g_{ij}(t, \mathbf{q}) - b_{ij}(t, \mathbf{q})| : \|\mathbf{q}\| \leqslant H'\right\} \in F$$

holds.

The proof of Theorem 3.1 can be retained in full, provided that

$$W = \Sigma_{i=1}^{n} (\partial T / \partial q_i^{\cdot})\, q_i$$

is used as the second Liapunov function.

We note that the condition

$$\xi(t) = \max\{\|\mathbf{X}(t, \mathbf{x})\| : \|\mathbf{x}\| \leqslant H'\} \in F$$

implies that $\xi_\alpha(t) \in F$ for all α $(0 < \alpha < H')$, but the converse is not true.

Translated by L. K.