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Corrections to the paper: “On formal theory of differential equations. II.”

*Časopis pro pěstování matematiky*, Vol. 114 (1989), No. 4, 411

Persistent URL: <http://dml.cz/dmlcz/118396>

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CORRECTIONS TO THE PAPER  
 “ON FORMAL THEORY OF DIFFERENTIAL EQUATIONS II”

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(Received June 11, 1989)

The example 70<sup>5</sup> should read  $\dots + (u_1 + (v_2)^2) \partial/\partial u_0 + \dots$ , the vector field 88<sup>5</sup> should be  $\partial = \partial/\partial t + \dots$ , the fundamental principle mentioned in 98<sup>4</sup> should use  $X \nabla$ , the case **B** of 99<sup>8</sup> should contain  $\vartheta_2$  (instead of  $\vartheta_3$ ), formula (86) should be corrected as  $\dots = h_3(\xi_2 + \dots$ , and formula (87) should begin with  $h_3 X^2 f + \dots$ . But (91) is a nonsense and the lines 101<sub>2</sub>–102<sup>9</sup> are confused.

For the correction, let us recall the task of Section 50. We look for the modules  $\Xi = \{\xi_0, \xi_1, \xi\}$  such that  $\ell(\text{Adj } \Xi) \leq 5$ . But  $\text{Adj } \Xi$  contains  $\Xi$  and moreover the forms

$$(1)_{1-8} \quad \xi_2, \xi', \delta g, \delta f, \delta Xf, -dt - (f_3 f - (Xf)_3) \vartheta_0, -h_3 dt + g_3 \vartheta_0, f_3 \vartheta_0$$

which therefore involves only two new generators. Linear dependence of (1)<sub>1,2</sub> gives (86) and a look at (1)<sub>3-5</sub> gives (90) just as in [1]. Then the inclusion

$$\delta f = \sum f_i \vartheta_i = (f_1 - f_2 f) \xi_0 + f_2 \xi_1 + (f_0 - f_1 f + f_2(f^2 - Xf)) \vartheta_0 \in \text{Adj } \Xi$$

implies  $(f_0 - \dots - Xf) = 0$ , hence  $f_2 = 0$  (consider terms with the variable  $u_3$ ) and analogously,  $\delta Xf \in \text{Adj } \Xi$  implies  $f_v = 0$ . So the lines following 102<sup>9</sup> are well-founded.

Note besides that the forms (1)<sub>6-8</sub> do not give anything new. It follows that some identities appear several times in the course of the calculations. This is a promising feature of the theory which indicates the presence of certain hidden structures not yet discovered and the reasonability of further investigations and generalizations.

*References*

- [1] *J. Chrastina*: On formal theory of differential equations II, this Volume 60–105.