Jan Chrastina
Corrections to the paper: "On formal theory of differential equations. II."

CORRECTIONS TO THE PAPER
"ON FORMAL THEORY OF DIFFERENTIAL EQUATIONS II"

Jan Chrastina, Brno

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The example 70^5 should read $\ldots + \left(u_1 + (v_2)^2\right) \partial/\partial u_0 + \ldots$, the vector field 88^5 should be $\partial = \partial/\partial t + \ldots$, the fundamental principle mentioned in 98^4 should use $X \urcorner$, the case B of 99^8 should contain ϑ_2 (instead of ϑ_3), formula (86) should be corrected as $\ldots = h_3(\xi_2 + \ldots$, and formula (87) should begin with $h_3 X^2 f + \ldots$. But (91) is a nonsense and the lines $101_2 - 102^9$ 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 $\ell(\mathrm{Adj}\,\Xi) \leqq 5$. But $\mathrm{Adj}\,\Xi$ contains Ξ and moreover the forms

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

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

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

implies $(f_0 - \ldots - Xf)) = 0$, hence $f_2 = 0$ (consider terms with the variable u_3) and analogously, $\delta X f \in \mathrm{Adj}\,\Xi$ implies $f_v = 0$. So the lines following 102^9 are well-founded.

Note besides that the forms $(1)_{6-8}$ 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.