

Jan Chrastina

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>

Terms of use:

© Institute of Mathematics AS CR, 1989

Institute of Mathematics of the Academy of Sciences of the Czech Republic provides access to digitized documents strictly for personal use. Each copy of any part of this document must contain these *Terms of use*.



This paper has been digitized, optimized for electronic delivery and stamped with digital signature within the project *DML-CZ: The Czech Digital Mathematics Library* <http://project.dml.cz>

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

JAN CHRASTINA, Brno

(Received June 11, 1989)

The example 70⁵ should read $\dots + (u_1 + (v_2)^2) \partial/\partial u_0 + \dots$, the vector field 88⁵ should be $\partial = \partial/\partial t + \dots$, the fundamental principle mentioned in 98⁴ should use $X \neg$, the case **B** of 99⁸ should contain ϑ_2 (instead of ϑ_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 101₂–102⁹ 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 Ξ 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)_{1,2} gives (86) and a look at (1)₃₋₅ gives (90) just as in [1]. Then the inclusion

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

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 102⁹ 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.