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

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The example 70 should read \( \ldots + (u_1 + (v_2)^2) \partial / \partial u_0 + \ldots \), the vector field 88 should be \( \partial = \partial / \partial t + \ldots \), the fundamental principle mentioned in 98 should use \( X^{-1} \), the case \( B \) of 99 should contain \( \theta_2 \) (instead of \( \theta_3 \)), 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 nonsense and the lines 101–102 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 \( \langle (\text{Adj } \Xi) \rangle \leq 5 \). But \( \text{Adj } \Xi \) contains \( \Xi \) and moreover the forms
\[
(1)_{1-8} \quad \xi_2, \xi', \delta g, \delta f, \delta Xf, -dt - (f_3 f - (Xf)_3) \theta_0, -h_3 dt + g_3 \theta_0, f_3 \theta_0
\]
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
\[
\delta f = \sum_i f_i \theta_i = (f_1 - f_2 f) \xi_0 + f_2 \xi_1 + (f_0 - f_1 f + f_2 (f^2 - Xf)) \theta_0 \in \text{Adj } \Xi
\]
implies \( (f_0 - \ldots - Xf)) = 0 \), hence \( f_2 = 0 \) (consider terms with the variable \( u_3 \)) and analogously, \( \delta Xf \in \text{Adj } \Xi \) implies \( f_3 = 0 \). So the lines following 102 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