Title: On the torsion-free connections on higher order frame bundles

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Using the r-jets of flows of vector fields, we show that every torsion-free linear r-th order connection Γ on the tangent bundle of a manifold M determines a reduction of the $(r + 1)$-st order frame bundle of M to the general linear group. We deduce that this reduction coincides with the well known reduction determined by the principal connection induced by Γ on the r-th order frame bundle of M.

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