



Compatible Poisson brackets, quadratic Poisson algebras and classical r-matrices

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Résumé en anglais	<p>We show that for a general quadratic Poisson bracket it is possible to define a lot of associated linear Poisson brackets: linearizations of the initial bracket in the neighborhood of special points. We prove that the constructed linear Poisson brackets are always compatible with the initial quadratic Poisson bracket. We apply the obtained results to the cases of the standard quadratic r-matrix bracket and to classical "twisted reflection algebra" brackets. In the first case we obtain that there exists only one non-equivalent linearization: the standard linear r-matrix bracket and recover well-known result that the standard quadratic and linear r-matrix brackets are compatible. We show that there are a lot of non-equivalent linearizations of the classical twisted Reflection Equation Algebra bracket and all of them are compatible with the initial quadratic bracket.</p>
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