Solution Transformations and Their Effects on the Systemswith Open Boundary Conditions

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Abstract: The solution transformations and properties of the R-matrices for two-component systems under these transformations are analyzed in details. Not all transformed R-matrices can be put into the Skalyanin's formalism. For those R-matrices with all required properties, the effects of solution transformations to the six- and eight-vertex systems with open boundary conditions are discussed. These effects can be one of the following types: The Hamiltonian is invariant or transposition-invariant or made in a similarity transformation, or its coupling coefficients are multiplied by an overall factor, or the spin of the system is rotated around the z axis or/and reflected with respect to some plane. In these cases, the transformed systems remain to be integrable.

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