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Multiple integral representation for correlation functions of a spinless fermion model

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We derive the multiple integral representation for correlation functions of a spinless fermion model. In complete analogy with Kitanine et al's method, but this time using fermionic R-operator, we see that the longitudinal correlation function is the same, but the transverse correlation function becomes different from the spin model, as is expected. During the derivation we see the scalar product is the same with spin model. At the free-fermion point the transverse correlation function drastically simplifies, contrary to the spin model. (joint work with K. Sakai)