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Erratum

A Unified Approach to String Scattering Amplitudes

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In my paper cited above, I constructed a certain holomorphic line bundle

$$\lambda_2 \otimes \lambda_1^{-13} \otimes \left(\bigotimes_{\nu=1}^{13} \langle \mathcal{O}(D^\nu), \mathcal{O}(D^\nu) \rangle \right)^{-1} \tag{1}$$

on a generalized moduli space $\mathcal{M}_{g,n,B}$ of complex compact algebraic curves X of genus g with n punctures $Q_1, \ldots, Q_n$ being contained in a disc B on the curve. (The curves were considered up to an isomorphism identical on the punctures, and homotopically equivalent disks on the punctured curve were also identified.) That bundle was provided with a canonical hermitian metric, and I claimed that this metric was flat (Proposition 2.2), that is not true: actually, one can prove that this metric is relatively admissible with respect to the natural projection $\mathcal{M}_{g,n,B} \to \mathcal{M}_g$, i.e., its curvature is proportional to a canonical (1, 1)-form on the fibers of this projection (see 4.4). This error makes it necessary to define a generalized Mumford form $\mu_{g,n,B}$ as an arbitrary local holomorphic section of bundle (1) and to include its norm $\|\mu_{g,n,B}\|$ in the formulation of the generalized Belavin-Knizhnik theorem in the amplitudic case (Theorem 2 from the introduction) as follows:

Theorem. *The Polyakov measure* $d\pi_{g,n}$ *is equal to* $\mu_{g,n,B} \wedge \bar{\mu}_{g,n,B} / \|\mu_{g,n,B}\|^2$, *where* $\mu_{g,n,B}$ *is a local holomorphic section of the hermitian line bundle*

$$\lambda_2 \otimes \lambda_1^{-13} \otimes \left(\bigotimes_{\nu=1}^{13} \langle \mathcal{O}(D^\nu), \mathcal{O}(D^\nu) \rangle \right)^{-1}$$

over the moduli space $\mathcal{M}_{g,n,B}$ *of the data* $(X, Q_1, \ldots, Q_n, B)$. *Here* $D^\nu = \sum_{i=1}^{n} p_i^\nu \cdot Q_i$ *is the complex divisor with the momentum components as coefficients. The section* $\mu_{g,n,B}$ *is defined locally up to a holomorphic factor.*

Similar changes need to be made in Sect. 5 of the introduction and in Sect. 4.6 with the bundle

$$\lambda_2 \otimes \lambda_1^{-13} \otimes \mathscr{C}^{\boxtimes 13}$$