Modular Bootstrap of Solvable Irrelevant Deformations

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I will first give a general introduction to the *TTb* deformation, including its definition, the deformed spectrum and interesting features. Then I will focus on the torus partition function of the *TTb*-deformed conformal field theories. I will show that the deformed partition function is modular invariant. More importantly, by requiring modular invariance of the partition function and some qualitative assumptions about the spectrum, one can fix the deformation uniquely to be that of the *TTb* deformation. Similar results can be proven for the Lorentz-breaking *JTb* deformation by requiring modular covariance of the charged torus partition function. Finally I will comment on non-perturbative features of the these deformations and holography.