

Abstract Submitted
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Bell inequalities from group theory MARK HILLERY, UGUR GUNNEY, Hunter College of the City University of New York — Bell inequalities are inequalities containing probabilities of measurement results that are obeyed by probabilities that come from a local, realistic theory but can be violated if the probabilities come from quantum mechanics. They can be also be formulated as nonlocal games in which quantum mechanical resources allow for higher winning probabilities than purely classical resources. Besides their intrinsic interest, these inequalities have proven to be useful in cryptography and entanglement testing. In an earlier study, we showed that it is possible to use group actions for cyclic groups to generate two-party Bell inequalities. This has now been extended to more than two parties and to non-Abelian groups. We will explicitly look at the nonlocal games generated by two groups of 6 elements, one Abelian and one non-Abelian, and compare their structures.

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