Abstract Submitted
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The magnetisation distribution of the Ising model - a new approach[1] PER HAKAN LUNDOW, ANDERS ROSENGREN, KTH — A completely new approach to the Ising model in 1 to 5 dimensions is developed. We employ a generalisation of the binomial coefficients to describe the magnetisation distributions of the Ising model. For the complete graph this distribution is exact. For simple lattices of dimensions $d = 1$ and $d = 5$ the magnetisation distributions are remarkably well-fitted by the generalized binomial distributions. For $d = 4$ we are only slightly less successful, while for $d = 2, 3$ we see some deviations (with exceptions!) between the generalized binomial and the Ising distribution. The results speak in favour of the generalized binomial distribution's correctness regarding their general behaviour in comparison to the Ising model. A theoretical analysis of the distribution's moments also lends support their being correct asymptotically, including the logarithmic corrections in $d = 4$. The full extent to which they correctly model the Ising distribution, and for which graph families, is not settled though.

[1]The Swedish Research Council

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