

Numerical Analysis of the Rebellious Voter Model

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The rebellious voter model, introduced by Sturm and Swart (2008), is a variation of the standard, one-dimensional voter model, in which types that are locally in the minority have an advantage. It is related, both through duality and through the evolution of its interfaces, to a system of branching annihilating random walks that is believed to belong to the "parity-conservation" universality class. We present an analysis of numerical data for the rebellious voter model and for a closely related one-sided version of the model. Both models appear to exhibit a phase transition between noncoexistence and coexistence as the advantage for minority types is increased. For the one-sided model (but not for the original, two-sided rebellious voter model), it appears that the critical point is exactly a half and two important functions of the process are given by simple, explicit formulas, a fact for which we have no explanation.

References

- [1] Jan M. Swart, Karel Vrbenský Numerical Analysis of the Rebellious Voter Model *Journal of Statistical Physics*, 5: 873–899, 2010.

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