

## Tightness of voter model interfaces

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### Abstract

Consider a long-range, one-dimensional voter model started with all zeroes on the negative integers and all ones on the positive integers. If the process obtained by identifying states that are translations of each other is positively recurrent, then it is said that the voter model exhibits interface tightness. In 1995, Cox and Durrett proved that one-dimensional voter models exhibit interface tightness if their infection rates have a finite third moment. Recently, Belhaouari, Mountford, and Valle have improved this by showing that a finite second moment suffices. The present paper gives a new short proof of this fact. We also prove interface tightness for a long range swapping voter model, which has a mixture of long range voter model and exclusion process dynamics.

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### Bibliography

1. V. Belitsky, P.A. Ferrari, M.V. Menshikov, and S.Y. Popov. A mixture of the exclusion process and the voter model. *Bernoulli* 7(1): 119--144, 2001. [Math. Review 1811747](#) [Zbl 0978.60105](#)
2. S. Belhaouari, T. Mountford, R. Sun, and G. Valle. Convergence results and sharp estimates for the voter model interfaces. *Electron. J. Probab.* 11: Paper No. 30, 768--801, 2006. [Math. Review 2242663](#) [Zbl 1113.60092](#)
3. S. Belhaouari, T. Mountford, and G. Valle. Tightness for the interfaces of one-dimensional voter models. *Proc. Lond. Math. Soc. (3)* 94(2): 421--442, 2007. [Math. Review 2308233](#) [Zbl 1112.60074](#)
4. J.T. Cox and R. Durrett. Hybrid zones and voter model interfaces. *Bernoulli* 1(4): 343--370, 1995. [Math. Review 1369166](#) [Zbl 0849.60088](#)
5. S.J. Handjani. The complete convergence theorem for coexistent threshold voter models. *Ann. Probab.* 27(1): 226--245, 1999. [Math. Review 1681118](#) [Zbl 0974.60093](#)
6. T.M. Liggett. *Interacting Particle Systems*. Springer, New York, 1985. [Math. Review 0776231](#) [Zbl 0559.60078](#)
7. A. Sturm and J.M. Swart. Voter models with heterozygosity selection. *Ann. Appl. Probab* 18(1): 59--99, 2008. [Math. Review number not available.](#)

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