[P9] Effects of Time-delay in Opinion Dynamics

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We investigate the voter model with time-delayed interactions (TVM) on onedimensional lattices in order to understand the effects of a time delay on dynamical behaviors. In this model, each voter i takes one of the two opinions ($s_i = \pm 1$) and copies the previous opinion of its nearest neighbor τ time steps before. The model is shown to be dual to the coagulating sleeping random walk model, which is in turn mapped to the coagulating random walk model in two dimensions. Using these mappings, we find that the system exihibits a dimensional crossover and that the ordering dynamics slows down by the factor of τ 3 with a possible logarithmic correction.

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