

Erratum: Topology and geometry of clusters in the Vicsek model across scales **[Phys. Rev. Research 8, 033039 (2026)]**

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Equation (2) contains an error in the time index of the neighbor set and should be corrected to adjust the heading of the focal particle using the set of connected particles in the next time step, instead of the current time step as reported in the paper. The correct formula is

$$\theta_j(t + \Delta t) = \text{Arg} \left[\sum_{u \in \mathcal{N}_j(t + \Delta t)} \mathbf{v}_u(t) \right] + \eta \xi_j(t).$$

Taking into account the corrected update rule, the physical interpretation of our claims as published is unchanged, and our results are indistinguishable from those obtained using a forward update method [1].

Simulations with the backward update model stated in the paper yield an average degree and average path length that scale as power laws with respect to the cluster mass (Fig. 1), consistent with results reported by Baglietto *et al.* [2], who also use a backward update. The difference identified between our paper's results and the work of Baglietto *et al.* should thus be viewed from the perspective of the difference in the selected update rules. All programs needed to reproduce the results discussed here and in the paper are publicly available [3].

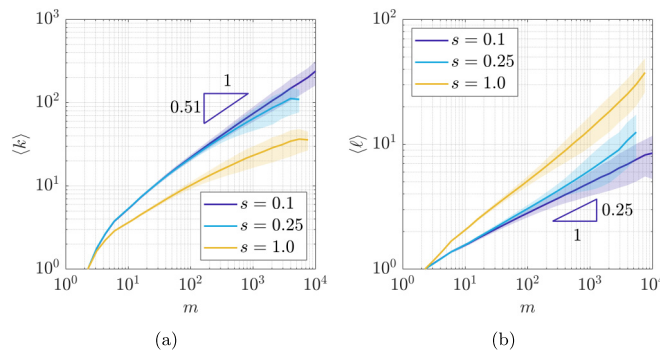


FIG. 1. Network topology metrics using Eq. (2) as it was reported in the paper. (a) We plot the average degree, $\langle k \rangle$, as a function of the cluster mass, m . Under the backward update rule, the average degree scales with a power law of the cluster mass, $\langle k \rangle \propto m^\gamma$, where $\gamma \approx 0.5$ for speed $s = 0.1$. (b) The average path length similarly scales with a power law, $\langle \ell \rangle \propto m^\gamma$, where $\gamma \approx 0.25$ for speed $s = 0.1$. Results are computed from averages across 6030 snapshots, with shading showing the standard deviation.

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