

Erratum: Uncovering universal characteristics of homing paths using foraging robots [PRX Life 2, 033007 (2024)]

Somnath Paramanick , Arup Biswas , Harsh Soni , Arnab Pal , and Nitin Kumar 



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We spotted an error in Fig. 7(b) of the original paper. The corrected version of the figure is provided below. This correction does not affect the main results of the paper.

The error occurred due to a bug in our code used to calculate $C_\theta(t)$ for pigeon trajectories provided in [1]. Upon correction, we observe an initial rapid decay followed by an almost saturation at larger times for both solo and flock trajectories, as shown in Fig. 1. This behavior is in accordance with the theoretical expression in Eq. (7) of the original paper.

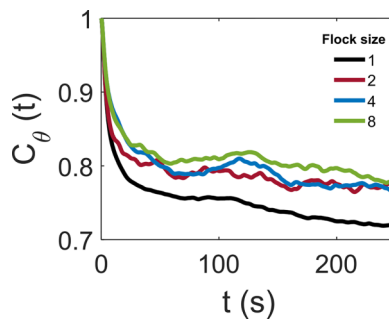


FIG. 1. [Corrected version of Fig. 7(b) of the original paper.] $C_\theta(t)$, averaged over multiple trajectories, showing sudden decay at small times and almost saturation at larger times, which is in qualitative agreement with experimental and theoretical results obtained for high D_r values as shown in Fig. 4(c), Fig. 6(f), Fig. 5, and Eq. (7) of the original paper.

In the original paper, we conjectured that pigeons decrease their rotational diffusion constant, D_r , as the flock size increases. However, the corrected $C_\theta(t)$ does not support that argument. Seemingly, D_r continues to remain high since a linear decay in $C_\theta(t)$ is no longer observed. However, $C_\theta(t)$ exhibits similar qualitative features to those observed in experiments [Fig. 4(c) of the original paper], simulations [Fig. 6(f) of the original paper], and the theoretical model [Eq. (7) and Fig. 5 of the original paper], indicating that pigeons, whether flying solo or in a flock, display similar homing behavior. This strongly suggests that their homing behavior originates from the interplay between the strength of stochasticity and the frequency of reorientations, as hypothesized in the original paper.

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- [1] T. Sasaki, N. Masuda, R. P. Mann, and D. Biro, Empirical test of the many-wrongs hypothesis reveals weighted averaging of individual routes in pigeon flocks, *iScience* **25**, 105076 (2022).