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**Do proximate, C. elegans swimmers synchronize their gait?**[1]
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We imaged two C. elegans swimming, one after the other, in a tapered conduit. The conduit was subjected to a DC electric field, with the negative pole at the narrow end and applied flow directed from the narrow end. As a result of their attraction to the negative pole (electrotaxis), both animals swam upstream. As the conduit narrowed, the average adverse flow velocity increased and the swimming speed of the leading animal decreased faster than that of the trailing animal, allowing the latter to catch up with the former. We quantified synchronization by measuring the phase lag between the gait of one animal and the extended wave pattern of the other as a function of the distance between the two animals. Only when the distance between the two animals' body centers was nearly equal to or smaller than one body length were the animals' motions synchronized. When the nematodes were parallel to one another, synchronization was essential to prevent the animals from colliding. Direct numerical simulations indicate that when the trailing animal's head is immediately downstream of the leading animal's tail, the animals derive just a slight hydrodynamic advantage from their proximity compared to a single swimmer.

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