

Why do these birds flock together like this?

Which bird is the leader?

How do these starlings behave as one?

Explain your answers.



Patterns may look like the result of extrasensory communication, but they're in fact the product of emergent animal group behavior known as flocking. Every change of direction comes not as a result of an individual member of the flock, but rather of the snap decisions made by those individuals in response to the movements of their neighbors.

Computer programmer Craig Reynolds applied simple rules to bird behavior to simulate flocking.

The 3 rules include:

1. the fact that each bird steers itself to avoid crowding or bumping its neighbors (separation)
2. each bird tries to match the average heading of its neighbors (alignment)
3. each bird steers towards the average position of its neighbors, maintaining flock structure (cohesion)

The Benefit of the Flock

It improves a bird's chance of survival against predators because a large group of birds is stronger and better protected and with many eyes the flock is far more likely to spot a would-be marauder. The predator will find it harder to concentrate on a single victim, increasing the individual member of the flock's chance of survival.

Flocking also enables birds to fly further using less energy because when the strong leader bird flaps its wings it creates uplift for the birds behind – each bird (except the leader) is flying in the up-wash from the wing of the bird in front. This enables the flock to use less energy and reduces fatigue.

<https://www.howitworksdaily.com/why-do-birds-flock-together/>