# Improving Swarm

Because less birds the better (more iters per bird), we should improve the birds moves so that each birds needs less overall steps to move for achieving a good solution, this includes improving the swarm (join) behavior as then maybe more birds will yield better results even though they have less iters available overall.

Currently, if one (big) bird made the decision to join another bird, he picks one randomly.

Means joining any bird without considering how good the position of that bird might be. This contradicts the original idea of the authors that (big) birds tend to join others that have found a good food source (current solution seems promising or is lower than others).

Therefore, we propose that a big will only joint the top n % birds that have the lowest current cost. If one choses the right ratio, we assume that it will automatically nudge the swarm in the right direction.

However, one has to be careful when selecting the ratio, as a number too low will increase the probability that all birds get stuck in a local minimum. A number too high will in turn lower this probability and birds can then also joint birds which are not performing as well.

* Wil take longer because of the sorting!