**Discussion of the results**

The results obtained in the above section where there is no predator end up in a stable equilibrium except the case where the friction is removed. This is clearly not a realistic result of swarming behaviour which makes the model useless for swarming behaviour without predators.

In the case of a single predator there are several configurations which lead to a more realistic behaviour of the swarm. Nevertheless the parameters have to be chosen careful. The change of just one a parameter can result in an unrealistic behaviour of the swarm for example to fast moving agents. Further there exist some configurations which end up in a periodic movement of all agents which also is not realistic behaviour. If the parameters are chosen carefully the simulations leads to a realistic and contiguous movement of the agentsOn the other hand there are several configurations which lead to a contiguous movement of the agents

In general it is to say that the behaviour of the predators with different forces between them is small. Predators with no force and with attractive force behave nearly the same.