

Collective Decision Making in Dynamic Environments

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Topic

How large-scale **decentralised systems** identify the **best** (or equal-best) **option** out of several alternatives in **dynamical contexts** (where the possible alternatives display time-varying features).

- No prior knowledge of the options
- No central control



Inspiration

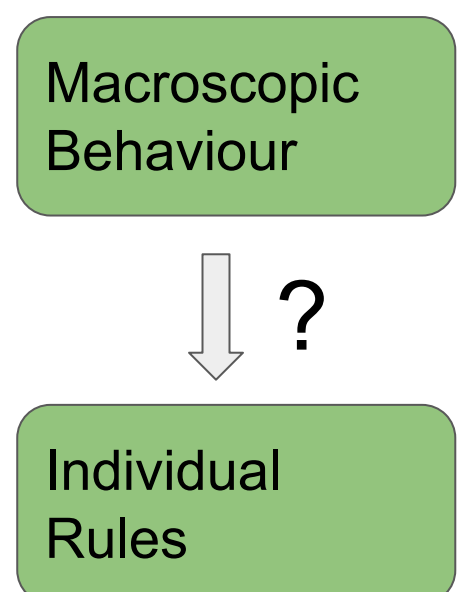
Honeybee nest site selection

- Spontaneous discovery/abandonment of potential nest sites
- Committed scout-bees actively recruit other bees
- Bees committed to different sites deliver stop signal to each other
 - Attains near-optimal speed-accuracy trade off
 - No need of direct comparison between options



Problem

Design the individual rules that lead the desired macroscopic behaviour



Objectives

- Understand the causal relationship between **microscopic choices** and **macroscopic effects**
 - Multiagent simulation
- The results can be helpful to better understand the behaviour of natural system