

Brownian motion - directions can change all the time, for a gas, atoms move straight and change direction in collisions

Levy walk - don't turn all the time and don't always turn in the same direction; there is a core distribution of turning angles and low walking distance

At low populations, Brownian has normal distributions, Levy walk has densities

At the end project for the class, there will be a comparison between a control and a variable that is changed

A pattern at either density should produce 1, no pattern should produce a 0, and hopefully a linear pattern in between

Metric	Low density	High density
mean		$0.998/p$
mean distance traveled		$1/p, 0/p$

Diffusion Limited Aggregation models

Particles move randomly, but get stuck when bumped into each other

In the DLA algorithm, a particle bumps and stops moving

More NetLogo commands

breed - create different types of agents

example: breed [mussels mussel] ; can use both singular and plural

breed [walls wall]

can also make a floor tile: breed [stamper]

one can then ask mussels []

can also create properties of a class of agents: mussels-own [variable1 variable2 etc]

to make walls, use sprout-wall 1 inside of the ask procedure

Termites

What is Intelligence and what is Swarm Intelligence?

Intelligence means understanding, or to lay something between - "read between the lines"

Used in psychology as cognitive ability in humans

In professor's definition - "the ability to solve problems in ways that were unknown before"

Swarm intelligence - how to solve a problem collectively

The path to solutions must be flexible

Solutions should be robust, individuals should be simple

The swarm should be scalable - the bigger the swarm, the better it should work (within bounds)

There is a critical minimum density
It is an emergent property
Problems are solved without a global decision making component

Termites - King, Queen, Soldier, and Worker
FSM for termites

Lay down --> Unloaded --> Pick up --> Loaded

For Homework

--Think about a metric

Find a metric to discriminate between the initial condition and a minute after

Implement the metric as a monitor and compare

In the ideal cases, the metric gives 0 for no pattern and 1 for a pattern