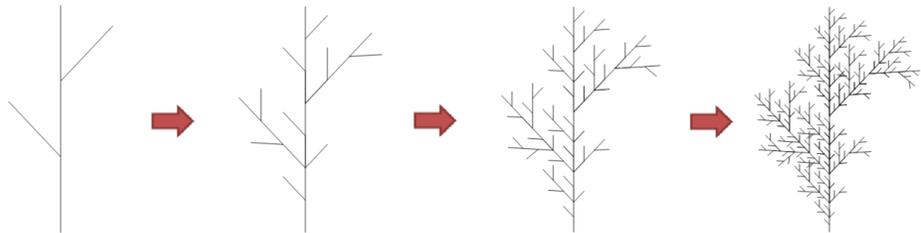




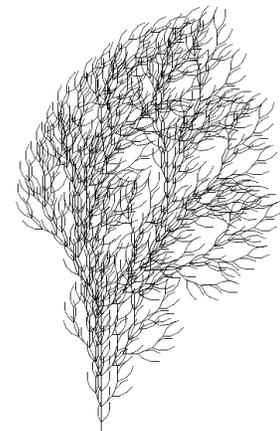
SPATIALLY EXPLICIT MODELLING OF SEAWEED HABITS

Background

Even though the overall structure of most plant species is very complex, one can often discern similar structures at different spatial scales (i.e. so-called self-similarity). For instance, the way the branches of tree are organized on the trunk often shows a remarkable similarity with the way the underbranches are organized on its branches, and at an even smaller scale how the twigs are organized on every underbranch. Likewise, such a similarity across different spatial scales have been observed among ferns, seaweeds, herbs, and so on.



Making use of repeating pattern displayed at nested levels it is possible to simulate plant structures by means of spatially explicit models, such as so-called L-systems. An L-system consists of a set of characters; a collection of rules that expand each character into a larger string of characters; an initial string from which to begin construction, and a mechanism for translating the generated strings into geometric structures. The L-system rules allow for a quantification of a growth. If automated, they can be used for high throughput morphological comparison between species and strains (phenomics).



Scope of the thesis

The aim of this thesis is to develop a model that simulates seaweed habits, and parameterize and validate this model using data collected/available at the Phycology Research Group of Ghent University. Ultimately, this model should allow for simulating the habit of a particular seaweed species, Dictyota an upcoming eco-genomic model species.

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BACKGROUND

All

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