



## **Overview**

- Fitness function directs the search in GP
- This is based on behaviour rather than structure
- Structure-based GP (SBGP) directs the search using both behaviour and structure
- Is based on the way GP converges

## When to take structure into consideration?

- As part of the fitness
- As part of the selection method
- When detecting local optima (as in the ISBA algorithm)
- To control exploration and exploitation throughout a GP run.



## **Detecting Similarity**

- Similarity indexes are used for this
- The index used is dependent on how structure is used
- Example: counting the number of nodes that are the same from the root
- Thresholds are need to define the "amount" of similarity needed



## Similarity Index Example







