

## Heuristic of an Evolutionary Algorithm to solve the curriculum based course timetabling problem

Frank Borchardt – Steffen Kremer – Roy Pottukalam – Matthias Ruzsala –  
Alexander Weickmann – Sotiris Zdragkas

### Idea of the heuristic:

#### Generator:

Fills up the solution table with feasible solutions generated by the algorithm of Martin Josef Geiger<sup>1</sup>.

The generator also brings in new genes into the population during the evolution-process.

#### Evaluator:

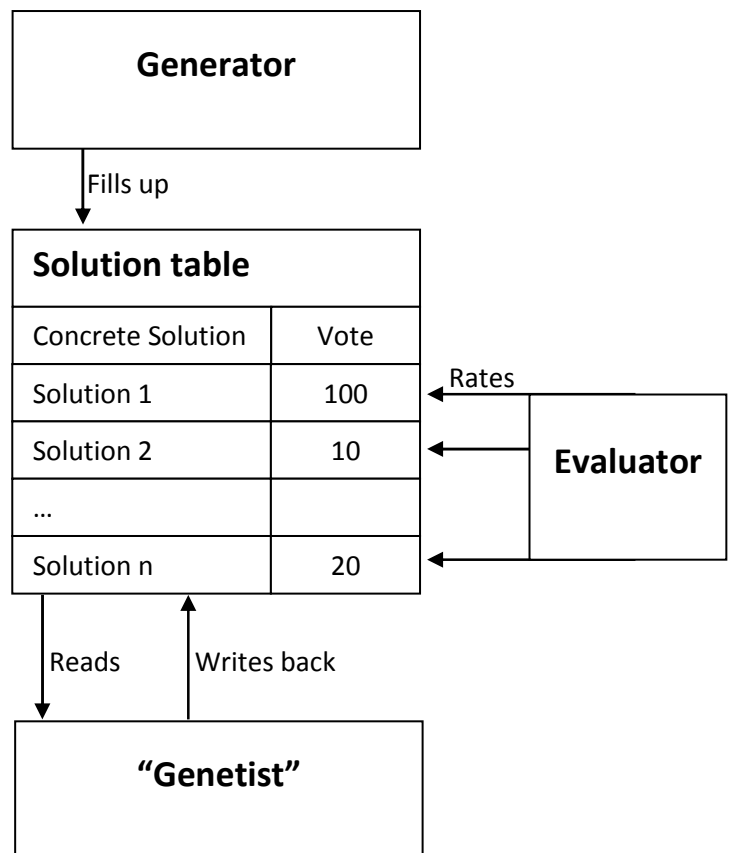
Evaluates each solution by one concrete curriculum. Based on this rating the reproduction-strategy will take place. The higher the rating is, the higher is the possibility for reproduction of the concrete solution.

#### “Genetist”:

This module reads several solutions from the solution table and creates new (mostly better) solutions via

- Recombination
- Mutation

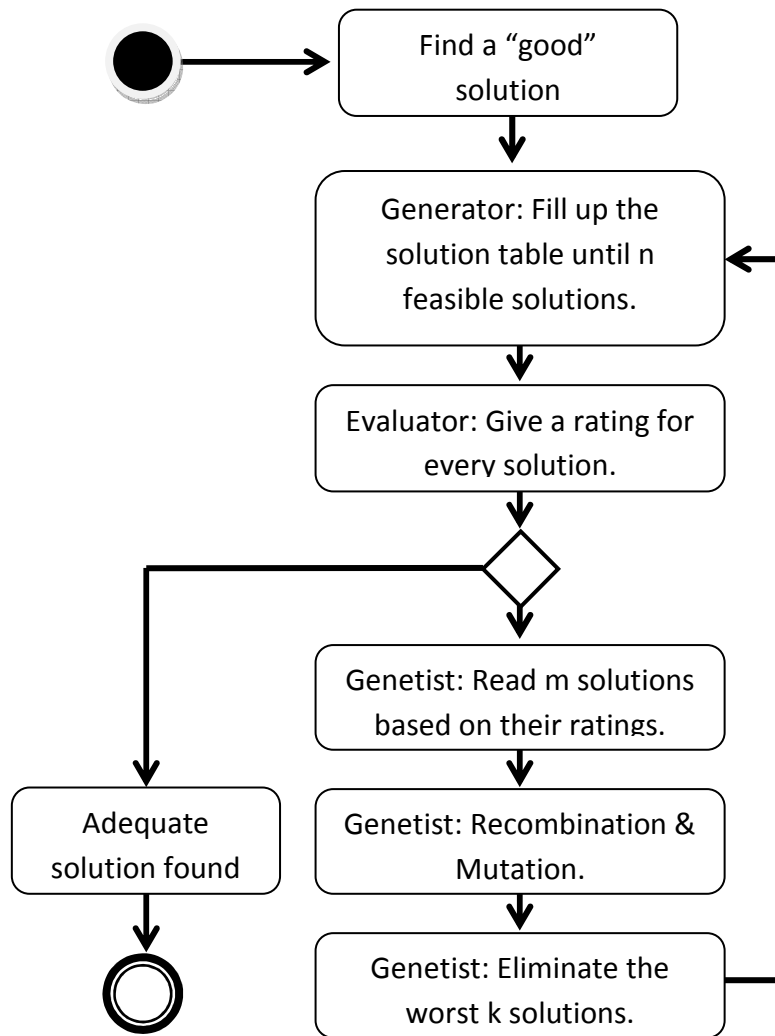
This module uses the Neighborhood Analysis by Zhipeng Lü, Jin-Kao Hao and Fred Glover<sup>2</sup>.



<sup>1</sup> [http://w1.cirrelt.ca/~patat2008/PATAT\\_7\\_PROCEEDINGS/Papers/Geiger-TC1d.pdf](http://w1.cirrelt.ca/~patat2008/PATAT_7_PROCEEDINGS/Papers/Geiger-TC1d.pdf)

<sup>2</sup> <http://www.info.univ-angers.fr/pub/hao/papers/JoH2010.pdf>

### Activity Diagram:



### Measurements: