# Prosit: No free lunch

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NOTE: (This prosit will be conducted in the context of the project: if necessary, read the statement again before starting)

KEYWORDS

* Hill climbing Approach
* Metaheuristics
* Intensification/ exploitation
* Diversification/ exploration
* Local optimum
* Neighborhood Modelling /methods
* Trajectory population-based metaheuristics
* Genetic Algorithm
* Tabu Algorithm
* Simulated Annealing
* GRASP
* Construction-based methods
* Ant-colony Algorithm
* Lower bound
* Perturbative -Local search method
* No-free lunch theorem

CONTEXT

A routing problem is being addressed using metaheuristics. Agathe raises concerns about relying on simple heuristics and suggests exploring advanced methods like genetic algorithms and simulated annealing.

PROBLEM STATEMENT

How can we select an effective metaheuristic that balances intensification and diversification, while also evaluating solution quality, generating representative problem instances, and fine-tuning algorithm parameters for optimal performance?

CONSTRAINTS

NP-Complete problem

Computation time

SOLUTION APPROACH

Balance intensification and diversification

Use genetic algorithm

Test and compare metaheuristics approaches

ACTION PLAN

Study and compare metaheuristics algorithms

Propose two metaheuristics for the project

Deliverable for the prosit

Deliverable for the project