

Hybrid Metaheuristics

Ch. 5-5.1

Marcus Posada

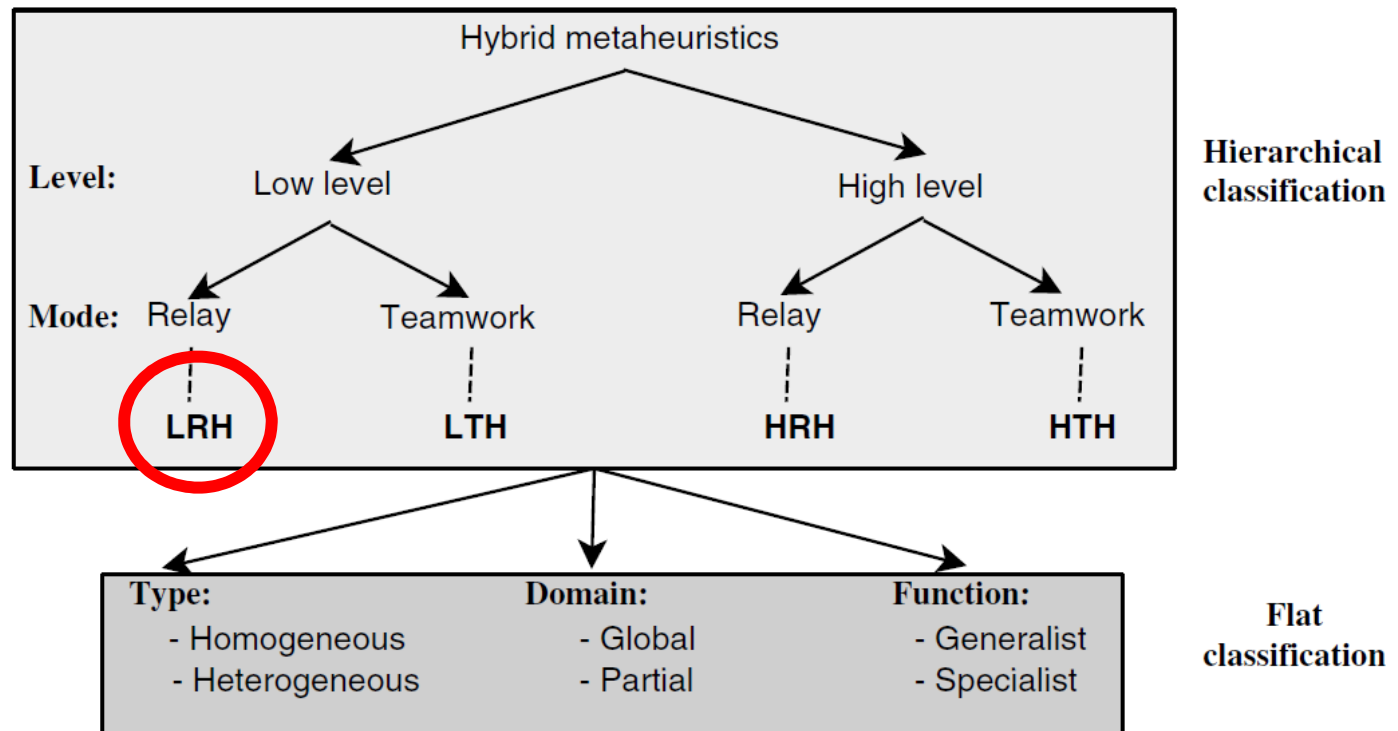
Hybrid metaheuristics

Combine

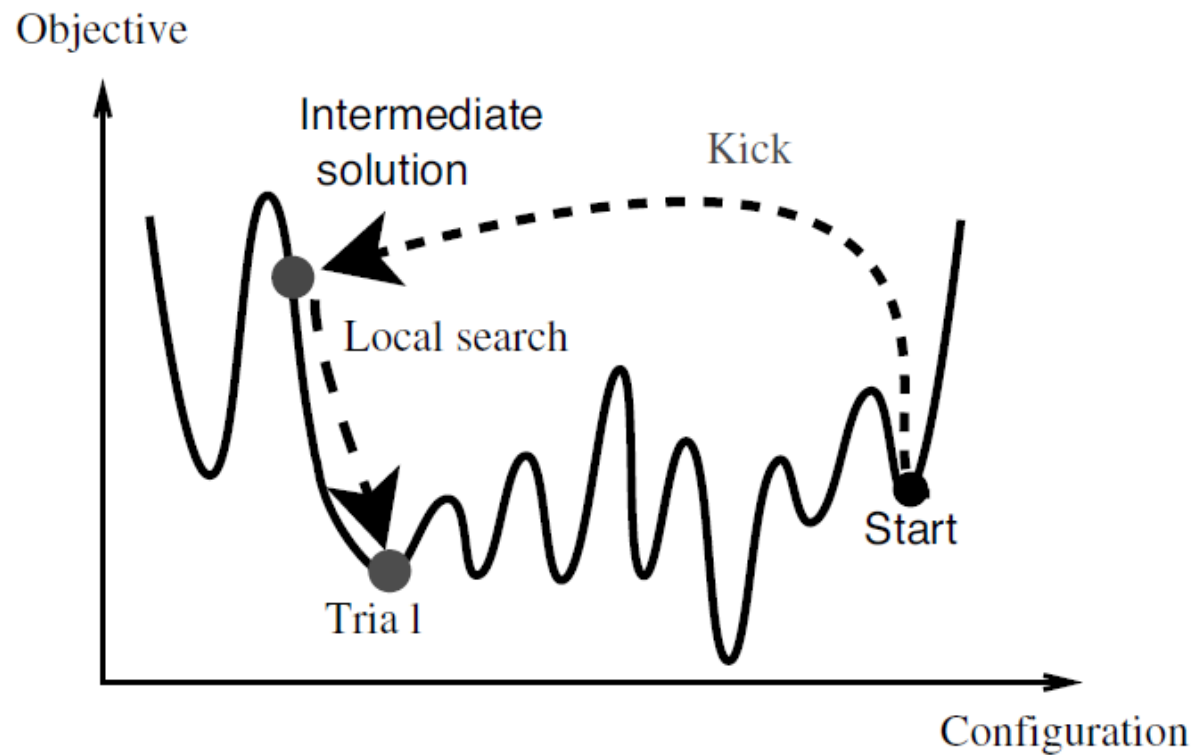
- metaheuristics with metaheuristics (5.1),
- metaheuristics with exact methods (5.2),
- metaheuristics with constraint programming (5.3),
- metaheuristics with machine learning and data mining techniques (5.4).

In this chapter a taxonomy is proposed.

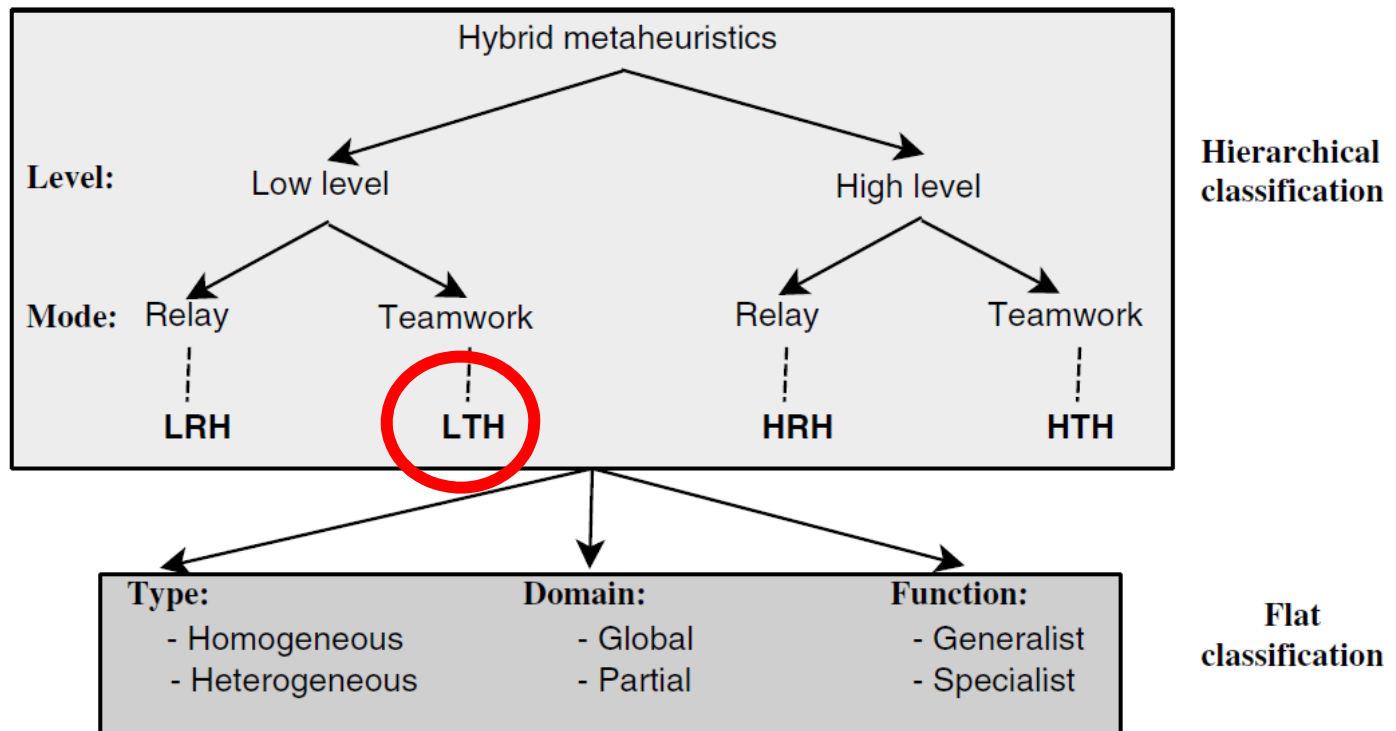
Hybrid Metaheuristics: Taxonomy



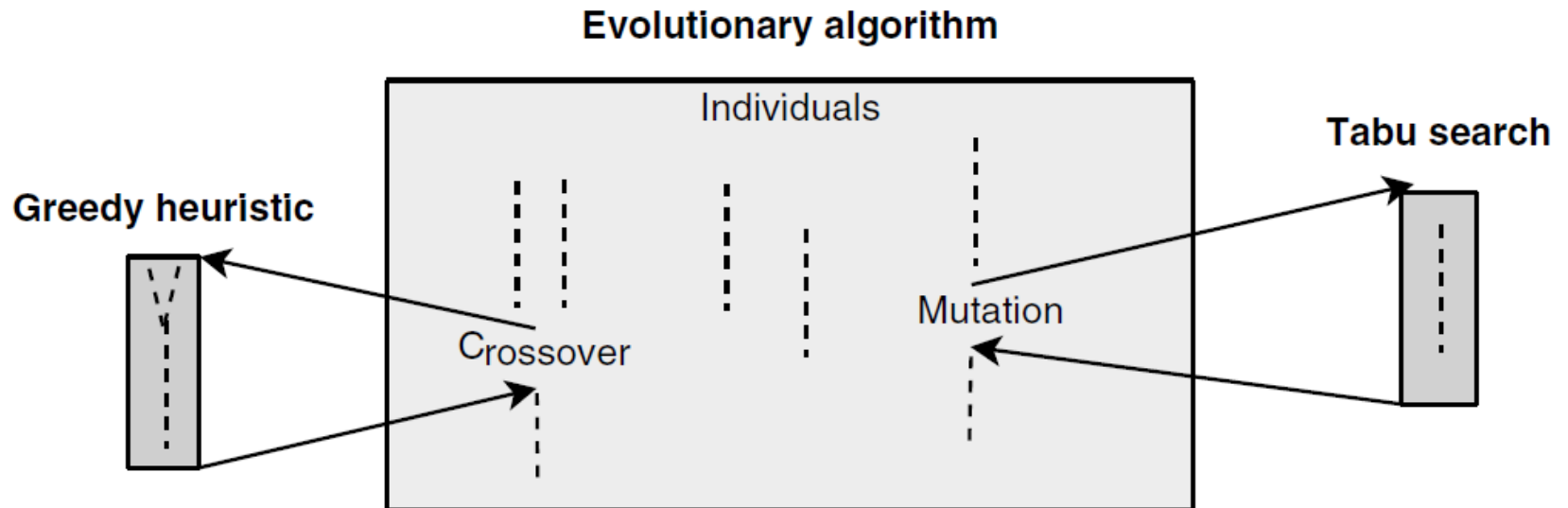
Low-level relay hybrid



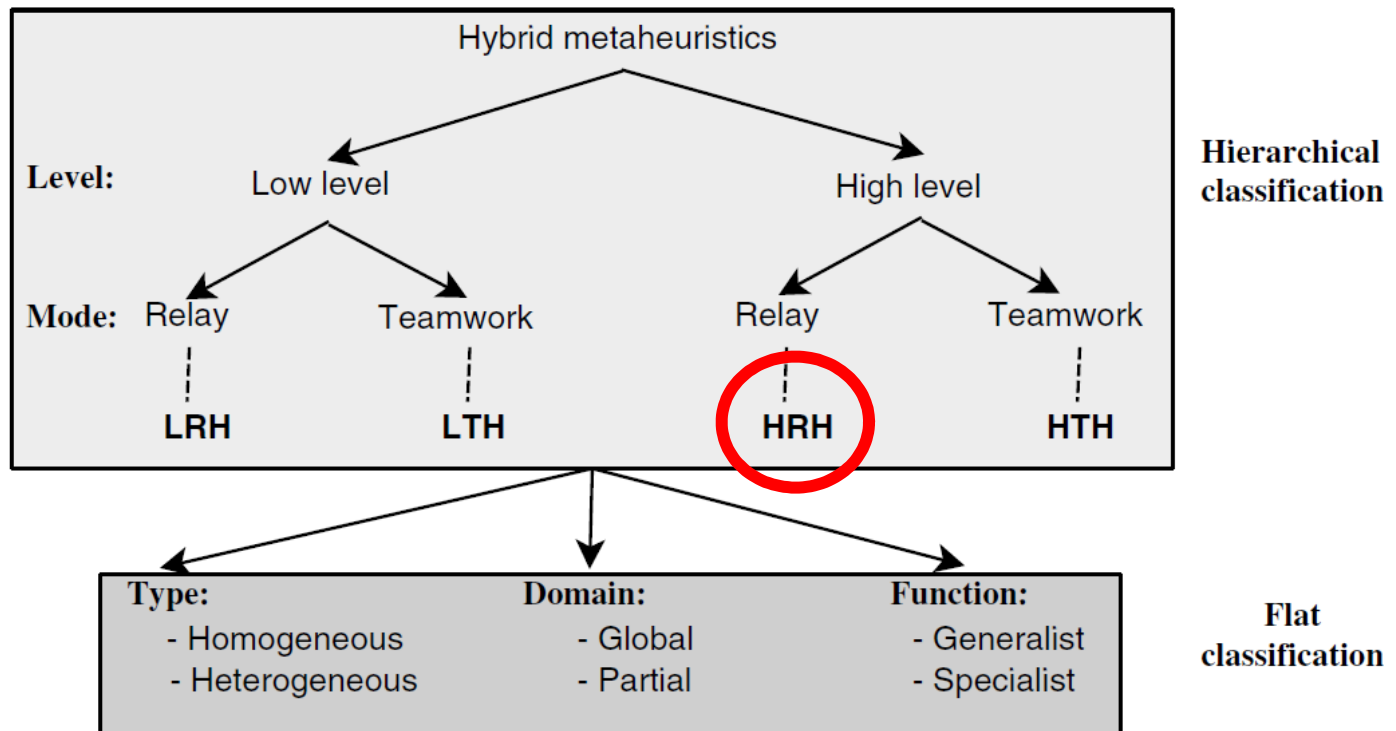
Hybrid Metaheuristics: Taxonomy



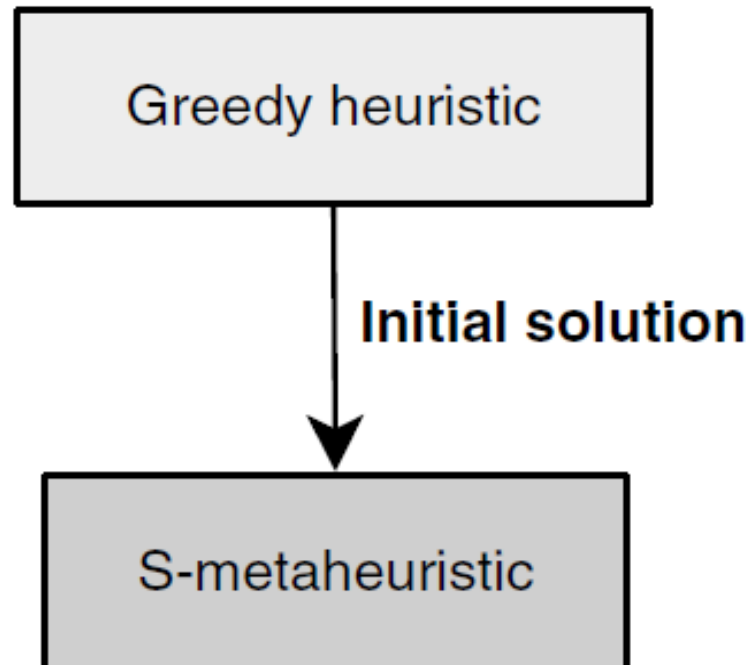
Low-level teamwork hybrid



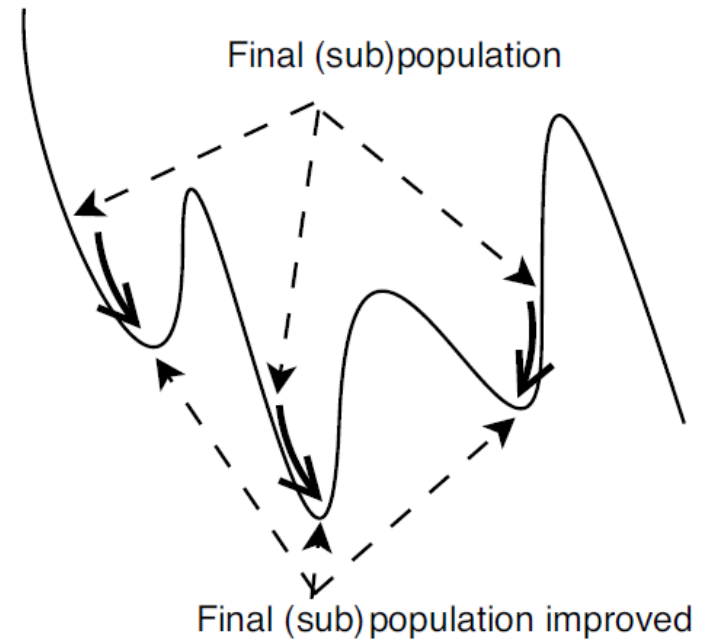
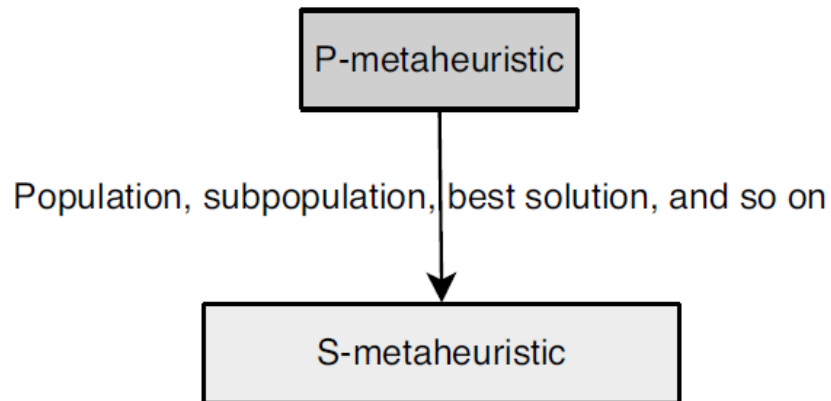
Hybrid Metaheuristics: Taxonomy



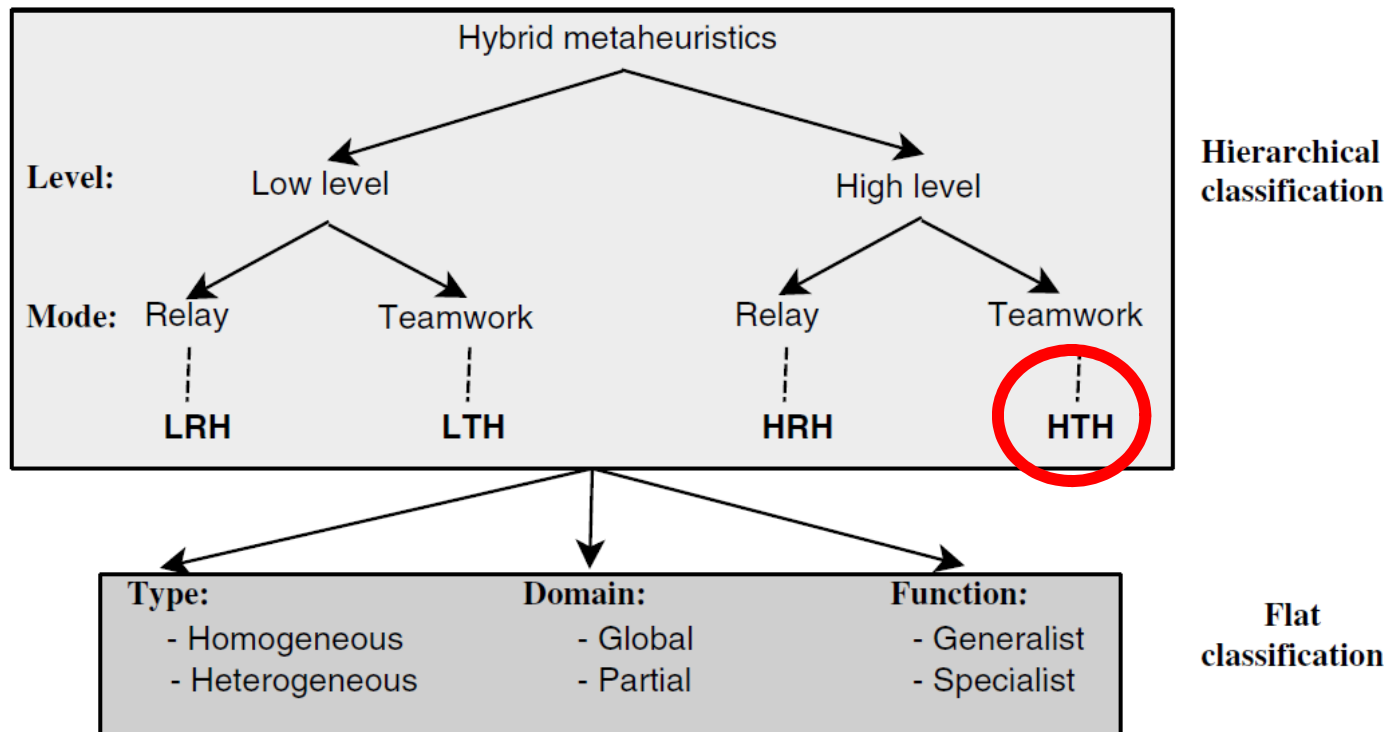
High-level relay hybrid



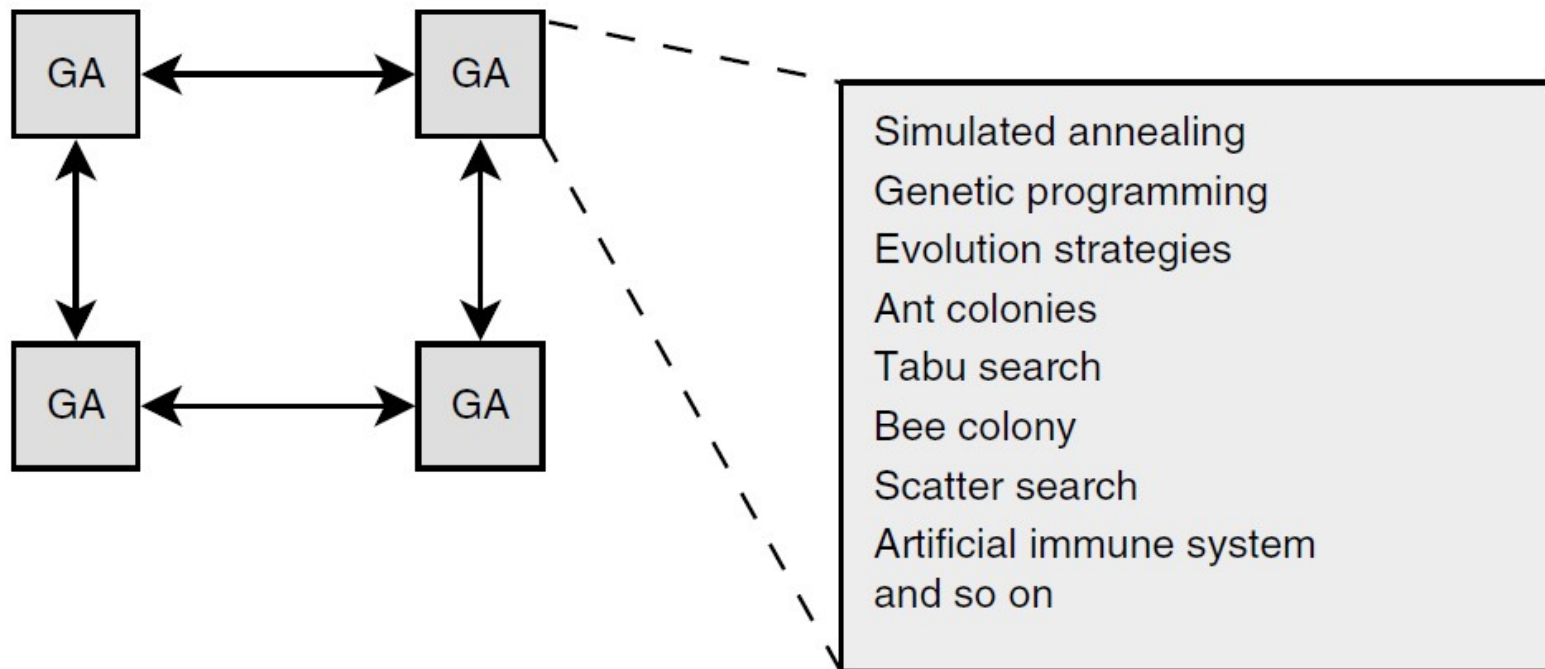
High-level relay hybrid



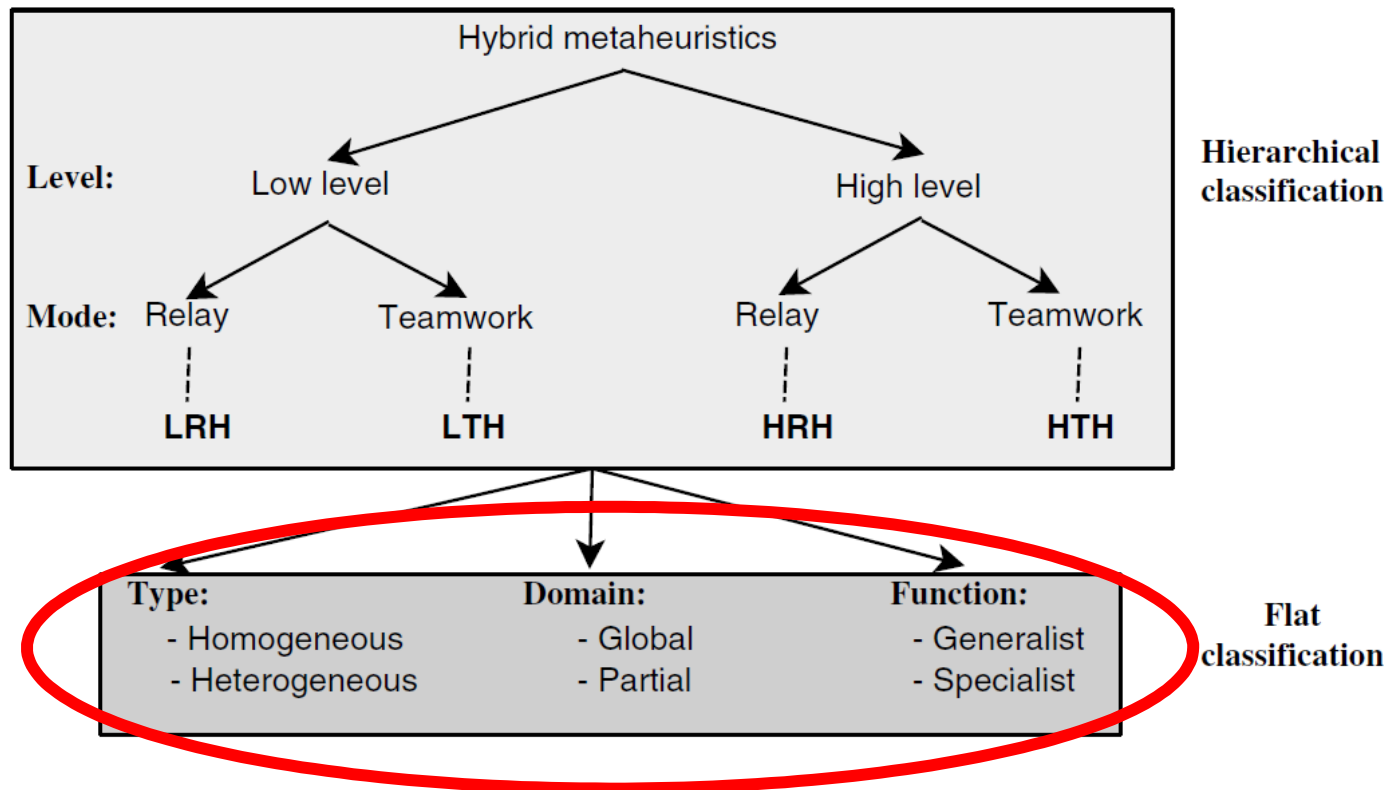
Hybrid Metaheuristics: Taxonomy



High-level teamwork hybrid



Hybrid Metaheuristics: Taxonomy



Type: Heterogeneous

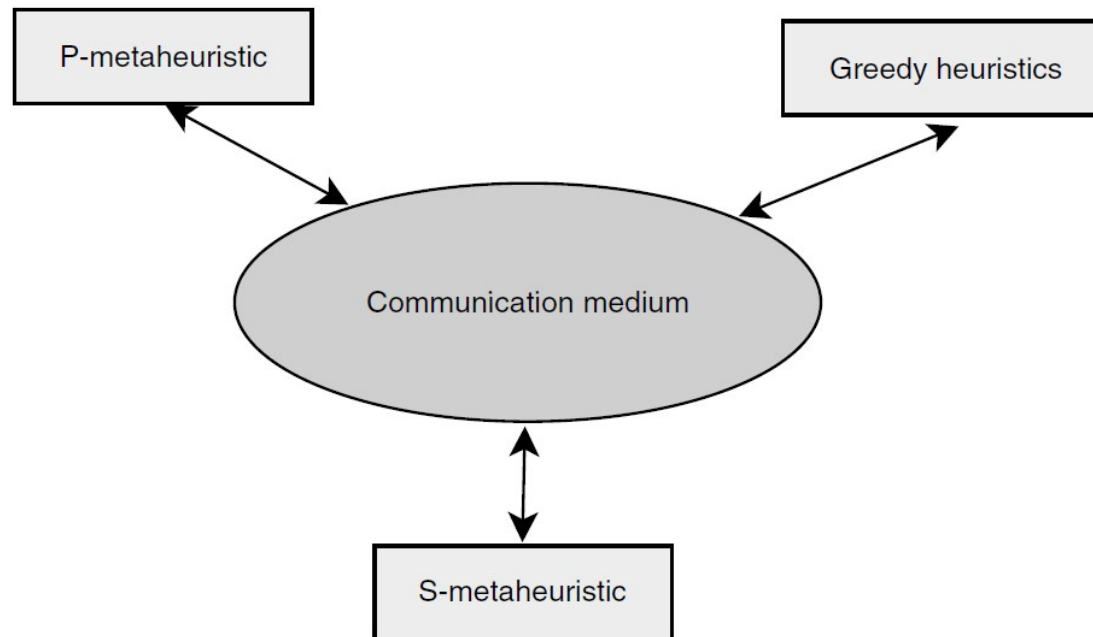


FIGURE 5.9 High-level teamwork hybridization (heterogeneous, global, general). Several search algorithms cooperate, coadapt, and coevolve a solution.

Type: Heterogeneous

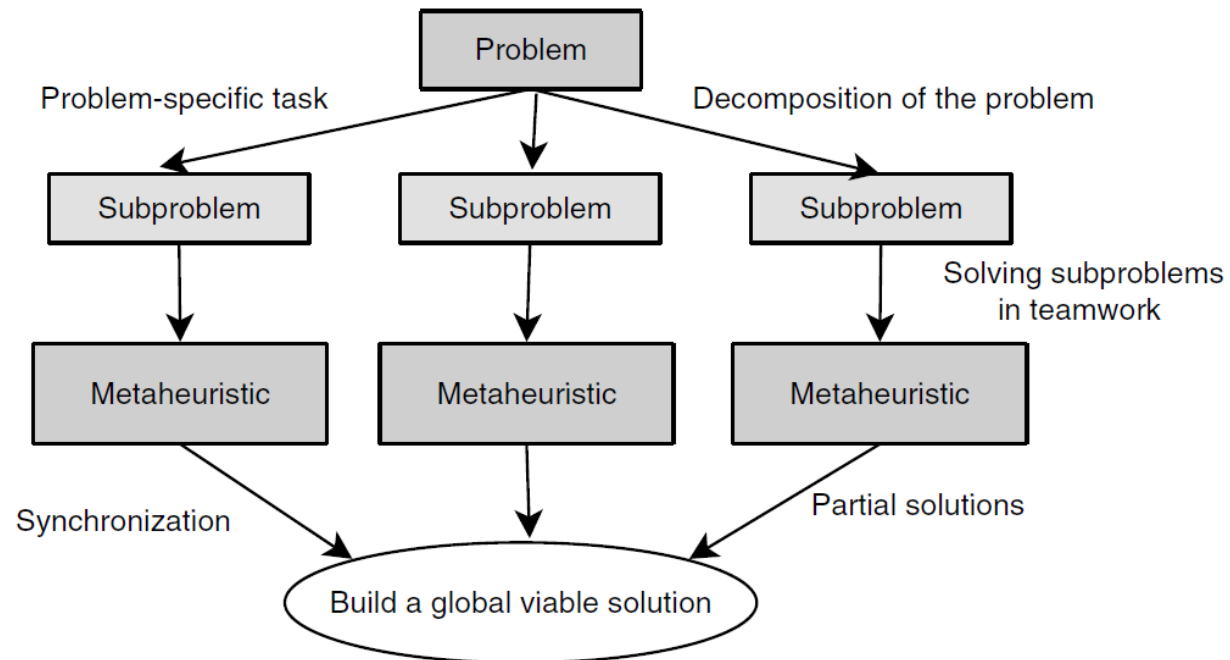
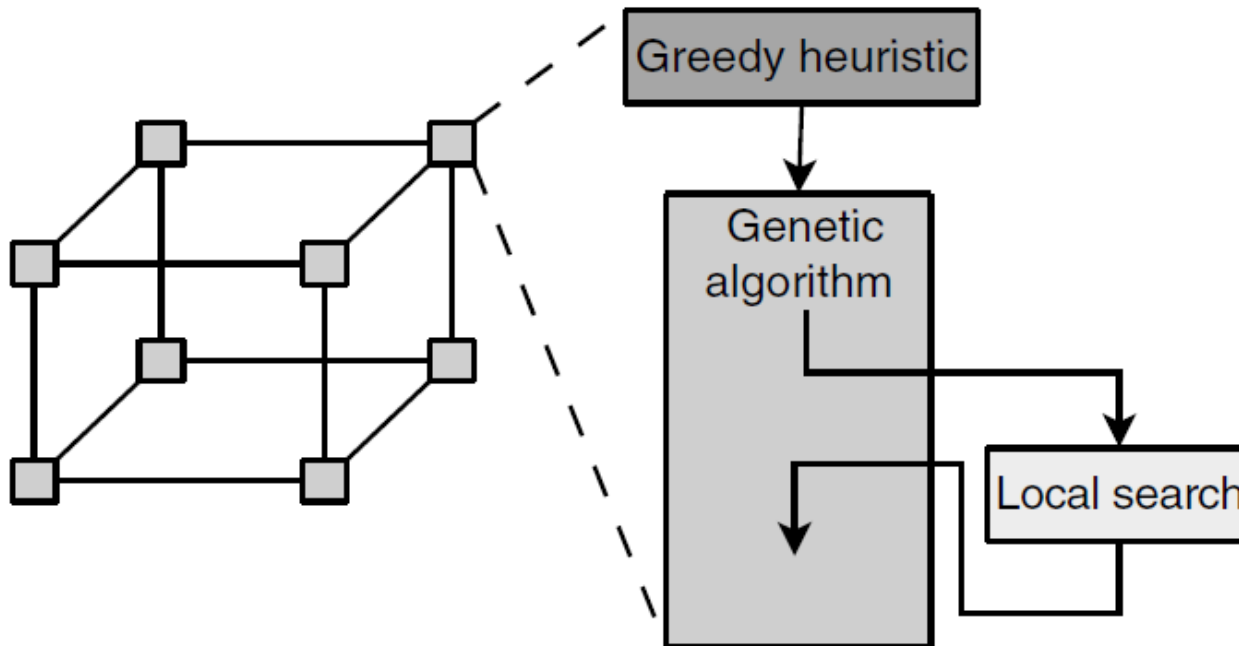


FIGURE 5.10 Partial hybrid schemes. Several search algorithms cooperate in solving subproblems. A synchronization is performed to build a global solution from the partial solutions found.

Complete grammar

HTH(HRH(GH+LTH(GA(LS))))



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