



Progressive Tree Neighborhood Applied to the Maximum Parsimony Problem

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Auteur	Goëffon, Adrien [1], Richer, Jean-Michel [2], Hao, Jin-Kao [3]
Pays	Espagne
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Mots-clés	NNI [4], parsimony [5], Phylogeny [6], progressive neighborhood [7], SPR [8], tree neighborhoods [9]
Résumé en anglais	<p>The Maximum Parsimony problem aims at reconstructing a phylogenetic tree from DNA sequences while minimizing the number of genetic transformations. To solve this NP-complete problem, heuristic methods have been developed, often based on local search. In this article, we focus on the influence of the neighborhood relations. After identifying the limits of the commonly used neighborhoods, we introduce the concept of progressive neighborhood which consists in decreasing the search space as the search advances. We empirically show that applied to the Maximum Parsimony problem, this progressive neighborhood turns out to be more efficient and robust than the classic neighborhoods as it allows to find better solutions from any initial solution.</p>
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Liens

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