RESEARCH NOTE: Combinatorial Structure of the Deterministic Seriation Method with Multiple Spatial Solutions

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keywords seriation | combinatorics | algorithms | cultural transmission

Abstract

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Introduction

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Single Seriation Combinatorics

Since the factorial function grows so quickly, the computational cost of determining the correct permutation within a given seriation solution group is controlled by the size of the largest subset, especially if the other subsets are relatively small, as in the previous example. At worst, for a solution set with m solution groups, $m-1$ solution groups will contain 1 assemblage each, and the last solution group will consist of the remaining $n-m-1$ assemblages. This means, of course, that the worst case would involve consideration of on the order of $(n-m-1)!$ permutations within each solution group, for each of the subsets given by Equation **??**. This yields:

$$\sum_{m=1}^{n} \left\{ {n \atop m} \right\} (n-m-1)!$$

Table **??** gives the total number of possible solutions for assemblages ranging from 4 to 100, where solutions may fall into multiple seriation groups of any size.

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Conclusions

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References