Can Dist Tables Be Merged in Linear Time
An Open Problem

(Invited Talk)

Gad M. Landau
Department of Computer Science
Faculty of Social Sciences
University of Haifa
31905 Haifa, Israel
landau@cs.haifa.ac.il

Dist tables are key players in the computation of dynamic programming tables in $o(n^2)$ time. Given two strings $A$ and $T$, $\text{dist}(A, T)$ stores the scores of the edit distances between $T$ and all substrings of $A$. Given $\text{dist}(A, T)$ and $\text{dist}(B, T)$ (strings $A$ and $B$ are each of length $m$ and $T$ is of length $n$) the best known algorithms that compute $\text{dist}(AB, T)$ run in $O(nm)$ time or $O(n^{1.5})$ time. We will discuss the use of dist tables and Schmidt and Tiskin's Algorithms as well as some thoughts on possible directions to answering the open problem.