

PREFIX TREES

Why

Definition

Let X and A be finite sets and $c: X \to \mathcal{S}(A)$. The maximum length of a code is the length of the longest codeword. We denote by $\mathcal{S}^{\ell}(A)$ the strings of length smaller than ℓ in A.

The prefix-tree of depth k corresponding to c is the tree $(\mathcal{S}^k(A), T)$ where $\{s, t\} \in E$ if s is a prefix of t and their lengths differ by one.

Proposition 1. If the code $c: X \to \mathcal{S}(A)$ is prefix free, then no vertex in c(X) is the ancestor of another vertex in c(X).

