



Nearest Neighbor Predictors

1 Why

We might expect similar precepts to lead to similar postcepts.

2 Definition

Consider a set of precepts and a similarity function on them. The n

2.1 Notation

Let $D = ((a^1, b^1), \dots, (a^n, b^n))$ be a dataset in $A \times B$, where A and B are non-empty sets. Let f be the nearest neighbor inductor. Then $\iota(D)(x)$ is Let n be a natural number. Let Ξ be a length n paired record sequence in $\mathcal{U} \times \mathcal{V}$; so

$$\Xi = ((u^1, v^1), \dots, (u^n, v^n))$$

with $u^i \in \mathcal{U}$ and $v^i \in \mathcal{V}$ for $i = 1, \dots, n$.

The nearest neighbor induction associates Ξ with the function f_Ξ such that

$$f_\Xi(u) = v^j$$

where $j < n$ is the largest integer such that

$$d(u, u^j) = \min_i \{d(u, u^i)\}.$$