

Spatial assignment of test sample

November 24, 2016

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Input

Website Identifier:

Isotope values of test sample

Table 1: Isotope values of test sample

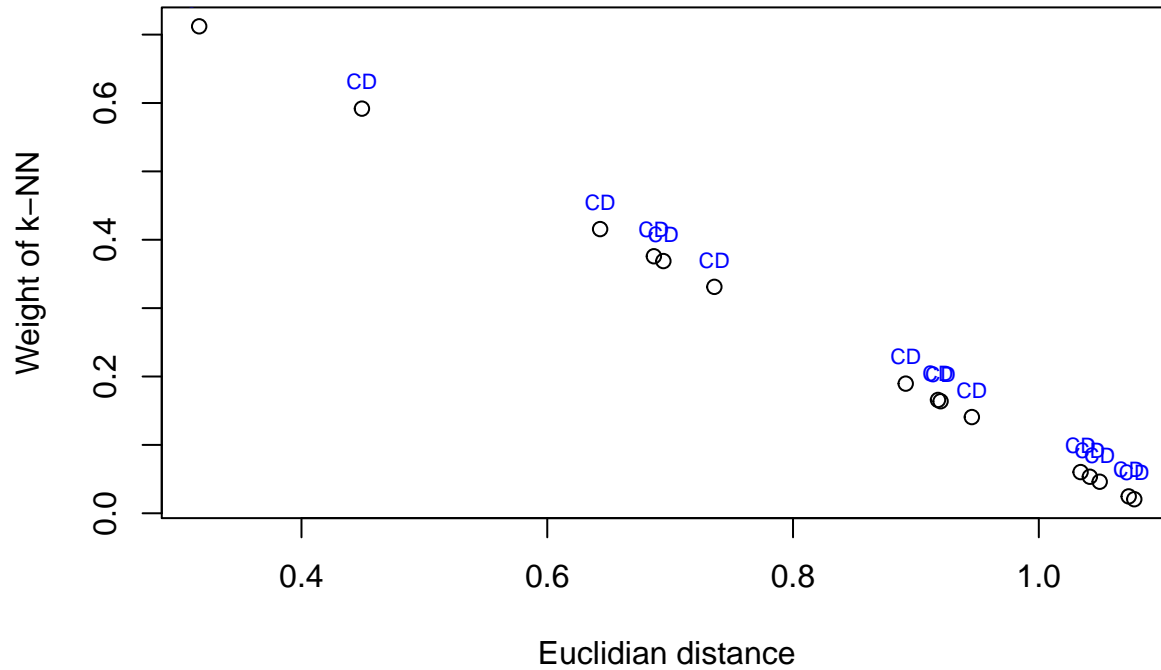
13C/12C	15N/14N	18O/16O	2H/1H	34S/32S
-25.2	10.4	17.1	-45	5.5

Output

Model

```
##
## Call:
## train.kknn(formula = fmla, data = ivory.train, kmax = 15, distance = 2, kernel = knl)
##
## Type of response variable: nominal
## Minimal misclassification: 0.3765867
## Best kernel: triangular
## Best k: 15
Classifier: country_code
```


Assignment of test sample to nearest neighbours



Best fitted reference entries

Table 2: Details of best fitted reference entry (row 1) and other fitted entries within best classifier

lon	lat	location	13C/12C	15N/14N	18O/16O	2H/1H	34S/32S
23.55	-1.35	Dem. Rep. Congo, Moma	-25.6	10.8	16.9	-44.4	5.7
25.09	-0.28	Dem. Rep. Congo, Loyso	-24.6	10.7	16.8	-42.7	5.1
23.55	-1.35	Dem. Rep. Congo, Moma	-24.9	11.1	16.3	-48.5	5.6
21.45	-1.00	Dem. Rep. Congo, Itoko	-24.2	10.2	16.9	-42.9	6.8
18.20	-1.55	Dem. Rep. Congo, Leopold ii meer	-25.9	10.9	17.1	-39.7	6.2
29.51	1.32	Dem. Rep. Congo, Irumu	-24.5	10.1	16.3	-39.9	5.7
23.55	-1.35	Dem. Rep. Congo, Moma	-24.1	11.3	16.6	-40.9	6.3
29.29	0.29	Dem. Rep. Congo, Beni	-24.7	11.4	17.1	-37.3	5.3
25.09	-0.28	Dem. Rep. Congo, Loyso	-23.9	9.2	16.8	-45.1	5.6
18.20	-1.55	Dem. Rep. Congo, Leopold ii meer	-24.3	11.2	16.0	-43.3	4.0
26.23	1.52	Dem. Rep. Congo, Panga	-24.6	12.1	17.1	-39.9	5.2
13.02	-1.43	Dem. Rep. Congo, Itoko	-24.2	10.4	18.1	-38.4	7.0
23.55	-1.35	Dem. Rep. Congo, Moma	-24.0	10.5	15.4	-44.8	5.7
17.42	-1.47	Dem. Rep. Congo, Bongo	-23.8	10.4	15.7	-45.1	6.8
22.33	-2.68	Dem. Rep. Congo, Momu	-23.7	10.8	16.0	-44.8	7.1

Country of prediction: CD

Testing robustness of assignment: Wilcoxon signed rank test

If p-value > 0.05 , the test concludes that the isotope signature of the test sample is similar to the respective nearest neighbour reference sample.

P-values for the k nearest neighbours in Wilcoxon Test

“0.914, 0.847, 0.505, 0.451, 0.310, 0.290, 0.217, 0.201, 0.186, 0.158, 0.158, 0.123, 0.102, 0.037, 0.026”

Goodness of fit of test sample:

- good fit: if $p > 0.05$ for at least two tested nearest neighbour reference samples;
- moderate fit: if $p > 0.05$ for at least one tested nearest neighbour reference samples;
- uncertain: if $p > 0.05$ for none of the tested nearest neighbour reference samples.

Assumption: At least two nearest reference samples are available.

Overall goodness of fit of test sample: “**good fit**”