**Bayes Classifiers**

MATHEMATIC BASE [Stastistic]

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Explaination of Bayes Theorem

Tom is a person who loves reading. Which statements are more probable?

1. Tom is a farmer.
2. Tom is a librarian.

In most of us intuitions, statement-2 seems more convinced. However, this intuition fails to consider a prior probability. That is, the number of farmers is far larger than that of librarians.

Assume that and . And of librarians love reading and farmers love reading.

* : Tom loves reading.
* : Tom loves reading, what is the probability that Tom is a farmer?
* : Tom loves reading, what is the probability that Tom is a librarian?

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|  | According to Bayes Theorem  [1]  [2]  [1] = [2] |

"Love Reading" is what we call "FEATURES", and "Farmer" or "Librarian" are labels (what we try to predict in classification task normally).

