

# Gaussian Naïve Bayes vs. Logistic Regression

**Set of Gaussian  
Naïve Bayes parameters  
(feature variance  
independent of class label)**



**Can go both  
ways, we only  
did one way**

**Set of Logistic  
Regression parameters**

- Representation equivalence
  - **But only in a special case!!!** (GNB with class-independent variances)
- But what's the difference???
- **LR makes no assumptions about  $P(X|Y)$  in learning!!!**
- **Loss function!!!**
  - Optimize different functions ! Obtain different solutions