Chapter 7

Ensemble Classifiers

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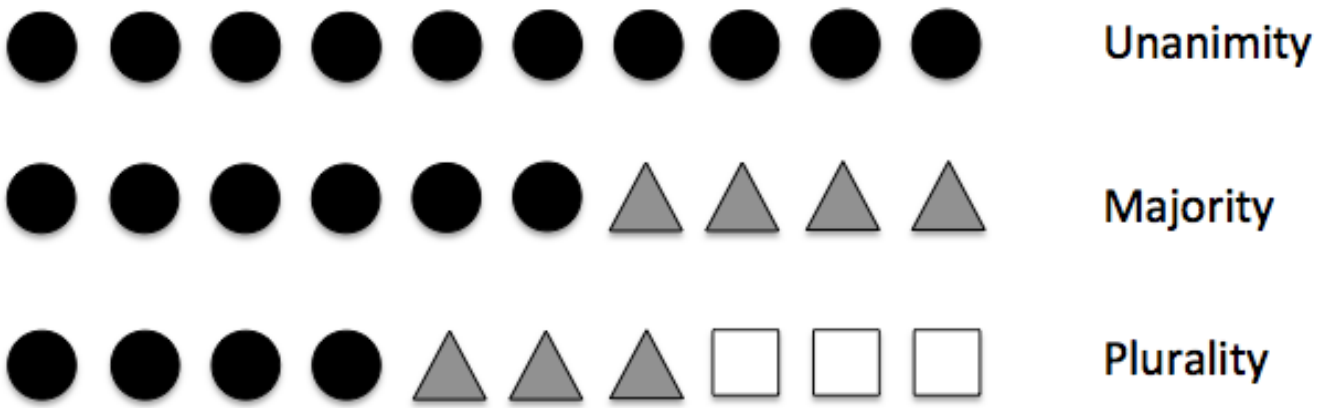
Learning with ensembles

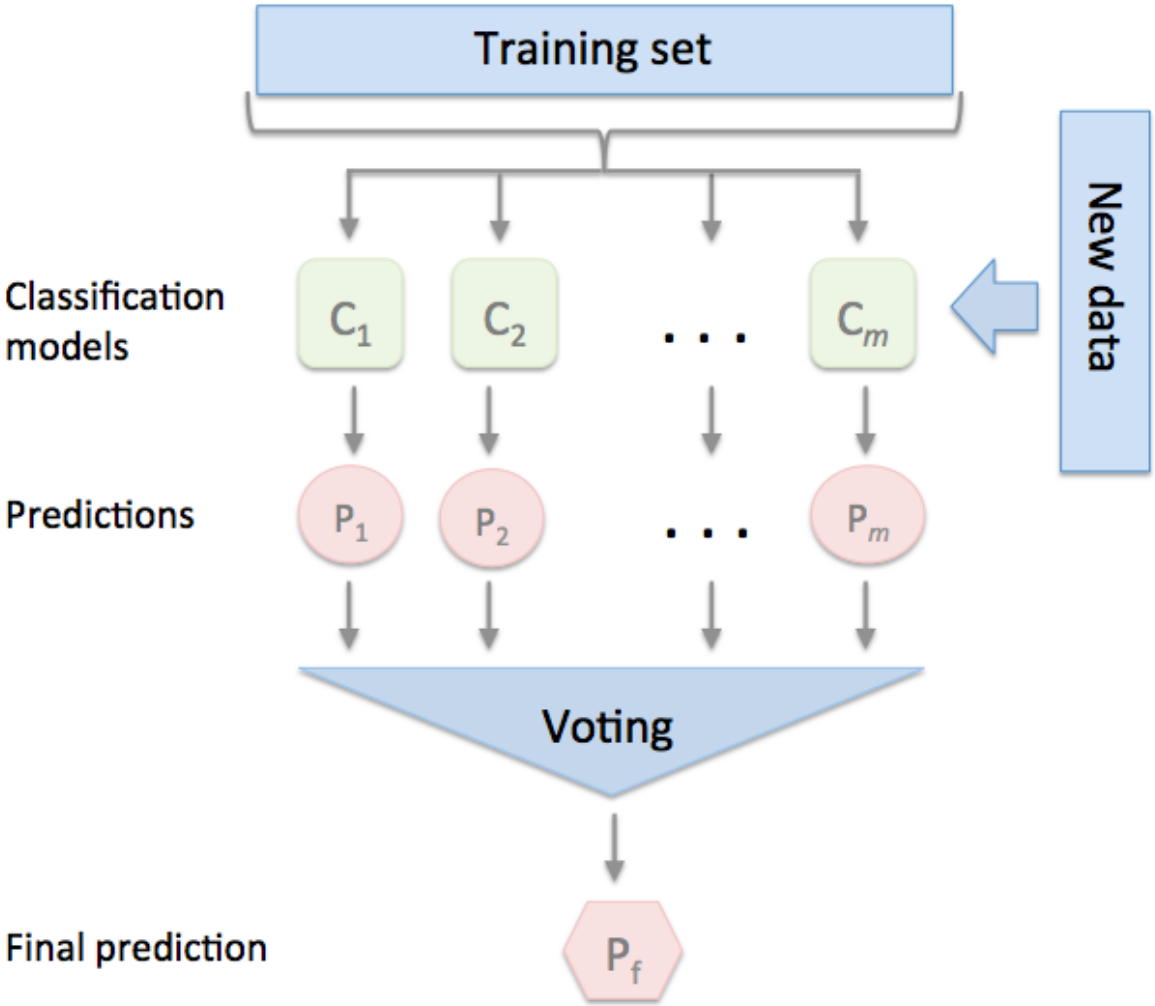
- Our goal is to combined multiple classifiers
- Mixture of experts, e.g. 10 experts
- Predictions more accurate and robust
- Provide an intuition why this might work
- Simplest approach: majority voting

Majority voting

- Majority voting refers to binary setting
- Can easily generalize to multi-class: plurality voting
- Select class label that receives the most votes (mode)



Combining predictions: options

- Train m classifiers $C_1, \ldots, C_m$
- Build ensemble using different classification algorithms
- Use the same algorithm but fit different subsets of the training set

General approach