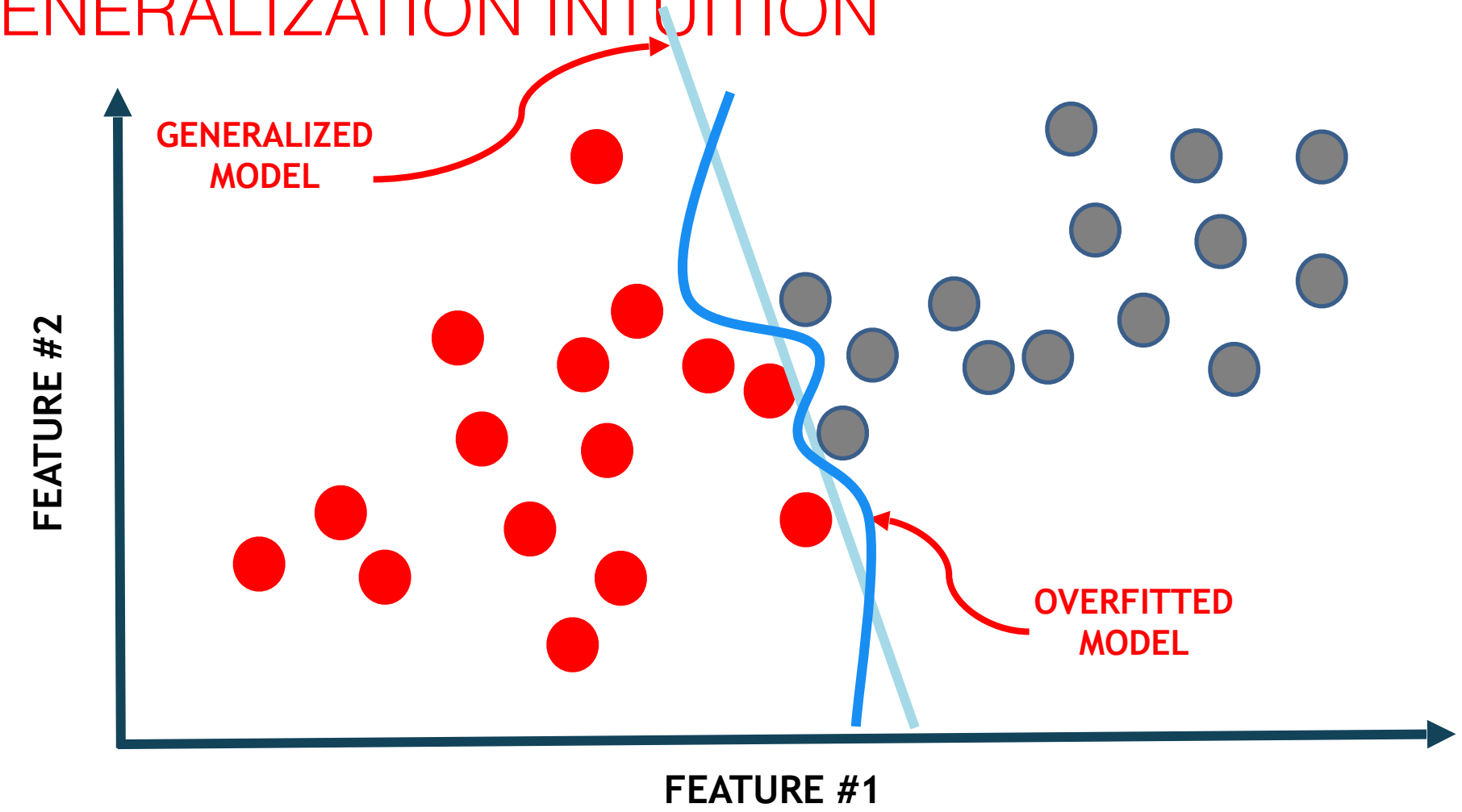
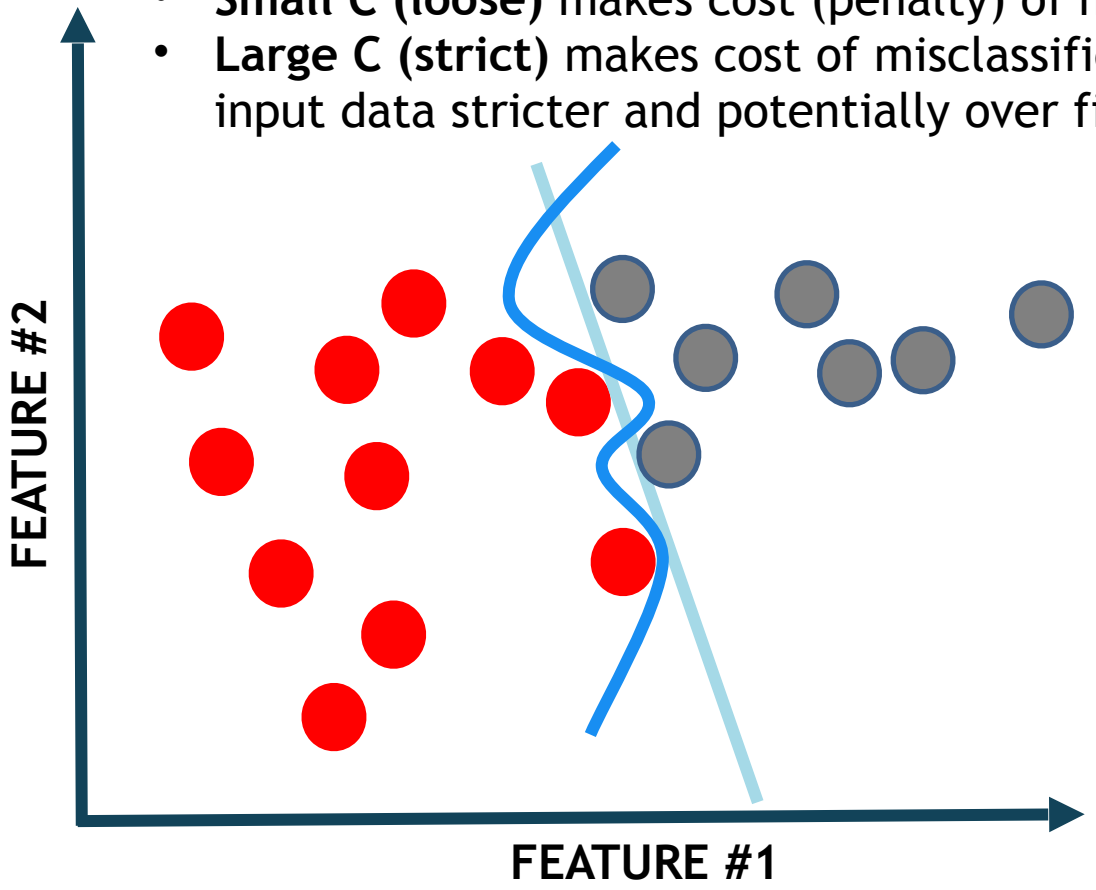
# SUPPORT VECTOR MACHINES:
# GENERALIZATION INTUITION

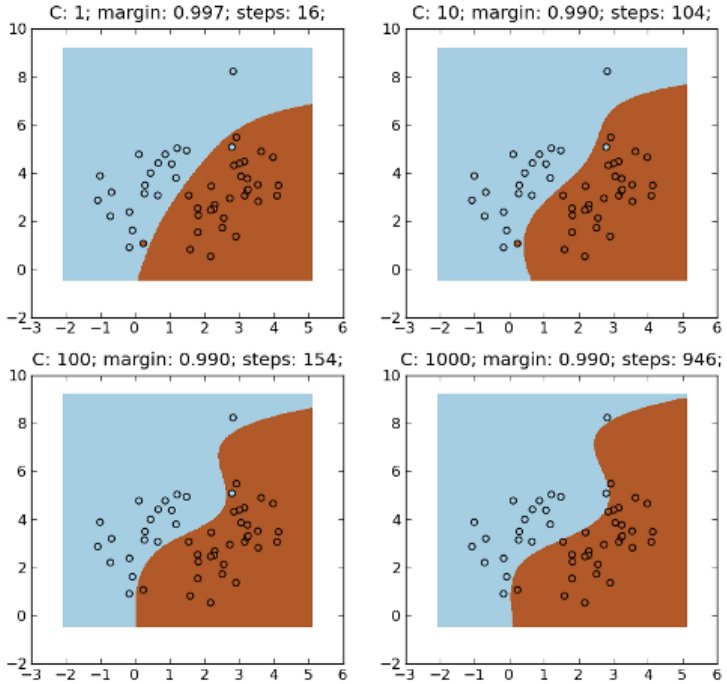


# SUPPORT VECTOR MACHINES:
# PARAMETERS OPTIMIZATION

**C parameter:** Controls trade-off between classifying training points correctly and having a smooth decision boundary

- **Small C (loose)** makes cost (penalty) of misclassification low (soft margin)
- **Large C (strict)** makes cost of misclassification high (hard margin), forcing the model to explain input data stricter and potentially over fit.




http://mlpy.sourceforge.net/docs/3.4/svm.html

# SUPPORT VECTOR MACHINES: PARAMETERS OPTIMIZATION

**Gamma parameter:** controls how far the influence of a single training set reaches

- **Large gamma:** close reach (closer data points have high weight)
- **Small gamma:** far reach (more generalized solution)