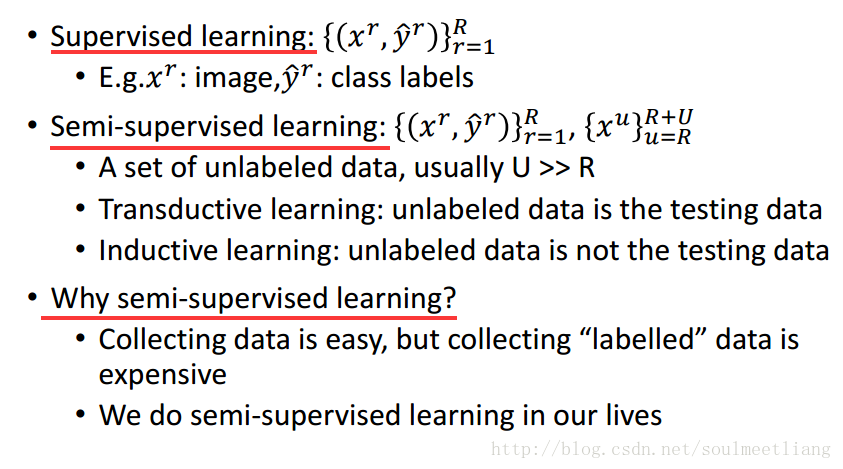
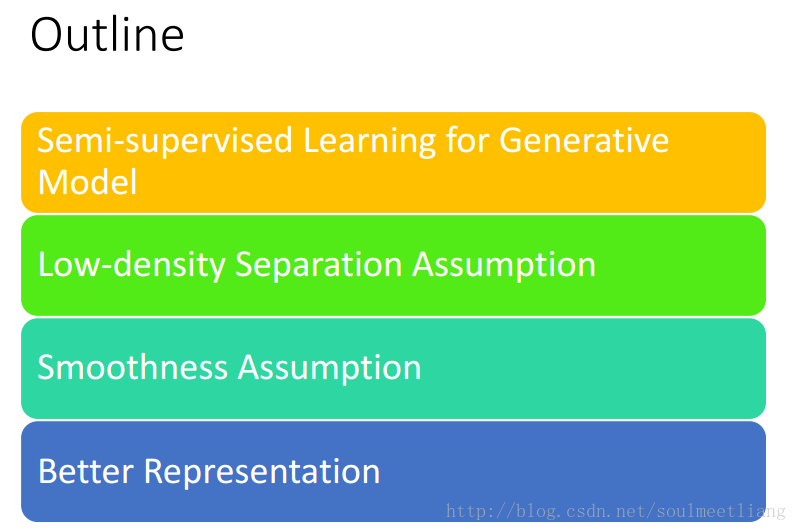
**十三.[**[**机器学习**](http://lib.csdn.net/base/machinelearning)**入门] 李宏毅机器学习笔记-13 （Semi-supervised Learning ;半监督学习）**

# Introduction

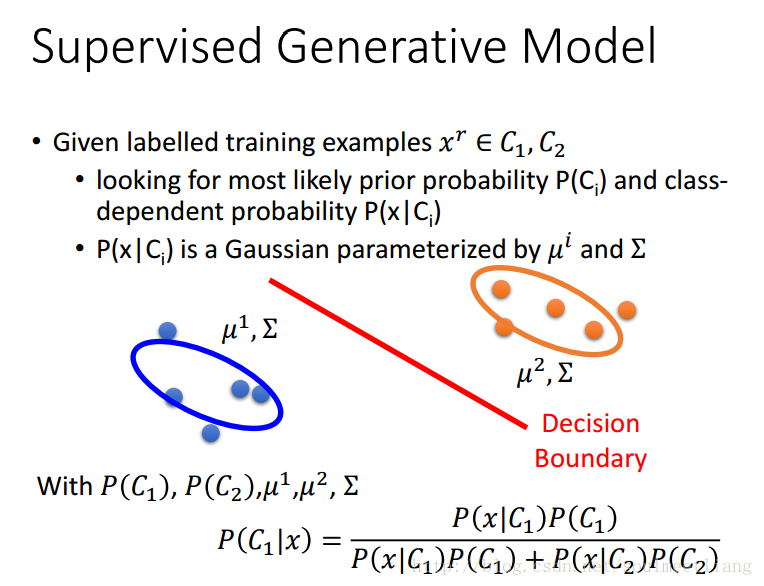


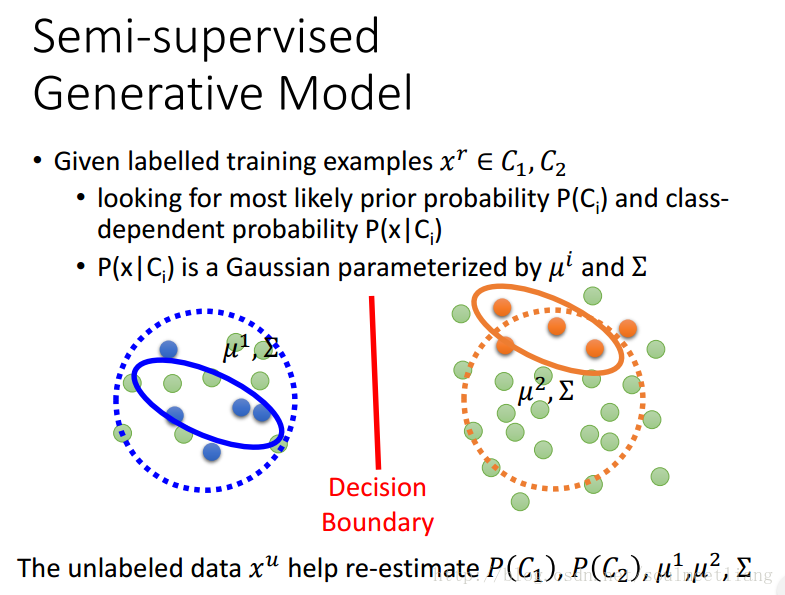
# Why semi-supervised learning helps?



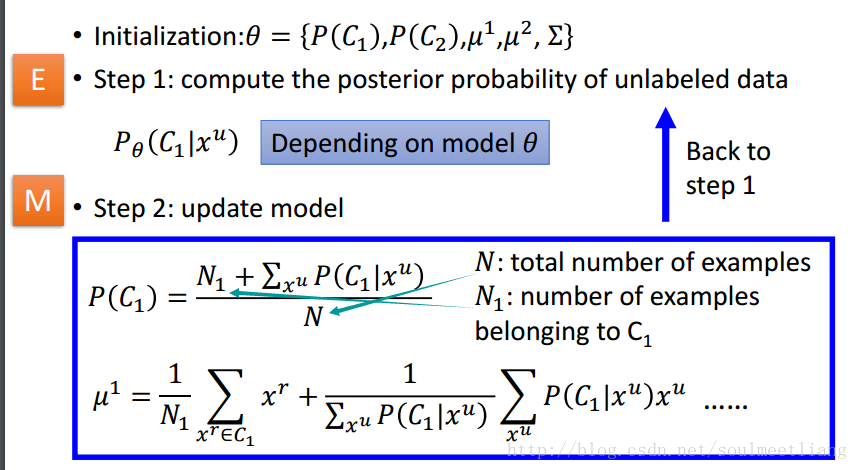
# Semi-supervised Learning for Generative Model

# Supervised Generative Model VS Semi-supervised Generative Model

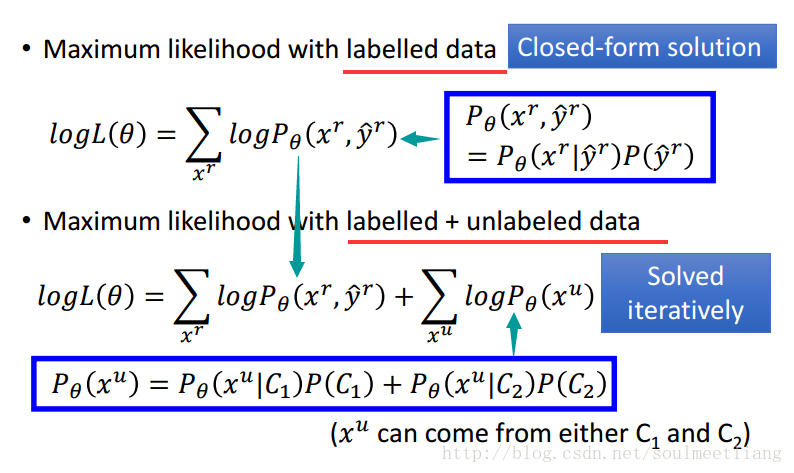




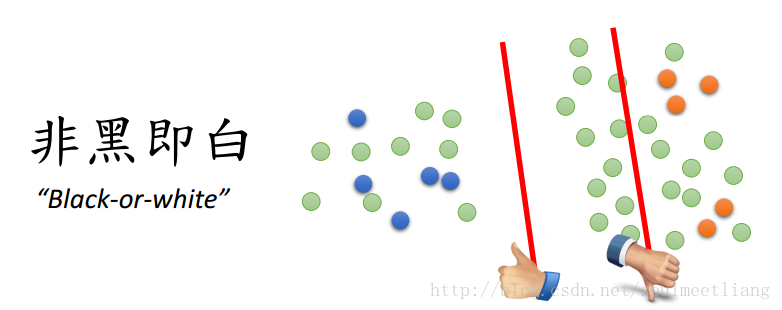
# Step



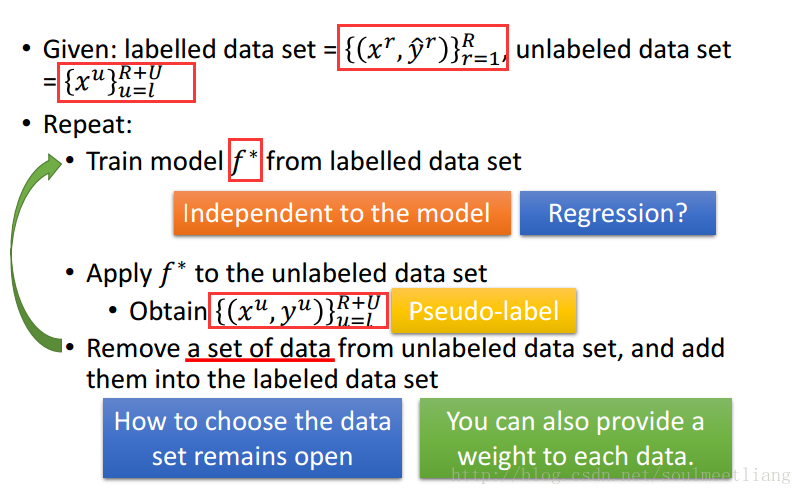
# Why？

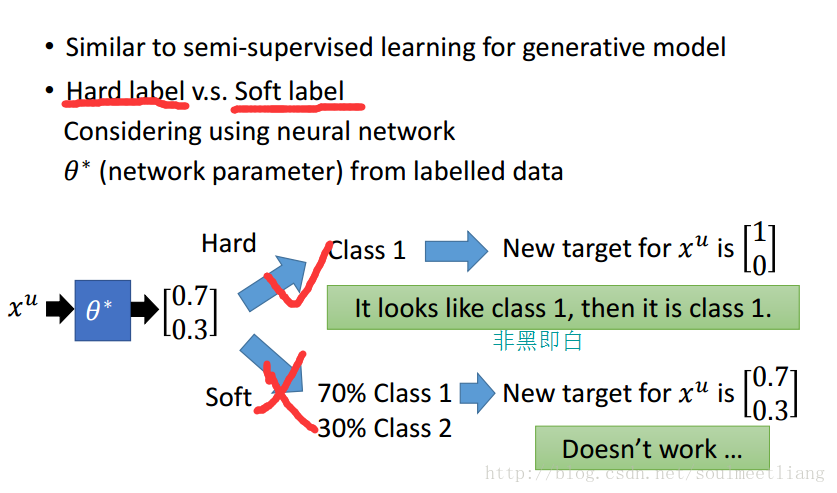


# Low-density Separation

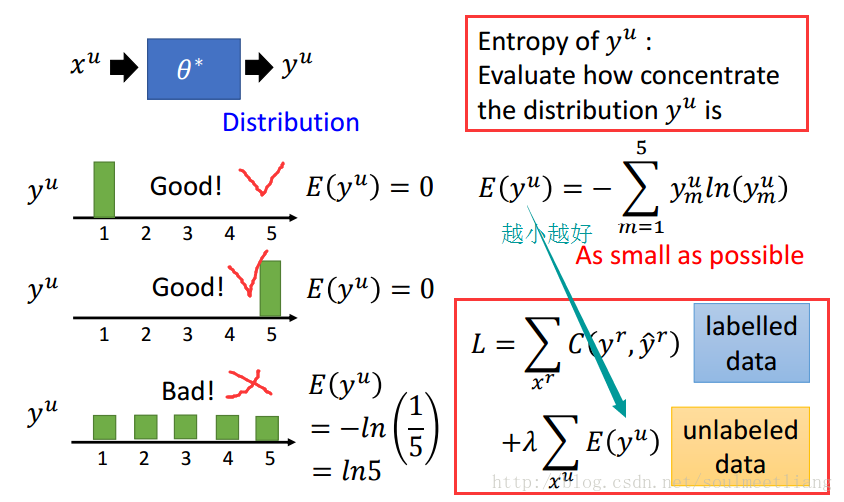


# Self-training

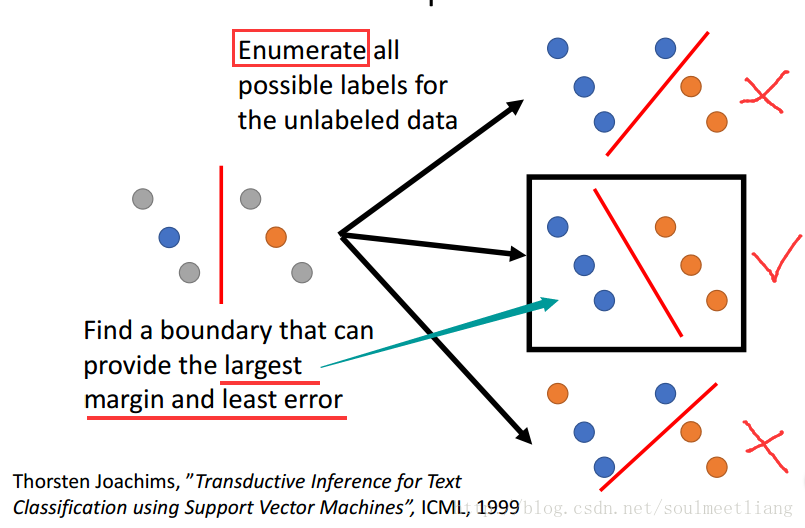




# Entropy-based Regularization

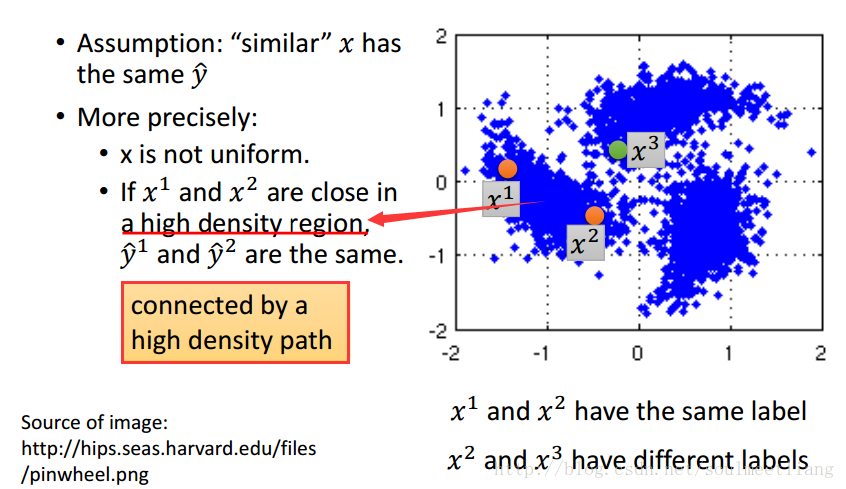


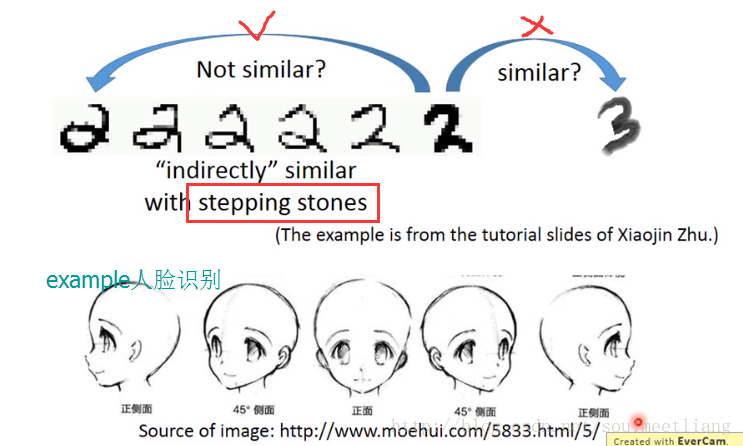
# Outlook: Semi-supervised SVM



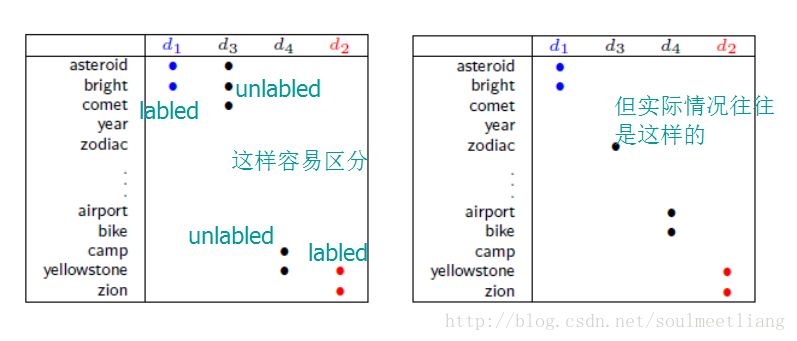
# Smoothness Assumption

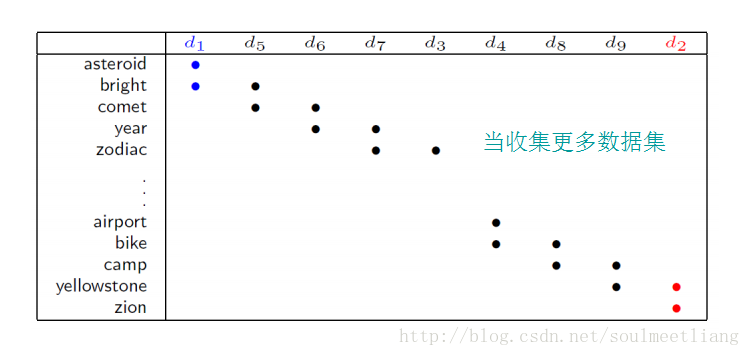
**核心思想：近朱者赤，近墨者黑**





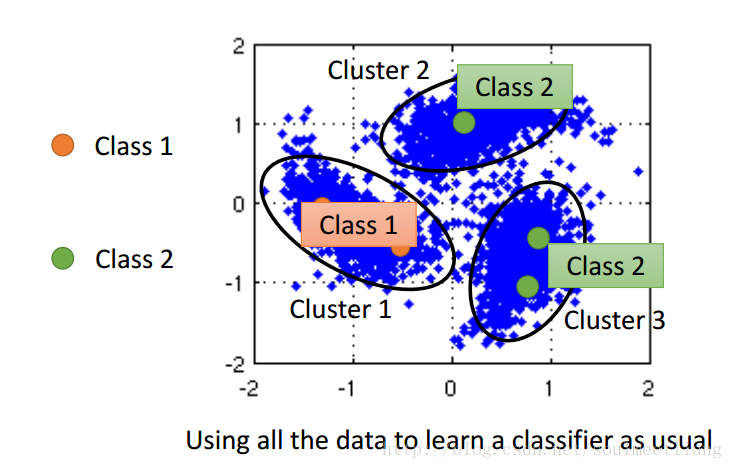
# Classify astronomy vs. travel articles





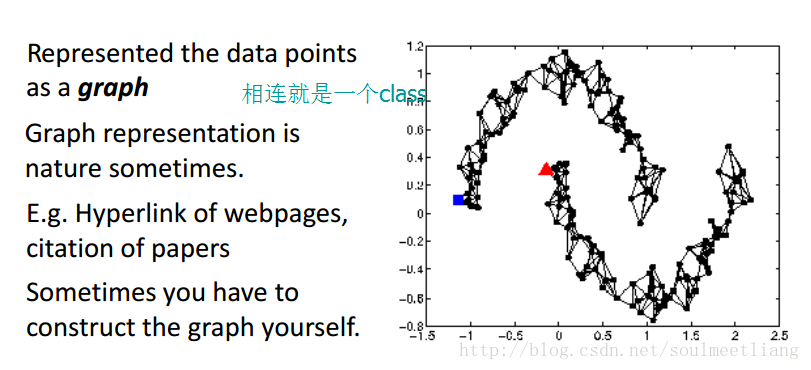
更多的数据连在一起，很难分类，那么如何做呢？

# Cluster（群集 ） and then Label

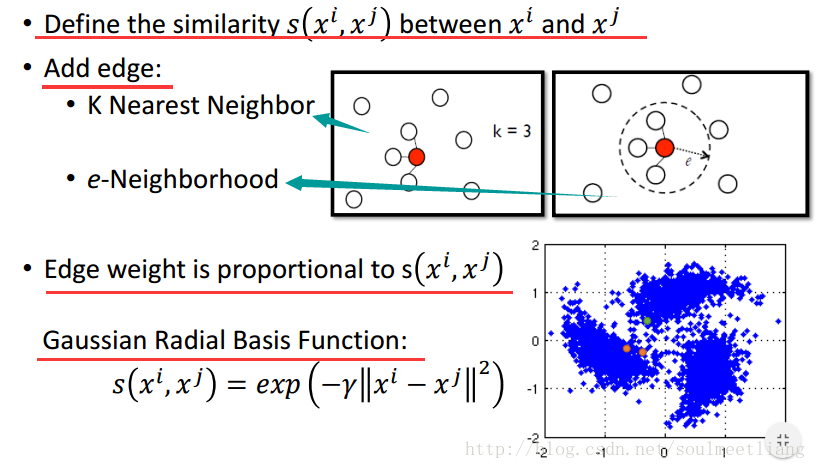


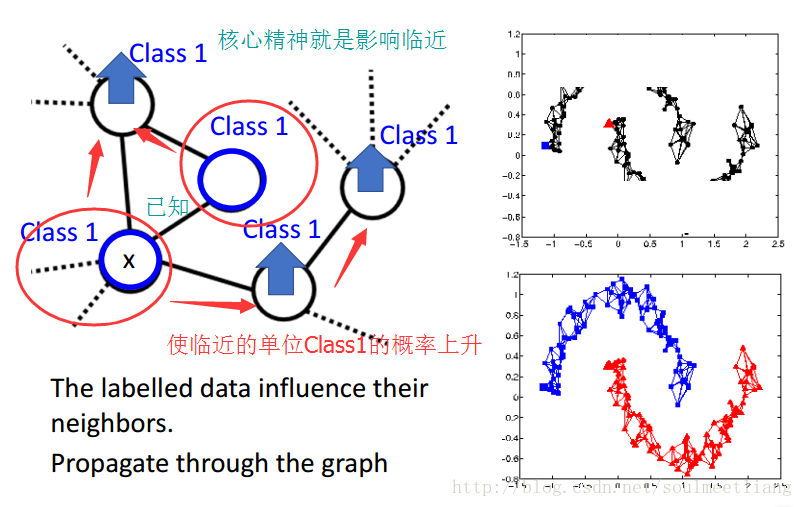
这种方法不一定made sense ，需要class很强。   
But，How to know x1 and x2 are close in a high density region (connected by a high density path)   
还有另一种方法：

# Graph-based Approach

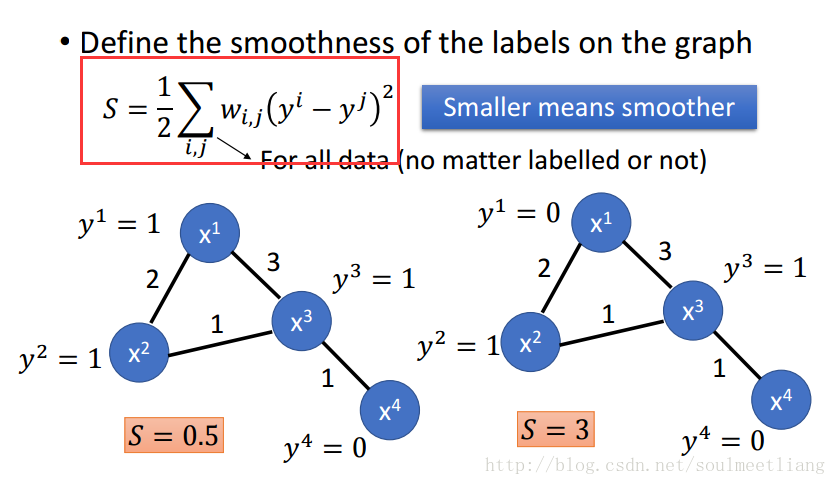


Graph Construction

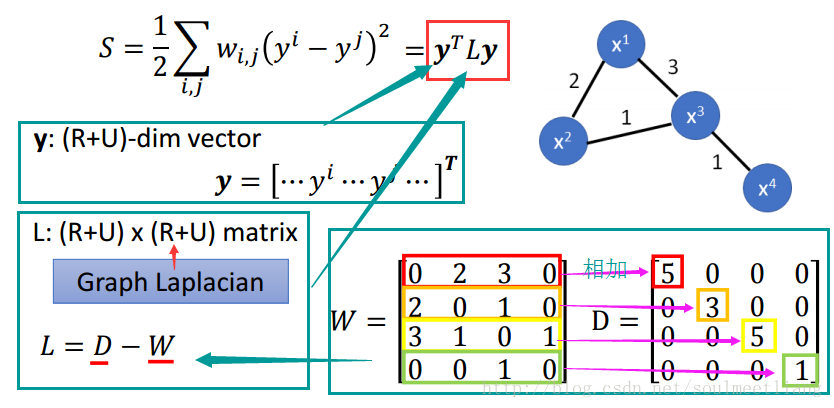




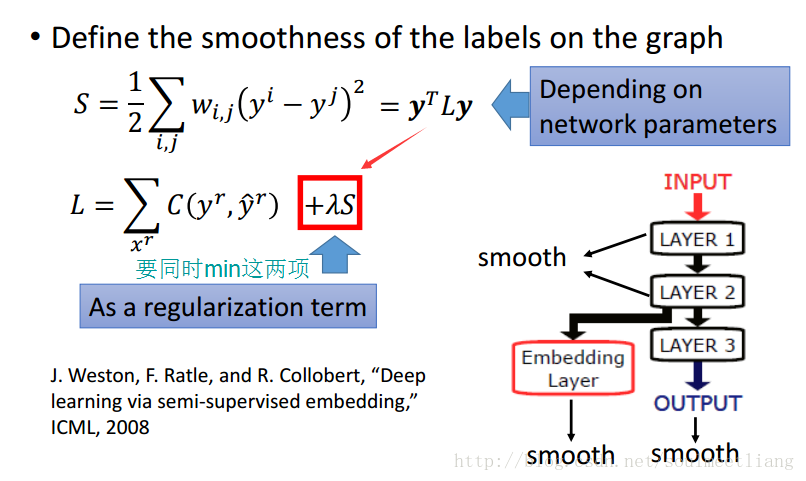
怎样在Graph 中定量地表示平滑度



将该式子整理一下，换个形式



如此，让smoothness 影响Loss，as a regularization term



smoothness不一定要放在output上，放到任何一层都可以。

# Better Representation

去蕪存菁，化繁為簡   
Looking for Better Representation

这里写图片描述