**conditional probability based multisource domain adaptation (CP-MDA)**

基于 source domains 和target domains 之间条件概率的不同。

The main idea is to use a combination of source domain classifiers to label the unlabeled target data.

1 对每一个独立source domain做分类器

2 对每个source domain 和target 找到条件概率的关系并得到weighted value.( Ten a weight value is found for each classifer as a function of the closeness in conditional distribution between each source and the target domain.)

3 将weighted source classifier加起来作为一个大的分类器并找到pseudo label。(pseudo labels 会被用来训练)

4 the target learner is built from the labeled and pseudo labeled target data.

**two stage weighting framework for multi-source domain adaptation (2SW-MDA)**

* address both marginal and conditional distribution differences between source and target domains.
* Labeled target data is not required for the 2SW-MDA approach. It can be used if acailable.
  + A weight for each source domain is computed based on the marginal distribution differences between source and target domain differences.
  + Source domain weights are modified as a function of the difference in the conditional distribution.
  + Target classifier is learned based on the reweighted source instances and any labeled target instances the are available.(本质是将source domain 的条件概率和概率都调整到与target domain 相似，然后使用source domain 训练)

**Feature augmentation method(FAM)**

* Uses labeled source data and limited labeled target data
* 解决语义偏移问题。
* a method to augment the source and target feature space with three duplicate copies of the original feature set is proposed.
  + Three duplicate copies of the original feature set in the augmented source feature space: a common feature set, a source specific feature set, a target specific feature set(always set to zero).
  + Three duplicate copies of the original feature set in the augmented target feature space: a common feature set, a source specific feature set(always set to zero), a target specific feature set.
* 以Text document 为例，使用bag-of-words模型，通用词’the’会在common feature set上赋很高的值，一个在source doman和target domain上有不同意义的词（例如 monitor）将会在相关的domain feature set上赋很高的值。

**Domain transfer multiple kernel learning(DTMKL)**

* Kernel 由许多个预设置的kernel线性组合而成
* 最终的classifier和kernel 通知进行，在kernel learning process中使用了labeled data.
* 最终的classifier minimize the structural risk function.
* 利用在学习过程中得到的知识为unlabeled target data标注pseudo labels。
* The pseudo labels are found as a weighted combination of base classifiers trained from source labeled data.
* 加入了正则化项，确保predicted values from final target 和base classifiers 相似