Using Internal Validity Measures to Compare Clustering Algorithms

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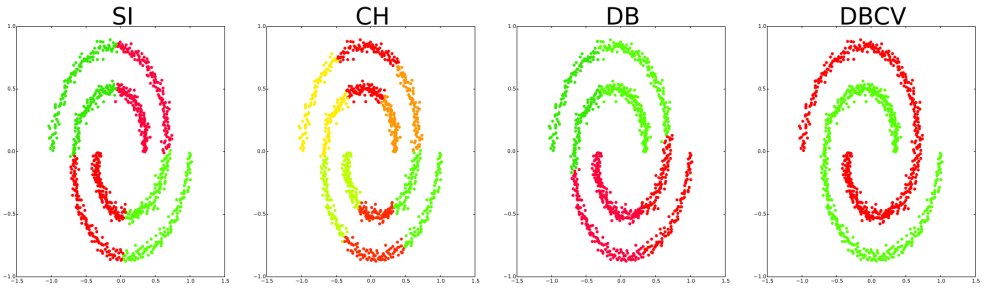
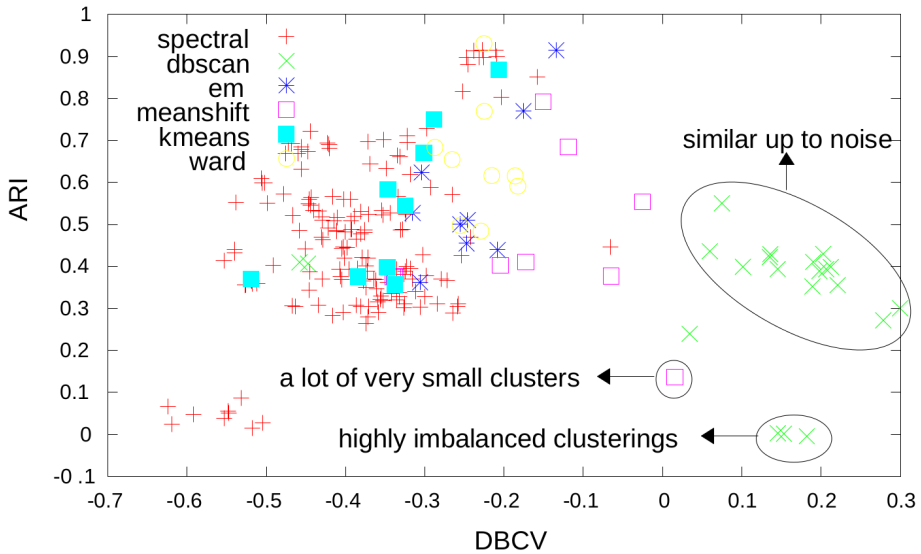
- If we want to apply traditional meta-learning techniques to clustering, we need an appropriate clustering performance measure

  → Can we use any of the existing clustering validity measures?

- Experimented with four of them (Silhouette, Calinski-Harabasz, Davies-Bouldin, Density-Based Cluster Validation)
- None of these measures are suitable, we observed the following shortcomings:
  - Bias towards spherical clusterings
  - Preference towards imbalanced solutions
  - Sensitivity to points identified as noise





- We can
  - Design new validity measures that are applicable across algorithms

    → difficult / impossible?
  - Focus on semi-supervised clustering

    → in this setting, we can rely on class labels for evaluation