Divide and Conquer Co-clustering

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Introduction

- Big matrix co-clustering
- Partition and merge co-clusters

Method

- Partition the big matrix to small ones
- Do co-clustering on small ones and get co-clusters on 'atom' matrix

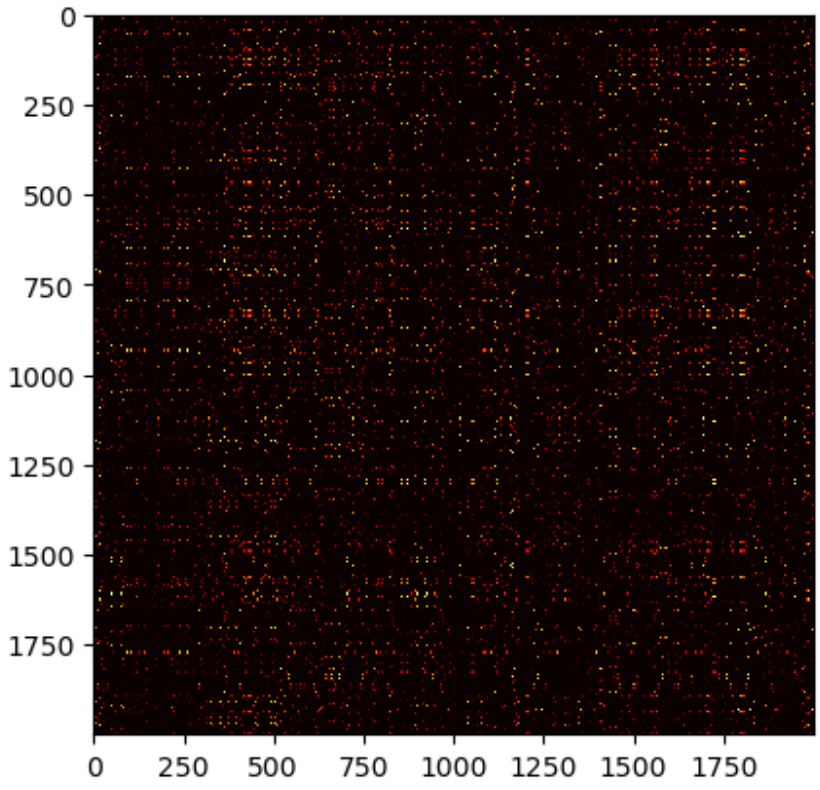

Figure: Partition and merge

Simulation

- B is a 2000×2000 matrix, with 15 co-clusters. Partitioned to 4×4 sub-matrices.
- Several attempts:
  - Merge with intersection conditions: Due to the small size of 'atom' co-clusters, the intersection prevents the merge of co-clusters.
  - Brute force merge:
    - 9 co-clusters are merged from 326 'atom' co-clusters.
    - Acuratelly inside the ground truth.
    - But recall is not big enough.
  - Lower the threshold for 'atom' co-clustering:
    - 143 co-clusters are merged from 326 'atom' co-clusters.
    - Need to adjust the threshold or find a better way to merge.