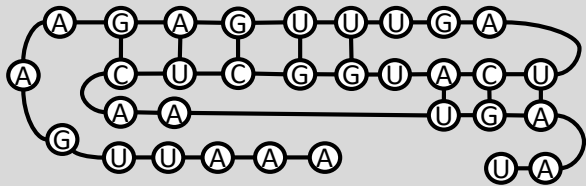# Comparison of pseudoknotted RNA secondary structures by topological centroid identification and tree edit distance

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What is Pseudo-knotted RNA Secondary Structures?

A pseudoknot is a nucleic acid secondary structure containing at least two stem-loop structures in which half of one stem is intercalated between the two halves of another stem.

Pseudo-knotted RNA secondary structure for PKB64 [1]

[1]http://pseudobaseplusplus.utep.edu/

How to PEELING?

Find outer circle

Identify

3. Adjunct subgraph: Each maximally connected subgraph that is surrounded by a singly exposed face with sharing only one vertex that is an outer one.
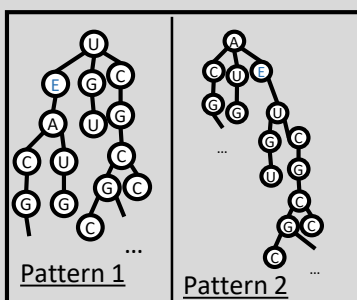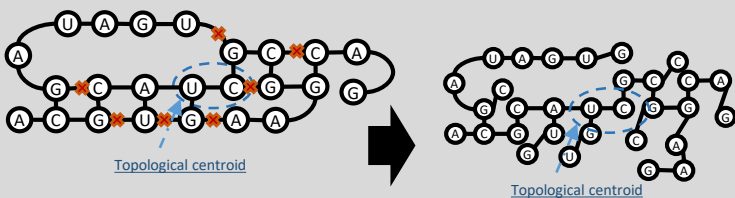
2.Single Exposed Face: Edges belonging to outer circle are connected.

1. Single Exposed Edge: A edge don't belong to any inner face.

Delete all edges that has been identified in step 2

If there is only a face, edge or vertex left.

Topological Centroid Gotten

PKB81 [1] PEELING ... PEELING ... PEELING ... Reorganization

Tree edit distance computation

Minimum

Cluster analysis

comparison

PKB295 [1] PEELING ... PEELING

Topological centroid

Reorganization
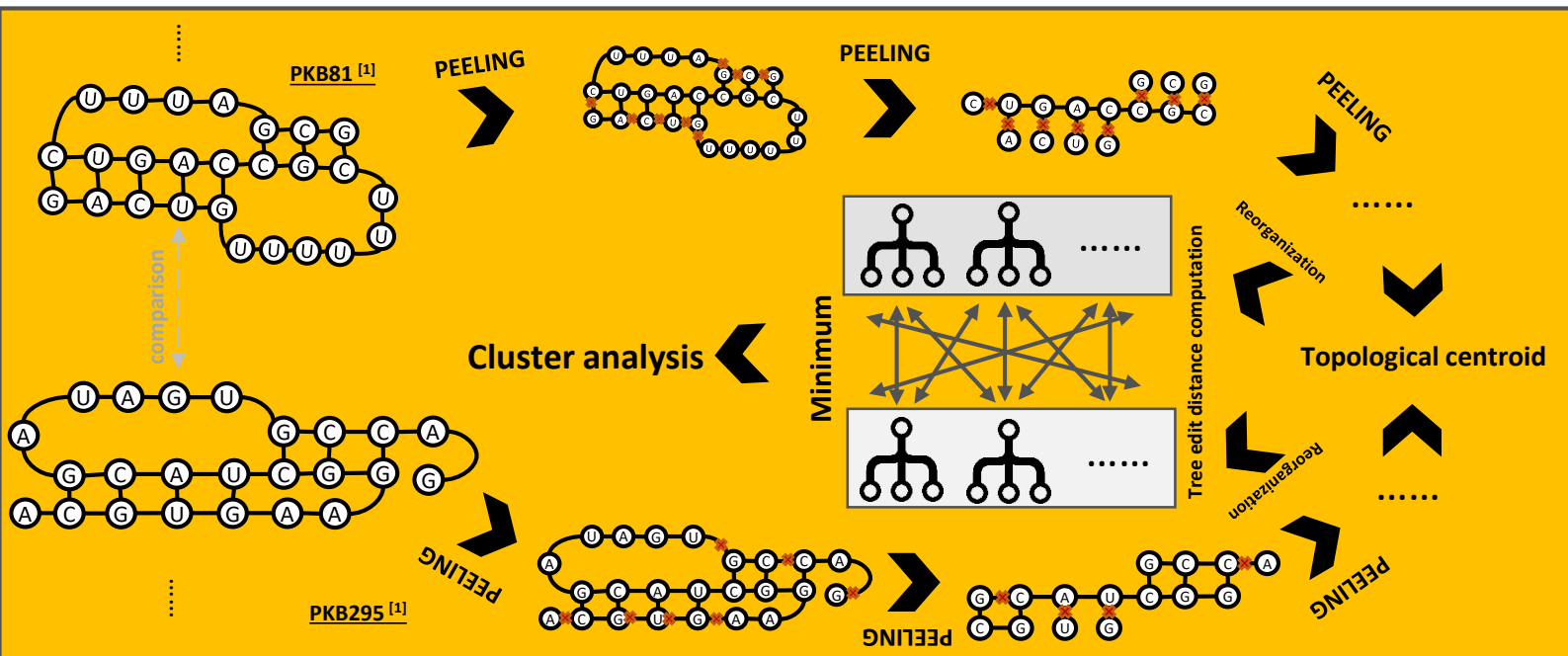
How to reorganize to trees?

Topological centroid

Topological centroid

Topological centroid

Pattern 1   Pattern 2

How about results?

Clustering analysis for RNA sequence string edit distance

Clustering analysis for translated RNA secondary structure tree edit distance