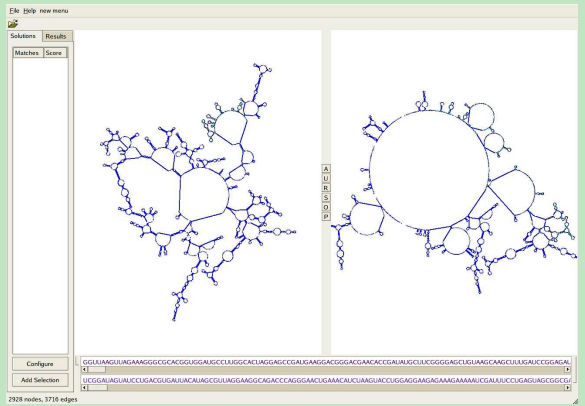


ARNA: Interactive Comparison And Alignment of RNA Secondary Structure

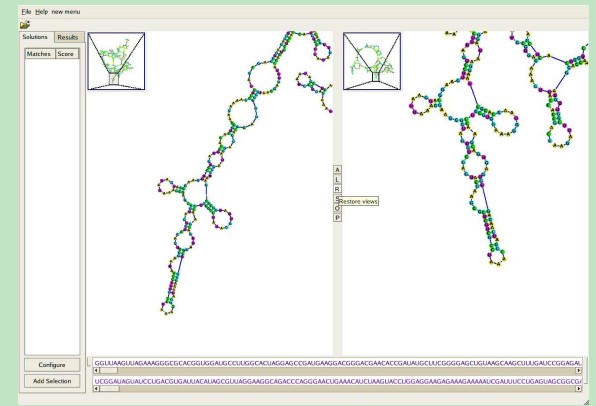
Visualization

Automatic layout



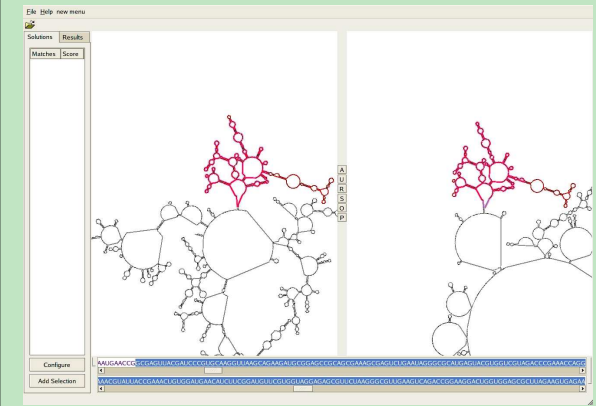
The two RNA secondary structure are drawn side by side. The secondary structure drawing respects the visual conventions used by biologists.

Navigation



ARNA includes the standard set of controls for navigation : zooming by dragging out a rubberband area or using the mouse wheel and panning by dragging.

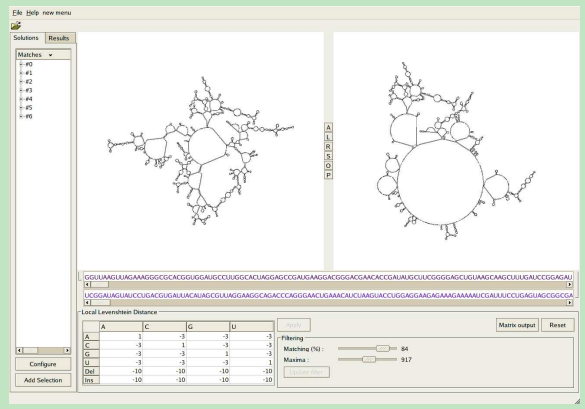
Anchor



The algorithm is stable across small changes to primary structure and has successful heuristics for anchoring quasi-isomorphic substructures in the same place in each view.

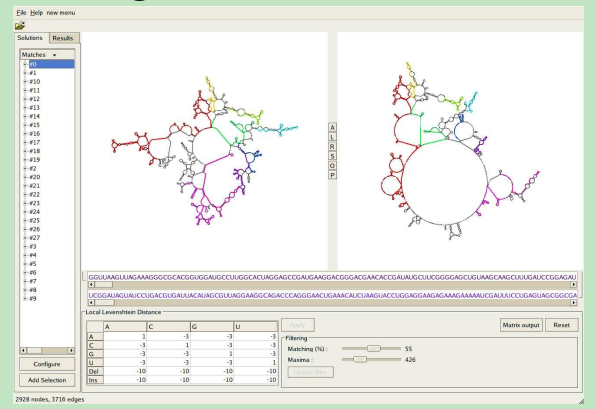
Aligning RNA

Smith and Watterman



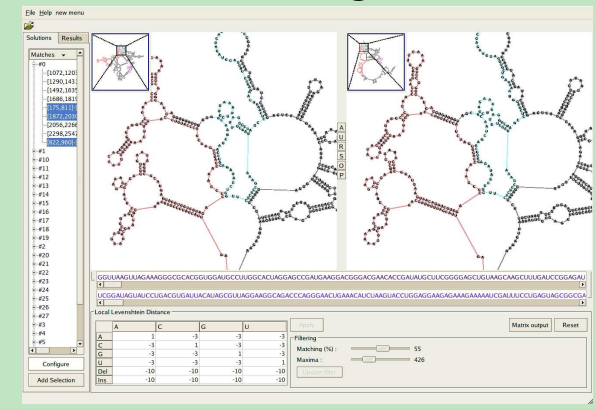
ARNA allows users to interactively explore paths through the Smith and Watterman distance matrix; that is to navigate through the space of matching ranges between the two sequences.

Filtering & Visualisation of solutions



The set of paths we extract from the matrix is too large to be tractable for a human exploration. We make it more manageable by forming groups of matches that do not overlap and that can be displayed simultaneously.

Interactive building of solutions



The user can quickly decide which ranges to validate or to discard. Over the course of exploration, the user adds the best solution to the results set of individual ranges.