Interpreting Dotplot: Identifying Matches, Mutations, Invertions, etc.

Using a dotplot graphic, you can identify such the following differences between the sequences:

1. Matches

A *match* between sequences looks like a diagonal line on the dotplot graphic, representing the continuous match (or repeat).

2. Frame shifts

a. Mutations

Mutations are distinctions between sequences. On the graphic they are represented by gaps in diagonal lines. They interrupt matches.

b. Insertions

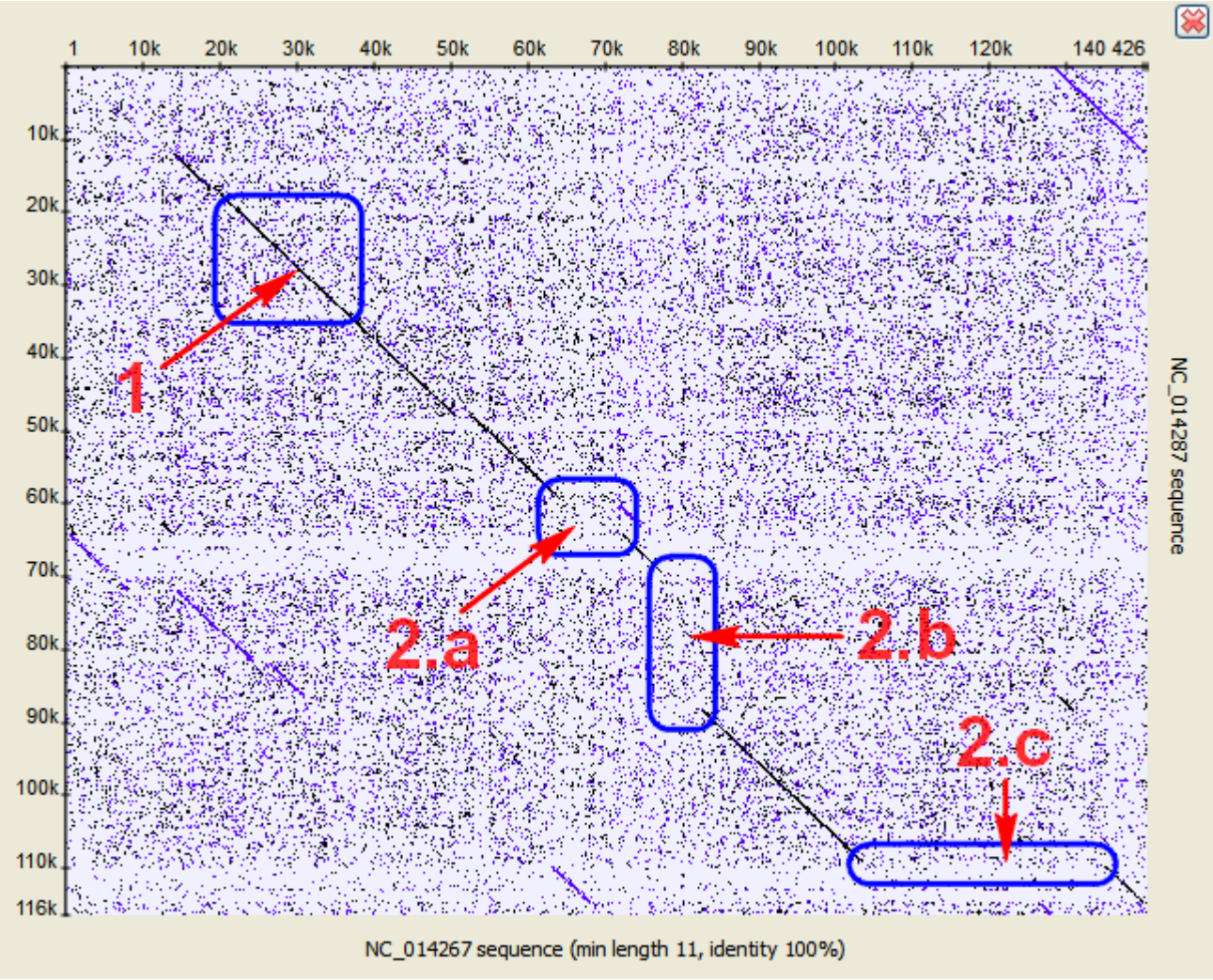
Insertions are parts of one sequence that are missed in the another, while the surrounding parts match. In other words, an insertion is a subsequence that was inserted into a sequence.

Graphically, insertions are represented by gaps which lie only on one axis. A little shift towards the other axis indicates a mutation involved.

c. Deletions

A deletion is a subsequence that was deleted from a sequence.

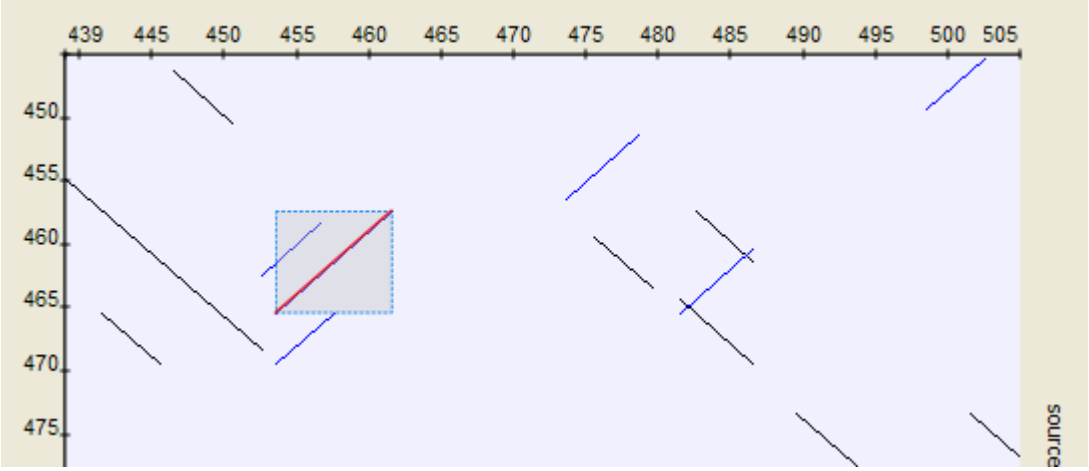
A deletion from sequence A found in sequence B can be considered as an insertion into sequence B and contained in sequence A.



3. Inverted repeats

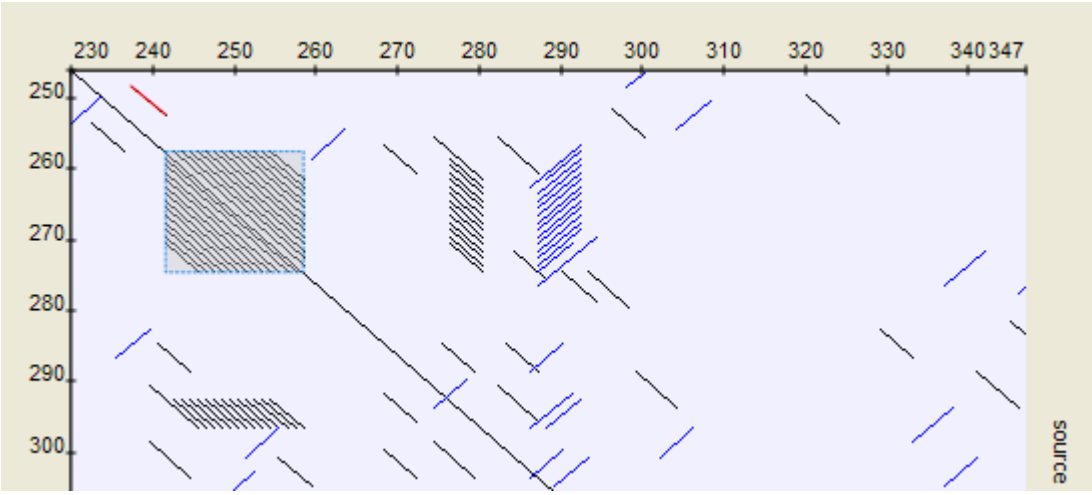
The *Dotplot* plugin allows to search for inverted repeats as well. Inverted repeats are shown contrary to the direct repeats.

Use the *Search direct repeats* and *Search inverted repeats* options of the *Dotplot* parameters dialog to select which repeats to draw (the dialog is described *here*).



4. Low-complexity regions

A low-complexity region is a region produced by redundancy in a particular part of the sequence. It is represented on a plot as a rectangular area filled with the matches.



Hint

Compare sequence with itself to easily find low-complexity regions in it.