

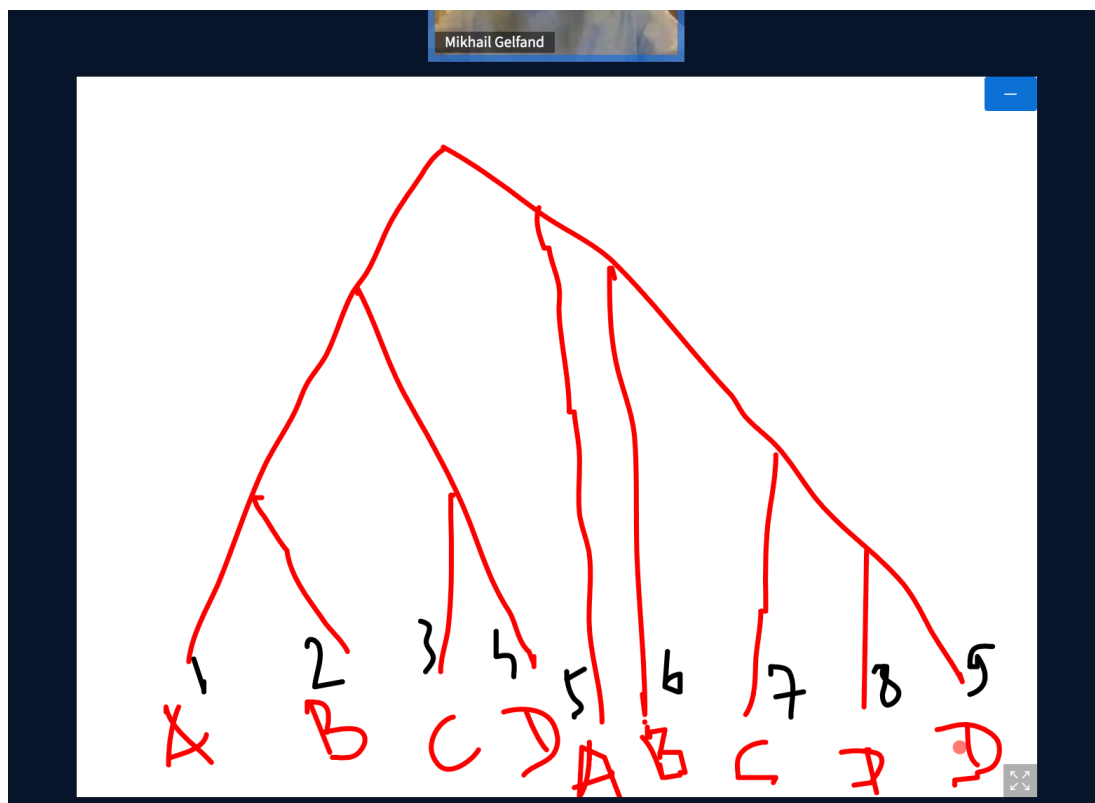
Comparative genomics. Gene/ species tree reconstruction

Homework 2

Protein trees.

Gene trees aim to represent the evolutionary history of gene families, which evolved from a common ancestor. Reconciliation of the gene tree against the species trees allow us to distinguish duplication and speciation events, thus inferring paralogues and orthologues.

Initial data: protein tree as it is represented below. There are 9 proteins from 4 species (A,B,C,D).



What we need to do:

It is necessary to build a tree of species and reconstruct the history of duplications and deletions (so that to minimize them).

If you really want, you can assume the horizontal transfers (but it seems that it is not needed for such type of a tree as an input one)

Solution:

