

Phylogenetic networks

Summer 2013

Assignment 4

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1. Canonical split network (4 points)

Consider the following set of splits:

$$\mathcal{S} = \left\{ \begin{array}{l} \{a, b\} \mid \{c, d, e, f\} \\ \{b, c\} \mid \{a, d, e, f\} \\ \{a, b, c, d\} \mid \{e, f\} \\ \{a, b, c, f\} \mid \{d, e\} \\ \{a, b, c\} \mid \{d, e, f\} \end{array} \right\}.$$

List all projects of $\mathcal{S}$. What are the non-empty cores of the projections?

Draw the resulting canonical split network.

2. Size of the canonical split network (4 points)

What is the maximum number of nodes and edges that a canonical split network can have, as a function of the number of taxa?

3. Canonical split network for compatible splits (2 points)

Prove that the canonical split network for a set of compatible splits is a tree.

Due date: June 6, 2013