Bielefeld University
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AG Genominformatik
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Algorithms in Genome Research
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Exercises

Number 12, Discussion: 2016 February 12

1. Remember and explain a few of the terms (hopefully) mentioned in class:
   - genotype, haplotype
   - segregating site
   - genealogy
   - infinite sites model
   - four-gametes test
2. Given the following instance of the haplotype inference problem (HIP), with the genotypes 02120, 22110, 20120, 20100.
   (a) Apply Clark's algorithm. Can you find multiple solutions?
   (b) Write the ILP for the *pure parsimony* variant of the HIP, that is, find a haplotype set with minimum number of different haplotypes.
   (c) Solve the *perfect phylogeny haplotyping problem* (PHP), that is, find a set of haplotypes that allows a perfect phylogeny.