



4. (25 points) Briefly contrast the following pairs of terms (Use diagrams if they help):

Strict consensus trees vs. majority-rule consensus trees

transformational vs. taxic homology

additive binary recoding vs. non-additive binary recoding

replicator vs. interactor

neoteny vs. progenesis

5. (30 points) What sort of comparative method or approach would you apply to the following evolutionary questions (e.g., what assumptions would you make, what kind of data would you require, how would you generate a null hypothesis, how would you judge statistical significance?):

a. (5 pts.) Has a particular clade of parasitic plants closely co-evolved with its clade of host plants?

b. (5 pts.) Two lineages have merged, producing a new lineage (e.g., "speciation through allopolyploidy")

c. (5 pts.) Is molecular evolutionary change concentrated in speciation events?

d. (5 pts.) Are flavonoids an adaptation to prevent UV damage in land plants?

e. (5 pts.) There is trend towards increasing body size within lineages of mammals (Cope's Rule).

f. (5 pts.) Are fleshy-fruited plants more likely to evolve a dioecious condition (i.e., separate sexes on different individuals)?