



**FIGURE 5.19.** Rooting a tree with an outgroup. One of the ways to determine the root of a tree is to use an outgroup. An outgroup is a taxonomic unit that branched off in evolution prior to the existence of the common ancestor of all the taxa being studied in an ingroup. For example, salmon is an outgroup relative to humans, chimps, gorillas, and lemurs. This phylogenetic tree shows an outgroup and four taxa in an ingroup.