

Using the fossil record to date splits in the primate tree

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Inference about the divergence times of species has long been of interest to biologists. Molecular evolutionists usually date such splits using DNA sequence data [1, 2], while paleontologists use a literal reading of the fossil record for this purpose [3]. It is common that estimates derived from these approaches differ substantially, molecular estimates often being higher than the fossil record suggests.

In an attempt to resolve these differences, an alternative method of inferring the divergence time of a group of species using data from the fossil record was presented in [4]. The method requires a model for species divergence, and uses as data the number of species found as fossils in a series of stratigraphic intervals. In this talk we present an approximate Bayesian computation approach that finds the posterior distribution of the temporal gap (the time from the oldest known fossil in the group to the point of divergence of the group) and also dates the split time of internal nodes of interest. The method, which readily allows a comparison among different evolutionary scenarios, is illustrated using data from the primate fossil record.

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