Parsimony worksheet; due $3 / 18$ in class.
Group (1-3 people):
(1) First guess a good parsimonious tree for species 1, 2, 3, 4, and 5 from the multiple alignment. Then evaluate the score of this tree using a cost matrix of 3 for a transversion and 1 for a transition (A-to-G or C-to-T) and the Sankoff algorithm. You can save some effort by first grouping sites in to categories, and by calculating the cost of uninformative sites without using the Sankoff algorithm.

| Species | Sites |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| 1 | A | G | C | C |
| 2 | T | C | C | C |
| 3 | A | G | A | C |
| 4 | A | G | T | C |
| 5 | T | C | T | T |

