

A stepwise addition cladogram showing the relationship between eight species (sp1 to sp8) based on 15 characters. The x-axis represents the number of characters (7 to 0). The y-axis lists the species. The cladogram shows a series of steps where new characters are added to the tree. The root is at 7 characters. The tree splits into two main branches: one leading to sp8 (1 character) and another leading to a clade of sp1-sp7. The clade of sp1-sp7 is further divided into two sub-clades: one leading to sp1-sp4 and another leading to sp5-sp7. The tree is rooted at 7 characters, and the steps are numbered 1 through 15.

```

graph LR
    Root[7] --- S9[9]
    Root --- S10[10]
    S9 --- S8[1]
    S10 --- S6[6]
    S10 --- S11[11]
    S6 --- S2[2]
    S6 --- S3[3]
    S11 --- S5[5]
    S11 --- S12[12]
    S5 --- S4[4]
    S5 --- S13[13]
    S12 --- S14[14]
    S12 --- S15[15]
    S13 --- S7[7]
    S13 --- S6_6[6]
    S14 --- S15_15[15]
    S14 --- S6_7[7]
    S15 --- S8_8[8]
    S15 --- S7_7[7]
  
```

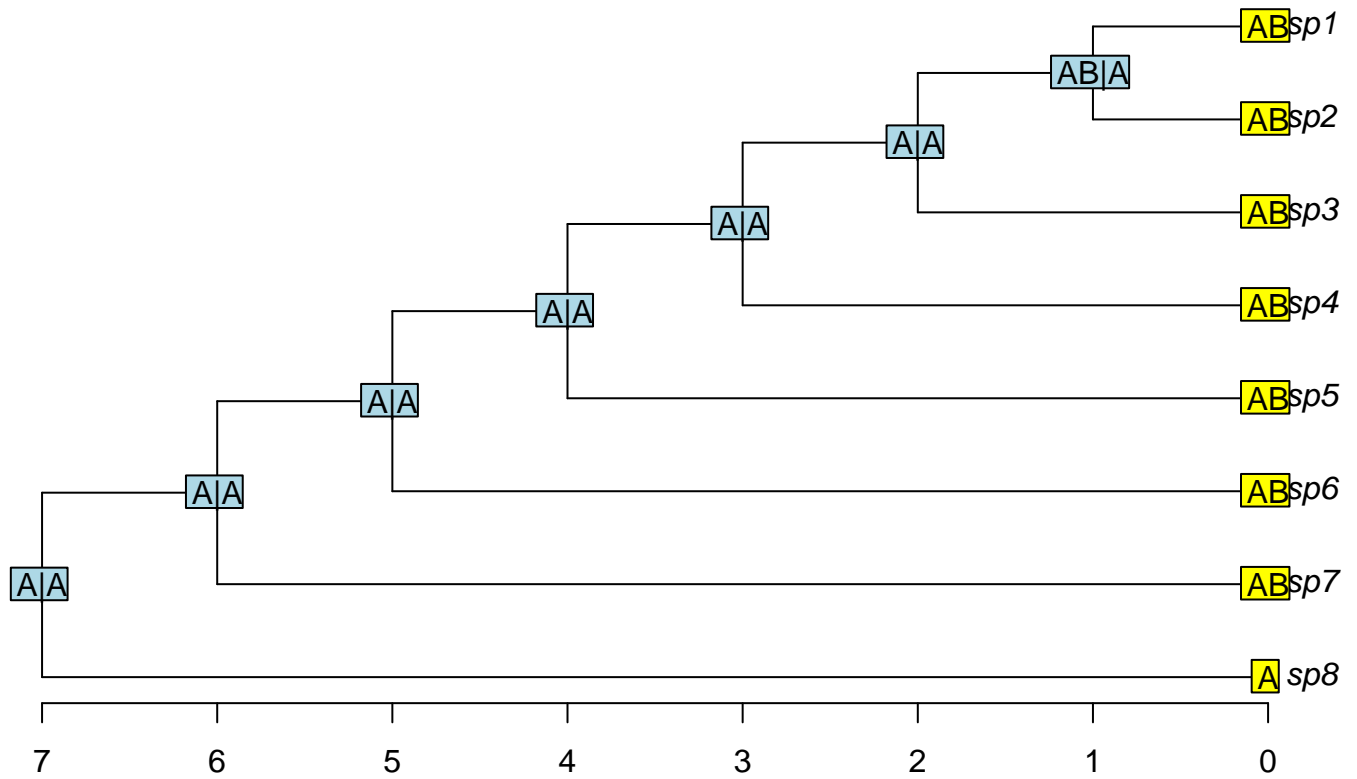
A stepwise addition phylogenetic tree showing the relationships between eight species (sp1 to sp8) based on 14 characters. The tree is rooted at character 14 and branches out as characters 7, 6, 5, 4, 3, 2, and 1 are added. The species are listed on the right, and the character numbers are in boxes along the branches.

Species: sp1, sp2, sp3, sp4, sp5, sp6, sp7, sp8

Character numbers in boxes: 14, 7, 6, 5, 4, 3, 2, 1

Character numbers on the x-axis: 7, 6, 5, 4, 3, 2, 1, 0

## Python LAGRANGE most probable splits



## Python LAGRANGE state probabilities (P(best state), then all others)

