TME2 - PHYG

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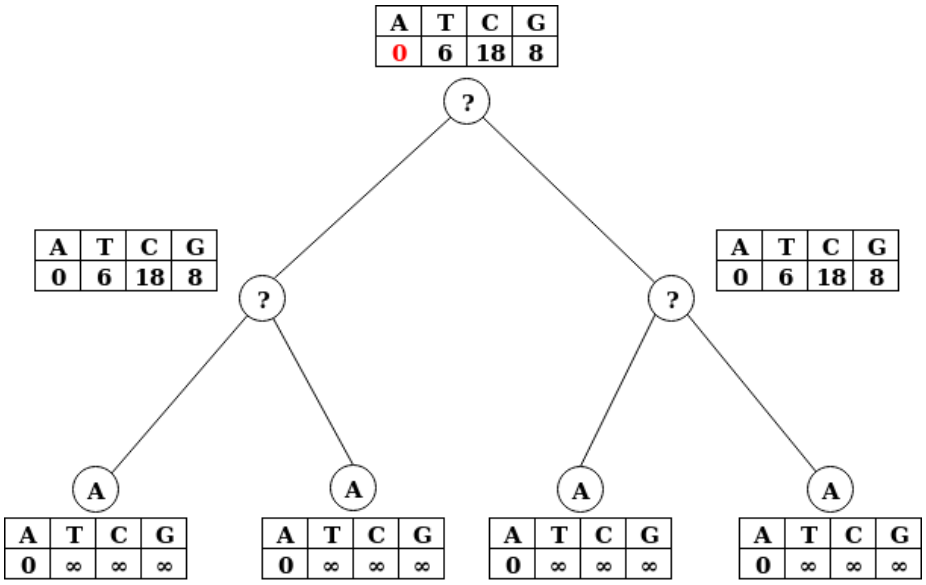
1 Exercise 1 : Parsimony

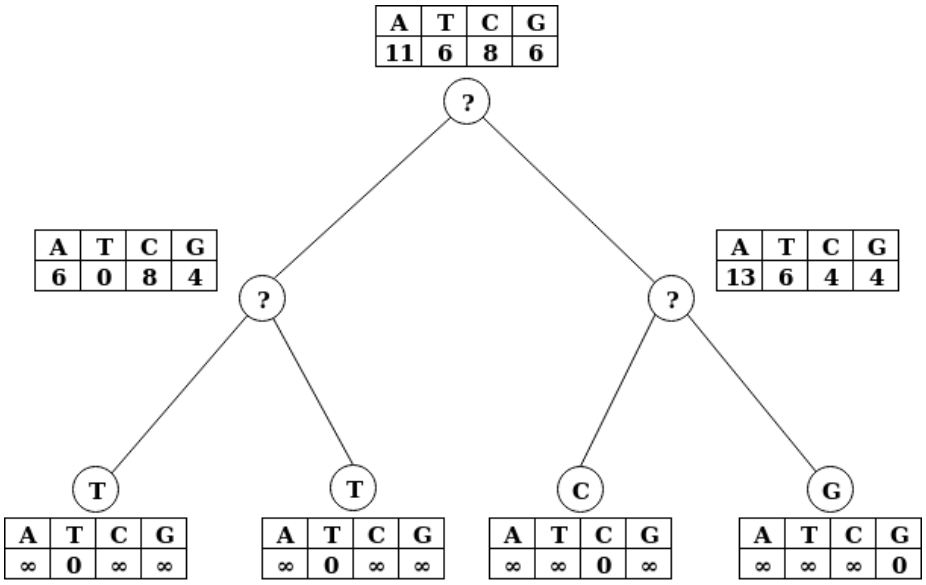
1.1 Question 1

1.2 Question 2

1.3 Question 3

1.4 Question 4





1.5 Question 5

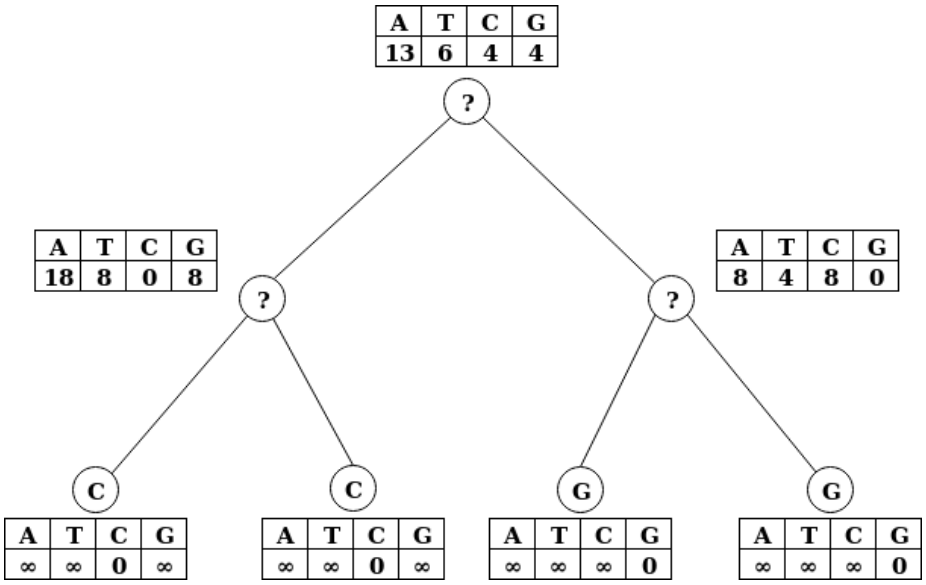
2 Exercise 2 : Reconstruction using reversal distances

2.1 Question 1

2.2 Question 2

2.3 Question 3

	Human	Mouse	Cow	Chimp
Human	0	302	257	18
Mouse	302	0	360	306
Cow	257	360	0	261
Chimp	18	306	261	0



2.4 Question 4

2.5 Question 5

2.6 Question 6

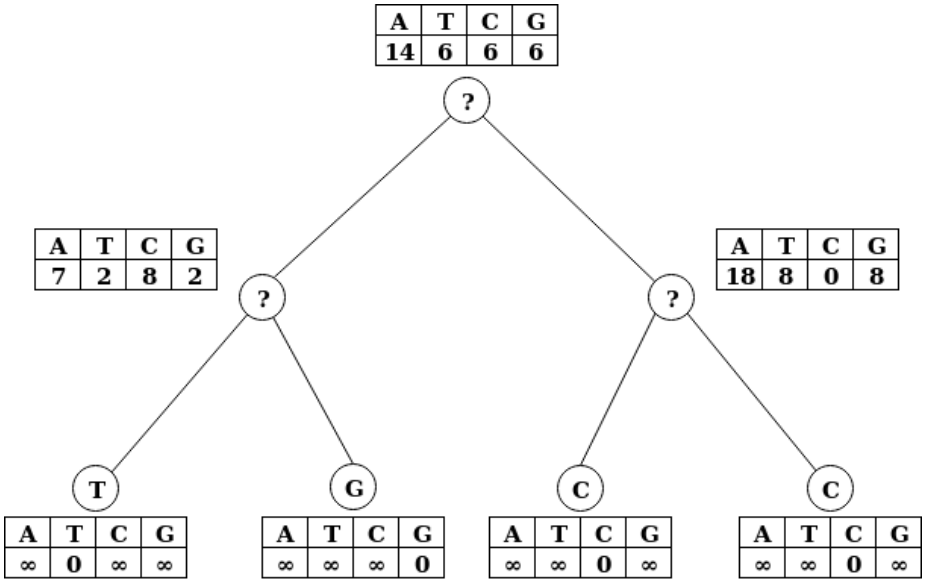
3 Exercise 3 : Reconstruction using characters

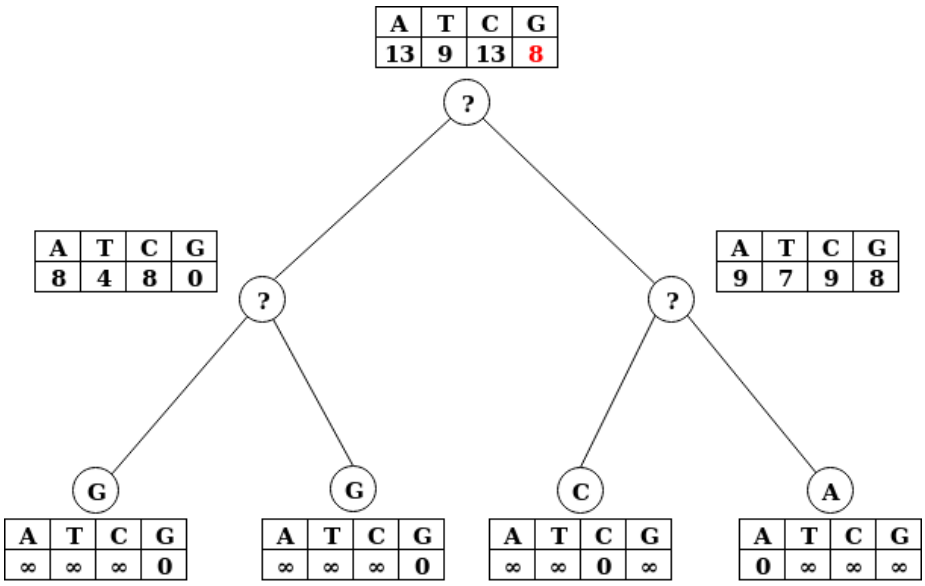
3.1 Question 1

3.2 Question 2

3.3 Question 3

3.4 Question 4


A T C G
14 6 6 6
?
A T C G
7 2 8 2
?
A T C G
18 8 0 8
?
T
G
C
C
A T C G
∞ 0 ∞ ∞
A T C G
∞ ∞ ∞ 0
A T C G
∞ ∞ 0 ∞
A T C G
∞ ∞ 0 ∞


A T C G
13 9 13 8
?
A T C G
8 4 8 0
?
A T C G
9 7 9 8
?
G
G
C
A
A T C G
∞ ∞ ∞ 0
A T C G
∞ ∞ ∞ 0
A T C G
∞ ∞ 0 ∞
A T C G
0 ∞ ∞ ∞

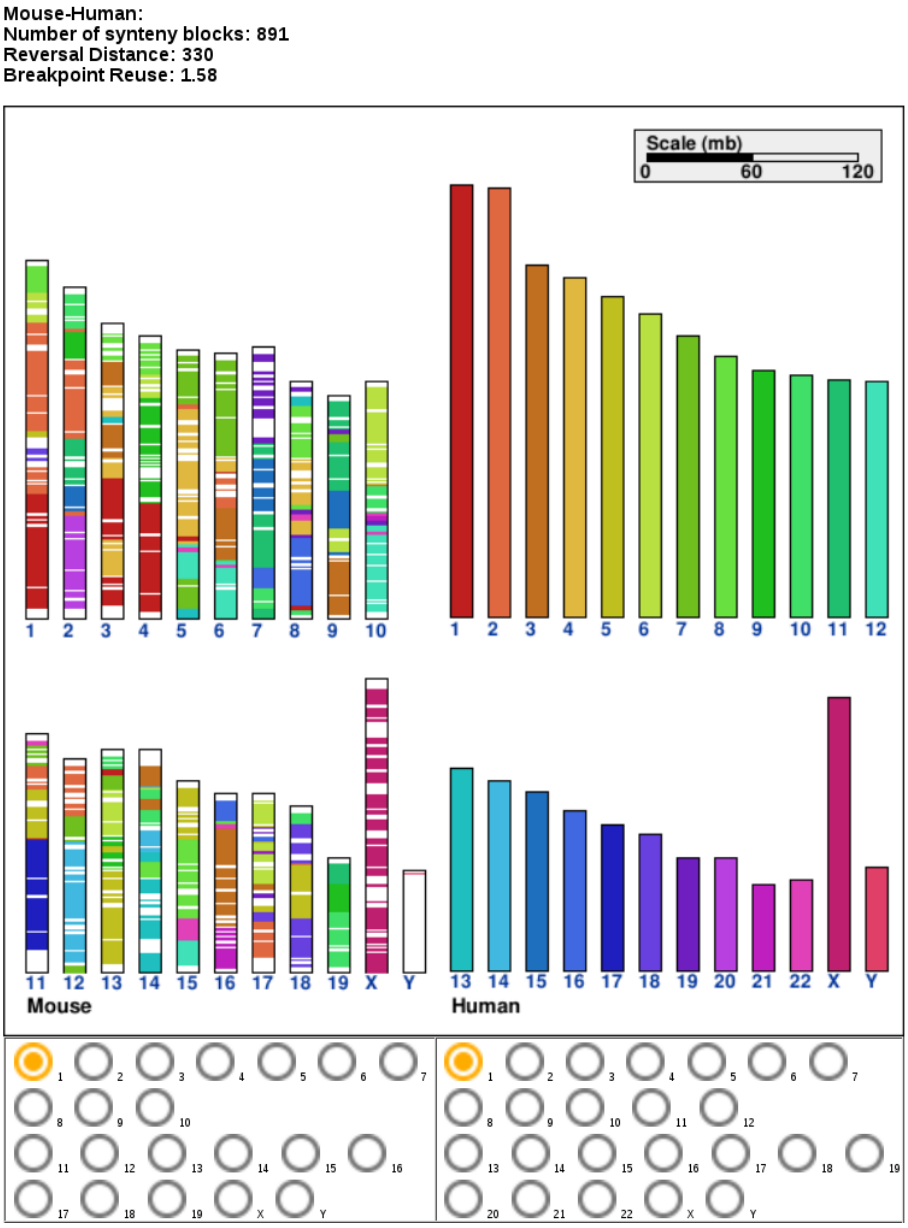


Figure 1: Genome comparison between human (reference) and mouse

Number of synteny blocks: 14
Reversal Distance: 1
Breakpoint Reuse: 1.00

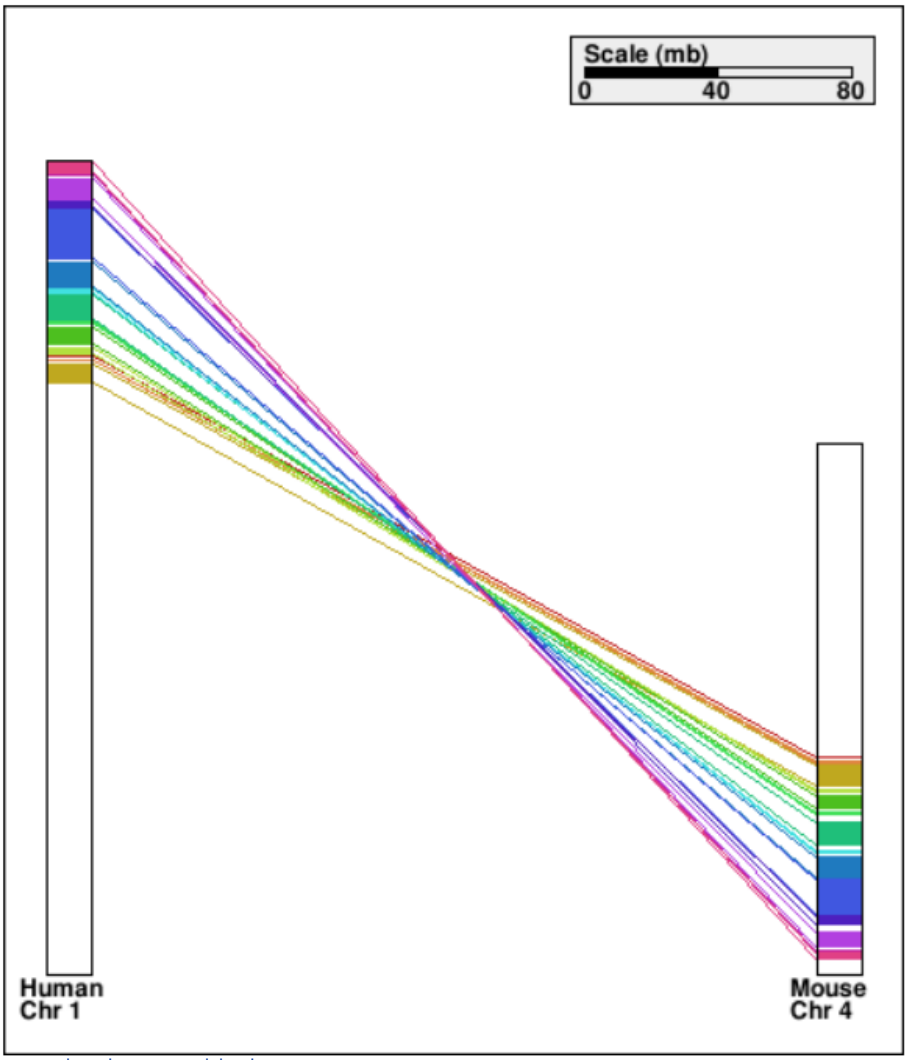


Figure 2: Genome comparison of the first human chromosome and fourth mouse chromosome

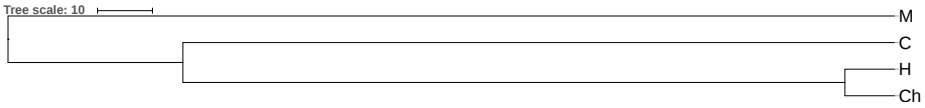


Figure 3: UPGMA tree according to the matrix above

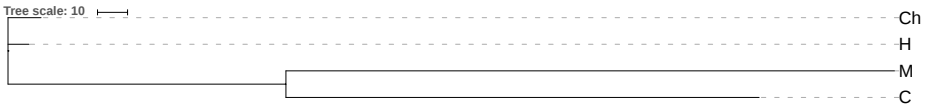


Figure 4: Neighbor-Joinning tree according to the matrix above

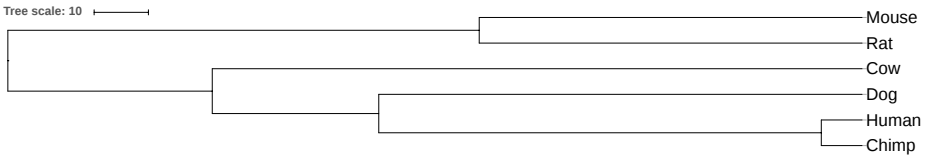


Figure 5: Neighbor-Joinning tree for all mammals

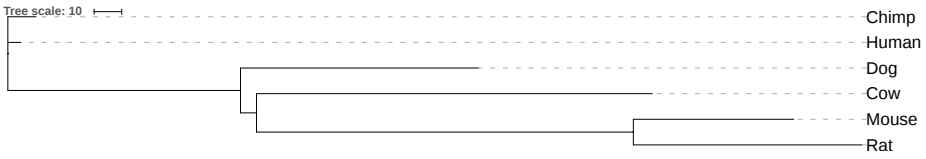


Figure 6: Neighbor-Joinning tree for all mammals