

## 2. Genes and proteins

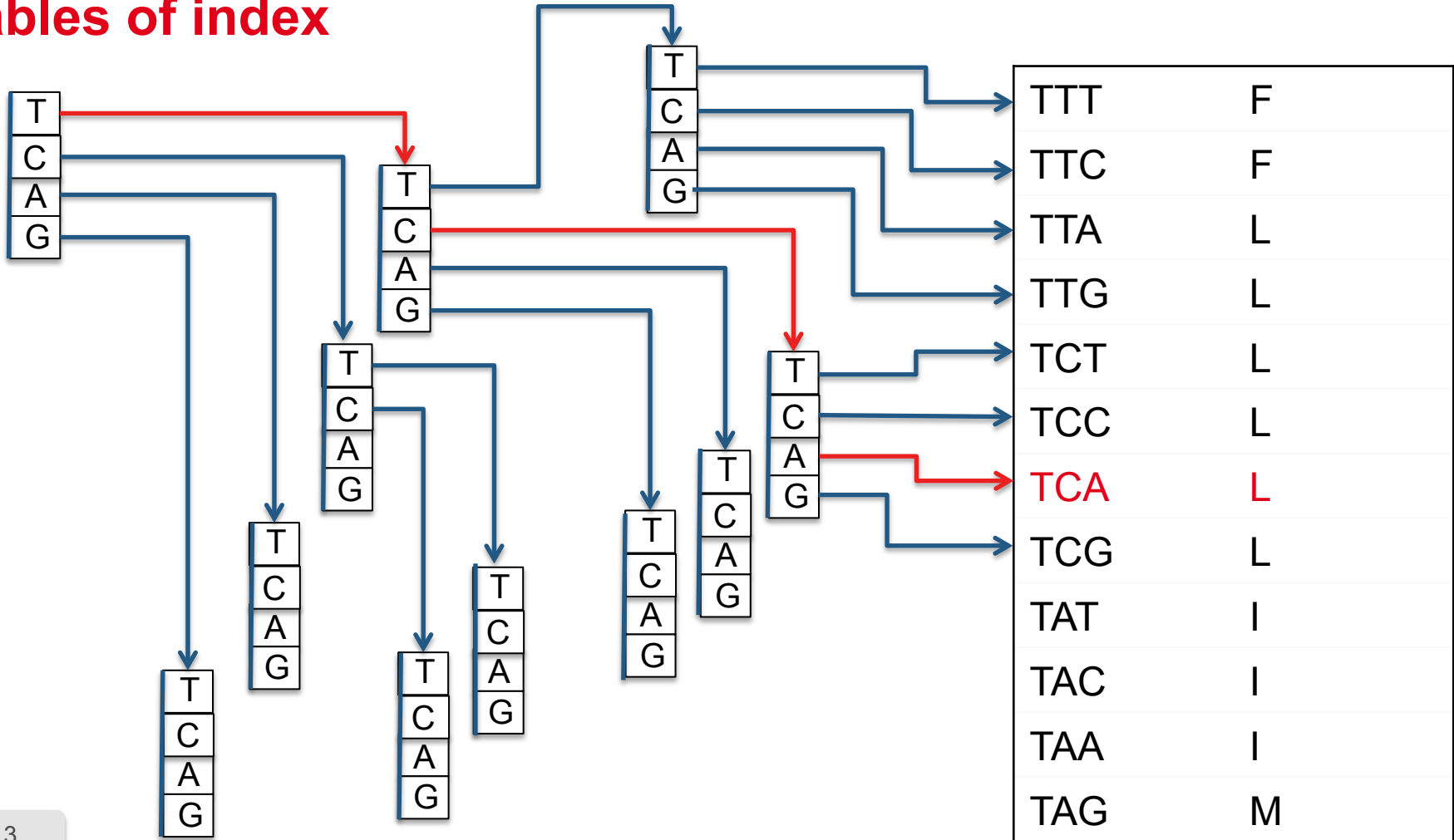
- The sequence as a model of DNA
- Genes: from Mendel to molecular biology
- The genetic code
- A translation algorithm
- Implementing the genetic code
- **Algorithms + data structures = programs**
- The algorithm design trade-off
- DNA sequencing
- Whole genome sequencing
- How to find genes?

# Let's evaluate this algorithm

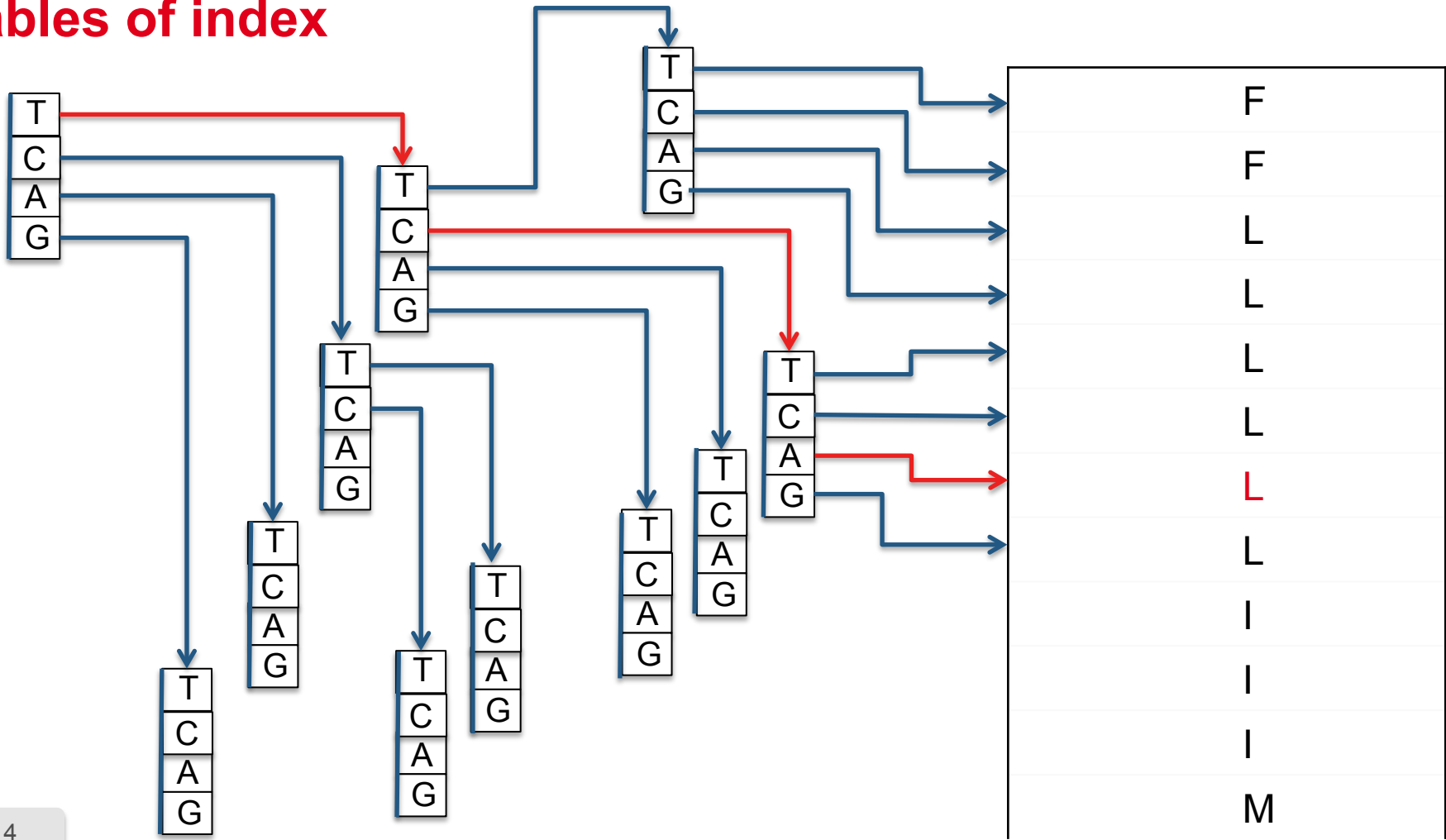
- Does it terminate? Yes!
- Is it pertinent? Yes!
- Is it efficient?
  - In the best case, 3 comparisons of characters (to find TTT)
  - In the worst case, 64 comparisons (to find GGG)

Can we do better?

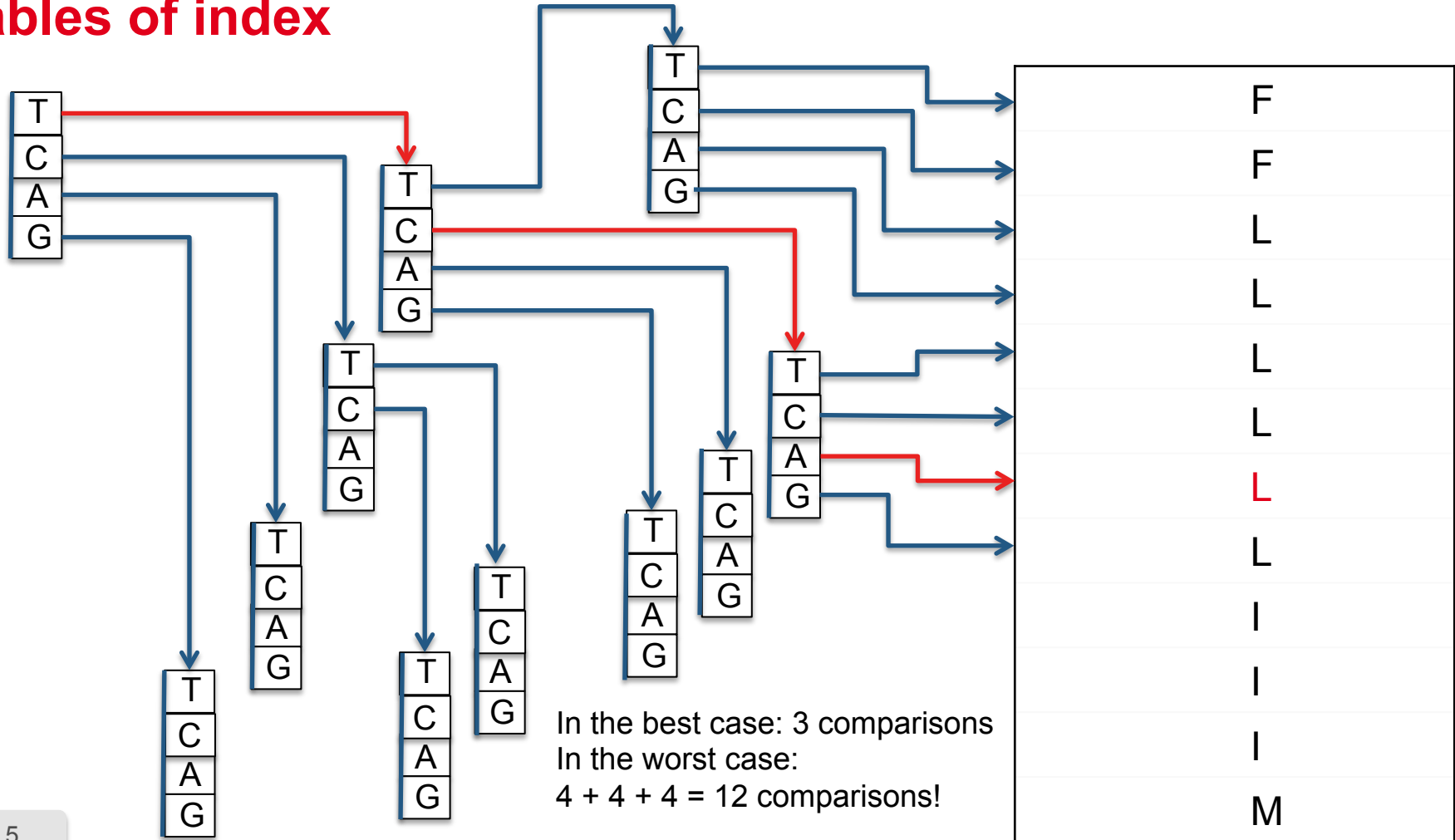
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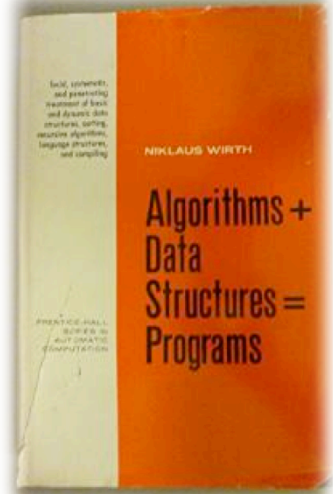


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Algorithms  
+  
Data Structures  
=  
Programs

*Niklaus Wirth, 1976*



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