



# Finite Tree Automata

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# Agenda



- Preliminaries
  - Ranked alphabet, Terms, SubTerms
  - Functions, Substitutions, Trees
- Finite Tree Automata
  - Nondeterministic Finite Tree Automata (NFTA)
  - Complete NFTA, Reduced NFTA
- Closure Properties FTA
- Theorems

Tree Automata Techniques and Applications, by Hubert Comon, Max Dauche, Rémi Gilleron, Florent Jacquemard, Denis Lugiez, Sophie Tison, and Marc Tommasi  
[<http://www.grappa.univ-lille3.fr/tata/>]



# Ranked Alphabet

- $\mathbb{N}$ : The set of positive integers.
- $\mathbb{N}^*$ : A finite string over  $\mathbb{N}$
- **Ranked alphabet**: a couple  $(F, \text{Arity})$ 
  - $F$ : a finite set of symbols.
  - **Arity**: Mapping from  $F$  to  $\mathbb{N}$ .