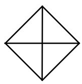


Definition

Let Σ be an alphabet. A language $L \subset \mathsf{str}(\Sigma)$ is called *regular* if there exists a finite automaton that recognizes it.

Regular operations

Let $A, B \subset \mathsf{str}(\Sigma)$ be languages in Σ.

Union

The *union* (*alternation*) of A and B is, as usual, the set $A \cup B$.

Concatenation

The *concatenation* of A and B is the set $\{xy \mid x \in A \text{ and } y \in B\}$, where xy denotes length $|x| + |y|$ string which is the concatenation of x and y

Multi-concatenation

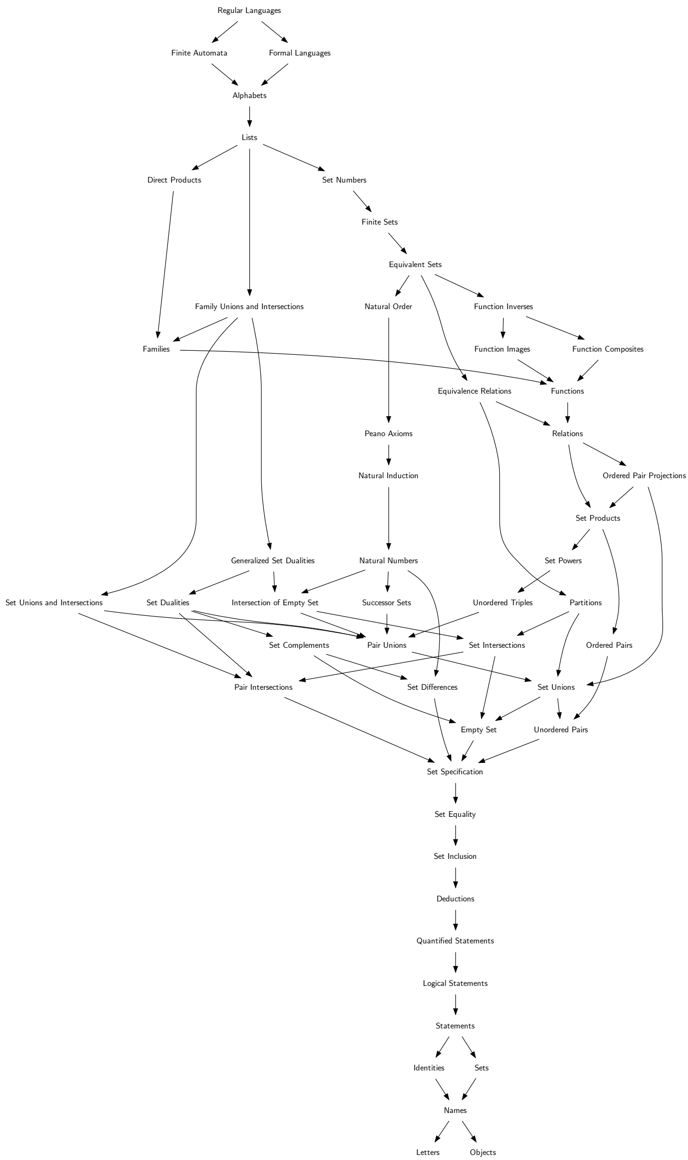
The *star* (*Kleene star*, *multi-concatenation*) of A is the set

$$\{x \in \mathsf{str}(\Sigma) \mid \exists k \geq 0, x = y_1 y_2 \cdots y_k, y_i \in A\}.$$

By this definition we do mean to include the empty string $\varnothing$ in A^*, regardless of A.

Notation

We denote the alternation of A and B by $A \cup B$ as usual, but other notations include $A + B$, $A \mid B$, and $A \vee B$. We denote the concatenation of A and B by AB, but other notations include $A \circ B$. We denote the star of A by A^*.


Regular Languages
Finite Automata
Formal Languages
Alphabets
Lists
Direct Products
Set Numbers
Finite Sets
Equivalent Sets
Family Unions and Intersections
Natural Order
Function Inverses
Families
Function Images
Function Composites
Equivalence Relations
Functions
Peano Axioms
Relations
Natural Induction
Ordered Pair Projections
Set Products
Generalized Set Dualities
Natural Numbers
Set Powers
Set Unions and Intersections
Set Dualities
Intersection of Empty Set
Successor Sets
Unordered Triples
Partitions
Set Complements
Pair Unions
Set Intersections
Ordered Pairs
Pair Intersections
Set Differences
Set Unions
Empty Set
Unordered Pairs
Set Specification
Set Equality
Set Inclusion
Deductions
Quantified Statements
Logical Statements
Statements
Identities
Sets
Names
Letters
Objects