



# Subset Systems

## 1 Why

We speak of a set and a set of its subsets satisfying properties. The utility of this abstract concept is proved by its examples, in future sheets.

## 2 Definition

A *subset system* is a pair of sets: the second set contains subsets of the first.

We call the first set the *base set*. A *distinguished subset* is an element of the second set. An *undistinguished subset* is a subset of the first set which is not distinguished.

### 2.1 Notation

Let  $A$  be a set and  $\mathcal{A} \subset A^*$ . We denote the subset system of  $A$  and  $\mathcal{A}$  by  $(A, \mathcal{A})$ , read aloud as “A, script A.”

## 3 Example

**Example 1.** Let  $A$  be a nonempty set. Let  $\mathcal{A}$  be  $A^*$ . Then  $(A, \mathcal{A})$  is a subset system.