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Preliminaries to Structures

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The articles [3], [1], [4], and [2] provide the notation and terminology for this paper.

We introduce 1-sorted structures which are systems

⟨ a carrier ⟩,

where the carrier is a set.

We consider zero structures as extensions of 1-sorted structure as systems

⟨ a carrier, a zero ⟩,

where the carrier is a set and the zero is an element of the carrier.

Let S be a 1-sorted structure. We say that S is empty if and only if:

(Def. 1) The carrier of S is empty.

One can verify that there exists a 1-sorted structure which is non empty.

One can verify that there exists a zero structure which is non empty.

Let S be a non empty 1-sorted structure. One can verify that the carrier of S is non empty.

Let S be a 1-sorted structure. An element of S is an element of the carrier of S. A subset of S is a subset of the carrier of S. A family of subsets of S is a family of subsets of the carrier of S.

Let S be a 1-sorted structure. One can check the following observations:

* there exists a subset of S which is empty,
* there exists a family of subsets of S which is empty, and
* there exists a family of subsets of S which is non empty.

Let S be a non empty 1-sorted structure. Note that there exists a subset of S which is non empty.

Let S be a 1-sorted structure and let A, B be subsets of S. Then $A \cup B$ is a subset of S. Then $A \cap B$ is a subset of S. Then $A \setminus B$ is a subset of S. Then $A \dot{-} B$ is a subset of S.

Let S be a non empty 1-sorted structure and let a be an element of S. Then $\{a\}$ is a subset of S.

Let S be a non empty 1-sorted structure and let a_1, a_2 be elements of S. Then $\{a_1, a_2\}$ is a subset of S.

Let S be a non empty 1-sorted structure and let X be a non empty subset of S. We see that the element of X is an element of S.

Let S be a 1-sorted structure and let X, Y be families of subsets of S. Then $X \cup Y$ is a family of subsets of S. Then $X \cap Y$ is a family of subsets of S. Then $X \setminus Y$ is a family of subsets of S.

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