1. Introduction

In any field, a Smarandache n-structure on a set S means a weak structure \{w_0\} on S such that there exists a chain of proper subsets \(P_{n-1} < P_{n-2} < \ldots < P_2 < P_1 < S\), where '<' means 'included in', whose corresponding structures verify the inverse chain \(\{w_{n-1}\} > \{w_{n-2}\} > \ldots > \{w_2\} > \{w_1\} > \{w_0\}\), where '>' signifies 'strictly stronger' (i.e., structure satisfying more axioms).

By proper subset of a set S, we mean a subset P of S, different from the empty set, from the original set S, and from the idempotent elements if any.

And by structure on S we mean the strongest possible structure \{w\} on S under the given operation(s).

As a particular case, a Smarandache 2-algebraic structure (two levels only of structures in algebra) on a set S, is a weak structure \{w_0\} on S such that there exists a proper subset P of S, which is embedded with a stronger structure \{w_1\}.

2. Examples

For example, a Smarandache semigroup is a semigroup that has a proper subset which is a group.

Also, a Smarandache ring is a ring that has a proper subset which is a field.
3. Properties

Properties of Smarandache fuzzy semigroups, groupoids, loops, bigroupoids, biloops, rings, birings, vector spaces, semirings, semifield spaces, non-associative semirings, bisemirings, near-rings, non-associative near-ring, binear-rings, fuzzy algebra and linear algebra are presented in the References’ books together with examples, solved and unsolved problems, and theorems.

4. Applications

Also, applications of Smarandache groupoids, near-rings, and semirings in automaton theory, in error correcting codes, in the construction of S-sub-biautomaton, in social and economic research can be found in the below e-books.

5. Conference

International Conference on Smarandache Algebraic Structures, December 17-19, 2004, Loyola College, Madras, Chennai - 600 034 Tamil Nadu, India.

Program of the Conference

a) Smarandache type groupoids, semigroups, rings, fields;

b) Smarandache type k-modules, vector spaces, linear algebra, fuzzy algebra.

Organizer: Dr. M. Mary John, Head of Department of Mathematics

References:


These books can be downloaded from the following Digital Library of Science:

www.gallup.unm.edu/~smarandache/eBooks-otherformats.htm