A Smarandache Weak Structure on a set S means a structure on S that has a proper subset P with a weaker structure.

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.

In any field, a *Smarandache weak n-structure* on a set S means a 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 chain $\{w_{n-1}\} < \{w_{n-2}\} < \ldots < \{w_2\} < \{w_1\} < \{w_0\}$, where '<' signifies 'strictly weaker' (i.e., structure satisfying less axioms).

And by *structure* on S we mean a structure {w} on S under the given operation(s).

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

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

Also, a Smarandache weak ring is a ring that has a proper subset which is a near-ring.

Book:

- **Smarandache Special Definite Algebraic Structures, by W. B. Vasantha Kandasamy**

See also:

- **Smarandache Strong Structures**
- **Smarandache Strong-Weak Structures**