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S-COMMUTATIVE LOOPS AND ITS PROPERTIES

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In this paper we introduce the notion of Smarandache commutative loop (S-commutative loop) and S-strongly commutative loop. We prove a S-commutative loop is not in general a commutative loop.

We prove if L is a power associative loop then L is a S-commutative loop. We proceed on to define the notion of S-cyclic loop, S-strongly cyclic loop and prove:

If L_n be a class of loops for any $n > 1$, if $n = p_1^{\alpha_1} \dots p_k^{\alpha_k}$ ($\alpha_i \geq 1$, for $i = 1, 2, \dots, k$) then it contains exactly F_n loops which are strictly non-commutative and they are

1. S-strongly commutative loops and
2. S-strongly cyclic where

$$F_n = \prod_{i=1}^k (p_i - 3) p_i^{\alpha_i - 1}$$

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