

## SWITCHING EQUIVALENCE IN SYMMETRIC $n$ -SIGRAPHS-III

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### Abstract

An  $n$ -tuple  $(a_1, a_2, \dots, a_n)$  is *symmetric*, if  $a_k = a_{n-k+1}, 1 \leq k \leq n$ . Let  $H_n = \{(a_1, a_2, \dots, a_n) : a_k \in \{+, -\}, a_k = a_{n-k+1}, 1 \leq k \leq n\}$  be the set of all symmetric  $n$ -tuples. A *symmetric  $n$ -sigraph* (*symmetric  $n$ -marked graph*) is an ordered pair  $S_n = (G, \sigma)$  ( $S_n = (G, \mu)$ ), where  $G = (V, E)$  is a graph called the *underlying graph* of  $S_n$  and  $\sigma : E \rightarrow H_n$  ( $\mu : V \rightarrow H_n$ ) is a function. In this paper, we define the *total minimal dominating symmetric  $n$ -sigraph*  $M_t(S_n) = (M_t(G), \sigma)$  of a given symmetric  $n$ -sigraph  $S_n = (G, \sigma)$  and offer a structural characterization of total minimal dominating symmetric  $n$ -sigraphs. Further, we characterize symmetric  $n$ -sigraphs  $S_n$  for which  $S_n \sim M_t(S_n)$  and  $L(S_n) \sim M_t(S_n)$ , where  $\sim$  denotes switching equivalence and  $M_t(S_n)$  and  $L(S_n)$  are denotes total minimal dominating symmetric  $n$ -sigraph and line symmetric  $n$ -sigraph of  $S_n$  respectively.

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