

**Journal of Analysis and Applications**

Vol. 22 (2024), No.1, pp.57-67

ISSN: 0972-5954

© SAS International Publications

URL : www.sasip.net

## On some classes of semi-binary $H$ -supersets

A. Jain\* and G.C. Petalcorin, Jr.

---

**Abstract.** The notion of semi-binary operation “ $*$ ” on a nonempty set  $G$  with respect to its non-empty subset  $H$  were introduced by the authors of [5] . The non-empty set  $G$  is called a “semi-binary  $H$ -superset” with respect to the semi-binary operation “ $*$ ”. In this paper, we formulate the concept of “weak” and “string” semi-binary  $H$ -supersets. We further show that the class of  $\beta$ -languages of order  $n$  [9] forms a weak semi-binary  $R$ -superset and the class of hyper  $\beta$ -languages of order  $n$  [6] forms a strong semi-binary  $R$ -superset where  $R$  is the class of regular languages.

**AMS Subject Classification (2020):** 68Q45

**Keywords:**  $\beta$ -languages, hyper  $\beta$ -language, regular language, semi-binary operation

---

---

\*Corresponding author