

1154-05-2347

**Swapnil Garg\*** (swapnilg@mit.edu). *New Results on Nyldon Words Derived Using an Algorithm from Hall Set Theory.*

Grinberg defined Nyldon words as those words which cannot be factorized into a sequence of lexicographically nondecreasing smaller Nyldon words. He was inspired by Lyndon words, defined the same way except with “nondecreasing” replaced by “nonincreasing.” Charlier, Philibert, and Stipulanti proved that, like Lyndon words, any word has a unique nondecreasing factorization into Nyldon words. They also show that the Nyldon words form a right Lazard set, and equivalently, a right Hall set. We provide a new proof of unique factorization into Nyldon words related to Hall set theory and resolve several questions of Charlier et al. In particular, we prove that Nyldon words of a fixed length form a circular code, we prove a result on factorizing powers of words into Nyldon words, and we investigate the Lazard procedure for generating Nyldon words. (Received September 17, 2019)