Kanel-Belov, Alexei Ya.; Melnikov, Igor; Mitrofanov, Ivan
On cogrowth function of algebras and its logarithmical gap. (Sur la fonction de Co-croissance des Algèbres et son écart logarithmique.) (English. French summary) [Zbl 07335963]

Summary: Let $A \cong k(X)/I$ be an associative algebra. A finite word over alphabet $X$ is $I$-reducible if its image in $A$ is a $k$-linear combination of length-lexicographically lesser words. An obstruction is a subword-minimal $I$-reducible word. If the number of obstructions is finite then $I$ has a finite Gröbner basis, and the word problem for the algebra is decidable. A cogrowth function is the number of obstructions of length $\leq n$. We show that the cogrowth function of a finitely presented algebra is either bounded or at least logarithmical. We also show that an uniformly recurrent word has at least logarithmical cogrowth.

MSC:
20F10 Word problems, other decision problems, connections with logic and automata (group-theoretic aspects)
08A50 Word problems (aspects of algebraic structures)
03D40 Word problems, etc. in computability and recursion theory
05A05 Permutations, words, matrices
06B25 Free lattices, projective lattices, word problems

Full Text: DOI

References:
[7] Lavrov, Petr A., Number of restrictions required for periodic word in the finite alphabet (2012)
[8] Lavrov, Petr A., Minimal number of restrictions defining a periodic word (2014)

This reference list is based on information provided by the publisher or from digital mathematics libraries. Its items are heuristically matched to zbMATH identifiers and may contain data conversion errors. It attempts to reflect the references listed in the original paper as accurately as possible without claiming the completeness or perfect precision of the matching.