On (non-) freeness of some tridendriform algebras

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Abstract

We present some results on the freeness or non freeness of some tridendriform algebras. In particular, we give a combinatorial proof of the freeness of WQSym, an algebra based on packed words, result already known with an algebraic proof. Then, we prove the non-freeness of an another tridendriform algebra, PQSym, a conjecture remained open. The method of these proofs is generalizable, in particular it has been used to prove the freeness of the dendriform algebra FQSym and the quadrialgebra of 2-permutations.

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