

An infinite-dimensional abelian ideal in the weak commutativity construction

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Abstract. We will present how we can show that the abelian ideal $R(\mathfrak{g}) \subset \chi(\mathfrak{g})$ in the weak commutativity construction for Lie algebras [1] may be infinite-dimensional. In particular, $\chi(\mathfrak{g})$ has infinite cohomological dimension if \mathfrak{g} is free non-abelian. This is done via methods of Gröbner-Shirshov bases.

References

- [1] L. A. de Mendonça, *The weak commutativity construction for Lie algebras*. J. Algebra 529 (2019), 145–173.