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CORRECTION TO "A FINITE BASIS THEOREM FOR DIFFERENCE-TERM VARIETIES WITH A FINITE RESIDUAL BOUND"

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Abstract. There is a gap in our proof [Trans. Amer. Math. Soc. 368 (2016), pp. 2115–2143, Lemma 6.2]. We direct readers to a paper that fills the gap.

In [2], we proved that the variety $\mathcal{V}$ generated by a finite algebra of finite signature is finitely based provided (i) $\mathcal{V}$ has a difference term and (ii) $\mathcal{V}$ has a finite residual bound. The proof depends on this lemma, where q is a particular Kiss term for $\mathcal{V}$:

Lemma 6.2 of [2]**.** *If* $\mathbf{A} \in \mathcal{V}$ *and* $\alpha, \beta \in \mathrm{Con}(\mathbf{A})$*, then* $[\alpha, \beta] = 0$ *iff*

(i) $q\colon R(\alpha, \beta) \to \mathbf{A}$ *is a homomorphism, and*
(ii) q *is independent of its third variable on* $R(\alpha, \beta)$*.*

This lemma was proved by Emil Kiss in the restricted setting of congruence modular varieties in [1, Theorem 3.8], and we claimed to have extended the proof to varieties with a difference term in [2]. One line from the second paragraph of our proof states "*Kiss argues that if [some condition holds, then some conclusion follows]. The argument he gives works under our hypotheses.*" This sentence is false. Kiss's proof requires some amount of modularity to work. Our Lemma 6.2 is true as stated, but showing this requires additional arguments. Those arguments have been published in [3].

References

[1] Emil W. Kiss, *Three remarks on the modular commutator*, Algebra Universalis **29** (1992), no. 4, 455–476, DOI 10.1007/BF01190773. MR1201171

[2] Keith Kearnes, Ágnes Szendrei, and Ross Willard, *A finite basis theorem for difference-term varieties with a finite residual bound*, Trans. Amer. Math. Soc. **368** (2016), no. 3, 2115–2143, DOI 10.1090/tran/6509. MR3449235

[3] Keith A. Kearnes, Ágnes Szendrei, and Ross Willard, *Characterizing the commutator in varieties with a difference term*, Algebra Universalis **83** (2022), no. 2, Paper No. 17, DOI 10.1007/s00012-022-00772-7. MR4406813

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