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ERRATUM TO: ON THE COSET STRUCTURE OF A SKEW LATTICE

The following is an errata to the paper “On the coset structure of a skew lattice” published in Demonstratio Mathematica as [4]. All the corrections are relevant to the clear understanding of the paper by the reader. The author thanks to K. Cvetko-Vah and J. Leech for discussions that lead to these corrections. This survey paper revisits some of the known decompositions in the theory of skew lattices (non-commutative generalizations of lattices) including both Leech’s decomposition theorems, and some of the base knowledge regarding the coset decomposition. In the introduction it states that skew lattices “consist(s) of the left version of Slavik’s algebras” which, in fact, should state that “Slavik’s algebras lead to a left version of Leech’s skew lattices”. This statement is referred by J. Leech in his review paper [2] and it is proved in Proposition 6 of the present paper, followed by the corresponding discussion.

At a late stage of preparation of the paper, an error occurred into the statement of Proposition 5 on p. 678. The Proposition is assigned to the preprint [3] by J. Leech and M. Kinyon (which remains today to be a preprint, soon to be submitted according to the authors). However, a confusion arises due to the definition of $\wedge$ -distributive and $\vee$ -distributive skew lattices. By the way they are defined in this paper (using axioms S_{21}, S_{22} and S_{23}, S_{24} , respectively - notice the existing typo), Proposition 5 is not as in the cited reference, and moreover it fails to be true. Therefore, Proposition 5, as stated in the paper, is neither a citation of their result nor true. To overcome this confusion, the identities S_{21} and S_{22} that define $\wedge$ -distributive skew lattices in this paper should be replaced by the identity:

$$x \wedge (y \vee z) \wedge x \approx (x \wedge y \wedge x) \vee (x \wedge z \wedge x)$$

and its dual identity that, in [3] define $\wedge$ -distributive and $\vee$ -distributive skew lattices, respectively.

A last comment shall be made regarding the coset category, introduced in the end of the paper. In fact, the past two years have brought up relevant new ideas on this approach (in which J. Pita Costa centered is Ph.D. dissertation, published in May 2012). The recently published paper [5] reveals several useful characterizations of categorical and strictly categorical skew lattices that are of great importance in the study of the distributivity for skew lattices lead through in [3]. These recent studies permit us a better understanding on the importance of the coset structure decomposition of skew lattices, the clarification of the correspondence of coset bijections to the order structure of these algebras, and a further insight onto the coset category.

References

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- [5] J. Pita Costa, *Coset laws for categorical skew lattices*, Algebra Universalis, DOI 10.1007/s00012-012-0194-z.

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