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# A NEW AXIOMATIZATION OF THE MIXED ASSOCIATIVE NEWMAN ALGEBRAS

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In [1] M. H. A. Newman constracted, formalized and investigated two relatively complemented algebraic systems which he called "mixed non-associative algebras" and "mixed associative algebras." In [2][1] and in the present paper only the latter system is investigated and it is called "mixed associative Newman algebras." In [2] I have proved that this system can be axiomatized equationally in the following way:

(**C**) *Any algebraic system*

$$\mathfrak{B} = \langle B, =, +, \times, \div \rangle$$

*with one binary relation* = *and three binary operations* $+$, $\times$, *and* $\div$, *is a relatively complemented mixed associative Newman algebra if, and only if, it satisfies the following postulates:*

(i) *The closure postulates:*

*P1* $[\exists a] . a \epsilon B$
*P2* $[a] : a \epsilon B . \supset . a = a$

1. An acquaintance with the paper [2] is presupposed. In the deductions presented in this paper the postulates *P1-P11* and *R1-R10* will be used mostly tacitly. An enumeration of the algebraic tables, *cf.* section **2.2** below, is a continuation of the enumeration of such tables given in [2], pp. 421-422, section **5**. It should be noticed that in [2], p. 145, lines 7-9, the proof line 11 which appears there must be substituted by:

$$\begin{aligned} 11.\quad (b \times a) + (b \times c) &= b \times (a + c) = (b \times (a + c)) \times (a + c) && [1; C1; F1] \\ &= ((b \times a) + (b \times c)) \times (a + c) && [C1] \\ &= ((b \times a) \times (a + c)) + ((b \times c) \times (a + c)) && [C2] \\ &= (((b \times a) \times a) + ((b \times a) \times c)) \\ &\quad + (((b \times c) \times a) + ((b \times c) \times c)) && [C1; C1] \\ &= ((b \times a) + ((b \times a) \times c)) \\ &\quad + (((b \times c) \times a) + (b \times c)). && [F1; F1] \end{aligned}$$

See *Notre Dame Journal of Formal Logic*, vol. XIX (1978), p. 192, Errata.

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