Zentralblatt MATH Database 1931 – 2008

© 2008 European Mathematical Society, FIZ Karlsruhe & Springer-Verlag

---

Zbl 1006.17027

Stachó, L.L.

Partial Jordan* triples with grid base. (English)

Castellón Serrano, A. (ed.) et al., Proceedings of the international conference on Jordan structures, Málaga, Spain, June 1997. Málaga: Univ. de Málaga, Departamento de Algebra, Geometria y Topologia. 175-184 (1999).

From the text: The key tool in the holomorphic classification of finite-dimensional bounded bicircular domains given by *D. Panou* [Manuscr. Math. 68, 373-390 (1990; Zbl 0715.32012)] was the following observation: the 3-graded Lie algebra of vector fields of type (V) associated with a finite-dimensional weakly associative complex partial Jordan* triple is unambiguously determined by its restriction to the base space because the operation $R : L \mapsto L|_F$ for $L \in \mathrm{Span}_{\mathbb{C}} F\Box F$ is injective. Panou's proof relied heavily upon the assumptions $\dim(E) < \infty$ and $\mathbb{K} = \mathbb{C}$. The author established the injectivity of the restriction R by an analytic argument for infinite-dimensional complex (or real) partial JB*-triples with finite-dimensional base space without the assumption of weak associativity.

The aim of this note is to give a pure algebraic approach to the injectivity of the restriction R in an elegant algebraic context free of topology. The key tool to this approach will be the concept of weighted grids introduced in [*L. L. Stachó*, Weighted grids in complex Jordan* triples, Acta Sci. Math. (submitted)]. By a weighted grid in a Jordan* triple F we mean a linearly independent subset $G := \{g_w : w \in W\}$ of F indexed with a figure W contained in some $\mathbb{K}$-real vector space (vector space over the field $\mathrm{Re}(\mathbb{K}) := \{\xi \in \mathbb{K} : \xi = \overline{\xi}\}$) such that

$$\{g_u g_v g_w\} \in \mathbb{K} g_{u-v+w} \quad (u, v, w \in W)$$

with the convention $g_z := 0$ when z is not in W. Grids in Neher's sense can be regarded as weighted grids; on the other hand, the description of finite complex weighted grids can be deduced from classical grid theory. The following theorem is proved:

Theorem: Let E be a partial Jordan* triple whose base space F is spanned by a finite weighted grid $G := \{g_w : w \in W\}$ of non-nil elements. Then the restriction $\sum_{u,v\in W} \gamma_{uv} g_u \Box g_v \mapsto \sum_{u,v\in W} \gamma_{uv} g_u \Box g_v|_F$ is injective.

Keywords : weighted grids; partial Jordan* triple

Classification :

∗17C65 Jordan structures on Banach spaces and algebras

46L70 Nonassociative selfadjoint operator algebras