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On weakly and weakly* continuous elements in Jordan triples. (English)

If τ is a linear topology on a JB*-triple E the τ-continuous elements in E are those elements a such that the map $x \to \{xa^*x\}$ is $\tau - \tau$ continuous at 0 when restricted to bounded subsets of E. The set of these elements is denoted by $\mathrm{Cont}_\tau(E)$. The main result of this paper are the descriptions of the weak continuous elements $\mathrm{Cont}_w(E)$ for each one of the following cases: i) when $E = \mathcal{C}_0(\Omega, F)$ is the JB*-triple of the continuous functions from the locally compact topological space Ω with values on the JB*-triple F and such that the inverse image of the complement of each neighborhood of 0 is a precompact subset of Ω; and (ii) when E is a JBW*-triple. In the last case it is proved that $\mathrm{Cont}_w(E)$ agrees with the c_0-direct sum $\bigoplus^{c_0} \mathrm{Cont}_\tau(F_m)$, $\{F_m\}$ being the family of the Cartan factors of the decomposition of the atomic part of E.

Taking into account that $\mathrm{Cont}_w(F_m) = \mathrm{Cont}_{w^*}(F_m)$ [*L. L. Stachó* and *W. Kaup*, Math. Z. 183, 503-529 (1983; Zbl 0519.32024)] and that the determination of the weak* continuous elements of the Cartan factors was given previously by the authors [Acta Sci. Math. 54, 171-190 (1990; Zbl 0736.46053)], the above result is a complete description of the weak continuous elements of each JBW*-triple.

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