All extensions of the clone $\mathrm{Clo}(\mathbb{Z}_p, +)$

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ABSTRACT. We investigate sets of finitary functions on $\mathbb{Z}_p$. If such a set is closed under $+$ and under composition with linear functions from the right side, we call this set a *linear closed clonoid*. If, in addition, the set is closed under composition, the set is an *iterative algebra on* $\mathbb{Z}_p$ which contains $+$. An iterative algebra which contains the projections is called a *clone*. We give a full description of all linear closed clonoids. As consequences, we obtain full descriptions for those iterative algebras and clones on $\mathbb{Z}_p$ which contain $+$.

This is a joint work with Erhard Aichinger (Linz).