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Interpretable, definably semisimple groups in various valued fields

(joint with Yatir Halevi and Assaf Hasson)

We continue our study of interpretable groups in various valued fields (e.g. RCVF, ACVF and p-adically closed fields), and show that if G is an interpretable definably semisimple group, namely has no definable infinite normal abelian subgroup, then, up to a finite index subgroup, it is definably isogenous to a $G_1 \times G_2$, where $G1$ and $G2$ are K-linear and k-linear groups, respectively (K = the valued field and k = the residue field). As in our previous works, we analyze the groups via the 4 distinguished sorts: K, k, Γ (value group) and $K/\mathcal{O}$ (the closed 0-balls), and show that the sorts Γ and $K/\mathcal{O}$ do not appear when G is definably semisimple.