Rigidity for some dynamical systems of arithmetic origin

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The rigidity property for a measure-theoretic dynamical systems is the convergence to the identity of a sequence of powers of the map. We look at examples of rigid and non-rigid systems in the class of interval exchanges. Following those coming from square-tiled surfaces, which will be mentioned in P. Hubert's lecture, we consider the famous Veech example of 1969 and some generalizations, which are finite extensions of rotations of angle α with marked points β_i : by the same word-combinatorial methods as in those previous cases, we can prove they are rigid if α has unbounded partial quotients, non-rigid if the coding by the partition defined by the β_i is linearly recurrent. In the intermediate case when α has bounded partial quotients but the coding is not linearly recurrent, we have partial results using the Ostrowski expansions of the β_i related to α: there are rigid examples, including Veech 1969 in this case, and non-rigid ones providing the first known examples of non-rigid not linearly recurrent interval exchanges.