

Cyclic Actions in Parking Spaces

Eric Nathan Stucky*, Univerzita Karlova

A parking function is a combinatorial object introduced by Konheim and Weiss as a simple model of resolving collisions with hash functions. From these beginnings in computer science, they have been recognized as objects of fundamental interest in algebraic combinatorics due to a natural S_n -action on the “space” of (rational) parking functions. Armstrong, Reiner, and Rhoades observed 10 years ago that two constructions of the parking space each give rise to an auxiliary representation of the cyclic group. Moreover, although these representations appear quite different, they are in fact isomorphic. In this talk we will discuss the “non-nesting” parking space, a third well-known construction, on which an auxiliary cyclic action is not yet known. Finally, we will discuss our partial progress toward such an action, and related further conjectures.

Keywords: algebraic combinatorics, group representations, parking functions, Coxeter-Catalan, rational Catalan.