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**Coding parking functions by pairs of permutations.** (English) Zbl 1023.05007

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Summary: We introduce a new class of admissible pairs of triangular sequences and prove a bijection between the set of admissible pairs of triangular sequences of length  $n$  and the set of parking functions of length  $n$ . For all  $u$  and  $v = 0, 1, 2, 3$  and all  $n \leq 7$  we describe in terms of admissible pairs the dimensions of the bi-graded components  $h_{u,v}$  of diagonal harmonics  $\mathbb{C}[x_1, \dots, x_n; y_1, \dots, y_n]/S_n$ , i.e., polynomials in two groups of  $n$  variables modulo the diagonal action of symmetric group  $S_n$ .

**MSC:**

**05A15** Exact enumeration problems, generating functions

**05A19** Combinatorial identities, bijective combinatorics

**16S36** Ordinary and skew polynomial rings and semigroup rings

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