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Parking functions and a projective embedding of $\overline{M}_{0,n}$

We present a new class of parking functions, which we call *column restricted parking functions* or *CPF's*, arising in the study of the compact moduli space $\overline{M}_{0,n}$ of genus 0 stable curves with n marked points. The space $\overline{M}_{0,n}$ is embedded into the product of projective spaces $\mathbb{P}^1 \times \mathbb{P}^2 \times \cdots \times \mathbb{P}^{n-3}$, and we give an explicit combinatorial formula for the multidegrees of this embedding in terms of CPF's of height $n-3$. This combinatorial interpretation implies that the *total degree* of the embedding (defined as the sum of the multidegrees) is equal to the total number of CPF's of height $n-3$, and we show that these are enumerated by the double factorial $(2(n-3)-1)!! = (2n-7)(2n-9)\cdots(5)(3)(1)$. This is joint work with Renzo Cavalieri and Leonid Monin.

If time permits, we will mention new joint work with Sean Griffin and Jake Levinson, in which we find an explicit bijection between CPF's and boundary points on $\overline{M}_{0,n}$ that is compatible with a geometric recursion defining the multidegrees.