Swap action on moduli spaces of polygonal linkages

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The basic object of the paper is the moduli space $M_{2,3}(L)$ of a closed polygonal linkage either in $\mathbb{R}^2$ or in $\mathbb{R}^3$. As was originally suggested by G. Khimshiashvili, the space $M_{2}(L)$ is equipped with the oriented area function A, whereas (as is suggested in the paper) $M_{3}(L)$ is equipped with the vector area function S. The latter are generically Morse functions, whose critical points have a nice description. In the preprint, we define a \textit{swap action} (that is, the action of some group generated by edge transpositions) on the space $M_{2,3}(L)$ which preserves the functions A and S and the Morse points. We prove that the commutant of the group acts trivially, present some computer experiments and formulate a conjecture.

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