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GEOMETRIC STRUCTURE OF SINGLE/COMBINED EQUIVALENCE CLASSES OF A CONTROLLABLE PAIR*

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Abstract. Given a pair of matrices representing a controllable linear system, its equivalence classes by the single or combined action of feedbacks, change of state and input variables, as well as their intersection are studied. In particular, it is proved that they are differentiable manifolds and their dimensions are computed. Some remarks concerning the effect of different kinds of feedbacks are derived.

Key words. Controllable pairs, Linear systems, Orbits by feedback, Orbits by variables change, System perturbations.

AMS subject classifications. 37A20, 93C05, 93C73.

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