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John Franks* (j-franks@northwestern.edu), Dept. of Mathematics, Northwestern University, 2033 Sheridan Road, Evanston, IL 60208-2730, and **Bryna Kra** and **Van Cyr**. *The spacetime of a shift automorphism*. Preliminary report.

This talk represents joint work with Van Cyr and Bryna Kra. The automorphism group of a one dimensional shift space over a finite alphabet, is known typically to contain a rich collection of subgroups. We study constraints which exist on this countable group and their relationship to the dynamics of the shift. We start by considering a single automorphism, studying the naturally associated two dimensional shift system and its dynamical properties such as nonexpansive subspaces. We then use these structural results to study the algebraic structure of the group of all automorphisms of the shift. We show that the complexity and the entropy of the shift system place nontrivial structure on the group of automorphisms. (Received September 13, 2016)