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**Victoria S Akin\*** (takin89@gmail.com). *An Algebraic Characterization of the Point-Pushing Subgroup.*

The *point-pushing subgroup*  $P(\Sigma_g)$  of the mapping class group  $\text{Mod}(\Sigma_{g,1})$  of a surface with marked point is an embedding of  $\pi_1(\Sigma_g)$  given by pushing the marked point around loops. We prove that for  $g \geq 3$ , the subgroup  $P(\Sigma_g)$  is the unique normal, genus  $g$  surface subgroup of  $\text{Mod}(\Sigma_{g,1})$ . As a corollary to this uniqueness result, we give a new proof that  $\text{Out}(\text{Mod}^\pm(\Sigma_{g,1})) = 1$ , where  $\text{Out}$  denotes the outer automorphism group; a proof which does not use automorphisms of complexes of curves. Ingredients in our proof of this characterization theorem include combinatorial group theory, representation theory, the Johnson theory of the Torelli group, surface topology, and the theory of Lie algebras. (Received September 01, 2016)