1086-20-640 **Bobbe Cooper** and **Eric Rowland***, LaCIM, Université du Québec à Montréal. *Distinguished equivalence classes of words in F_2.*

A central theme in the study of equivalence classes of F_n under $\operatorname{Aut} F_n$ is that information about the equivalence class of a word can be obtained from statistics of its contiguous subwords. In this spirit, we give a new characterization of words in F_2 of minimal length in their equivalence class. We then introduce a natural operation that grows words from smaller words by duplicating a letter. Although this operation does not have any obvious algebraic interpretation, it turns out to provide a refinement of the notion of a minimal-length word, and the "maximally minimal" words in F_2 comprise distinguished equivalence classes with restricted structure. Moreover, many equivalence classes can be obtained under the growth operation from the distinguished classes. (Received September 10, 2012)