Atomic classes: pattern classes indecomposable by union

Sophie Huczynska and **Nic Ruskuc**
School of Mathematics and Statistics
University of St. Andrews
St. Andrews KY16 9SS, Scotland, UK
[sophieh,nik]@mcs.st-and.ac.uk

January 7, 2005

ABSTRACT

A pattern class is a set of permutations closed under pattern involvement or, equivalently, defined by certain subsequence avoidance conditions. A pattern class is called atomic if it is indecomposable as a union of two proper subclasses. Since every pattern class may be written as the union of atomic classes, atomic classes are fundamental to the structure theory of pattern classes. This talk will present new work about atomic classes and their properties, including results on their representation via bijections, and an exploration of their relation to profile classes.