1041-05-101 **Daniel Panario*** (daniel@math.carleton.ca). *Smallest Components and Restricted Patterns in Combinatorial Decomposable Structures.*

We review the relation between objects and components in *decomposable combinatorial structures*. These structures consist of simpler entities called *components* which by themselves can not be further decomposed. Typical examples of these combinatorial structures are: permutations (decomposed into cycles), graphs (into connected components), and polynomials over finite fields (into irreducible factors).

The *restricted pattern* of an object of size n is a mapping $S\colon J \mapsto \mathbb{N}$, where J is a set of components' sizes, $\mathbb{N}$ is the set of nonnegative integers, and $S(j)$ is the number of components of size j. We want to count objects such that the components with sizes excluded from J may appear any number of times but there are exactly $S(j)$ components of size j, $j \in J$.

We survey several properties of smallest components, with and without restricted patterns. We assume that the component generating function $C(z)$ is of *alg-log* type, that is, $C(z)$ behaves like

$$(1 - z/\rho)^{-\alpha} \ln \left(\frac{1}{1 - z/\rho} \right)^{-\beta}$$

near its dominant singularity ρ. This includes the case when objects are in the so-called exp-log class. These concepts will be defined and examples will be given. (Received August 05, 2008)