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 $S: J \mapsto \mathbb{N}$, 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 $\rho$. 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)