1. Verify that the operators corresponding to the combinatorial marking and composition constructions are the same for egf’s as for ogf’s, i.e. for marking \( \hat{c}(z) = zD\hat{a}(z) \) and for composition \( \hat{c}(z) = \hat{a}(\hat{b}(z)) \).

2. Denote by \( b_n^{(r)} \) the number of partitions of the set \([n] = \{1, \ldots, n\}\) where each class contains at most \( r \) elements. (Each class must of course by definition be nonempty.) Determine for the sequence \( \langle b_n^{(r)} \rangle \) its exponential generating function \( \hat{b}^{(r)}(z) = \sum_{n \geq 0} b_n^{(r)} \frac{z^n}{n!} \).

3. Determine the egf’s for the classes of permutations where (a) all the cycles are of length three, (b) all the cycles are of even length.