variable ξ_1 relative to the probabilities P, P_A, and P_B, namely

$$f_1(k) = P(\xi_1 = k), \quad f_2(k) = P_A(\xi_1 = k), \quad f_3(k) = P_B(\xi_1 = k),$$

which means that the three random variables ξ_1, ξ_2, ξ_3, $\xi_1(\omega) = \xi_2(\omega) = \xi_3(\omega)$ are considered on three different probability spaces (Ω, Σ, P), (Ω, Σ, P_A) and (Ω, Σ, P_B) with respective distributions f_1, f_2 and f_3.

In the sequel, we will also use the term 'frequency histogram' for the distributions of discrete random variables defined on a finite scheme. We will call the frequency histogram of random variables of type ξ_2 and ξ_3, that is the conditional distributions of the random variable ξ_1 on a certain 'locally' determined condition, the related name scattering frequency histograms, meaning the 'relation' in the sense of this condition. We will call the histogram $f_1(k) = P(\xi_1 = k)$ simply a name scattering frequency histogram.

8 Distributions of ξ_1, ξ_2, ξ_3

We now come to the investigation of the structure of the list X by comparing the distribution of the random variable ξ_1 with ξ_2 and ξ_3. In particular, the natural ideas of how the rulers' names should be arranged chronologically 'correctly' lead us to the following statement.

Statement 1. The condition $u_i \sim u_j$ (or $u_i \approx u_j$) imposed on the names u_i, u_j from I does not influence the details of the mutual disposition of u_i, u_j with respect to the whole of X.

It is clear that Statement 1 is closely related to the frequency damping principle: as a matter of fact, we assume that the 'local' relations in the chronologically correct list must not statistically lead to any global relations. By means of ξ_1, ξ_2 and ξ_3, Statement 1 can be made more precise as follows.

Statement 2. The random variables ξ_1, ξ_2, ξ_3 constructed from the chronologically correct list should be distributed similarly. In other words, the distribution of ξ_1 should not depend on either event A or B.

Remark. It is clear that a certain divergence of the distribution of ξ_1 from ξ_2 (or ξ_3) will arise even in the case where Statement 1 is valid, just because of the finiteness of the scheme. However, we consider here sufficiently long lists, containing about 300 to 600 entries, and will neglect their finiteness.

Assume now that the chronological list X under investigation contains some duplicates, with the system $S_1, S_2, \ldots, S_m$ of the most frequent (typical) shifts among them. We do not suppose that X is divided into disjoint duplicate systems, for those from different groups may overlap.

With this assumption, the distribution of the random variable ξ_1 is naturally dependent on the condition (event) A (and B). In fact, if two names u_i and u_j fell into a chapter X_α (were 'born' there), then we should also expect them to be found among the duplicates of X_α. Thus the value of the scattering of any two entries in the list X containing them will be close to zero, and the shifts typical of the given duplicate system, more often than for any arbitrary pair of names from I. Therefore, the histograms f_2 and f_3 will contain (in contrast with f_1) peaks near to the origin and the values of the shifts $S_1, S_2, \ldots, S_m$.

9 Histogram f_1 in the case of the list X without duplicates

It is easy to calculate that, in the case of a uniformly dense list $X = (a_1, a_2, \ldots, a_N)$ such that all the chapters X_i, $i = 1, 2, \ldots, n$ contain the same number p, of entries, the