Let F be a finitely generated free group. For each positive integer k, generically, a k-tuple of words of length at most n chosen uniformly at random forms a basis of the subgroup it generates, and this subgroup is malnormal and Whitehead minimal (Arzhantseva, Bassino, Jitsukawa, Nicaud, Ol'shanskii, Weil).
Let R_n be the number of words in F of length at most n. Then an R_n^d-tuple of cyclically reduced words of length at most n chosen uniformly at random, generically has the small cancellation property C'(1\6) if d < 1\12, the group it presents is generically infinite and hyperbolic if d < 1\2, and it is generically trivial for d > 1\2 (Champetier, Gromov, Ollivier, Ol'shanskii).

We discuss extensions of these results to tuples where the number and the length of the words is set more freely, and where the probability law on words of a given length is given by a Markovian process (instead of the uniform distribution). The genericity of the free basis and the malnormality properties for subgroups is extended to exponential size tuples of generators. The small cancellation properties and the degeneracy results for finite presentations are preserved under reasonable assumptions, with phase transitions that depend on the Markovian process.