VARIABLE LENGTH MARKOV CHAINS AND G-MEASURES

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ABSTRACT. This minicourse will deal with two families of similar random processes : g-measures and variable length markov chains (VLMC). Two different points of view will be used to study these processes. We will be mainly interested in the problem of existence of such processes, in full generality.

- For g-measures, we will adopt the formalism of ergodic theory (Perron-Frobenius operators, variational principal). We will give results for discontinuous transitions and briefly explain the connections with dynamical systems.
- For the variable length markov chains, we will take advantage of the combinatorial structure of the context tree used to define the chain.
- Finally, as an application, we will use simple VLMC as sources to produce words stored in a data structure called suffix trie. We will discuss the typical height and depth of these tries.