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Christian Houdre, School of Mathematics, 686 Cherry St., Atlanta, GA 30332, and **Trevis Litherland*** (trevisl@math.gatech.edu), School of Mathematics, 686 Cherry St., Atlanta, GA 30332. *On the Limiting Shape of Random Young Tableaux for Markovian Words.*

Let $(X_n)_{n \geq 0}$ be an irreducible, aperiodic, homogeneous Markov chain, with state space an ordered finite alphabet of size m . Using combinatorial constructions and weak invariance principles, we obtain the limiting shape of the associated Young tableau as a multidimensional Brownian functional. Since the length of the top row of the Young tableau is also the length of the longest (weakly) increasing subsequence of $(X_k)_{1 \leq k \leq n}$, the corresponding limiting law follows. We relate our results to a conjecture of Kuperberg by showing that, for $m = 3$, and under a cyclic condition, the limiting shape is the spectrum of the traceless GUE (a fact already known for $m = 2$). However, this is no longer true for $m \geq 4$. (Received August 27, 2008)