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Todd Retzlaff* (retzlaff@psu.edu), Penn State – Lehigh Valley, 8380 Mohr Lane, Fogelsville, PA 18051. *Shifted Convergence of Convolution Powers to the Haar Measure of a Compact Subgroup*. Preliminary report.

Let G is a locally compact group and μ an adapted probability measure on G . The conditions under which $\mu^n x^{-n}$ converges weakly for some $x \in G$ and what it converges to have been studied by a number of authors. Let $\tilde{\mu}(A) = \mu(A^{-1})$ and ω_G be a Haar measure on G . We show that if $\omega_G(\text{supp}(\mu)) > 0$ and $\mu^n \tilde{\mu}^n \rightarrow \omega_H$ where ω_H is the normalized Haar measure for some compact subgroup, then $H = N_\mu$, the smallest closed normal subgroup a coset of which contains the support of μ . In particular, if μ is spread-out and $\mu^n \tilde{\mu}^n \rightarrow \omega_H$ for some compact subgroup H then $\mu^n x^{-n} \rightarrow \omega_{N_\mu}$ in total variation norm. Furthermore, in this case the rate of convergence of $\|\mu^n x^{-n} - \omega_{N_\mu}\|$ can be shown to be exponential. (Received September 06, 2006)