# Trimming of dependent sequences and applications

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Trimming is a standard method to decrease the effect of large sample elements in statistical procedures used, e.g., to construct robust estimators and tests. Trimming of i.i.d. sequences has been extensively studied from the 1960's and most basic problems of the theory have been solved, except a few isolated problems, e.g. the CLT under modulus trimming. In contrast, very little is known about trimming of dependent sequences, even though results here would be very useful e.g. in the statistics of heavy tailed processes. We formulate a few new results in this direction.

(a) We prove a functional CLT for trimmed AR(1) processes with stable errors, leading to a change point test for the unknown parameter of the process.

(b) We prove the CLT for trimmed $\psi$-mixing sequences, with applications in the theory of continued fractions.

Our method also gives insight into the central limit theory of modulus trimmed i.i.d. sums, showing that the difficulties in the classical theory can be removed by allowing random (but sample dependent) centering sequences in the CLT.

(Joint results with István Berkes and Lajos Horváth.)