Embeddings of groups into Banach spaces

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My main interest is the study of group embeddings into Banach spaces. More precisely, let G be a finitely generated group equipped with d, the word length metric with respect to a finite symmetric generating set. We would like to capture some information about the large scale geometry of G. For instance, let $(V, \|\cdot\|)$ be a Banach space and one can try to find the best constant $\alpha \in [0,1]$ such that there exists a map $F : G \to V$ satisfying $d(x,y)^\alpha \preccurlyeq \|F(x) - F(y)\| \preccurlyeq d(x,y)$, for all $x, y \in G$. This constant α, the so-called compression exponent, has been extensively studied and is related to other group theoretical notions such as amenability, the Haagerup Property and Yu's Property A. In [JP] , we compute the exact compression exponent for a class of HNN extensions, containing Baumslag-Solitar groups. Other results concerning the compression of some infinite metric spaces are given in [JV], where a careful study of the metric on appropriate finite subspaces of an infinite graph can lead to good upper bounds for the compression.

Références

[JP] P.-N. Jolissaint and T. Pillon, *L^p compression of some HNN extensions*, Journal of Group Theory, Accepted for publication.

[JV] P.-N. Jolissaint and A. Valette, *L^p-distortion and p-spectral gap of finite graphs*, Bulletin of the LMS, Accepted for publication.