

Analysis Seminar

Title:	Shift invariant preduals of ℓ^1
Speaker:	M. Daws (Leeds)
Date:	Tue 15th February 2011 at 3:00PM
Location:	Mathematical Sciences Seminar Room

Abstract: (Joint work with Richard Haydon, Thomas Schlumprecht and Stuart White)

The Banach space ℓ^1 has many different preduals– for example, if K is a locally compact, Hausdorff space which is countable, then the dual of $C_0(K)$ is $\ell^1(K)$, which is isomorphic to ℓ^1 through picking an enumeration of K. There are also more "exotic" preduals– the recent solution to the Scalar-Compact problem, by Argyros and Haydon, is a Banach space with is an ℓ^1 predual.

In this talk, I will take as my indexing set the integers, and so we have the bilateral shift operator. We shall investigate if there exist preduals of ℓ^1 with the additional property of making the bilateral shift weak^{*}-continuous. For example, if a predual of the form $C_0(K)$ does this, then K must carry the discrete topology, so really we just get the canonical predual c_0 . However, we give an explicit construction of a different predual which does make the bilaterial shift weak^{*}-continuous.

Time allowing, I will show how Banach algebraic tools become useful (indeed, my

original motivation came from Banach algebra theory). Indeed, some sort of classification is possible, and a more abstract construction leads to a wealth of examples.