Weighted Shift algebras

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This is a joint work with Paul Muhly.

We have studied tensor operator algebras associated with correspondences E (over a C^*- or W^*-algebra M) (to be defined shortly) and their ultraweak closures: the **Hardy algebras**. These algebras generalize the classical disc algebra or Hardy algebras (of functions on the unit disc) and also algebras studied by Popescu and Davidson-Pitts.

A useful property of these algebras is that one knows their representation theory. We showed that the representations can be parameterized by a **(matricial) family of unit balls** (of some operator spaces) and the elements of the algebra (viewed as functions on the space of all representations) can be described as operator valued functions on these balls.

The motivation for the current work: Replace "unit balls" by more general families of sets.

Following works of Muller and of Popescu, we were led to replace the tensor algebra (which is generated by a family of shifts) with a "weighted tensor algebra" generated by a family of **weighted shifts**.

Under a certain condition the representations of these weighted tensor/Hardy algebras can be parameterized by more general **ball-like sets** and the elements of these algebras can be described as **operator valued functions on these ball-like sets**.

Moreover, one can associate with such algebras a cp maps-valued kernel K (defined on these ball-like sets) and, as shown by J. Good, the multipliers of the associated reproducing kernel correspondence are the operator valued functions determined by the elements of the algebra.