Anticyclic operads and Auslander-Reiten translation

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We will show that two different constructions lead to the same actions of cyclic groups on some Abelian groups. The first of these constructions lives in the framework of the theory of operads, and more precisely revolves around the notion of anticyclic operad. The other construction is provided by the Coxeter transformation, which is the action induced by the Auslander-Reiten functor on the Grothendieck group of a finite-dimensional algebra.

There are only two examples so far for this relationship. The first one is between the Diassociative operad and the sequence of hereditary algebras of the A_n quivers. This is of course a very classical setting. The other one is between the Dendriform operad and the sequence of incidence algebras of the Tamari lattices. This is related to some more recent developments, such as the theory of cluster algebras.