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**Victoria Lebed\*** (lebed.victoria@gmail.com). *Self-, multi- and  $G$ -distributivity with a braided flavor.*

The growing interest in self-distributive structures and especially in their homology theory is largely due to their remarkable applications to knot theory. In this talk we will recall the more general theory of multi-distributive structures (in the sense of Przytycki and Sikora), and then introduce an even more general notion of multi-braided structures and develop their homology theory. In order to illustrate the richness of the latter notion, we recover Poisson algebras as a particular case of multi-braided structures. Colored braids and links will appear as topological counterparts of our constructions. Endowing the set of colors with additional structure leads, among others, to the notion of  $G$ -families of quandles introduced by Ishii, Iwakiri, Jang and Oshiro in their work on handlebody-knot invariants. (Received August 27, 2013)