1075-18-143 **Krzysztof K Putyra*** (putyra@math.columbia.edu), Room 509, MC 4406, 2990 Broadway, New York, NY 10027, and **Jozef H Przytycki** (przytyck@gwu.edu). *Homology of distributive lattices: Mayer-Vietoris type sequences.* Preliminary report.

Consider a set X with a family of right self-distributive operations $\star_1, \ldots, \star_k$. We say that X is a *multishelf*, if operations $\star_i$ are mutually right distributive: $(x \star_i y) \star_j z = (x \star_j z) \star_i (y \star_j z)$. Moreover, if they are idempotent, we call X a *multispindle*. A classical example is a distributive lattice with four operations: join, meet and projections on first or second argument.

For a multishelf we can define a *multi-term chain complex* $C_n(X) = \mathbb{Z}X^{n+1}$ with a differential $\partial = a_1\partial^{\star_1} + \cdots + a_k\partial^{\star_k}$ (each summand $\partial^{\star_i}$ is determined by $\star_i$) and compute its homology groups. In case of a lattice, this chain complex splits into three parts: $C(X) = C(\{t\}) \oplus \mathcal{F}^0(X,t) \oplus C/\mathcal{F}^0(X,t)$, where $t \in X$. Although two of them are easy to compute, for the third we need some technics.

In my talk I will define a few Mayer-Vietoris type sequences, most of which split. The most important one gives a decomposition of homology $H(L,t) = H(L \wedge y, t \wedge y) \oplus H(L \vee y, t \vee y)$ for any lattice L. This reduces the problem of computing homology of a finite distributive lattice to a two-element Boolean algebra B_1. (Received August 27, 2011)