1081-57-209 **Alissa Crans** and **Jozef H. Przytycki*** (przytyck@gwu.edu), Department of Mathematics, George Washington University, Washington, DC 20052, and **Krzysztof Putyra**. *Torsion in one term distributive homology.* Preliminary report.

Let $(X;*)$ be a shelf, that is a magma with a right self-distributive operation $((a*b)*c = (a*c)*(b*c))$. We consider (one-term) distributive homology with a chain complex $C_n(X) = ZX^{n+1}$ and the boundary operation given by $\partial(x_0,x_1,...,x_n) = (x_1,...,x_n) + \sum_{i=1}^{n}(-1)^i(x_0*x_i,...,x_{i-1}*x_i,x_{i+1},...,x_n)$. It was conjectured that such homology $H_k^{(*)}(X)$ is always torsion free (for a rack it is known to be acyclic). We show here the opposite, the homology is reach in torsion. For example, we define $(X_{n,k};*)$, $k<n$ with $X_{n,k}=\{1,2,...,n\}$ and $i*j=j$ for $i,j<n$ or $j=n$, furthermore $n*i=i+1$ for $i<k<n$, and $n*i=1$ for $k\leq i<n$, then, $H_1^{(*)}(X_{n,k}) = Z^2 \oplus Z_k^{n-k-1}$. This holds also for infinite n, producing infinite torsion. It is still an open problem whether left-connected $(H_0(X)=Z)$ shelves can have torsion in homology. (Received February 11, 2012)