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**Patricia Hersh\*** ([phersh@indiana.edu](mailto:phersh@indiana.edu)), Patricia Hersh, Department of Mathematics, Indiana University, Rawles Hall, Bloomington, IN 47405. *Shelling Coxeter-like complexes and sorting on trees.*

I will discuss a connection between sorting on a network with a tree structure and the topology of an associated simplicial complex. Consider the set of labellings of a tree  $(T, m)$  in which each vertex  $v$  receives  $m(v)$  labels, with each element of  $[n]$  assigned to exactly one vertex. Suppose there is a function from these labellings of  $(T, m)$  to ‘inversion sets’ such that any labelling may be converted to an inversion-free one by a series of local sorting steps eliminating inversions between neighboring nodes, and suppose that all possible sequences of such sorting steps terminate with the same outcome. We prove in this case that an associated Coxeter-like complex, as defined by Babson and Reiner, is shellable. However, not all such Coxeter-like complexes are shellable, since chessboard complexes arise as a special case, but I will discuss which ones are known to be shellable and which ones seem likely to be. (Received September 24, 2005)