Abbas Mahdi Alhakim* (aa145@aub.edu.lb), Bliss Street, P.O.Box 11-0236, Beirut, Lebanon, and Mufutau B Akinwande (akinwamb@clarkson.edu). A recursive Construction of Non-binary de Bruijn Sequences.

We present a method to find new non-binary de Bruijn sequences of arbitrary order based on ones of lesser order. This is done recursively by mapping an existing de Bruijn sequence—regarded as a cycle in a de Bruijn digraph—to several vertex disjoint cycles in a higher order de Bruijn digraph. A new de Bruijn sequence is then obtained by connecting these cycles in any one of many different ways. This construction generalizes a well known binary construction due to Lempel. (Received September 21, 2010)