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**Rebecca F Eastham\*** (becky.eastham23@gmail.com), 1120 Chandler St., Apartment 4, Madison, WI 53715, and **Victoria Horan** and **Rose McCarty**. *Creating universal cycles for subsets by expanding the alphabet.*

A **universal cycle** for  $k$ -sized subsets of  $[n]$  is a cyclic sequence of  $\binom{n}{k}$  elements of  $[n]$  such that each  $k$ -sized subset of  $[n]$  appears in the sequence exactly once. Such universal cycles do not always exist: each integer in  $[n]$  must appear an equal number of times in the cycle, so it must be the case that  $n$  divides  $\binom{n}{k}$ . Hurlbert constructed universal cycles for  $k = 3, 4$ , and  $6$  for large enough  $n$  where  $n$  and  $k$  are relatively prime. For the cases in which  $k$  divides  $n$ , we consider an alternative approach in which we expand the alphabet by adding a new letter called a ‘joker’. These jokers will allow us to represent more than one element of  $[n]$  with a single character. (Received September 22, 2015)