CATHY BAKER, Mount Allison University, Sackville, NB, E4L 1E6
Extended near Skolem sequences: where are we now?

Skolem-type sequences can be useful in constructing various types of designs, for example in constructing Steiner triple systems and cyclic partial triple systems.

A *k-extended q-near Skolem sequence of order n* is an integer sequence $(s_1, \ldots, s_{2n-1})$ with $s_k = 0$ such that for each $j \in \{1, 2, \ldots, n\} \setminus \{q\}$, there exists a unique i with $s_i = s_{i+j} = j$. It is straightforward to show that such a sequence exists only if

(1) $n \equiv 0, 1 \pmod 4$ and q and k have the same parity, or

(2) $n \equiv 2, 3 \pmod 4$ and q and k have opposite parity.

However, it is more difficult to show that these conditions are sufficient. We examine various families of constructions and assess what is left to do.