1014-41-1770   **C. Karanikas*** (`karanika@csd.auth.gr`), Department of Informatics, Tessaloniki 54006, Greece, and **N. Atreas**, Department of Informatics, Tessaloniki 54006, Greece. *Haar-type orthonormal systems, data presentation as Riesz products and a prediction method on symbolic sequences.*

For any $p = 2, 3, \ldots$, we provide a sequence $A(n)$ of $p^n \times p^n$ orthonormal matrices, such that $A(n+1)$ is generated by p-adic dilation and translations of block sub-matrices of $A(n)$, $n = 1, 2, \ldots$. Moreover, for any data $\{t(k), k = 1, \ldots, p^n\}$ we get an algorithm to find coefficients $\{x(k), k = 1, \ldots, p^n\}$ of the Riesz-type product,

$$t(k) = \prod_{j=1}^{n}[1 + x(j)a(j,k)], \qquad k = 1, 2, \ldots, p^n,$$

where $a(j,k)$ is the (j,k) entry of $A(n)$.

For $p = 2$ we get the usual Haar system. The work can be extended for data of any length providing also new tools for fractal sets and singular measure theory. Finally we present a prediction method for symbolic sequences. (Received September 30, 2005)