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Consider the map f on the p -adic integers \mathbb{Z}_p , which takes $a_0 + a_1p + a_2p^2 + \cdots$ to $a_1 + a_2p + a_3p^2 + \cdots$. This function is called the p -adic shift, and is a natural realization of the well-studied Bernoulli shift in the context of the p -adics. By Mahler's Theorem, because f is continuous on \mathbb{Z}_p , we can write it as an infinite, converging sum $\sum_{k=0}^{\infty} a_k \binom{x}{k}$, where the a_k are integers. We study the a_k , and in particular, their p -adic norms. Using the insights we get, we are able to show that a large family of polynomials have, in some sense, the same dynamical behavior as the p -adic shift. In particular, all the polynomials are mixing and even Bernoulli. Thus, on the p -adics, we have a nice representation for some maps satisfying important dynamical properties. (Received September 25, 2006)