

- PHILIP D. WELCH, *A Generalised Dynamical System, Infinite Time Register Machines, and Π_1^1 -CA₀*.

School of Mathematics, University of Bristol, Clifton, Bristol, BS8 1TW, United Kingdom.

E-mail: p.welch@bristol.ac.uk.

We identify a number of theories of strength that of Π_1^1 -CA₀. In particular: (a) the theory that the set of points attracted to the origin in a generalised transfinite dynamical system of any n -dimensional integer torus exists; (b) the theory asserting that for any $Z \subseteq \omega$ and n , the halting set H_n^Z of infinite time n -register machine with oracle Z exists.