1039-47-9 **Mark Burgin*** (mburgin@math.ucla.edu), University of California, Los Angeles, CA 90095.
Linear Operators in Hypernormed Spaces. Preliminary report.

Let $\mathbb{R}_\omega$ be the set of all real hypernumbers and $\mathbb{R}_\omega^+$ be the set of all real hypernumbers that are larger than or equal to zero [Burgin, M. Theory of Hypernumbers and Extrafunctions: Functional Spaces and Differentiation, *Discrete Dynamics in Nature and Society*, 7(3) 2002]. A hypernorm in a linear space L over the field $\mathbb{R}$ is a mapping $|| \ || : L \to \mathbb{R}_\omega^+$ that satisfies the following axioms: N1. $||x|| = 0$ if and only if $x = 0$; N2. For any number a from $\mathbb{R}$, we have $||ax|| = |a|||x||$; N3. $||x + y|| \leq ||x|| + ||y||$. Let us assume that E and L are hypernormed linear spaces and $A : E \to L$ is a linear operator. *Definition* 1. Operator A is called bounded if there is C from $\mathbb{R}$ such that $||Ax|| \leq C||x||$ for any x from E. *Definition* 2. Operator A is called continuous if for any sequence x_n with elements from E such that $lim||x_n|| = 0$, we have $lim||Ax_n|| = 0$. *Theorem* 1. A linear operator A is continuous if and only if it is bounded. (Received January 15, 2008)