1047-20-369   **Lev Glebsky*** (`glebsky@cactus.iico.uaslp.mx`), Department of Math., University of Illinois at Urbana-Champaign, 1409 West Green Street, Urbana, IL 61801, and **L.M. Rivera**. *Sofic groups and profinite topology on free groups.*

The notion of sofic groups was introduced by M. Gromov in relation with the "surjunctivity" problem of cellular automata due to Gottschalk. It is an open question if there is a non-sofic group. We show the relation of sofic groups with the profinite topology on a free group.

We give a definition of weakly sofic groups (w-sofic groups). Our definition is a rather natural extension of the definition of sofic groups where instead of the Hamming metric on symmetric groups we use general bi-invariant metrics on finite groups. Let F be a finitely generated free group and $N \lhd F$. Then F/N is w-sofic if and only if for any finite sequence $g_1, g_2, ..., g_k \in N$ one has $\overline{[g_1]^F [g_2]^F ... [g_k]^F} \subseteq N$. Where $\overline{X}$ denotes the closure of X in the profinite topology on F. (Received February 02, 2009)

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