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Neil Hindman* (nhindman@aol.com), Department of Mathematics, Howard University,
Washington, DC 20059, and **Dona Strauss**. *Density in Arbitrary Semigroups*. Preliminary report.

We introduce some notions of density in an arbitrary semigroup S which extend the usual notions in countable left amenable semigroups in which density is based on Følner sequences. The new notions are based on nets of finite sets. We show that under certain conditions on the nets and on S these notions relate nicely to some established notions of size in S such as *central*, *syndetic*, and *piecewise syndetic*. And we investigate the conditions under which these notions have other desirable properties such as translation invariance. (Received September 12, 2005)