1089-05-349 **Louis DeBiasio** and **Theodore Molla*** (`tmolla@asu.edu`). *The semi-degree threshold for anti-directed Hamilton cycles.*

Let D be a directed graph on n vertices and let $\delta^0(D) := \min_{v\in V(D)}\{\min\{d^+(v), d^-(v)\}\}$ be the minimum semi-degree of D. Here $d^+(v)$ and $d^-(v)$ are the outdegree and indegree of the vertex v respectively. In 1960 Ghouila-Houri proved an extension of Dirac's Theorem which has the following corollary: If $\delta^0(D) \geq \frac{n}{2}$ then D has a directed Hamilton cycle. We will show that for sufficiently large even n, if $\delta^0(D) \geq \frac{n}{2} + 1$ then D contains an anti-directed Hamilton cycle, i.e. a cycle on n vertices in which no pair of consecutive arcs form a directed path. Clearly n must be even for such a cycle to exist and, as Cai demonstrated in 1983, the semi-degree condition is tight. The proof uses the probabilistic absorbing technique in a manner similar to Levitt, Sárközy and Szemerédi.

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