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Boris Bukh and **Anant P Godbole*** (godbolea@etsu.edu), ETSU Math Dept, Box 70663, Johnson City, TN 37614, and **Eden Hochbaum**. *Improved bounds for the two person guessing secrets game*. Preliminary report.

Suppose we are given some fixed (but unknown) subset $X = \{X^1, X^2\}$ of a set Ω , and our object is to learn as much as possible about the identities of X^1 and X^2 by asking binary questions. Specifically, each *question* is just a function $F : \Omega \rightarrow \{0, 1\}$, and the *answer* to F is just the value $F(X^1)$ or $F(X^2)$ (determined, for example, by a potentially malevolent, but truthful, adversary.) We use a deterministic pruning technique and the probabilistic method to establish a new upper bound on the number of questions required in the oblivious case. Elimination of certain subgraphs of the complete graph on N vertices plays a crucial role. Also, we use the notion of (s, l) -covering codes to establish a new lower bound on the number of questions required in the adaptive case. These bounds respectively improve those of Chung, Graham and Leighton; and an unpublished bound of Alon. (Received August 15, 2005)