

Uncertainty Can Decrease Privacy: An Observation

Karen Villaverde¹ Olga Kosheleva²

1. Department of Computer Science

New Mexico State University

Las Cruces, NM 88003, USA

2. Department of Teacher Education

University of Texas at El Paso

500 W. University

El Paso, TX 79968, USA

Email: kvillave@cs.nmsu.edu, olgak@utep.edu

Abstract— In many application areas, e.g., in medical applications, it is important to be able to get statistical information about the data without disclosing individual cases. One of the methods to preserve privacy in such statistical databases is to introduce uncertainty, i.e., to replace the exact values with intervals of possible values. In this talk, we show that while the introduction of uncertainty can often enhance privacy, sometimes, the opposite effect occurs: adding uncertainty can decrease privacy.

Keywords— Fuzzy uncertainty, interval uncertainty, privacy, statistical databases