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Topic (i): New theories and emerging methods

**DIFFERENT METHODS IN A COMMON FRAMEWORK TO PROTECT TABLES
THAT INHERENTLY GUARANTEE PROTECTION REQUIREMENTS**

Invited Paper

Submitted by Universidad de La Laguna (Tenerife, Spain)¹

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Different Methods in a Common Framework to Protect Tables that inherently guarantee Protection Requirements

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ABSTRACT:

This work concerns Statistical Disclosure Control methods to minimize the information loss while keeping the disclosure risk from different data snoopers small. This issue is of primary importance in practice for statistical agencies when publishing data. It is assumed that the sensitive data have been identified by practitioners in the Statistical Offices, and the paper addresses the complementary problem of protecting these data with different methods, all defined in a unified mathematical framework. A common definition of protection is introduced and used in four different methodologies. In particular, two Integer Linear Programming models are described for the well-known "Cell Suppression" and "Controlled Rounding" techniques. Also two relaxed techniques are presented by means of two associated Linear Programming models, called "Interval Publication" and "Cell Perturbation", respectively. A final discussion shows how to combine the four methods and how to implement a cutting-plane approach for the exact and heuristic resolution of the combinatorial problems in practice. All the presented methodologies inherently guarantee protection levels on all cells and against a set of different intruders (possibly respondents and/or coalitions of respondents), thus the standard post-phase to test the protection requirements (and typically called "Disclosure Auditing") is unnecessary.