Abstract

A person who is communication about (the data subject) has to keep track of all of his revealed data in order to protect his right of informational self-determination. This is important when data is going to be processed in an automatic manner and, in particular, in case of automatic inquiries. A data subject should, therefore, be enabled to recognize useful decisions with respect to data disclosure, only by using data which is available to him.

For the scope of this thesis, we assume that a data subject is able to protect his communication contents and the corresponding communication context against a third party by using end-to-end encryption and Mix cascades. The objective is to develop a model for analyzing the linkability of communication contents by using Formal Concept Analysis. In contrast to previous work, only the knowledge of a data subject is used for this analysis instead of a global view on the entire communication contents and context.

As a first step, the relation between disclosed data is explored. It is shown how data can be grouped by types and data implications can be represented. As a second step, behavior, i. e. actions and reactions, of the data subject and his communication partners is included in this analysis in order to find critical data sets which can be used to identify the data subject.

Typical examples are used to verify this analysis, followed by a conclusion about pros and cons of this method for anonymity and linkability measurement. Results can be used, later on, in order to develop a similarity measure for human-computer interfaces.