

# Keynote Speech: Computational Social Choice and Incomplete Information – Abstract

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## Abstract

Computational social choice is an interdisciplinary field that studies collective decision-making from an algorithmic perspective. Determining the winners under various voting rules is a mainstream area of research in computational social choice. Such rules assume that the voters provide complete information about their preferences, an assumption that is often unrealistic because typically only partial preference information is available. This state of affairs has motivated the study of the notions of the necessary winners and the possible winners with respect to a variety of voting rules.

In the first part of the talk, we will present an overview of results about the complexity of winner determination under incomplete information. In the second part of the talk, we will discuss the framework of election databases, a new framework that aims to create bridges between the computational social choice and the data management communities. An election database contains incomplete information about the preferences of voters (in the form of partial orders), alongside with standard database relations that provide contextual information. The availability of relational context enables the formulation of sophisticated queries about voting rules, candidates, winners, issues, and positions on issues. We will introduce the semantics of queries on election databases and explore their computational complexity.

## Keywords

voting rules, complexity of winner determination under incomplete information, queries on election databases

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