

# Talking Your Way into Agreement: “preference merge” as “group belief revision” by communication

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## Abstract

As usually considered in Social Choice Theory, the problem of preference merge is to find a natural and “fair” merge operation (subject to various naturality or fairness conditions), for merging the agents’ preferences into a “group preference”. Depending on the stringency of the required fairness conditions, one can obtain either an Impossibility Theorem (some version of Arrow’s Theorem) or a classification of the possible types of “reasonable” merge operations.

In a doxastic/epistemic setting, the agents’ preference relations are interpreted as doxastic preferences. These encode the agents’ (conditional) beliefs, but I will show they also capture the agents’ “information”: both their “hard” information (absolutely certain, un-revisable knowledge, i.e. the concept of knowledge mostly used in Logic, Computer Science and Economics) and their “soft” information (the “weak”, defeasible concept “knowledge”, used mostly by philosophers and people in Belief Revision theory). In this context, a preference merge operation corresponds to a way of combining the agents’ information, or unifying their beliefs, into a single “group information” (or group belief).

In this talk, I investigate how specific types of information merge can be “realized” dynamically by specific types of communication. In particular, I investigate the realizability of merge operations via two types of communication actions: (1) “truthful public announcements” (of hard information possessed by the speaker); and (2) “soft public announcements” (sincere, persuasive public announcements of soft information that the speaker believes to possess).

The talk is based on joint work with Johan van Benthem and Sonja Smets.