EDITORIAL

Introduction: special issue on deliberation and aggregation

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This special issue of *Social Choice and Welfare* collects papers that study the interplay between deliberative and aggregative approaches to the formation of collective attitudes.

Most of the contributions in this issue focus on so-called *aggregative* collective attitudes and, in particular, on aggregated beliefs, judgments, and preferences. As their name suggests, this type of collective attitude is defined through the mechanism that leads to its formation: aggregative collective attitudes are those that are obtained by putting together, i.e. aggregating, the attitudes of individuals. Beliefs, judgments, or preferences obtained through some form of voting are paradigm examples of aggregative attitudes. The properties of aggregative collective attitudes and their corresponding aggregation procedures are well studied. Social Choice Theory (Gaertner 2009) has mapped the possibilities and also the limits of the aggregation of preferences. The theory of Judgment Aggregation (Grossi and Pigozzi 2014) has done the same for the aggregation of categorical, logically connected judgments.

Aggregative attitudes can be distinguished from common and from corporate ones (List 2014). Common collective attitudes are those that all group members share, and perhaps that are even public in the relevant sense (Williams 2023). Notions like common knowledge and common beliefs, central to theories of collective agency (Chant 2008) and epistemic game theory (Pacuit and Roy 2017), for instance, are probably the most well-known examples of common group attitudes. Corporate collective attitudes, on the other hand, are those that can be attributed to institutional or corporate agents based on their behavior or status (Tollefsen 2002; List and Pettit 2011).

The main difference between these three types of group attitudes is how they relate to the attitudes of the individual members. Common attitudes have the most direct relation: by definition, they are consensual and public. If a proposition is commonly believed, for instance, then every group member believes that proposition, believes that every group member believes it, and so on. This is not necessarily the case for aggregative or corporate attitudes. Voting, for instance, is typically viewed as a mechanism to aggregate diverging opinions. It is not meant to reflect an underlying consensus

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or create one. The individual group members are under no requirement to adopt the collective opinion as their own after learning the result of voting. Aggregate collective attitudes do, however, remain inherently related to the attitudes of the group members. They are understood as directly dependent on these attitudes, or at least on the votes of the individuals. This may even not be the case for corporate attitudes, as they can become increasingly independent of the attitudes of the group members as the collective gains autonomy.

In contrast with aggregative attitudes, the formation of common collective attitudes has traditionally been studied in the context of theories of *deliberation*. For the purpose of this Introduction, we adopt a very general and minimalistic understanding of deliberation, namely as the process of "weighing and reflecting on [facts,] preferences, values, and interests regarding matters of (common) concern" (Bächtiger et al. 2018). Viewed as such, deliberation can be individual or interactive, might or might not involve strategic consideration or power relations, and, more generally, might also include various other forms of social influence. What matters is the "weighing and reflecting" aspect, through which participants exchange and evaluate different opinions and the reasons supporting them, and potentially change their minds accordingly.

Deliberation and common collective attitudes have often been studied together because the "first wave" of deliberative theories of democracy[1] viewed the latter as a central aim of the former. Many of these theories, e.g. in the deliberative (Habermas 1996) or the public reason (Cohen 2005) tradition, indeed viewed a public consensus reached through a fair and unconstrained deliberative process as central to the legitimacy of democratic decisions. From that perspective, the main question was thus to identify conditions under which more or less structured exchanges of opinion can lead to consensus. Those conditions, has it turned out, have often been rather idealized ones, both in classical contributions from political philosophy (Habermas 1996) and from other areas, e.g. DeGroot (1974), Geanakoplos and Polemarchakis (1982), Blackwell and Dubins (1962).

The focus of the more recent, "second wave" of deliberative theories has, however, shifted away from consensus and looked instead at other aspects of deliberation that are relevant both for establishing political legitimacy and, more generally, at promoting democratic values and culture—c.f. again (Bächtiger et al. 2018). Questions of inclusiveness and particular standpoints have taken center stage, as well as a more plural understanding of relevant considerations and communicative modes. In this more general context, the goal of reaching consensus has been argued to be not only unrealistic but sometimes even detrimental to deliberative and democratic values.

This shift away from consensus brings to the fore the main question addressed by papers in this special issue, namely understanding how deliberation and aggregation can, or should, interact. Indeed, when consensus ceases to be the main goal, aggregation procedures, i.e., various forms of voting, are typically integrated into deliberative processes. In less scholarly terms: we first talk, then, if we can't reach a consensus, we vote (Chambers and Warren 2023). Deliberation and aggregation, from that point of view, go hand in hand. They are not competing but complementary processes.

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[1] See again (Bächtiger et al. 2018) for this distinction between "first" and "second" wave of deliberative theories.

The idea that we should understand how deliberation and aggregation affect each other is, of course, familiar. On the negative side, for instance, it is commonplace that classical results on the accuracy of aggregated opinions, e.g. the Condorcet Jury Theorem, rest on strong voter independence assumptions that can be broken by pre-voting deliberation, see for instance (Dietrich and Spiekermann 2013). On the positive side, several authors, and prominently (Dryzek and List 2003), have argued that deliberation can have several positive effects on aggregation, for instance by minimizing strategic behavior or by helping circumvent classical Arrovian impossibilities in social choice theory through the formation of so-called single-peaked preferences.

This special issue brings together contributions that broaden and deepen our understanding of the relationship between deliberation and aggregation, both from a descriptive and a normative perspective. They do so using a variety of methodologies, from analytic and mathematical approaches to computational, experimental, and empirical methods.

The issue opens with six papers that showcase the diversity of perspectives on the relationship between aggregation and deliberation.

Hendrik Siebe's paper "The Interdependence of Social Deliberation and Judgment Aggregation" uses computational methods to address a normative question, namely how deliberation can affect individual and collective competence, i.e. their ability to form correct or accurate judgments. The paper shows that, perhaps surprisingly, individual and collective competence are independent. Deliberative processes can increase individual competence while decreasing collective accuracy.

The second paper of the issue, Thomas Mulligan's "Optimizing Political Influence: A Jury Theorem with Dynamic Competence and Dependence," also addresses the question of how deliberation can affect collective competence. Its starting point is the classical Condorcet Jury Theorem, and the observation that introducing pre-voting deliberation creates a dilemma for potential voters and participants to the deliberation. On the one hand, by trying to convince others of the view they take to be correct, they can increase individual competence and, by the same token, possibly also collective accuracy. On the other hand, as we have mentioned earlier, social influence reduces voters' independence, thereby potentially decreasing collective accuracy. The paper shows that, in this context, optimizing collective accuracy can require limiting social influence.

Staying in the context of aggregation of beliefs, Franz Dietrich and Christian List's "Dynamically rational judgment aggregation" studies the question of whether aggregation "commutes" with individual and collective learning. In other words, the question is whether the result of first aggregating and then revising a collective judgment with some new information coincides with the result of first revising the individual judgments of the group members, and then aggregating them. The perspective here is, again, normative. The paper shows that whenever aggregation bears on logically connected propositions, no aggregation rule is dynamically rational, in the sense that it commutes with individual and collective learning while satisfying intuitively desirable requirements.

Beliefs are still the focus of Daniel Hoek and Richard Bradley's "Million Dollar Questions: Why Deliberation is More than Information Pooling." The paper challenges the classical model of deliberation as information exchange and builds on insights from

psychology, linguistics, and philosophy. It proposes instead a "inquisitive" model of deliberation where questions and answers play a crucial role. They discuss the explanatory potential of this model for the study of collective decision.

The issue continues with Antoine Billot and Xiangyu Qu's "Deliberative Democracy and Utilitarianism." The paper also studies normative questions, showing how deliberation can help us reconcile two apparently incompatible desiderata of aggregation. In contrast with the first two papers, preferences, assumed to be Bayesian rational (i.e. representable by expected utility), are at the center stage. It is well known that, in this context, when beliefs are heterogeneous, aggregation faces an impossibility result under the two intuitive requirements of Bayesian rationality at the collective level and Pareto unanimity. The paper tackles this challenge by studying the effect of deliberation, here understood as iterated social influence in a model similar to DeGroot's (DeGroot 1974) classical approach to consensus. More precisely, it is shown that even though the result of deliberation might be highly dependent on how the individuals update their attitudes during deliberation, a Pareto condition allows the selection of collective attitudes that have a utilitarian form.

The sixth and final paper of this first block, Mariam Maki et al's "Valuation of Ecosystem Services and Social Choice: The Impact of Deliberation in the Context of Two Different Aggregation Rules" take us from the normative to the descriptive, and from the blackboard to the field. The paper uses empirical methods to study the impact of deliberation on aggregation in the specific context of collective choices about ecosystem services. They more specifically study the effects of deliberation on two methods for aggregating individual preferences: a version of majority voting based on median votes and a specific aggregation rule, akin to the Borda count (Gaertner 2009), designed for the case of ecosystem services. The empirical results show that pre-voting deliberation has a stronger influence on that second rule than on median-based majority voting.

The next and final three papers also combine normative and descriptive approaches, but these contributions emphasize strategic considerations and deliberative processes that incorporate multiple stages of aggregation.

Umberto Grandi et al.'s "Voting Behavior in One-Shot and Iterative Multiple Referenda" takes an experimental perspective on the question. The paper reports on a series of lab experiments aimed at measuring the effect of iterating voting on strategic behavior in cases of referenda raising multiple binary questions at once. The starting points are the well-known challenges that arise when the voters' preferences on some issues depend on the preferences on some other issues, i.e. when they are not separable. The paper finds that deliberation—here understood as a process where the participants iteratively vote on several issues, and dynamically adjust their votes along the way—helps overcome these challenges, and in particular that it can help to reach socially better outcomes. The paper also provides evidence that deliberation on non-separable preferences affects strategic behavior. In that context, participants seem to choose options that might lead to the best (but also the worst) outcome, instead of settling on options that ensure outcomes that are ranked somewhere in the middle.

Hans Gersbach and Oriol Tejada's "Semi-flexible Majority Rules for Public Good Provision" also considers the strategic dimension of iterated voting, but this time in a multi-stage context and providing analytical results. The basic idea here is that

two rounds of iterated voting are combined to overcome known limitations and challenges for the single-stage version of this voting procedure. As for the previous paper, deliberation is understood here as the process through which participants dynamically adjust their votes through multiple iterations and stages of election/referenda. The paper shows, among other points, that the addition of this second deliberative stage allows reaching the so-called *ex-post* utilitarian optimal outcome level given specific constraints on the type of voters' valuations.

The final paper of this issue is Edith Elkind et al.'s "United for Change: Deliberative Coalition Formation to Change the Status Quo." The paper also focuses on deliberation as a dynamic process where participants iteratively make proposals or express their views, but the nature of these proposals differs from the previous two papers. Here, the participants dynamically form coalitions in support of some alternative that improves on the default or status quo. The paper shows conditions on the option space as well as on the coalition formation process itself that ensures that deliberation settles on the proposal with the largest support.

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We want to close this Introduction by expressing our gratitude to the whole editorial team at *Social Choice and Welfare* and, in particular, to Clemens Puppe and Marcus Pivato for their support (and patience!) throughout the process.

Data Availability Not applicable.

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[2] See https://www.colaform.uni-bayreuth.de/en/index.html for details about the project.

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