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Reasoning Is for Arguing: Understanding the Successes and Failures of Deliberation

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Abstract

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Reasoning is for arguing:

Understanding the successes and failures of deliberation

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Abstract.

Theoreticians of deliberative democracy have sometimes found it hard to relate to the seemingly contradictory experimental results produced by psychologists and political scientists. We suggest that this problem may be alleviated by inserting a layer of psychological theory between the empirical results and the normative political theory. In particular, we expose the argumentative theory of reasoning that makes the observed pattern of findings more coherent. According to this theory, individual reasoning mechanisms work best when used to produce and evaluate arguments during a public deliberation. It predicts that when diverse opinions are discussed group reasoning will outperform individual reasoning. It also predicts that individuals have a strong confirmation bias. When people reason either alone or with like-minded peers, this confirmation bias leads them to reinforce their initial attitudes, explaining individual and group polarization. We suggest that the failures of reasoning are most likely to be remedied at the collective than at the individual level.

Deliberative democracy is a normative theory of democracy initially developed at a highly abstract level by philosophers and political theorists (e.g., Cohen, 1986; Elster, 1998; Habermas, 1997; Rawls, 1993). Deliberative democracy has now bled into the mainstream of political sciences, serving as a theoretical framework for a number of experimental or quasi-experimental programs. In those programs, political scientists use data to test the predictions implicitly or explicitly contained in normative statements about the value of deliberation. The questions that political scientists are trying to answer are, for example: Does deliberation have the transformative properties deliberative democrats claim it has on citizens' preferences? If a transformation is observed, can it be said to promote the betterment of citizens' preferences, whether this betterment is understood in terms of civic-mindedness, coherence, information, or some other sense? A wealth of empirical research has tried to address these questions (see for instance Mendelberg, 2002).

Theoreticians of deliberative democracy, however, have sometimes found it hard to relate to the experimental evidence. In particular, a major problem has been that the empirical findings often prove inconsistent, sending mixed messages as to how the assumptions and predictive claims of deliberative democrats should be modified. Group deliberation sometimes homogenizes attitudes and sometimes polarizes them (Isenberg, 1986). Taking part in discussions can increase or decrease engagement in political activity (compare Mutz, 2006: 89-124 and Gastil, Deess, & Weiser, 2008). Decisions made in groups will sometimes be better and sometimes worse than decisions made by individuals (Kerr, Maccoun, & Kramer, 1996; Kerr & Tindale, 2004). According to a commentator, "the general conclusion of surveys of the empirical research so far is that taken together the findings are mixed or inconclusive" (Thompson, 2008: 499-500).

The goal of the present article is to elucidate these contradictory patterns of deliberative performance. In section 1, we first specify what a good deliberative performance

is. We also introduce our claim that psychology—more specifically evolutionary psychology—is in a good position to help explain these inconsistent results. In particular, we resort to an evolutionary psychological theory of reasoning—the *argumentative theory of reasoning*. Armed with an evolutionary theory, we can proceed to specify the conditions in which reasoning should be conducive to good performance and those that will lead to poor outcomes. In section 2, we argue that reasoning works best when people are engaged in a genuine deliberation with others and review results supporting this claim. Section 3 explores two contexts in which reasoning is predicted to perform more poorly: individual reasoning and reasoning with like-minded people. We also review empirical results and show that they support our hypotheses. In the conclusion we suggest ways of improving current deliberative practices in light of our account.

1. Laying out the groundwork

1.1 What is a good deliberative performance?

Since our goal is to explain why deliberation works sometimes well and sometimes poorly, it is necessary to set some standards of performance. Many criteria can be—and are—used as standards of good deliberation, from increased respect between the participants (Gutmann & Thompson, 1996, Schneiderhan & Khan, 2008, Steenbergen, Bachtiger, Sporndli, & Steiner, 2003), to the reaching of consensus (Dryzek & Niemeyer, 2006; Niemeyer & Dryzek, 2007), to increased coherence between beliefs (Gastil & Dillard, 1999) to substantive quality of the outcome. Here we will focus essentially on the latter type of standards, which can also be called *epistemic* standards. Epistemic standards allow us to judge whether a given deliberative process produces better or worse outcomes from a substantive rather than purely procedural point of view. Epistemic standards are routinely used unproblematically in psychology

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experiments, whether they measure the validity of logical arguments or the factual accuracy of answers to empirical questions. In political science, the question of what is an epistemically correct, right, or superior outcome often remains hidden behind the veil of the future, what Rawls called the "burdens of judgment," or, more radically, is rendered inaccessible by the structure of much of politics as a situation of imperfect procedural justice. It is for example doubtful that we can ever answer with certainty the questions of, say, whether going to war in Iraq was the right political decision or whether the bailout of banks was the most appropriate answer to the impeding economic crisis of November 2008, yet we are still aiming for such answers when we deliberate and reason about these issues. Furthermore empirical proxys can be used as a way to judge whether or not the standard has been met: for example, GDP growth and unemployment level are commonly used to judge whether or not government policies— which result from deliberations at the institutional level—have produced the right outcome or not.

The fact that we cannot know for sure whether the deliberative process yielded the right answer does not mean that we can evade the question of epistemic validity in politics (see Cohen, 1986; Estlund, 1998, 2007; Author, 2007; Martí, 2006; Raz, 1990; Talisse, 2009). Even though there are differences between logical and political problems, we think that the results observed in experiences involving questions of logic are meaningful and can be partially translated to political questions about, say, the usefulness of an economic stimulus or whether or not to raise the retirement age. In any case, all the reader needs to accept for our approach to make sense is that there are better and worse answers to political questions (for more on the question of the epistemic dimension of moral and political questions and the related position called moral or political cognitivism, see Estlund, 2007, Author, 2007 and Talisse, 2009). The argumentative theory can make predictions regarding deliberation bearing on any kind of questions that can be assumed to have a better or worse answer, whether from

a factual, moral, or political point of view (see for instance, Author, submitted-b, for an extension to the moral domain).

1.2 Introducing (evolutionary) psychology

As already noted, by epistemic standards, deliberation has been observed to perform sometimes well, sometimes poorly. We believe that a way to make sense of these contradictory findings is to insert a layer of psychological theory between the data and the theories in political science that these data are supposed to test. This suggestion is inspired in part by some prominent social scientists' recommendation that social sciences give up, at least temporarily, the quest for general laws and focus instead on the more fine-grained identification of intermediary levels of explanation (Elster, 2007)[1] and specifically turn to psychological mechanisms (Sperber, 1996). More specifically, our approach is inspired by the way psychologists deal with contradictory findings.

In this paper we focus on the cognitive mechanism of *reasoning*—the finding and evaluation of reasons—as the missing piece of a compelling theory of deliberation. Contrary to classical cognitive theories, which only provide one level of explanation, that of mechanistic, or proximal (*sensu* Tinbergen, 1963) explanations, the theory delineated in this article (see also Author & Sperber, in press) is an *evolutionary theory* of reasoning. It argues that reasoning evolved for a specific function—argumentation—that provides a deeper explanation of reasoning's observed features and pattern of performance. Evolutionary theories rely on a fit between a task and the function of a mechanism to account for good and

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[1]Elster calls these intermediary explanations "mechanisms" in the specific way of "frequently occurring and easily recognizable causal patterns that are triggered under generally unknown conditions or with indeterminate consequences" (Elster, 2007: 36). Elster's notion of mechanism differs importantly, however, from the psychological notion used in the rest of this paper, particularly because whereas for Elster mechanisms are strictly explanatory, not predictive, the definition of mechanisms in psychology preserves the predictive ambition.

poor performance. When a mechanism is employed to do what it is designed to do, it works well and produces good performance. When it is employed in other contexts, for other tasks, it runs the risk of dysfunctioning and leading to poor outcomes, in the same way as perception is systematically distorted when we look at a submerged object.

We argue that one of the functions of reasoning is to produce epistemic improvement through deliberation. The choice of epistemic standards and the focus on reasoning are mutually necessary: if we want to explain epistemic performance, we must turn to the mechanisms that affect this performance; if we want to understand reasoning, we must look at its performance in epistemic terms. Undoubtedly, many other psychological mechanisms are at play when people deliberate. Some are less interesting in the present context—syntax for instance—but others can also play an important role in determining the outcome of deliberation. For instance, we must be endowed with mechanisms whose function it is to maintain good relationships with other people, including being polite, not making potentially hurtful remarks, etc. Other mechanisms of social cognition can alert us to the need to make concessions, or even to stop arguing when arguing is not the best way to solve a problem anymore. It would be possible to examine these psychological mechanisms in pair with other standards of performance, such as respect or the reaching of consensus, and such a line of work is likely to lead to fascinating insights into the process of deliberation. Indeed, it may be the only way to proceed towards a more complete explanation of all the facets of deliberative performance. Yet most cognitive mechanisms used in deliberation are not specific to it: they can be used, for instance, in any other type of discussion. Reasoning, by contrast, is central to deliberation, as is explained presently.

1.3 Reasoning and deliberation

In many psychological models the mind is divided in two kinds of mechanisms: *intuitions* and *reasoning* (Evans & Frankish, 2009; Kahneman, 2003). Intuitions are generally characterized as being fast, effortless and unconscious mental mechanisms. They guide the vast majority of our behaviors including, in part, behaviors that are thought to be purely reflective, like voting. Reasoning plays a much more limited role in our mental lives and can be differentiated from intuitions by the fact that it involves the sometimes slow, strenuous, and conscious mental mechanisms of *pondering reasons and arguments* (Author & Sperber, 2009).[2]

There is a clear connection between this second type of psychological mechanism—the evaluation of reasons—and the notion of definition of "deliberation" used by deliberative democrats. Most deliberative democrats embrace the classical Aristotelian definition of deliberation "as an exchange of arguments for or against something" (Aristotle, *Rhetoric*, I, 2). Deliberation is often distinguished from mere discussion, being specifically "public [use of] arguments and *reasoning* among equal citizens" (Cohen, 1997: 21, our emphasis). This classical definition of deliberation by political theorists can easily be recast in psychological terms. We propose the following definition: "*An activity is deliberative to the extent that reasoning is used to gather and evaluate arguments for and against a given proposition*".

Let's take a closer look at the elements of this definition. First, the cognitive activity of reasoning is central: the content of the utterances being exchanged is not all that matters, the way they are generated is important as well.[3] For instance, two individuals, engaged in a

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[2] This definition of reasoning is close to the way the term is often used in political science. By comparison, philosopher and psychologists have sometimes used 'reasoning' to refer to a broader category of cognitive mechanisms that include some intuitions.

[3] This view is very close to that of Lindeman who suggests the following definition for deliberation: deliberation as "a cognitive process in which individuals form, alter, or reinforce their opinions as they weigh evidence and arguments from various points of view," (Lindeman, 2002, p. 199, quoted in Delli Carpini, Cook & Jacobs, 2004). Here however, the cognitive mechanism is reasoning and deliberation is a broader activity that uses reasoning.

deliberation, use reasoning to find arguments. Their conversation is recorded. Two actors learn the text and repeat it. The exchanges of these actors will not be genuine deliberation because no reasoning is involved, only memory. Often, the situation will be a mix of these two cases: for instance a teacher will deliver an argument from memory, without reasoning, and a student will examine this argument using reasoning. This mixed situation is also observed in all written arguments: by the time they are read, the author is no longer actively reasoning about them. For instance, while you are reading the arguments exposed in this article, we are not thinking them up at the same time—although we *did* use reasoning at some point. So, are you deliberating while you are reading this article? To answer this question we need to turn to the second part of the definition.

Deliberation must be an exchange of arguments for and against a given proposition (e.g., Manin, 2005; Thompson, 2008: 502). We can express more precisely what is meant by "exchange": for genuine public deliberation to occur there must be a *feedback loop* between reasoning from at least two opinions. Assuming that two people each hold one opinion, here is the chain that is required for genuine deliberation to take place: person A uses reasoning to make an argument from opinion *a*; person B uses reasoning to examine this argument from opinion *b*; person B then uses reasoning to create an argument that relates to the previous argument—often a counterargument—from opinion *b*; A uses reasoning to examine this argument from opinion *a*. According to this definition, you will only be deliberating with us if we become aware of your arguments and examine them (which we promise to do!). Does that mean that, if you never voice your arguments, you cannot be deliberating at all while reading this article? No, instead, you will be deliberating *to the extent that you are making an effort to find and evaluate arguments for our opinion as well as for yours*. If indeed you engage in such an exchange of arguments between these two opinions in your head, then you will be deliberating—not really with us, but with your representation of our opinion.

We can then introduce the distinction between private or "internal" and public or "external" deliberation (see Goodin, 2000). Private deliberation happens when a person simulates several opinions and uses reasoning to find arguments *for and against* these opinions (usually internally, but it could also be voiced). Notice, importantly, that if the person finds arguments supporting her own opinion only, then she will still be reasoning, but deliberation will not have taken place. The conditions for the application of the definition can also failed to be fulfilled if reasoning is not used to evaluate arguments, but only to produce them. For an exchange of arguments to be genuinely deliberative, the arguments have to be evaluated, which means that they are given a genuine chance to influence the listener. If the listener merely uses the arguments as a spring-board for building counter-arguments, and thus does not really evaluate them, then she does not truly partake in deliberation.

Finally, deliberation will only occur between those opinions for which arguments are gathered and evaluated, and to the extent that conflicting arguments are genuinely gathered and evaluated. If an opinion is held by someone taking part in a discussion but not expressed, or if arguments for this opinion are expressed but not evaluated by others, or if arguments are evaluated but not addressed, then this opinion will not genuinely be part of the deliberation.

We have offered and defended a psychological definition of deliberation, one that is aimed at helping the integration of work in psychology—including the psychology of individual reasoning—with work on deliberation in political science. Its main objective is to provide a clear boundary between which exchanges are, and which are not deliberative. It does not mean that other criteria cannot supplement the one put forward here, especially when it comes to making finer grained distinctions within deliberative exchanges (such as a quality index, see Steenbergen et al., 2003).

2. What is reasoning designed to do, and does it do it well?

Now the challenge is to see if that novel definition can help solve some of the contradictions in the findings of political scientists about the effects of deliberation. Many factors can vary between two deliberative groups, and unless one has a principled way to estimate both the variables that really matter and the effect of these variables, there is little hope of being able to make sense of all the data that has accumulated by now, and to generalize from this accumulated data.

In order to understand when reasoning works well, we can imagine how we would proceed if we were not studying a mental competence but a manmade object. In such a case, we would examine the conditions *for which this artifact was designed*. When will a standard pen work best? Mostly, when it is used in the way intended: by a relatively careful hand writing on a piece of paper, with the tip down, above ground, in normal atmospheric pressure, etc. If one or several of these conditions are not fulfilled, the pen will either stop working or work less well. This is not the result of chance: we didn't happen to find pens that were perfect for the normal condition of use; instead engineers painfully designed them to fit these specific conditions. The same analysis can be performed when the engineer is natural selection (Griffiths, 1993; Millikan, 1987, 1993). In this case, Millikan talks about the "normal conditions" of use: "these are the conditions to which the device that performs the proper function is biologically adapted" (Millikan, 1987: 34). The normal conditions are predicated upon the function and the history of a device: if we know what it evolved for, and in what kind of environment, then we will be able to understand its normal conditions of use, and therefore to know when it should work well or not.

2.1 The argumentative theory of reasoning

What function is usually ascribed to reasoning? The classical modern view on the topic of reasoning is still deeply Cartesian. It is fundamentally individualistic and internal: through a careful, analytical examination of our beliefs, we are supposed to achieve epistemic improvement and make sounder decisions. Intuitively plausible as it may be, this view of reasoning is now facing a wealth of evidence showing that in many cases reasoning yields rather poor outcomes (for review, see Author & Sperber, In press).

To the extent that reasoning is crucial for deliberation this bleak picture of reasoning, taken at face value, would be very disheartening for the deliberative democracy endeavor. But it is possible that *the wrong standards have been used*. What we suggest is that evaluating reasoning through these individualistic standards is very much like evaluating human hands by asking people to walk on them. They will fall or, at best, their locomotion will be slow and effortful. Scholars would then conclude that hands are very inefficient. Walking is not the function of hands in humans and this explains why we are bad at walking on them. We suggest that the function of reasoning is not the betterment of beliefs and judgments through private ratiocination and this is why reasoning does not accomplish this task well. According to the theory that will be defended here the function of reasoning is *social*. More specifically it is argumentative, i.e., it is to enable individuals to argue with each other (Sperber, 2000, 2001). Here is the rationale behind this suggestion.

As a species, humans are strongly influenced by communicated information: communicated information affects many, if not all, decisions, and these decisions are, on the whole, better for it. However, being able to communicate comes at the cost of an ever present danger of manipulation (Dawkins & Krebs, 1978; Krebs & Dawkins, 1984). Accordingly, humans do not trust blindly what other people say: they use a set of cognitive mechanisms to

evaluate communicated information. Sperber has dubbed these competences *epistemic vigilance* (Sperber et al., 2010, see also Author, in press). For instance, we calibrate the trust granted to different speakers, paying more attention to the medical opinion of our doctor than that of our neighbor, and to the personal advice of our friends than that of strangers. We also use the coherence between the information we are communicated and our previous beliefs to determine its a priori plausibility, and tend to reject that which is not coherent with what we thought (Thagard, 2005). More to the point here, we formulate arguments supporting our claims, and evaluate those provided by others. By adducing arguments in support of a conclusion they want to convey, speakers provide listeners with extra means to evaluate its validity. This allows for a more efficient communication: listeners are better able to evaluate communicated information, and speakers can convey their messages more effectively. According to this scenario, reasoning is the mechanism that evolved to perform this function: the primary goal of reasoning is then *to find and evaluate arguments so as to convince others and be convinced when it is appropriate* (see Author & Sperber, 2009, for a fuller version).

2.2 The efficiency of reasoning in its normal conditions

We have suggested a new function for reasoning: instead of being a prop of individual cognition, reasoning is an argumentative mechanism geared to a social goal. Seeing reasoning in this light dramatically changes the normal conditions under which reasoning should be used. These normal conditions are now to be found in a disagreement between at least two individuals in the course of a conversation. Making use of the definition of deliberation suggested here, the normal conditions for the use of reasoning is *an actual or a potential deliberation*. As a result, we predict that people taking part in the deliberation should end up with epistemically sounder beliefs—as an approximation, more true beliefs. A first and

essential ingredient is that people are able to find and evaluate arguments, especially when presented in a motivating, argumentative context (see references in Author & Sperber, in press). These argumentative skills bode well for the performance of reasoning in groups.[4]

The purest cases of reasoning are logical and mathematical problems. When people argue about such problems, reasoning should allow the group to converge on the correct answer. Indeed, this is what has been observed in many experiments (see, e.g., Laughlin & Ellis, 1986; Moshman & Geil, 1998). Similar results are obtained with inductive tasks (see for instance Laughlin, Bonner, & Miner, 2002)

Encouraging results emerge with problems more topically related to politics. For instance, in one experiment people had to answer questions about the leading causes of death in the US—a relevant topic for political decisions about, say, health care reform (Sniezek & Henry, 1989). Participants completed the task alone and then in groups of three. Groups made significantly more accurate estimates. Indeed, nearly of third of the groups performed *better than their best member*, while the others still produced improvement compared to the average group member. This shows that the increase in performance is not due to the groups being able to recognize an expert, but to the constructive gathering of different pieces of information. This conclusion is also supported by the fact that group performance was best when there was more diversity in the pre-discussion opinions and that many of these more accurate answers fell outside the range of original opinions.

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[4] The current wisdom in social psychology, however, is that groups tend to perform rather poorly (Kerr & Tindale, 2004: 625). How are we to reconcile this conclusion with the expectancy raised by the results reviewed above? First of all, some of the situations studied by social psychologists do not require any reasoning. For instance, brainstorming—a freewheeling exchange of ideas—has been a staple of the research on group decision making, yielding rather consistently poor performance by groups (Mullen, Johnson, & Salas, 1991). But brainstorming need not involve reasoning; on the contrary, it is supposed to be a time of unbridled creativity during which ideas and arguments are *not* critically evaluated. Such tasks do not concern us here. Other tasks do involve reasoning but not in its normal conditions, for instance when only one point of view is present in the group. These results will be mentioned later in the article.

Group performance outside the psychology laboratory often displays similar patterns. Indeed, groups tend to perform even better when they are used to working together, as they often are in real life settings. Thus, in a large scale study of groups working together over extended periods of time, Michaelsen and his colleagues observed the behaviour of more than 200 project teams and found that 97% of them performed better than their best member would have individually (Michaelsen, Watson, & Black, 1989, see also Bainbridge, 2002; Watson, Michaelsen, & Sharp, 1991; West & Anderson, 1996). Likewise, the power of group reasoning is now well recognized in education and is being increasingly harnessed to help students from all levels master challenging material (see Author, submitted-a, and Slavin, 1996, for review). These later results are particularly heartening as they take place in natural settings and use a wide range of topics, including some particularly relevant for the present aims, such as history or social studies.

Finally, evidence of group performance can also be found in studies of deliberative polls, citizens' juries, consensus conferences and even hybrid forums (those mix both regular citizens and experts) (e.g., Callon, Lascousmes, & Barthe, 2009; Fishkin & Luskin, 2005, for review). In those cases, there is no right or wrong answer a priori identifiable or knowable but one can use as a proxy the general consensus of observers of those experiments, including experts. This general consensus is that the deliberating groups of citizens ended up with more informed beliefs, convincing conclusions and, where relevant, compelling policy proposals (Barabas, 2000; Cook & Jacobs, 1998; Fishkin & Luskin, 2005; Gastil & Dillard, 1999). [5] It should also be stressed that deliberation can produce these beneficial epistemic effects even in less than ideal circumstances, for instance between deeply divided groups (such as Catholics and Protestants in Northern Ireland (Fishkin, Luskin, O'Flynn, & Russell 2009). All in all,

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[5] Mackie (2006) provides an important methodological caveat for these studies. He notes the effects of deliberation are "typically latent, indirect, delayed, or disguised" (279), and that therefore some studies may fail to observe them even though they are real. This argument therefore strengthens any positive results actually obtained.

these results seem to indicate that in politics as in other areas, group reasoning often surpasses individual reasoning.

Let us now step back and address a potentially important confound. Not all information exchange in group settings is accompanied by arguments. Groups could perform better simply in virtue of having more information available to them, rather than because they truly reason together. When it comes to logical or mathematical problems, we can easily rule out this alternative, as all the participants have access to the same information but just happen to reason differently about it. All that matters is that participants with better answers manage to convince their peers. The matter is not as clear-cut when it comes to more information-dependent deliberation, such as political deliberation. Taking deliberative polling as an example, participants could gain information from two sources. One is the information explicitly provided for them, such as booklets describing the pros and cons of different positions, which could partly explain the evolution of their attitudes (Goodin & Niemeyer, 2003; Muhlberger, 2006). It is unlikely however that this information, on its own, has a strong effect on participants, at least for two reasons. The first is that even when an 'information phase' and a 'deliberation phase' can be delineated, it is very likely that the motivational power of the anticipation of deliberation plays an important role in fostering reasoning during the 'information phase'.[6] The second is that in order to check for this potential confound, some researchers have designed control groups in which participants are given the same information as in the experimental group, but do not take part in the discussion. In such cases, either no attitude change is observed in the control group, or it is much weaker than in the experimental group (see Fishkin & Luskin, 2005).[7] But information exchange could also take

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[6] This idea has been suggested independently by an anonymous Reviewer and in Author and Author (in preparation). A more detailed treatment of the Goodin and Niemeyer critique of external deliberation can be found in this later reference.

[7] It is true that we still await evidence that would conclusively prove that deliberation, rather than information, brings about *positive* changes in attitudes—as the evidence mentioned here does not demonstrate a betterment but only a change in attitudes. However other pieces of evidence, reviewed above, show that the attitude change

place between participants. Indeed, it is likely that participants will not need to exchange arguments for every bit of information they exchange. On the other hand, when people disagree about some issue, they rarely gullibly accept the word of the other party, and so it is plausible that argumentation plays an important role in any attitude change that may occur as a result of group discussion. Unfortunately, the available evidence does not allow disentangling this issue.

The argumentative theory predicts that reasoning should yield good results when used in its normal conditions—in an actual or a potential deliberation. The data reviewed here confirms this prediction. In many cases however the conditions of use of reasoning will differ from these normal conditions. If the present theory were only able to predict a drop in performance in such circumstances, it would be of limited use. But it can also make predictions regarding the outcomes produced by reasoning when the conditions differ in various ways from the normal conditions.

3. Reasoning in abnormal conditions

We have argued that when reasoning is used in its normal conditions—the conditions to which is it adapted, which for us is public deliberations—it functions well. However, reasoning is also often used in 'abnormal' conditions. This will happen when reasoning is used outside of the deliberative contexts for which it evolved.[8] In particular, the feedback loop

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occurring in deliberative contexts is usually for the best. If, on the one hand, deliberation as a whole brings good epistemic outcomes and if it is deliberation as such rather than information that is responsible for the change, then it seems likely that it is deliberation, as such, that brings about positive change.

[8] The meaning of 'normal' and 'abnormal' here—that of Millikan—is purely factual and entails no direct value judgment. We are making a claim about the conditions in which reasoning *did* evolve. One cannot directly derive from this statement a value judgment: Even if you were to grant that the normal conditions for the use of reasoning are those of public deliberation, it does not follow that reasoning *ought* to be used mostly in such conditions—making such an inference would be committing a naturalistic fallacy. However, if good reasoning is valued as a public good, and if you accept that reasoning works better in public deliberations, then it is possible

between at least two opinions can be broken, so that only one will be represented. The most common example involves reasoning alone without making the effort of arguing from another opinion than one's own. In such contexts reasoning can yield disappointing outcomes. To understand the ways in which these outcomes will be unsatisfactory it is necessary to turn to a closer examination of the way reasoning works.

According to the present theory, the function of reasoning is to find and evaluate arguments in deliberative contexts. Even though it might seem like a simple task, it is actually cognitively complex. Many representations can bear on the plausibility of any conclusion. Reasoning however should only be concerned with a subset of these representations: those that increase the plausibility of a conclusion one is trying to defend, or those that decrease the plausibility of a conclusion one is trying to rebut. Representations that have the opposite effect are of no direct value if one wants to convince one's interlocutor. [9] Reasoning should therefore be directed towards these valuable representations and, as a result, it should display a strong *confirmation bias*.

The confirmation bias is indeed one of the most, if not the most robust and prevalent bias evidenced by psychologists (see Nickerson, 1998, for review). Interestingly, it only affects reasoning, and not other psychological mechanisms, a fact that reinforces its interpretation in terms of argumentative tool (see Author & Sperber, in press). We want to stress, however, that the confirmation bias mostly affects the production, and not the evaluation of arguments. When in a position to evaluate an argument, one's incentives are simply to keep valuable information, and so to be moved by good arguments even if they

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to say that people should engage in public deliberation more often— not from a moral, but from a practical perspective.
[9] One could say however that anticipating arguments for the other point of view can help win a debate. While this is true, it mostly applies to formal debates in which participants have the leisure to prepare their arguments and are more concerned with seeming articulate than with actually arriving at a good solution (medieval *obligationes* being a good example, see Novaes, 2005). In less formal settings, it is much easier to let the interlocutor find arguments for her point of view: she will typically be in a much better position to do so.

force us to revise our beliefs (see Lupia, 2001; Author, in press). This is why reasoning in group can be efficient even though the production of argument is biased. However, when people reason on their own, they are not inclined to properly evaluate their own arguments, and poor results can ensue.

3.2 Reasoning alone

When people reason on their own, there is a real danger that the ever-present confirmation bias will not be balanced through the presence of other individuals defending different opinions. This outcome is well illustrated by many experiments demonstrating that simply thinking about a given object often produces more extreme attitudes, i.e. polarization (Tesser, 1978). In other cases reasoning alone will not lead to polarization but to overconfidence (Koriat, Lichtenstein, & Fischhoff, 1980).[10]

That reasoning internally (alone) does not constitute the normal context for the use of reasoning does not mean that purely internal reasoning will never work: without suppressing the confirmation bias, it is possible to find ways around it. Even if reasoning always tries to defend our initial intuitions, we can have conflicting intuitions bearing on a given object, or we can consciously try to entertain different opinions. When this is the case, the deleterious results mentioned above are moderated or disappear (Arkes, Guilmette, Faust, & Hart, 1988; Davies, 1992; Griffin & Dunning, 1990; Hirt & Markman, 1995; Hoch, 1985; Koriat et al., 1980; Tesser, 1976; Yates, Lee, & Shinotsuka, 1992). When these different intuitions or the conscious effort to entertain other opinions lead to a genuine inner exchange of arguments, then internal deliberation is achieved. While technically not part of the normal conditions for

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[10] Obviously, people can make a conscious effort to focus on arguments for one side of an issue—lawyers or politicians come to mind—but the confirmation bias as understood here operates mostly unconsciously: arguments supporting our position simply spring to mind more easily (see Nickerson, 1998).

the use of reasoning, internal deliberation can sometimes be very similar to public deliberation (Goodin, 2000). However, even on Goodin's account, private deliberation is often triggered by the anticipation of public deliberation. Conversely, a given public deliberation can also fuel future private deliberation. Several studies have found that exposing people to disagreement and debates increases their ability to entertain different opinions and to gather reasons that may support these opinions (Delli Carpini et al., 2004; Mutz, 2004; Price, Cappella, & Nir, 2002; Visser & Mirabile, 2004). In turn, this exposure to different opinions allows for more efficient private deliberation leading to better argument evaluation (Levitan & Visser, 2008; Mendelberg & Oleske, 2000) and better decisions (Boudreau & McCubbins, 2007). In particular, the exposition to different frames, either by witnessing a debate or by being part of one, allows people to resist framing effects (Druckman, 2004; Druckman & Nelson, 2003). So, while private deliberation certainly offers some advantages, we still contend that public deliberation plays the primary role in leading reasoning towards good outcomes.

3.3 Reasoning with like-minded people

Reasoning can function outside of its normal conditions when it is used purely internally. But it is not enough for reasoning to be done in public to achieve good results. And indeed the problems of individual reasoning highlighted above, such as polarization and overconfidence, can also be found in group reasoning (Janis, 1982; Stasser & Titus, 1985; Sunstein, 2002). Polarization and overconfidence happen because not all group discussion is deliberative. According to some definitions of deliberation, including the one used in this paper, reasoning has to be applied to the same thread of argument *from different opinions* for deliberation to occur. As a consequence, "If the participants are mostly like-minded or hold the same views

before they enter into the discussion, they are not situated in the circumstances of deliberation." (Thompson, 2008: 502). We will presently review evidence showing that the absence or the silencing of dissent is a quasi-necessary condition for polarization or overconfidence to occur in groups.

Group polarization has received substantial empirical support. [11] So much support in fact that Sunstein has granted group polarization the status of law (Sunstein, 2002). There is however an important caveat: group polarization will mostly happen when people share an opinion to begin with. In defense of his claim, Sunstein reviews an impressive number of empirical studies showing that many groups tend to form more extreme opinions following discussion. The examples he uses, however, offer as convincing an illustration of group polarization than of the necessity of having group members that share similar beliefs at the outset for polarization to happen (e.g. Sunstein, 2002: 178). Likewise, in his review of the group polarization literature, Baron notes that "The crucial antecedent condition for group polarization to occur is the presence of a likeminded group; i.e. individuals who share a preference for one side of the issue." (Baron, 2005).

Accordingly, when groups do *not* share an opinion, they tend to *depolarize*. This has been shown in several experiments in the laboratory (e.g. Kogan & Wallach, 1966; Vinokur & Burnstein, 1978). Likewise, studies of deliberation about political or legal issues report that many groups do not polarize (Kaplan & Miller, 1987; Luskin, Fishkin, & Hahn, 2007; Luskin et al., 2002; Luskin, Iyengar, & Fishkin, 2004; Mendelberg & Karpowitz, 2000). On the contrary, some groups show a homogenization of their attitude (they depolarize) (Luskin et al., 2007; Luskin et al., 2002). The contrasting effect of discussions with a supportive versus dissenting audience is transparent in the results reported by Hansen (2003 reported by Fishkin & Luskin, 2005). Participants had been exposed to new information about a political

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[11] Evidence for the related concept of groupthink is more mixed (Baron, 2005).

issue. When they discussed it with their family and friends, they learned more facts supporting their initial position. On the other hand, during the deliberative weekend—and the exposition to other opinions that took place—they learned more of the facts supporting the view they disagreed with.

The present theory, far from being contradicted by the observation that groups of like-minded people reasoning together tend to polarize, can in fact account straightforwardly for this observation. When people are engaged in a genuine deliberation, the confirmation bias present in each individual's reasoning is checked, compensated by the confirmation bias of individuals who defend another opinion. When no other opinion is present (or expressed, or listened to), people will be disinclined to use reasoning to critically examine the arguments put forward by other discussants, since they share their opinion. Instead, they will use reasoning to strengthen these arguments or find other arguments supporting the same opinion. In most cases the reasons each individual has for holding the same opinion will be partially non-overlapping. Each participant will then be exposed to new reasons supporting the common opinion, reasons that she is unlikely to criticize. It is then only to be expected that group members should strengthen their support for the common opinion in light of these new arguments. In fact, groups of like-minded people should have little endogenous motivation to start reasoning together: what is the point of arguing with people we agree with? In most cases, such groups are lead to argue because of some external constraint. These constraints can be more or less artificial—a psychologist telling participants to deliberate or a judge asking a jury for a well supported verdict—but they have to be factored in the explanation of the phenomenon.

4. Conclusion: a situational approach to improving reasoning

We have argued that reasoning should not be evaluated primarily, if at all, as a device that helps us generate knowledge and make better decisions through private reflection. Reasoning, in fact, does not do those things very well. Instead, we rely on the hypothesis that the function of reasoning is to find and evaluate arguments in deliberative contexts. This evolutionary hypothesis explains why, when reasoning is used in its normal conditions—in a deliberation—it can be expected to lead to better outcomes, consistently allowing deliberating groups to reach epistemically superior outcomes and improve their epistemic status. Moreover, seeing reasoning as an argumentative device also provides a straightforward account of the otherwise puzzling confirmation bias—the tendency to search for arguments that favor our opinion. The confirmation bias, in turn, generates most of the problems people face when they reason in abnormal conditions— when they are not deliberating. This will happen to people who reason alone while failing to entertain other opinions in a private deliberation and to groups in which one opinion is so dominant as to make all others opinions—if they are even present—unable to voice arguments. In both cases, the confirmation bias will go unchecked and create polarization and overconfidence.

We believe that the argumentative theory offers a good explanation of the most salient facts about private and public reasoning. This explanation is meant to supplement, rather than replace, existing psychological theories by providing both an answer to the why-questions and a coherent integrative framework for many previously disparate findings. The present article was mostly aimed at comparing deliberative vs. non-deliberative situations, but the theory could also be used to make finer grained predictions within deliberative situations. It is important to stress that the theory used as the backbone for the article is a theory of *reasoning*. The theory can only make predictions about reasoning, and not about the various other psychological mechanisms that impact the outcome of group discussion. We did not aim at

providing a general theory of group processes that could account for all the results in this domain. But it is our contention that the best way to reach this end is by investigating the relevant psychological mechanisms and their interaction. For these reasons, the present article should only be considered a first step towards more fined grained predictions of when and why deliberation is efficient.

Turning now to the consequences of the present theory, we can note first that our emphasis on the efficiency of diverse groups sits well with another recent a priori account of group competence. According to Hong and Page's Diversity Trumps Ability Theorem for example, under certain plausible conditions, a diverse sample of moderately competent individuals will outperform a group of the most competent individuals (Hong & Page, 2004). Specifically, what explains the superiority of some groups of average people over smaller groups of experts is the fact that cognitive diversity (roughly, the ability to interpret the world differently) can be more crucial to group competence than individual ability (Page, 2007). That argument has been carried over from groups of problem-solvers in business and practical matters to democratically deliberating groups in politics (e.g., Anderson, 2006; Author, 2007, In press).

At the practical level, the present theory potentially has important implications. Given that individual reasoning works best when confronted to different opinions, the present theory supports the improvement of the presence or expression of dissenting opinions in deliberative settings. Evidently, many people, in the field of deliberative democracy or elsewhere, are also advocating such changes. While these common sense suggestions have been made in the past (e.g., Bohman, 2007; Sunstein, 2003, 2006), the present theory provides additional arguments for them. It also explains why approaches focusing on individual rather than collective reasoning are not likely to be successful.

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Specifically tailored practical suggestions can also be made by using departures from the normal conditions of reasoning as diagnostic tools. Thus, different departures will entail different solutions. Accountability—having to defends one's opinion in front of an audience—can be used to bring individual reasoners closer to a situation of private deliberation. The use of different aggregation mechanisms could help identify the risk of deliberation among like-minded people. For example, before a group launches a discussion, a preliminary vote or poll could establish the extent to which different opinions are represented. If this procedure shows that people agree on the issue at hand, then skipping the discussion may save the group some efforts and reduce the risk of polarization. Alternatively, a devil's advocate could be introduced in the group to defend an alternative opinion (e.g. Schweiger, Sandberg, & Ragan, 1986).

Finally, maybe the most important consequence of the data reviewed above is that *fixing individual reasoning is not the solution*. Even when reasoning leads to poor outcomes such as polarization and overconfidence, it is still doing well what it is designed to do. These phenomena are an expected consequence of an unbridled confirmation bias, which is itself a normal feature of reasoning. We are not claiming that since the confirmation bias is a feature of reasoning, it should not be tempered with—a form of naturalistic fallacy. But what the results presented above show is that trying to eradicate the confirmation bias at the individual level is very difficult (Ritchart & Perkins, 2005; Willingham, 2008), while it can easily be harnessed to yield good outcomes at the collective level. Instead of trying to improve reasoning itself, it would be more productive to focus on changing the situations in which it is used, trying to bring them closer to the normal conditions for the use of reasoning: the changes should be made at the institutional rather than the individual level.

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