Exercising Agency in an International Socioscientific Controversy: The Use of Human and Material Agents to Assert Canada’s Sovereignty in the Arctic

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ABSTRACT What determines a nation’s sovereignty over a particular territory? This question is now the subject of a heated debate on the international political scene, with global warming having rendered previously unreachable Arctic resources accessible to the five countries that have territorial claims in the far North: Canada, the United States, Russia, Denmark, and Norway. By building on the concepts of human and material agency, I demonstrate how both human and material agents represent the collective of Canada and thus give the Canadian government a material presence in the Arctic. This presence is key to actors such as the Canadian prime minister who are making the case for Canadian sovereignty in the Arctic region. This article therefore shows that the agency of participants in deliberation over socioscientific issues is largely influenced by the action of both other humans and material entities.

KEYWORDS Political communication; Organizational communication; Material agency; Socioscientific controversy; Deliberation

RÉSUMÉ Qu’est-ce qui détermine la souveraineté d’une nation sur un territoire particulier? Cette question fait présentement l’objet d’un débat sur la scène politique internationale, alors que le réchauffement de la planète rend accessibles des ressources arctiques jadis inatteignables pour les cinq pays qui ont des revendications territoriales dans le Grand Nord: le Canada, les États-Unis, la Russie, le Danemark et la Norvège. En m’inspirant des concepts de l’agence humaine et matérielle, je démontre que des agents humains et matériels représentent le collectif du Canada et donnent ainsi au gouvernement canadien une présence matérielle dans l’Arctique. Cette présence est essentielle pour des acteurs, comme le premier ministre canadien, qui revendiquent la souveraineté du Canada dans l’Arctique. Ainsi, cet article vise à montrer que la capacité d’agir des participants dans la délibération sur des questions sociotechniques est grandement influencée par l’action d’autres humains et entités matérielles.

MOTS CLÉS Communication politique; Communication organisationnelle; Agence matérielle; Controverse sociotechnique; Délibération

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Introduction

Political controversies over issues that are at least partially related to highly technical and scientific matters play a very important role in public life in contemporary Western democracies. In the Canadian political context, obvious examples include controversies over events such as the tainted blood scandal; the Kyoto and Copenhagen conferences on climate change; the September 2006 collapse of an overpass on a busy freeway in Laval, Québec; and the gradual opening of the Northwest Passage leading the Canadian government to attempt to assert Canadian sovereignty in the Arctic. In all of these controversies, individuals—including ordinary citizens, scientists, and politicians—have been required to participate in deliberation over complex issues that are both social and scientific in nature, which is why, following Stewart (2009), I refer to these controversies as “socioscientific.”

In the study of socioscientific controversies, which can be defined as “extended argumentative engagements over socially significant issues and comprising communicative events and practices in and from both scientific and nonscientific spheres” (Stewart, 2009, p. 125), rhetorical scholars have heavily focused on the dynamics of deliberation. Deliberation, defined by Bohman as “a dialogical process of exchanging reasons for the purpose of resolving problematic situations that cannot be settled without interpersonal coordination and cooperation” (1996, p. 27), is one of the key processes by which a variety of individuals participate in public life. Deliberation is thus enacted not only by a large number of diverse actors, but also in a vast variety of places, whether it is around the dinner table, in coffee shops, in the House of Commons, through traditional media such as television and radio, or in Internet discussion forums. By studying the dynamics of deliberation in socioscientific controversies, researchers can investigate questions such as (1) What did the deliberation allow that would not necessarily have happened without the deliberation, and (2) Who and what are exercising agency through deliberation?

In response to the first question, researchers have found that deliberation over controversies can generate new ways of interpreting a particular controversy and foster a new and more thorough comprehension of the issues at stake, which leads researchers to emphasize the positive impact of public deliberation over controversial issues. This constitutive power of public deliberation over controversial issues has been demonstrated both conceptually (Callon, Lascoumes, & Barthe, 2001; Govier, 1999) and empirically (Benoit-Barné & McDonald, in press; McDonald, in press). In response to the second question, it has been found that socioscientific deliberation is fundamentally about scientific and technical artifacts, defined broadly as “any product of scientific and technological innovation” (Benoit-Barné, 2007, pp. 212-213). Because of the omnipresence of scientific and technical artifacts in deliberation over socioscientific issues, Benoit-Barné (2007) asserts that scholars of the public sphere have interest in turning their attention to the status that is assigned to technical artifacts (or what I will refer to more generally as “material entities”) when they are the subject of deliberation.

In conjunction with Benoit-Barné’s assertion, it is important to consider research on material agency, which is already well established in fields such as organizational
communication and in the sociology of science and technology. In this view, material entities exercise agency with humans in social interaction; humans and non-humans therefore work together as a hybrid, and humans are often dependent on the actions of non-humans to accomplish their intended goals (Latour, 1999, 2005). Thus far, empirical studies of the concept of human and material agency have been applied in many different contexts, including workplaces (see in particular Boudreau & Robey, 2005; Cooren, 2004, 2006, 2008), personal experiences (Brummans, 2007), political and scientific controversies (Callon, 1986; Callon & Latour, 1981), and in small-group deliberation over technical issues (Benoit-Barné, 2007). In this paper, I aim to demonstrate that material entities play an indispensable role in the unfolding of socioscientific controversies, as deliberation over these controversies is often both about objects as well as greatly influenced by objects. The process of deliberation, as we shall see, is organized by both human and non-human actors, or what Latour (2001) calls “actants,” that are interdependent and that work together to accomplish their goals. I will therefore demonstrate that the agency of particular individuals must be thought of in terms of both other humans and material entities exercising agency for them.

My analysis in this article is grounded in the international socioscientific controversy over Canadian sovereignty in the Arctic, which has recently become more pronounced due to the gradual opening of the waters of the Northwest Passage. The controversy stems mostly from global warming, which is responsible for rendering previously unreachable Arctic resources accessible to explorers and opening up the Northwest Passage between Europe and Asia by the Arctic Ocean². Therefore, the five countries that have territorial claims in the far North, namely, Canada, the United States, Russia, Denmark, and Norway, are in the midst of a territorial dispute regarding the nationality of the territories situated in the Arctic. Notably, many actors in the international community contest Canada's claim of sovereignty over the waters of the Northwest Passage by arguing that any body of water connecting two oceans (in this case the Atlantic and the Pacific) constitutes an international strait and thus does not belong to any one country (Forget, 2007). In the debate over the sovereignty of the Arctic territories, representatives from all involved countries must make reference to a large number of material entities, such as international laws governing the delimitation of territories, treaties signed between countries, and objects such as military training camps and ports that are meant to show Canada's presence in the region. Certain Canadian representatives also demonstrate Canada's sovereignty by making reference to human action, such as the Canadian prime minister touring the Arctic region and encouraging Canadians to visit and populate the Arctic region in greater numbers. As we see from this brief description of the dispute at hand, a plethora of human and non-human agents are mobilized by actors attempting to justify their position for or against Canada's sovereignty in the Arctic. Furthermore, the controversy is about highly technical issues, such as the interpretation of international conventions and the potential environmental repercussions of allowing ships to pass through the Northwest Passage. These technical issues also have a great deal of social consequence on the lives of the people who inhabit the region. Thus, the controversy over Canadian sovereignty in the Arctic is socioscientific in nature.
In this article, I will first review how the concepts of human and material agency have been mobilized in the extant literature. An overview of the controversy over Canadian sovereignty in the far North will follow to give the background information required to understand the analysis. An analysis of human and material agency in the Arctic controversy will then demonstrate the pertinence of examining these concepts in deliberation over controversial issues and how, in socioscientific controversies, humans act with and for other humans and material entities act with and for humans. The paper ends with a discussion in which I argue that, in the context of deliberation over socioscientific issues, the agency of individuals is both expanded and constrained by other humans and material objects upon which they are dependent to assert their claims.

Defining agency as human action

Although agency generally refers to the capacity to act in a given situation, the definition of this concept is controversial, as researchers interpret the term “act” in divergent ways. Anthony Giddens (1984, 1993), for example, insists that only humans are capable of exercising agency. This is because in his view, agency implies an intention to act, and only humans are capable of acting with premeditated intentions. Robichaud sums up Giddens’ position by defining an agent as an actor who can “rationalize his or her behavior as it unfolds and provide an account of what he or she is doing as well as his or her reasons for doing it” (2006, p. 103). In this sense, as Taylor (2006) rightfully notes, Giddens uses the terms “human agent” and “actor” interchangeably, as Giddens believes that only humans are capable of acting in social situations. Giddens’ definition of an actor as a strictly human agent has consequences for the very way he defines the terms “action” and “agency.” He argues that agency is “the stream of actual or contemplated causal interventions of corporeal beings in the ongoing process of events-in-the-world” (Giddens, 1993, p. 81). Thus, Giddens emphasizes greatly the omnipresence of agency in everyday life: on a daily basis, actors consciously make a difference in a large variety of social situations. He states that “it is clear that laypeople, in the course of their day-to-day life, constantly refer to, or make use of, notions of agency in some way or another” (Giddens, 1993, p. 78), even though people are rarely asked to give accounts of why or how they act in a certain way.

A key element in the structuration theory that Giddens (1984) outlines is that agents do not act alone: they associate themselves with other human actors in order to increase their agency. By associating themselves with other actors, individuals become more powerful and thus have a greater capacity to act in a given social situation. This view is supported by McPhee (2004), who argues that through associations with several human agents, meaningful, co-ordinated action is able to be accomplished.

The human agency perspective put forth by Giddens is characterized as being internalist (McPhee, 2004; Robichaud, 2006) because it emphasizes action by socially capable humans, rather than taking into account external influences that would have the potential to influence human action. McPhee claims that a purely externalist sense of agency “gives a stunted explanatory vocabulary, ignores crucial human powers, and ends in vitiating the notion of communication” (2004, p. 366); however, a purely internalist sense of agency does not recognize that outside influences, includ-
ing material entities, can greatly influence not only what human agents do, but why they do so. I argue that this externalist perspective of agency, developed principally by scholars in the sociology of science and technology and the Montréal School of organizational communication, complements very well Giddens' internalist perspective on human agency. Furthermore, I will show how the two perspectives can work together to provide a larger and more complete analysis of the agency exercised by all actors—both human and non-human—in socioscientific deliberation.

Defining agency as human and material action

In their influential book on organizational communication, Taylor & Van Every examined the definition of the word “agent” in Webster’s New World Dictionary. They found two distinct definitions of this term: (1) “a person or thing that performs actions,” and (2) “a person, firm, etc. empowered to act for another” (Taylor & Van Every, 2000, p. 87). These two dictionary definitions are consequential for two reasons. First, as opposed to Giddens’ definition of agents, which restricts agents to only human beings, the dictionary states that an agent can either be a person or a thing. This opens up the possibility of non-human agency and of conceiving of objects and animals as actors in social interactions just as much as humans. Second, as Taylor & Van Every (2000) note, agents have two primary purposes: they are either simply acting, or they are acting for another person or thing. This observation is crucial, as it implies that both humans and non-humans are capable of not only acting for themselves, but acting in the name of other people. Humans are therefore able to increase their own agency by associating themselves with other agents that are either human or non-human.

Concentrating on the role of objects in social life is a current and very well documented research topic. As Latour (1994) explains, objects are omnipresent in human interactions and almost constantly influence how humans accomplish their actions. Furthermore, Taylor & Van Every (2000) demonstrate how objects act and therefore must express a form of agency. Even mundane events such as a kettle boiling, a knife cutting, a basket holding, a hammer hitting, or a schedule listing demonstrate how objects allow humans to perform actions in their day-to-day lives (Latour, 2005). In line with this perspective, scholars investigating material agency call for an extension of the definition of agency “to extend its applicability to a range of entities and phenomena that far transcends the realm of individual human action” (Robichaud, 2006, p. 105). The extended definition of agency must take into account that humans not only act through the textual and physical objects that they produce, but are acted upon by these objects (Cooren, 2004). In this sense, Cooren offers one of the broadest and most inclusive definitions of agency, which can be summed up as “making a difference” (2006, p. 82). Agents are therefore simply “what or who appears to make a difference” (Cooren, 2006, p. 82) in any given interaction. Cooren’s perspective thus extends Giddens’ conception of agency, as the latter takes into account who makes a difference in social interactions, but not what makes a difference.

Cooren’s enlarged definition of agency has been shown to have important consequences for studies in organizational communication. By taking into account the materiality that affects human action, we notice that human interactions are mediated by non-human agents that constrain and enable these interactions. Humans thus
rely on objects to act through time and space and thereby make a greater difference than if they were not able to associate themselves with material objects (Cooren & Taylor, 1997). From this perspective, agency is not exercised by either humans or objects: agency emanates through networks of interacting human and non-human agents (Brummans, 2006). There is therefore no clear division between the social and the material world, since humans and non-humans are interdependent in their way of organizing and acting. To describe this interdependence, Cooren claims that the world is a “plenum of agencies” (2006, p. 85) constantly working together to perform actions. Action, Cooren argues, should thus be considered a “hybrid phenomenon” constituted by a variety of material, discursive, human, and non-human agents.

As seen above, extant research on material agency affirms that non-humans are also potential agents in any given social situation. The ability of material entities to make a difference in a concrete situation is demonstrated by Cooren, Fox, Robichaud, & Talih (2005) when they ask, “Aren’t the United States of America as much embodied in their constitution, flag or official buildings as they are in their president when he presents the State of the Union address, speaks to his collaborators or responds to journalists?” (p. 266). In this example, both material objects and humans are able to represent a country. Furthermore, an object such as the American flag acts by representing the United States of America, just as a Canadian flag on the income tax forms provided by the Canada Revenue Agency acts to represent Canada. These flags exercise agency insofar as they mobilize human actors to recognize the presence of the United States and of Canada. Another mundane example is the walls that enclose a room (Latour, 2005). When walls enclose a room, they constrain humans from seeing what is on the other side. Furthermore, walls are objects that continuously exercise agency because, except in the exceptional circumstances of a building collapse, they never cease to enclose. From these examples, we can see how objects can influence human action by enabling and constraining it.

Recognizing that material objects exercise agency has had important consequences for communication and sociological research. For example, recognizing that texts—defined by Cooren (2004) as any written documents in an organizational context, such as reports, contracts, memos, signs, and work orders—perform actions in organizations that allow us to question whether human actors strategically reference certain texts (and other objects) in debates over controversial issues in order to reinforce their arguments and in so doing attribute a certain agency and authority to these texts (see also Benoit-Barné & Cooren, 2009; Brummans, 2007). However, it is important to recognize that these objects do not really act on their own, nor do humans, as action is always shared between a plethora of human and non-human agents. In many situations, objects can therefore be used specifically by humans to act for them. Drawing from Bruno Latour, Benoit-Barné notes that objects must therefore be conceived as “partners in action” (2007, p. 217) that act for humans, allowing the latter to perform actions that would be impossible without the object. In this case, Latour wittily states that “an actor is what is made to act by many others” (2005, p. 46, emphasis in original), including humans. Therefore, when associating themselves with objects, humans must always translate the action of those objects into their own
actions. For instance, when humans make reference to an object such as the Canadian constitution, they must translate (or interpret) the will of the object: what it means and how it helps them accomplish their action. Similarly, in Callon’s (1986) landmark essay describing the controversy over the scallops in Saint-Brieuc Bay, scallops, the ocean, and the French government were all agents working together. This is the basis of the actor-network theory, which sees all action as an intertwined network of both human and non-human agents.

Because humans accomplish much of their action through their association with objects, it can be said that “we live in a plurified world, a world in which humans share agency with other entities, whether these entities are man-made or natural” (Cooren et al., 2005, p. 271, emphasis in original). This recognition has important consequences because the “plurified” world in which we live increases human action substantially, particularly by the use of objects that allow humans to act through time and space (Benoit-Barné, 2007). For example, when individuals do not want to forget an important meeting, they have several options: they can write down the meeting in their agenda, they can inscribe it in their computer calendar, or they can write themselves a Post-it note and stick it on their desk (Meunier & Vásquez, 2008). In each of these cases, the objects (whether the agenda, the computer calendar, or the Post-it) are mobilized by humans to perform a specific task. Individuals therefore clearly use objects as agents, as these objects make a difference (Cooren, 2006). In that same situation, individuals can also ask colleagues to remind them of the meeting, in which case they use other humans as agents. This shows that Giddens’ view of human agency is not obsolete, as humans do use other humans to act, but that it is not complete, because humans also use objects to perform actions that could not be performed without mobilizing certain objects.

Using the same example of the agenda, the computer calendar, and the Post-it note, we notice that these three objects, in which human intentions have been inscribed, “are capable of acting for us, even when we are not physically—or even consciously—present” (Cooren, Taylor, & Van Every, 2006, p. 9). Taylor & Van Every (2000) have named the process by which human intentions are translated and inscribed in material objects and properties “imbrication.” This phenomenon is similar to tele-action, which is the act of making present, or “presentifying,” something or someone in an interaction (Cooren, 2006). Non-human entities can therefore, through tele-action, represent humans in the interaction, as we saw in the example given above. For example, the agenda, the computer, and the Post-it note (all non-human entities) all represent an individual (the person who inscribed his or her intention in those entities). In this sense, Cooren (2004) notes that when agency is inscribed in material entities, the objects act the way humans have programmed them to act. This is also true in deliberation, where objects are strategic and are able to aid particular actors, or groups of actors, reach their rhetorical objectives (Benoit-Barné, 2007).

As seen in the examples provided, human and non-human agents are indissolubly linked (Latour, 2001) and, in their actions, come together through a process of mediation. Mediation is described as “the creation of an agent or agency through the process of translation of some subject’s action into material form (object), where properties of
that object employed as instrument make an autonomous (and sometimes determin-
ing) contribution to how the agency works in practice” (Cooren & Taylor, 1997, p. 221). Therefore, an act is mediated “when one (human) agent enlists a second (nonhuman) agent in the realization of an intention,” resulting in a hybrid third agent that reflects
the properties of both original agents (Cooren & Taylor, 1997, p. 225). In this sense, we
can consider the individual who wrote the meeting in the agenda and the agenda itself
as being one hybrid actor, as they have acted together. However, mediation does not
imply that either humans or non-humans have no agency on their own; it simply
“shows how a hybrid association between humans and nonhumans enables people to
do things that they could not do otherwise” (Cooren, 2004, p. 377).

Mediation between human and non-human actors is apparent in all forms of
interaction. Taylor & Van Every (2000) argue that “all human life thus takes the form
of a succession of mediations, involving agents that are neither purely human nor
purely material, but hybrids: agencies of mixed provenance” (p. 162, emphasis in orig-
inal). Latour’s most well-known example of a hybrid agent is an individual holding a
gun. Whereas most individuals would likely experience difficulty trying to kill a per-
son sitting beside them on their own and the gun cannot kill an individual by itself,
the hybrid agent created by the individual holding the gun is able to easily kill another
person (Latour, 2001). An association between humans and non-humans therefore
almost always allows individuals to increase their agency, as humans use objects to
perform actions.

Relying on Cooren’s (2006) definition of an agent as a person or thing that makes
a difference, politicians, economists, ecologists, and ordinary citizens are agents just as
much as polar bears, icebergs, international treaties, boats, and flags. Furthermore, this
interconnected network of agents can act together to constitute the very existence of
collective entities such as organizations and governments. For example, Cooren notes
that “all these entities, at one time or another, can be said to act, work, or speak in the
name of the organization they represent (i.e., make present)” (p. 83). In this sense, var-
ious material entities, as well as humans, can materialize or incarnate a collective entity,
which can subsequently act and exercise agency as well (Cooren, 2006; Cooren,
Brummans, & Charrieras, 2008). For instance, boats, flags, and Canadian citizens that
are in the Arctic act by making the Canadian government present in this region,
thereby giving this collective entity a material presence that it could not have without
the agents that are representing it. The phenomenon being described here is the
essence of the concept of “‘organizational presentification’, a term that refers to the
ways in which an organization is made present through contributions of human and
nonhuman agents engaged in ongoing processes of interaction” (Cooren et al., 2008,
p. 1342). The Canadian government therefore only exists in the Arctic to the extent that
it is materialized in a vast network of agents, which can be both human and non-
human, that act on its behalf. Agents such as Canadian citizens present in the Arctic
and boats that are stationed in the Arctic therefore enable the Canadian government
to claim that it is present in this area, thereby enabling this collective to act.

Cooren has argued that “analysts should not hesitate to take into account that we
live in a world full of various agencies and that the structuring of this world is only
possible through the active contribution of the discursive and physical artefacts that humans produce” (2008, p. 13). The remainder of this paper answers Cooren’s call to investigate these various agencies that constitute all interactions. I take into account the plethora of human and non-human agents that are currently acting in the dispute over Canadian sovereignty over the waters of the Arctic to demonstrate how, in the socioscientific deliberation over this controversial topic, humans and material entities are interdependent actors and how material agents have the capacity to greatly influence the discourse of individuals participating in the deliberation. I therefore aim to provide answers to the following research questions: (1) In which ways are humans and non-humans interdependent actors in political debates over complex socioscientific issues? (2) How do material entities influence the discourse of individuals participating in socioscientific deliberation?

The socioscientific controversy over Canadian sovereignty in the Arctic

Explorations in the Arctic in search of the Northwest Passage have been taking place since the 16th century. However, despite many explorers’ aims to discover a more direct route from Europe to Asia, none were able to do so and many perished in the process. Thus, when Britain declared this territory for Canada in the late 19th century, the international community had little interest in this inaccessible and unwelcoming region of the world. However, with the onset of climate change, the long-sought Northwest Passage is beginning to become navigable for brief periods in the summer months. As the Arctic is warming up twice as quickly as the rest of the planet, scientists predict that the passage will become more and more accessible until 2040, when it is expected to be completely free of ice during summer (Forget, 2007).

The gradual opening of the Northwest Passage has important international consequences. First, it will potentially allow ships to pass from Europe to Asia without making the detour through the Panama Canal, thereby reducing the distance travelled by 5,000 kilometres and saving large amounts of time and fuel. Second, the opening of the Passage also facilitates access to the rich resources of the Arctic, which have until now been inaccessible. The Arctic is now seen as an area of high economic interest, as mentioned on the homepage of Indian and Northern Affairs Canada: “With world-class mineral, oil and gas deposits, the North is a place of incredible economic opportunity for northerners and all Canadians” (Indian and Northern Affairs Canada, 2009). However, whether the resources of the Arctic are truly Canadian is being questioned by a large number of countries, including other Nordic nations such as the United States, Russia, Norway, and Denmark. In this dispute, the main question being debated is the following: What determines a nation’s sovereignty over a particular territory? The resolution of this territorial dispute is further complicated by the large, unpopulated areas that cover the disputed territories, which is why any material entity attesting to the sovereignty of a nation over a particular area in the Arctic is an important actor in this controversy.

The dispute over the Arctic took an interesting turn on August 2, 2007, when an expedition sent by the Russian government planted the Russian flag on the North Pole, 4261 metres below sea level, in the Arctic Ocean. This gesture was immediately
The interdependence of human and non-human agents in the territorial dispute in the Arctic

In his quest to promulgate Canadian sovereignty over the waters of the Arctic Ocean, Prime Minister Stephen Harper has employed various strategies, including associating himself with both human and non-human agents. However, Harper is an agent himself in the controversy: for example, his simple presence in Iqaluit in August 2006 was a way by which the prime minister expressed Canada’s determination to control the Arctic and the waters between the islands of the archipelago, as was his visit to the Canadian military base in Alert during the same visit to the Arctic in the summer of 2006.

The role of human agency in the controversy over the Arctic does, however, go beyond the prime minister himself. In fact, to demonstrate sovereignty over a particular territory, a country must show that it occupies the territory, controls it, and ensures searching and rescue services in the area (Forget, 2007). Therefore, the presence of Canadian citizens such as the Inuit in this territory is crucial to Canada’s claims that this territory is in fact Canadian. This is recognized by Mary Simon (2007), president of the Inuit Tapiriit Kanatami, who has stated,

The bedrock of Canada’s status as an Arctic nation is the history of use and occupation of Arctic lands and waters by Inuit for thousands of years. Inuit are, and expect to remain, the permanent majority population of the Arctic. This is helpful for Canada when defending claims of sovereignty against other nations. (p. A15)

The Inuit people are therefore important agents in the controversy over the Arctic, as their presence in the territories and status as Canadian citizens allow the Canadian government to affirm its sovereignty in the region. The Canadian government has also
historically subscribed to Simon’s argument, as shown by the government’s deliberate dislocation of some Inuit communities to the northernmost islands of the Arctic Archipelago to help promulgate Canadian sovereignty in the region in the early 1950s. The government representatives were therefore able to increase their own agency and more effectively argue that the Arctic islands are Canadian territory by their association with other important human agents—the Inuit themselves. Giddens’ (1993) affirmation that humans associate themselves with other humans to increase their own agency is therefore clearly illustrated by the Canadian government’s actions. Indeed, the Canadian government’s presence in the region is largely achieved through the Inuit who act on its behalf, a phenomenon that illustrates well the concept of “organizational presentification” (Cooren et al., 2008).

Giddens’ (1984, 1993) view on human agency is demonstrated by yet another example in the ongoing controversy over the Arctic. As more and more countries and supranational organizations (including the United States, Russia, Norway, and Denmark, as well as the European Union) contested Canadian sovereignty in the region, Harper announced that he would hire 500 more rangers, in addition to the 1600 who already patrol the territory and signal uncommon activity. He stated:

I’m proud to announce today a series of measures that will strengthen Canada’s Arctic sovereignty. First, our government will expand the size and capabilities of the Canadian Rangers. Stationed in communities scattered across all three territories—as well as the northern reaches of seven provinces—the rangers are a tangible expression of Canada’s ability to defend its northern lands. (Office of the Prime Minister, 2007)

By making this announcement, Harper is once again trying to demonstrate that the Arctic islands, as well as the waters in between them, are incontestably Canadian. Through his association with the rangers (human agents), Harper is able to accomplish actions and make affirmations that he would otherwise be unable to support, as the rangers are a tangible expression of Canadian presence in the region. Harper relies not only on people who live and work in the Arctic to bolster Canada’s claims to sovereignty in the far North, but also on the presence of Canadian tourists. As we see in the quotation below, which Harper stated at a press conference in the Yukon in August 2006, he also encourages all Canadians to visit a region that he claims figures largely in the national consciousness of Canadians:

A trip to the North is an experience like no other, and that’s why I’m asking Canadians to heed the call. Come to the land that figures so largely in our national consciousness; one that has coloured our past, and one that is going to illuminate our future. (Office of the Prime Minister, 2006c)

Once again, we see how individuals can, in the midst of a complex socioscientific controversy, strengthen their argumentation by relying on the action of a vast array of other individuals, in this case rangers and tourists. The latter individuals give the Canadian government a material presence in the Arctic that it otherwise would not have and that enables the representatives of the Canadian government to make a case for Canadian sovereignty in the Arctic region. Human actors play an indispensable
role in the actions of other individuals, which is in line with Giddens’ claims about human agency that were elaborated on earlier.

Although we have seen thus far how actors associate themselves with other human agents to increase their own action, an actor’s association with human agents only accounts for part of the actions that the actor is able to accomplish in the socio-scientific controversy over Canadian sovereignty in the Arctic. In socio-scientific deliberation, humans constantly associate themselves with material entities that allow them to accomplish more action than if these material entities did not exist. For example, while visiting Canada’s most northerly air force base in Alert in August 2006, Harper stated: “CFS Alert is important to the Government of Canada because it plays a key part in enabling us to assert this country’s Arctic sovereignty” (Office of the Prime Minister, 2006b). The air force base itself, a material entity, is therefore seen to strengthen Canada’s presence in the Arctic, as this base gives the Canadian government a permanent and material presence.

While visiting Iqaluit in August 2006, Harper also announced his plan to invest in aerial and underwater surveillance technologies for the Arctic region, stating:

New long-range unmanned aerial surveillance drones will provide continuous air patrols throughout the Arctic. And finally we’re looking at technologies to give Canada undersea surveillance capacity—acoustic or movement sensors to detect subs and ships in our Arctic waters. (Office of the Prime Minister, 2006a)

The wording of the above comment is significant, as it demonstrates the trope of personification, which consists in attributing capacities to inanimate objects that are normally associated with humans. Indeed, humans may be more naturally associated with providing continuous air patrols throughout the Arctic and detecting subs and ships in the waters of the Arctic, but through the use of technology, objects are attributed this “human” capacity and can be seen as acting. Furthermore, it is clear from the above comments that Harper believes that the Canadian government will be able to accomplish action, such as defending Canada’s sovereignty over the Arctic, with the help of unmanned aerial surveillance and acoustic or movement sensors in the sea—which are material entities that not only make the Canadian government present, but also enable this collective to accomplish its desired action (in this case, to monitor). Thus, although Harper cannot rely on other humans to watch and control all ships that approach the Arctic, especially considering the immense territory of the region, he is able to accomplish this task through the use of several objects. In this case, we can consider the surveillance systems and Harper as one hybrid actor—the surveillance systems would not have been created without the action of Harper, and Harper would not be able to control the territory as effectively without action of the surveillance systems. In Latour’s (1994) and Cooren & Taylor’s (1997) terms, we can therefore say that Harper enlisted the surveillance system in the realization of an intention, and the two actors were mediated and became one actant. In terms of deliberation, it can be said that deliberation over the Arctic controversy is therefore not simply about Harper constructing arguments by himself. Indeed, the last quotation shows that Harper is dependent on the action of non-human agents—in this case, aerial surveil-
lance and sensors—for his argument to be valid. Taking into account the role that these non-humans agents play in the controversy over the Arctic therefore enables scholars and political analysts to more fully capture how arguments are enabled and constrained by human and non-human agents, thereby enriching our understanding of the deliberation, which often fails to take into account the complex process and human/non-human networks through which arguments are formed.

As argued earlier, it is not only physical objects such as surveillance systems that act for humans in controversial situations: human agents also enlist many texts in their arguments, and these texts become powerful agents in argument (Cooren, 2004). In the controversy over the Arctic, the 1982 United Nations Convention on the Law of the Sea constitutes an influential agent. The convention stipulates that all maritime routes that link two oceans and that are used for international navigation constitute international straits. Interestingly, individuals both for and against Canadian sovereignty over the waters of the Arctic associate themselves with the convention, as they both affirm that the convention strengthens their arguments. On the one hand, the waters of the Northwest Passage respond to the definition of the convention because they do constitute a link between the Atlantic and Pacific Oceans. However, until now the Northwest Passage has almost never been used for international navigation, which is one of the criteria outlined by the convention to define international straits. In this example, we see how non-human agents such as texts can be mobilized by human actors to demonstrate two opposite ideas, thereby demonstrating the complexity of agency in socioscientific deliberation. Furthermore, human actors are able to strengthen their arguments when they associate themselves with texts that they believe demonstrate their opinion.

Slogans and certain rhetorical expressions can also act as non-human agents in international socioscientific controversies. For example, to promulgate Canadian sovereignty over the waters of the Arctic Ocean, some Canadians have proposed replacing the country’s slogan “from one ocean to another” with “from one ocean to another to another” (Forget, 2007, p. 136, my translation). The repetition that is implicit in this phrase is an important trope that underlines that Canada has three oceans, not just two, and that Canada therefore has sovereignty over its coastal waters in the Pacific, the Atlantic, and the Arctic. We therefore see once again how material objects—such as language and rhetorical tropes, in this example—are able to exercise agency and strengthen the arguments of actors in controversial situations.

The examples of material agency we have seen until now have shown that a variety of material entities—including physical objects, texts, and language—are used by actors to strengthen their arguments in controversial situations. However, the symbolic value that humans inscribe in objects, as we saw earlier, can also turn simple objects into rhetorical tools and agents. This is clearly demonstrated by an expedition sent by the Russian government to the Arctic Ocean in the summer of 2007, which used a mechanically operated robot to plant the Russian flag on the floor of the Arctic Ocean at the magnetic North Pole on August 2, 2007. Although this gesture is purely symbolical and has no legal value, it is an indirect way for Russia to demonstrate to the international community that it has territorial claims in the Arctic Ocean, because
the flag that it has planted represents the Russian government and gives it a permanent material presence on the North Pole (Forget, 2007). Furthermore, the flag being planted on the ocean floor constitutes another object that the Russian government can associate itself with to increase its agency. For example, just as European explorers found out several centuries ago, an actor can argue more efficiently for its territorial claims on a specific area when its flag is planted on the territory it claims. The symbolic value in the flag therefore makes this entity a strategic object that allows humans to make stronger arguments.

As previously mentioned, the Canadian government critiqued the planting of Russia’s flag at the North Pole as a 15th-century practice (Birch, 2007). However, Canada itself has been using Canadian flags to demonstrate its sovereignty on Hans Island, which has a minuscule area of only 1.3 square kilometres and is situated between Ellesmere Island and Greenland. Since 1973, Canada and Denmark have both claimed that this island is part of their territories, Canada claiming that it is part of the North American continent and Denmark affirming that its explorers discovered the island in 1852. In an attempt to claim this island for Canada, Canadian soldiers arrived on the island on July 13, 2005, and planted a Canadian flag. Even the minister of defence, Bill Graham, visited the island a few days later (thus using himself as a human agent to complement the material agent that the soldiers had planted). Denmark later protested Canada’s action by sending an expedition to plant the Danish flag on the same island. Both Canada and Denmark continue to visit the island regularly. This example, described in Forget’s (2007) account of the controversy surrounding the Arctic territory, demonstrates once more how the symbolic value inscribed in material objects allows humans associating themselves with these entities to increase their own agency and action. Furthermore, this example shows how flags became imbricated, to use the term of Taylor & Van Every (2000), in the discourse of both the Canadian and Danish governments, as the intentions of the representatives of these countries were inscribed in the flags. The flags tele-act (Cooren, 2006) by representing the two governments—thereby making these collectives present even when no person is physically present on this uninhabited island—which further demonstrates how material agents can sometimes be used to increase the agency of human actors.

Whereas material agency is often associated with humans enlisting objects and texts in discourse, objects also have the potential to constrain human action. This type of material agency has also played an important role in the controversy over the Arctic. For instance, Suzanne Lalonde, an expert in international law at the Université de Montréal’s Faculty of Law, has pointed out that the ice in the Arctic has, until now, sufficed to maintain Canadian sovereignty over its territory in the Arctic (Forget, 2007). Because no commercial ship has thus far been able to navigate through the icy waters of the Arctic Ocean and successfully make the jaunt between Europe and Asia, the ice has been able to help Canada control the waters of the Arctic Ocean. However, since the ice is now melting, Canada is no longer able to control the waters as efficiently as before, is having its sovereignty over the waters questioned, and must more explicitly show its presence in the Arctic region. In the terms of McGuire & Melia (1991), the ice
has therefore become recalcitrant to the Canadian government, as it is no longer performing the action that it has been. In this sense, we see that material entities—such as ice—constrain the actions of humans. For example, the melting of the ice has obliged the Canadian government to find new ways of arguing that the waters through the Arctic are Canadian territory, such as associating itself with other human and material agents to promulgate its sovereignty in the Arctic region. This example demonstrates why attending to the networks of human and non-human agents by which participants in a socioscientific controversy act enriches our understanding of socioscientific deliberation. Indeed, deliberation cannot be about anything; actors involved in deliberation can only say what other human and material agents allow them to say, and in this case the Canadian government has to completely revisit its argumentation because a material agent (the ice) no longer allows it to argue what it used to do. Attending to networks of human and non-human agents therefore enables us to better understand how the arguments that actors rely on during deliberation are formulated—and particularly how these arguments are enabled and constrained by a vast array of both human and non-human agents.

In sum, this analysis has shown that both humans and material entities are important actors in the controversy over the Arctic. In the discourse and arguments of individuals such as the Canadian prime minister, there is always some reference to at least one or more material entities that, quite simply, act. For example, while Prime Minister Stephen Harper was physically present in the Canadian North, his discourse made reference to objects such as military bases and surveillance systems which, in his opinion, demonstrate Canada’s sovereignty over the waters of the Arctic Ocean. Harper was also able to increase his own agency by relying on the actions of other humans, such as the strengthened presence of rangers in the North, and by encouraging more Canadians to visit this region. In this sense, we see that both humans and material entities make a significant difference in socioscientific controversies such as the debate over Canada’s sovereignty in the Arctic, as the discourse of human agents can be constrained and expanded by the action of both other humans and material entities.

The interdependence of human and non-human agents in organizing socioscientific deliberation

Socioscientific controversies always involve heterogeneous actors debating about a large variety of both social and scientific issues, including human and material agents. These controversies can be studied from a wide variety of angles, and they interest a large number of scholars from various research traditions, including organizational communication, rhetoric, the sociology of science, and media. However, the various frameworks that are used to examine socioscientific controversies can complement each other quite well. For example, Giddens’ (1993) conception of human agency unequivocally applies to deliberation in socioscientific contexts. Human agents are crucial actors in these controversies, as we have seen that by associating himself with rangers who patrol Canada’s Arctic region, the Canadian prime minister is able to more convincingly attest to Canadian sovereignty in the North and make the government present in the region. The same is true for the prime minister’s visits to the region, since his physical presence in the North communicates that he governs this
territory. Further, sending Canadian military expeditions to Hans Island is another way of demonstrating that Canada's territorial claims are real. In all of these cases, individuals act, and “make a difference” (Cooren, 2006), in the unfolding of the Arctic controversy, which is why Giddens is right to say that humans have crucial powers to exercise agency in social interactions.

However, analyzing the human agents who play a role in controversies does not suffice to explain how socioscientific controversies unfold and are debated. For example, although there is no doubt that the Canadian soldiers who travelled to Hans Island were agents, they themselves were able to significantly increase their agency by associating themselves with a material agent—the Canadian flag—that gave the collective of Canada a material presence in the region. The flag therefore became a powerful agent that allowed Canada to maintain its presence on the island, even after the soldiers had returned to their bases. By associating themselves with the flag, the soldiers were therefore able to increase their agency across time and space. In this sense, we see that a material entity ended up, once again, making a difference and making the Canadian government present. Indeed, the Canadian government only exists, and can therefore only claim its sovereignty in the Arctic, by enlisting the many human and non-human agents that represent it in its arguments. The same can also be said about the Russian expedition that planted its flag on the North Pole. Furthermore, we have seen that material entities can become recalcitrant to human intentions; for instance, after the ice in the Arctic began to melt, the Canadian government had to find other ways of assuring its presence in the previously frozen waters of the Arctic Ocean. This demonstrates once again the important role of material agents in the unfolding of controversial situations.

Considering the analysis in this article, it would be hard to imagine any controversy in which at least some material agents do not exercise agency. Material entities are omnipresent in public life and influence greatly human discourse, arguments, and action. In this sense, the works of Benoit-Barné (2007), Callon (1986), Cooren (2004, 2006, 2008), Cooren, Brumans, & Charrieras (2008), Cooren & Taylor (1997), Latour (1994, 1999, 2001, 2005), Taylor (2006), and Taylor & Van Every (2000), which all focus on the interdependence of human and material agents in social, political, and organizational situations, greatly enrich our conceptions of socioscientific controversies. As opposed to only seeing these controversies as situations in which human actors debate about controversial and technical issues, we can now see socioscientific controversies as rich situations of deliberation in which both humans and non-humans are interdependent actors and in which a vast network of both human and non-human agents affects what issues are at stake and what arguments can be made. Deliberation is therefore not just about the arguments that individuals make; it is also about what arguments individuals are able to make based on a plethora of other human and material agents that both enable individuals to make certain arguments and constrain them from making other arguments. This approach is quite different from the traditional rhetorical approach to studying controversies, which focuses greatly on argumentation and on the generative power of discourse, but which places
little emphasis on how material agents—as well as other human actors—have an
impact on how individuals argue and what arguments they are able to put forth.

This article has shown how work from scholars in a variety of disciplines can
come together to enrich knowledge in one particular area. By drawing on scholarly
work in the fields of organizational communication, rhetoric, and the sociology of sci-
ence, we have seen that material agents greatly influence the course of socioscientific
deliberation—sometimes expanding the action of human agents, sometimes con-
straining it, but always influencing it in some way. I therefore argue, like Latour (1999),
that material entities are an essential part of contemporary democracies. However,
this recognition must not undermine the role of human agents in deliberation, as
human agents are key actors that mobilize both humans and non-humans in their dis-
course to debate the socioscientific issues at stake. Therefore, we see that by associat-
ing themselves with both humans and material entities, individuals are able to
formulate arguments about complex topics and thus participate in public life.
Deliberation over socioscientific controversies is, in this sense, a positive social phe-
nomenon that can be seen as a hybrid between the human and material worlds.

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Notes
1. In Habermas’ (1978) thesis on the public sphere, he traces the roots of public deliberation back to

2. At the end of August 2007, the Northwest Passage was free of ice and therefore open to navigation.
Because of the onset of global warming, the passage is expected to become open for a longer period
each year (Cornellier, 2007).

3. The overview provided is intended to give only the background information needed to follow the
subsequent analysis. For a more detailed account of the controversy over Canadian sovereignty in the
Arctic, please refer to Byers (2009), Carnaghan & Goody (2006), and Forget (2007).

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