

## How to exercise expert authority: A case study of a scientist facing *The Sceptics*

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Argumentation theorists are not the only ones concerned for argumentation theory; argumentation practitioners theorize as well. An arguer's understanding of what is being done underlies every fluent performance. Specific discourse features get named by arguers; these identifications get questioned, called out, and justified; and the justifications themselves can become a focus for the interaction. Thus as Craig (1996) has put it, theory and practice lie on a continuum: theory ranges from implicit to increasingly explicit, from embedded in an ordinary interaction to increasingly abstracted from it. For example:

[Makes an argument]  
 Your argument that...  
 That's no argument!...  
 That's no argument, because...  
 What is an argument?...

An interest in arguers' practical knowledges—their folk theories of argument (argumentologie populaire, Doury, 2013a)—represents a point of convergence between many argumentation scholars in the francophone world and a few of us in anglophone North America. Scholars on both sides of the Atlantic have contributed to deeper understandings of concepts shared between theorists and practitioners, including *argument* itself (Craig, 2011; Doury, 2008; Goodwin, 2007; Plantin, 1996), *issue* (Craig & Tracy, 2005; Goodwin, 2002), *burden of proof* (Kauffeld, 2009), as well as specific argument schemes or fallacies (Doury, 2010a). These works not only adopt empirical approaches to argumentation, taking complex cases as their object of study; they concentrate in particular on how practitioners themselves conceive of what they are doing, often as expressed by the arguers' metadiscourse (Craig, 1999; Doury, 2013a; Plantin, 1996).

In this essay, I want to make a possibly radical suggestion: that argumentation theorists' primary loyalty should be to the practical knowledges arguers are exhibiting and thematizing in ordinary argumentative interactions. Why? There are more practitioners than theorists, for one thing; they may be more motivated (they want to win), and they are likely smarter (they did not decide to become argumentation theorists). But most importantly, because argumentative interactions are in part constituted by participants' conceptions. What are abstract questions for argumentation theorists are immediate problems for arguers in practice. Arguers' solutions to these problems have to *work*. They have to be accepted (or at least not rejected) by other participants in an interaction;<sup>1</sup> they have to contribute to the ongoing coordination and management of the interaction.

For a case study, I here center on the appeal to expert authority. On the theory side, it is a topic often student and taught. Indeed, proper management of borrowed expertise is a central academic skill, and some version of the argument scheme (or fallacy) of expert opinion turns up in most textbooks. On the practice side, public deliberations are increasingly dominated by what

are—or are taken to be—sociotechnical issues, raising pressing practical problems about how to integrate of expert discourse into civic discourse more generally. Climate change, genetically modified organisms, technologies related to human reproduction, nuclear power: all have drawn scientists into heated public controversies, creating new practical problems arguers must address.

*The Sceptics*, a recent televised discussion involving climate scientist Stephen H. Schneider provides an excellent point of entry to examine arguers' conceptions the force of expert authority. Schneider had been a graduate student in 1971 when his team's research suggesting that the earth was threatened by catastrophic climate change (at this point, projected to be global cooling) attracted media attention. As the juniormost member, he was assigned the task of public relations. He found he enjoyed interacting with the reporters, and was good at it. So for the next 40 years Schneider pursued a career integrating excellent academic research, participation in science advisory efforts such as the Intergovernmental Panel on Climate Change (IPCC), and an active program of outreach to the public in many media. In addition to numerous television appearances in serious and more lighthearted venues, newspaper opinion pieces and public lectures, he published a series of popular books on climate change. These public communication efforts were recognized by an award from the American Association for the Advancement of Science and by a MacArthur "genius" fellowship. A highly reflective practitioner, Schneider also wrote frequently about the challenges of communicating science in controversial contexts (for a review, see Russill, 2010). Early experiences as a member of a student-faculty senate during the Vietnam War had taught him to "discover our differing value systems, and then look for a foundation of shared values where we might find a way to live together" (Martin, 2010). Although he claimed to have "hated" his role as a "scientific pugilist," he also appreciated "an honest and open debate," even with those who had fundamental doubts (Snell, 2009).

In 2010, Schneider was in Australia for a conference when he was invited to appear on a public television program to discuss the increasingly divisive topic of climate change. Australia is projected to be particularly vulnerable to global warming, with rising temperatures and more frequent droughts leading to bush fires and water shortages. At the same time, Australia has relatively high per capita carbon emissions and a large, politically influential coal industry. By the time of his visit, climate policy had become a major center of political contention, with the government experiencing substantial backlash against its proposals for emissions trading and a carbon tax. Schneider was a natural choice to be interviewed on *Insight*, a long running program hosted by an award winning journalist that typically featured hour-long discussions of single issues by mixed groups of experts and ordinary citizens. For his part, he explained that he was willing to join the program "because scientists also need to be engaged by helping people understand risk. And when you're in this constant set of combat, then how do we have any chance of talking to each other in a civil way?" So in June Schneider found himself in a university auditorium, facing off against 52 self-described "climate sceptics."

This event allowed a public airing of Schneider's expertise under conditions about as ideal as the real world affords. With his untimely death a month later, it stands as a highly skilled communicator's final achievement. The presence of an audience selected for disagreement made it likely that communicative moves would be called out and their legitimacy explicitly defended

(Philipsen, 1992). Overall, then, we can presume that the discourse in this case represents *good* argumentative practice, and that it can stand as a paradigmatic case of the exercise of authority.

In the following, I start by reconstructing participants' understanding of the social setting in which they found themselves, before identifying two dominant strategies participants used for managing their disagreements.<sup>11</sup> I close with a comparison between theorists' and practitioners' conceptions of expert authority.

*The social context of the appeal to authority*

The show opens with a brief set-up of the issue by the moderator:

M: Man made climate change was once a major public concern but political momentum to address it has waned and the public has become more sceptical. Tonight, an audience of doubters meet one of the world's leading climatologists who will try to win them over.

She then calls on several audience members to briefly announce their views; each expresses doubts about the existence of anthropogenic global warming. This initiates a series of multi-turn exchanges between Schneider and individual audience members on specific science issues, including the extent of recent warming, long-term climate variability, the attribution of climate change to human activity, the accuracy of temperature records, and the impact of climate change on glaciers. All of these are issues familiar from the broader climate debate; Schneider was well-prepared to handle them, and the moderator grants him relatively long turns to do so. A little more than halfway through the program, the discussion goes "meta," with increasing attention to the way climate change is talked about: the expression of uncertainty in IPCC reports, the incivility and politicization of the debate, the failure of climate scientists to distance themselves from environmental advocates, the role of the media in distorting the science, and how to assess the credibility of resources on the topic. The show closes with an audience member asking Schneider to give his personal views on the climate issue. In all, 15 of the reported 52 audience members spoke, with seven participating in more than one exchange.

As the eventual title of the show suggests, the event is framed as opposing Schneider to *The Sceptics*. But in what ways do the actual participants present themselves and recognize each other? For his part, Schneider positions himself as speaking for his "colleagues," whom he variously calls "climatologists, climate scientists, the IPCC," or more generally "scientists" or "the scientific community." Two audience members, by contrast, explicitly identify themselves as *non-scientists*, although without any consistent specification of what they *are*:

Katy Barnett: I'm not a scientist, I can't express any opinion about the science.

M: You're a lawyer.

Katy Barnett: I'm a lawyer, so sue me.

M: But you are the daughter of two scientists, aren't you, and you're married to a scientist.

Katy Barnett: So, yeah.

SS: So you're surrounded.

Jessica Berry: ...those of us who are keen to get past those 5-second grabs that we see on the evening news but are not scientists, are just the everyman...

Several additional audience members implicitly identify themselves as non-scientists by distancing themselves ("I/we") from the scientist group ("you/them"):

David Clark: Yes, you get your media bytes, but I think as sceptics, as, as laymen, as normal members of the public, there's enough information out there for us to seek if we wish to seek it.

Chris MacDonald: Well, it was very interesting hearing you talk just a moment [ago] about, about how scientists like the median, moderate, a moderate tendency. What I find suspicious is that I have not heard...one of these moderately minded scientists come out and hose down the Doomsday scenarios being pedaled by environmentalists and our politicians. I'm not speaking of you yourself, sir, but your industry, your lobbying, the lobby of which you are a part... I would like to hear people in your business admit some doubt... I have never heard one of them stand up and say.... I have not heard one IPCC scientist say that.

Tania Berman: The only reason you're getting grant money is because climate change, the planet is warming, it's the only reason you're getting grant money.

Here the scientists are positioned as a special interest group ("industry, lobby, business") using typical political ploys ("media bytes") to benefit themselves (get "grant money"). The "normal members of the public/laymen/everyman" are the audience for this behavior.

These two groups—which I'll call "scientists" and "laypeople"—also can be distinguished by the way they talk about climate change. Consider first lay talk. The moderator opens the event by asking the audience members, "do you believe in man made climate change?" A series of laypeople then respond with confessions consistently signaled with stance markers, especially "I believe/don't believe" For example:

Sc: Um, ah, I'm not too much of a sceptic but I do believe that, um, climate change is, um, something that, that's happening naturally in, um, in our world. But I do think that it can be implemented by mankind, as in that, what mankind is doing is just accelerating it. So I don't believe that global warming, that global warming is man made, I think that it's natural and that it is, that it does fall in to a climatical pattern.

Here "I think/believe" leads in each assertion—assertions which themselves are uncertainly put forward, as suggested by the hesitations, corrections and unusual word choices. Only one audience member (as we shall see) refuses the moderator's prompt to say what "I believe."

By contrast, the moderator prompts Schneider's first turn by asking not for his "beliefs" but for "the most compelling argument that you can throw back at these people." Schneider then begins by explicitly rejecting "I believe" talk:

SS: I heard the word "I don't believe". Science is not about belief, science is about evidence and therefore your beliefs have to be built upon looking at the whole wide range of evidence.

The visual language of "looking" pervades the rest of his talk; he variously describes scientists as "looking at/over/for" time periods as long as "the geological past" and as short as "the last 50 years"; the space of "the entire globe"; and a "wide range of evidence" including specifics such as "tree rings" and "pollen." And in his accounts of what scientists have seen, Schneider's talk consistently lacks stance markers, with the occasional exception of a "we know" or "in fact."<sup>iiii</sup> Straightforward statements about the world are the norm, as for example:

SS: There's plenty of statistical warming over the last, ah, 15 years. The argument is whether it was quote "statistically significant," which is a particular kind of statistical test that's very stringent. In fact, the last, ah, what are we now, the last—the first half of 2010 is the warmest year ever recorded in the thermometer records. And that, what happened is from 1992 to about 2002 it went up so fast you could have said we were going to hell in a hand basket. Then from about '98 on to about 2009 it was relatively flat.

This sample also includes two other typical features of Schneider's science discourse: quantification and what one audience member calls "technical jargon."

*A first response to the division: An invitation to join the scientific community*

So we find two groups brought together in this event, each with their own typical form of language: laypeople who confess their beliefs, and scientists who look at evidence and report their findings. How are these two groups supposed to interact?

Schneider's first-line approach for dealing with this division is by what I will call a strategy of invitation, attempting to reduce the distance between scientists and laypeople. He accomplishes this in part by following the typical advice given by science communication manuals, and in his own musings on "Mediarology":

I try to use accessible language and metaphors. Scientific jargon is effective for communicating with other scientists, but is often misunderstood in the public arena and increases the probability that a scientist will be "boxed in," misquoted, or, more likely, ignored altogether. For me, metaphors that convey both urgency and uncertainty are best—particularly for controversial cases like the more irreversible impacts of climate change (Schneider, 2009, p. 230).

We saw in the passage quoted above how Schneider when using a technical term explicitly signals its presence ("quote 'statistically significant'") and then immediately pauses to explain what it meant. Elsewhere, he uses "metaphors"—or more precisely, analogies—as when comparing the CO<sub>2</sub> imbalance to a bathtub that is being filled faster than it is being emptied. These methods enable laypeople to join the scientists' conversation, at least in a simplified form.

Supplementing these attempts to bring laypeople up into the realm of scientific language, Schneider goes out of his way to identify the two social groups. He notes approvingly when laypeople begin to act like scientists. "To look over a long period of history"—something "everybody [had] said" over previous turns—Schneider characterizes as "completely legitimate." Similarly, he often starts his turns by praising his interlocutor for asking questions (see Goodwin, forthcoming)—an activity he several times affirms as being particularly scientific. For example:

SS: Yeah, a good question and so does the scientific community....So that very good question that you asked is exactly the same question that climate scientists have been asking themselves for 30 to 40 years.

At one point he even stops to "interrupt myself for a second," to make the identification between scientists and his lay audience explicit:

SS: I am actually very pleased that you're sceptics. There's no such thing as a good scientist who is not a sceptic.

Even as he raises his audience up to the level of science, Schneider also works to bring himself down to the level of the layperson by exhibiting an ordinary person's values and concerns. He stresses that he shares audience members' distress at the loss of "civility" in the public discussion of climate change. After three of them tell stories of the harassment they experienced when they went public with their doubts about climate change, he mirrors their talk by providing his own narrative of getting death threats and other unpleasant emails, including one his son had received that very day. And he closes the event by responding to an audience member who asked:

Jessica Berry: I think it might just be a good way to simplify all the jargon and to put it into perspective that everybody can understand. Knowing what you know and having studied for as you say 40 years, are you afraid? Are you afraid for your grandchildren?

This convenient final question allows Schneider the chance to take on the role of an ordinary layperson (one with "grandchildren") and lay out his personal risk assessments and his own fears.

There are some indications that Schneider's invitational strategy worked—with some of his audience, at least. Towards the end of the show, sceptic Katy Barnett thanks him "for actually engaging in dialogue sensibly and not—basically not demonizing anyone who dares to raise a doubt." And at least a few people raise their hands when the moderator asks if anyone had changed their minds.

But there are other indications that suggest that the invitational strategy has its limits. Several laypeople—especially those who had proclaimed themselves to be non-scientists—spurn the invitation. David Clark, whose self-identification as a "layman" was quoted above, wants to insist on the real question:

David Clark: What makes us believe you over the man that stands next to you? Now we don't have a scientist from the other side because it would have been probably impossible to run the show....And we got that sort of argy-bargy sort of thing. How do we believe you over the others when both argue with credible points?

This layperson is not accepting Schneider's invitation to join the conversation among scientists. He retains the lay language of "belief," here elaborated as a belief in a person instead of in a fact. Others in the audience echo his question by explaining the reasons they *don't* believe scientists: because scientists are biased, because scientists are uncertain, because scientists are only presenting one side, because scientists don't object to extreme, alarmist statements—instead, they make alarmist statements themselves. Two of the most vocal laypeople expressly base their scepticism on non-scientific grounds:

Janet Thompson: I think we've got a fundamental problem in that we are wanting to change our entire economic structure based on the hypothesis that CO<sub>2</sub> is the driver of climate.

Tania Berman: It's only going up a slight amount and yet we're going to change our whole economy over this slight amount [of CO<sub>2</sub>] that's actually helping us.

These speakers do not accept Schneider's invitation to step into the realm of science; instead they hold their place in the political realm and resist any scientific claims that demand "change" to "our entire economic structure."

All of these are raising what the moderator calls "this question of trust." The question of trust maintains a distance between scientists and laypeople; instead of joining scientists in looking at evidence, laypeople listen and judge whether to believe scientists and what they say. Inviting laypeople to join scientists in making scientific arguments will not be effective for dealing with distrust. But Schneider is confident that he can deal with this challenge as well. Replying to David Clark, Schneider characterizes his challenge as yet another "very good question," and proceeds to answer; this leads to the second strategy for interactions between scientists and laypeople: the exercise of authority.

*A second response to the division: the two faces of exercising authority*

Why trust a scientist? Schneider responds to David Clark's challenge:

SS: Very good question. I teach a seminar for freshmen and sophomores called environmental literacy, and how can you discern the quality of an argument? Watch out for the myth busters and the truth tellers. Anybody who's got the answer almost certainly is not credible on a complicated problem. Who's talking in ranges and bell curves and wheels of fortune [is credible]—yes, that's self-serving—I am—and that's because the nature of our scientific understanding—so is IPCC. So I think the best guide for you is when there's a complex problem remember you can break it down into: well established bits where we do have some things that are very likely; competing explanations—like Greenland is melting [more quickly than expected] but exactly why, we don't know why;

and speculative— we really don't know what's the cloud feedback amount going to be. And when people talk like that, they're much more likely to be credible [than] when they tell you that they have, you know, the smoking gun that proves or disproves. Very rarely in complex science is that true.

This response might seem surprising. Scientists are distinguished from laypeople by their ability to make plain statements about the world is, as opposed to confessing "beliefs." But Schneider is advising laypeople to trust *more* when the statements are *less* plain. This is the first side of the exercise of authority: the scientist's modesty in making claims.

Scientific modesty is more credible than scientific absolutism in part because it is an accurate representation of scientific results. Although there are small "bits" that are "well established," Schneider explains, in general when a topic is "complicated/complex," absolute answers cannot be given. By this reasoning, modest reports are more likely to mirror the actual state of the science. But Schneider provides two additional perspectives linking modesty with a scientist's trustworthiness. Both emphasize normative aspects of the scientist's talk.

Scientists, first of all, are normatively required to accurately represent the complexities of the science; it is their responsibility to do so. Schneider explains this in responding to Chris MacDonald, quoted above as complaining that he had never heard a climate scientist admit doubt:

SS: Please read my book, you'll see where I've been doing this for 40 years. And I'm not alone in doing that. I think it would be irresponsible for us to leave out better cases, and it would also be irresponsible to leave out worst cases. It is not a scientist's job to judge whether or not the risks are sufficient to hedge against any of these possibilities. It's only our job to report risk.... I can speak for myself that's exactly what I do. But I can also tell you—and so do most of the colleagues that I respect—not everybody. There are people who understate and there are people who overstate.

Scientific modesty is thus more credible because it demonstrates that the scientist himself is living up to communicative norms. Not only is what he says more likely to be accurate, he is showing himself to be personally trustworthy. Credibility thus comes at a cost: whatever the perspective he may privately favor—however assured may he feel—in public the scientist must conspicuously fulfill the responsibility to constrain his statements.

A second norm requiring modesty from scientists—and indeed, from citizens generally—relates to supporting good deliberations on controversial issues. In response to a question about what online resources are credible, Schneider argues:

I get very nervous about elliptical blogs, those which are so polarized into one or the other, because you—generally they're very good writers and if somebody already pre-believes them they're very exciting, but then again what we lose is a civil dialogue.

"Elliptical" is a word Schneider uses in other contexts as well to refer to the approach of those who dismiss mainstream science; he may mean it in the mathematical sense of "distorted" or "off

center," or in the grammatical sense that something—complexity—is being left out. The media's tendency to strip nuances and frame all disagreement as being between the extremes of climate change as the "end of the world" or as "good for you" he similarly describes as "creat[ing] the polarization" around the issue. So again to maintain his personal trustworthiness, the scientist must conspicuously live up to the norms of "civil dialogue," including by modestly representing the full range of the scientific results.

The sources Schneider puts forward as credible live up to the principle of modesty: the IPCC reports, for example, which he describes as "drip[ping] with caveats." Most notably, Schneider himself repeatedly claims that he follows his own rules. This claim, made in several of the passages quoted above, is borne out throughout his contributions to the discussion. At various points, he admits that methods have limitations ("there are problems with instruments"), results can vary (decadal warming has fluctuated, temperatures are "different in different parts" of Greenland), theories have false predictions (glaciers are melting "more rapidly than any theory has suggested"), and sometimes "you simply don't have the data." He presents the scientific community as sometimes internally divided, noting for example that tree ring data is "controversial" and that "there's often an interesting tension between the people who model and do theory and the ones who measure, the latter group tends to be a bit more sceptical." In his closing statement voicing his own concern, he leads with the "very uncomfortable probability" of "pretty nasty outcomes" ("10%"), but then immediately notes the probability "that there won't be very many nasty outcomes" at all ("10, 20% chance").

In contrast to the modest and therefore credible purveyor of science stand the "myth busters and the truth tellers" who claim to have "got the answer"—the "smoking gun that proves or disproves." Although none of Schneider's interlocutors admit to being "truth tellers," it is worth noting that several do in fact speak in a language of "proof" and "disproof." For example:

Tania Berman: No-one has proven to me that it's man made at all.

Sc: Now the IPCC gives examples of melting of glaciers as a [inadequate] proof that global warming is having an effect.

Each of these suggests that the speaker expects scientists to provide certainty, and demands immodest claims. By contrast, Schneider himself only uses the language of "proof" once, when characterizing a claim that one set of temperature records "disproves global warming" as "ridiculous."

This is the first face of the exercise of authority: to earn trust, a scientist must conspicuously live up to his responsibilities by limiting the strength of his claims and modestly admitting uncertainties, controversies, and outright speculations. Even a freshman in Schneider's seminar can use these indicators to identify more and less credible scientists. But there is a second face as well. Laypeople are themselves subject to limits when they interact with scientists—limits which the scientists have the right to enforce. Three times in his exchanges with *The Sceptics* we find Schneider dismissing what his lay interlocutor has said. Each time the layperson had attempted to speak like a scientist; each time Schneider declares him or her "wrong."

The first instance occurs in the first full exchange of the event, with an audience member who begins by endorsing Schneider's statement that "science is not about belief."

Janet Thompson: Well, I think it's very good that Professor Schneider has started out by saying, "we need to look at the evidence." And I don't think that anybody in this room disagrees with that. The hypothesis that we are currently faced with is that carbon dioxide is the driver of climate change. And throughout history we have proven evidence that temperature has been much colder with higher degrees of CO<sub>2</sub> in the atmosphere than what we have today, and vice versa. Can you—

M: Can I just ask you, Janet, do you believe that the Earth is actually heating up at the moment. Do you believe in, that the warming is occurring regardless of the cause?

Janet Thompson: Well, I don't believe anything, I look at the evidence and the evidence says that we did have warming, yes, we have been in a long-term warming trend the last 15 years, we haven't had no statistical [sic] warming. And so I think that's a problem with this hypothesis. I, I believe that the hypothesis has been shown to be false.

SS: Yeah, okay, that's wrong, sorry—that's not what the evidence says. First of all...

Thompson—who eventually claims more speaking time than anyone except for the moderator and Schneider himself—is clearly trying hard to speak like a scientist. She explicitly refuses to respond to the moderator's request for her to confess what "you believe." Instead, she advances what she calls a "hypothesis," "look[s] at the evidence," attempts to use technical vocabulary ("driver of climate change," "statistical warming"), and makes a series of statements about the world. Her attempts to speak like a scientist are unskilled; early in her statement she demands "proven evidence," she has trouble framing the recent trend correctly, and in closing she slips into talk of "I believe." But far from applauding her efforts to join the scientific community with one of his typical "good questions," Schneider rejects her move. Admittedly he does soften his rejection by starting with an acknowledgement of her turn ("yeah, okay") and by being indirect ("that's wrong" instead of "you're wrong"). But the import is clear: Schneider is claiming the right to say what is and is not acceptable science talk.

Thompson is also Schneider's interlocutor the third time he shuts down further discussion. Breaking in as Schneider is finishing an explanation of ocean acidification, Janet objects:

Janet Thompson: But that's—what—the terminology you are using is alarmist. The ocean is not acidic, it is alkaline.

SS: Yes, that's—

Janet Thompson: And what you're talking about is going from a pH of about 8.2 down to 8.1.

SS: Yeah.

Janet Thompson: So, we have a lot of scaremongering going on throughout the world. And—earlier you said something about a 30% increase in CO<sub>2</sub>. The impact of CO<sub>2</sub> on

temperature is logarithmic—it is not linear—so that 30% doesn't really mean a lot when we've already had a doubling of CO<sub>2</sub> back in the early, early part of the temperature records. So I'm concerned about the general amount of alarmism that is out there and the terminology that is being used.

M: [inaudible]

SS: Can I just quickly answer that? I'm concerned that you're kind of repeating a mantra from what you've heard from discredited information.

Here again Thompson is speaking like a scientist, using quantification and technical vocabulary ("alkaline, logarithmic") in making statements with no stance indicators. And again, Schneider rejects her move, although softening his rejection by surrounding it with a stance indicator ("I'm concerned," echoing Thompson's own politeness device) and ascribing her error to those unnamed people who misinformed her. After insisting on continuing with an explanation of "logarithmic absorption" over interruptions by both Thompson and the moderator, Schneider concludes:

SS: Can I please finish? This is something which for 50 years we have known. This particular calculation with a logarithm has been in every climate model that any competent scientist has done. [It] is already discounted for. And when people try to say that because CO<sub>2</sub> is a logarithmic absorber and therefore it makes no difference, they either do not understand climate science or they're polemicizing. Because it is in absolutely every single model, it has long been accounted for, and it is completely understood.

Schneider is again and even more forcefully claiming the right to speak for all "competent scientists" and to declare what statements are acceptable—a declaration he makes in the closing statement with a classical ascending tricolon ("it is...it has...it is") to rub it in. At a minimum, "people" who say otherwise "do not understand climate science." Or worse "they're polemicizing," intentionally distorting the science and undermining civil discussion in order to score political points. In either case, these "people" (i.e., Thompson) are disqualified from participation; a conclusion the moderator implicitly endorses by calling on another audience member.

In between these two exchanges falls a final example of the sterner face of scientific authority. It begins in typical form with Schneider complimenting the layperson's "question":

Ian Rivlin: I understand that carbon dioxide that man produces is 3% of what nature produces. How can small changes to our production of CO<sub>2</sub> impact upon something as large as the Earth? It seems absurd.

SS: Yeah, no, it's not only not absurd it's absolutely true. But it's a very good question, because what happens is...

Towards the end of Schneider's explanation, the layperson interrupts:

Ian Rivlin: Sorry, sorry to butt in on this. Look, you're not answering the question. I said that we produce approximately 3% of natural production. You haven't really addressed that. You've, you've given some prevaricative answer. I mean—

SS: Perhaps what you haven't understood the answer. What I said is the amount

Ian Rivlin: No, I understood the answer perfectly. You haven't—

After a few more overlapping turns, Schneider comments:

SS: Well, then I don't understand how you could reach that conclusion. I, are you trying to say that we could not have a build up of carbon dioxide over the past century because of the human injection?

Ian Rivlin: Absolutely I am. I'm saying there's homeo—

SS: Oh, then you're totally wrong.<sup>iv</sup>

Ian Rivlin: Then I'm saying there's homeostasis in the Earth

SS: No, you're totally wrong.

Ian Rivlin: that, that small extra production of carbon dioxide would easily be absorbed into.

SS: No, I think you need to study this problem. Let me

Ian Rivlin: I've studied it [inaudible]

M: OK, ok.

SS: Obviously not well.

M: One at a time.

SS: Let me give you an example.

M: Let Stephen, let Stephen respond.

SS: If you have a bathtub....

The moderator having explicitly recognized his right to hold the floor, Schneider proceeds with a long explanation and concludes:

SS: That is completely well established, it's been established for a long time and if you don't accept that you really need to study science. You're just wrong.

Schneider is again disciplining the scientific pretensions of his lay interlocutor. He closes with another tricolon (not quite as well balanced) announcing what has been "established," coupling this with a thrice repeated direct charge that "you're totally wrong" and a twice repeated invitation to "study science."

This then is the reverse face of the exercise of authority. Schneider acts as the gatekeeper of the scientific community. When a layperson tries to speak like a scientist, Schneider has the right to declare them wrong. Acting behalf of the scientific community, he can police the boundary between scientist and layperson. Perhaps the layperson can improve by going off "to study science" for a while; in the meantime, they are reduced to silence.

*Summary and conclusions*

We have seen that participants in this event have two main strategies for managing communication across the divide between scientist and layperson. The first, invitational strategy attempts to reduce the gap by welcoming the layperson to join the scientific community's conversation. The second, authoritative strategy acknowledges the gap; the scientist lives up to his normative responsibilities in order to prove himself credible—but then has the power to silence the layperson if trust is not granted. The first proceeds by identifying the two groups; the second by organizing a transaction between them, exchanging good communicative conduct for trust.

Within the context of this event, the invitational strategy might appear to be slightly dominant; Schneider meets four audience questions about the science with praise, while declaring only three wrong. But it's fair to say (as I've also said elsewhere, Goodwin & Honeycutt, 2009) that even the more friendly exchanges rest on top of an underlying exercise of authority. As noted above, Schneider implicitly performs his part in the authority transaction by the consistent communicative modesty of his explanations. This positions him to demand that his lay interlocutors perform their part, either by granting their trust or at least not openly contradicting him. While he praises lay questioning, he reserves to himself the power to issue answers; a power endorsed by the moderator, who allows him longer turns and gives him the last word in almost all exchanges. The sterner face of authority shows up when a lay interlocutor openly resists such closure and calls out Schneider's statements as immodest ("prevaricative, alarmist"). In those cases, the exercise of authority becomes explicit as Schneider shuts down further discussion. Thus whether exercised explicitly through the power to declare "wrong" or implicitly through trust or enforced silence, authority is what allows exchanges between scientists and laypersons to end. Or at least end short of the scientist helping the layperson achieve the graduate-level education that would allow the identification between the two groups to become complete, thus abolishing the social divide with which this analysis began.

How then do the workings of expert authority as understood by participants in this event compare with theoretical accounts of the appeal to expert opinion? Two broad approaches to authority are evident in the secondary literature. The first is aimed primarily at students and provides low-level, practical tips for assessing information sources. Textbooks and similar resources contain long lists of factors to be considered: everything from the source's verifiable expertise to whether the source is recent, well edited, and has a good bibliography (reviewed in Goodwin, 2011b). The specific sources of information to which Schneider directs his audience would pass these tests: IPCC reports, the US Environmental Protection Agency, university websites, and of course himself. But when he is asked to explain why he is trustworthy, he makes explicit only one cluster of factors—those here called "modesty." Many aspects of modest communicative behavior fail to turn up on the standard lists: the presence of doubts, uncertainties and limitations in a source, in contrast to "truth telling" and "myth busting." And one aspect turns out to be in tension with the standard academic account. The standard account generally takes the existence of disagreement among experts as a sign of unreliability; no one of them can give an indisputable answer (e.g., Walton, 1997). By contrast, for Schneider revealing disputes within the expert community is a sign of trustworthiness, since making such a potentially embarrassing admission shows that the speaker is living up to his communicative responsibilities.

At the other end of the spectrum, the scholarly literature offers abstract reconstructions of the underlying logic of the argument scheme called "argumentation from expert opinion." Wagemans' recent work (2011) provides a useful integration of existing proposals. Putting the conclusion first as is customary among pragma-dialecticians, his analysis runs:

- 1 O [what the expert said] is true or acceptable[, because:]
  - 1.1 O is asserted by expert E[, which is true because:]
    - 1.1.1a E is an expert in the relevant field F.
    - 1.1.1b Source S proves that O is asserted by E.
  - 1.1' [And] Accepting that O is asserted by E renders acceptable that O is true or acceptable[, because:]
    - 1.10.1a E is personally reliable.
    - 1.10.1b E is able to provide further evidence for O.
    - 1.10.1c O is consistent with what other (types of) experts on F assert.

The thick account of expert authority developed in the present discussion at a minimum demonstrates how much discursive work is required to accomplish what the theorist so briefly calls an "assertion by expert E," and how that work also serves to render "acceptable" what is said. From the participants' point of view, the transfer of epistemic goodness from expert to O is less prominent than the complex social transaction through which this O is offered. As Collins and Evans have put it, the layperson interacting with the expert is focused on "making *social* judgments about *who* ought to be agreed with, not *scientific* judgments about *what* ought to be believed" (2007, pp. 47-48). To justify the layperson's social judgment the expert undertakes and conspicuously fulfills communicative responsibilities in putting forward O—that is, as I have put it elsewhere, the expert offers a "bond" (Goodwin, 2001, 2010, 2011a; Goodwin & Dahlstrom, 2013). If the lay person finds this bond credible, he trusts the expert and accepts O. If he does not, the expert retains a power to "blackmail": a power to declare anything that conflicts with O to be wrong. Such a declaration makes it costly for the layperson to say anything that goes against O; with the layperson unable to openly disagree, the expert's O becomes treated *as if* it were accepted.

Like other social resources we are willing to call authority, expert authority both empowers and constrains the one who exercises it. But these nuances are stripped away in the standard theoretical reconstruction. The argument scheme is not so much wrong as missing the point—a point clearly visible to the participants who are deploying it and having it deployed on them.

All but the most formal argumentation theories have at least some orientation towards argumentation practice—at least some vulnerability to empirical evidence. In this essay, I have aimed to show what can be gained for argumentation theory by being loyal to arguers' own conceptions of what they are doing. I have attempted to fulfill this loyalty by giving a more complete articulation to the partially-voiced workings of participants' abilities to exercise and respond to expert authority in one particular case. I have tried to organize disparate bits into a more comprehensive account and have begun to ground (or perhaps better triangulate) the account by linking it to other cases and other theoretical perspectives.<sup>v</sup>

Am I proposing a purely descriptive approach to the study of argumentation? On this question, the francophone and anglophone traditions divide, with North Americans largely saying "no" in contrast with their colleagues on the other side of the Atlantic (Doury, 2013c). It may be that this divergence is driven largely by our social positions. Like many argumentation theorists in North America, I earn my daily bread by teaching young people to be "better" arguers; in the long run, this only makes sense if I am willing to admit that "better" is, well, better. More generally, as Robert Craig has argued, I take argumentation theory to be a "practical discipline," that is

a relatively coherent intellectual-professional enterprise, the essential purpose of which is to cultivate a field of social practice.... A practical discipline 'cultivates' a practice by engaging with the community of practitioners in a reflective discourse. If we think of ordinary practical reflection as a discursive process cycling to and fro along the Theory-Practice continuum, then "Theory" (conceptual thought) and "practice" (situated action) can be understood as moments within this process; and a practical discipline can be defined as a formal, scholarly enterprise that attempts to extend, facilitate, and inform this reflective cycle of thought and action by engaging in systematic, critical study and theoretical reconstruction of practices in society' (Craig, 1996, p. 468; citations omitted).

Theorizing argumentation may fall towards one end of the theory-practice continuum, but it remains on the continuum. So argumentation theorists aren't anthropologists visiting among an exotic folk; they are natives, too. Just rather odd natives who, through time-consuming study and multiple, painful initiations, have become the shamans of argumentation.

This might seem an arrogant claim. Does a shaman of argumentation have any privileged position on (for example) the controversy over climate change? Could we "militantly" declare the winner? There are practical problems with militancy; shamanic ceremonies tend to take quite a while, for example, and many debates are over by the time we could be ready to pronounce.<sup>vi</sup> Further, even presuming that argumentative interactions are supposed to produce right answers (and I would not), finding those right answers is unlikely to be straightforward. As the participants themselves recognizes, *The Sceptics* was just one moment in a larger process of public deliberation on climate change. So a power to pronounce authoritatively on single events gives argumentation theorists no very exalted status. Instead, I believe, we have modest roles: a modest role in cultivating the kinds of interchanges we study, and a modest role in looking at argumentative interactions with curiosity, willing to be surprised at what we find happening there.

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<sup>i</sup> Thus participants' folk theories are unlikely to suffer from the inflation problem that has developed in argumentation theory, where it seems that  $N_{theories} = N_{theorists}$ .

<sup>ii</sup> Quotations from the show's transcript (Insight SBS, 2010) have been corrected from the video of the event (Insight SBS, 2011). Individual audience members are identified by name in the transcript, and passages here are attributed to anyone quoted more than once; otherwise, audience members are identified as "Sc." Moderator Jenny Brockie is identified as "M," and Stephen Schneider as "SS." Emphasis has been added.

<sup>iii</sup> Schneider was addressing laypeople; stance would likely have been more heavily marked had another expert been on stage with him (Doury, 2010c).

<sup>iv</sup> This sequence was selected by the producers to be the teaser for the program; a good example of the media's tendency to highlight conflicts over consensus on sociotechnical issues.

<sup>v</sup> I believe it is also possible for argumentation theorists to critique: critique both specific performances for failing to live up to norms and more general practices for not instantiating the appropriate norms. The case of Schneider and *The Sceptics*, however, was selected because it was presumptively *good* practice, and I do not think that anything in the analysis has suggested otherwise.

<sup>vi</sup> I'm thinking of slogans such as "the owl of Minerva flies out at dusk," or "the speed of science is always less than the speed of politics" (Collins & Evans, 2002).