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Sophistical refutations in the climate change debates

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A case study of a short televised debate between a climate scientist and an advocate for climate skepticism provides the basis for developing a contemporary conception of sophistry. The sophist has a high degree of argumentative content knowledge – knowledge of a domain selected and structured in ways that are most germane for its use in making arguments. The sophist also makes the deliberate choice to argue for a disreputable view, one that goes against the views of the majority, or of the experts. Sophistry, drawing as it does on argumentative skill, is difficult to manage. The best approach is likely to refuse debate; but if debate is unavoidable, then the sophist must be met with equal skill. It will be hard to develop such skill, however, as long as the sophist's view is thought to be disreputable.

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Comprehensive, unbiased assessments of the relevant science have been telling us that "warming of the climate system is unequivocal… Most of the observed increase in global average temperatures since the mid-20th century is *very likely* due to the observed increase in anthropogenic GHG concentrations" (Intergovernmental Panel on Climate Change, 2007).

Nevertheless, in the public sphere debates continue. This gap between the science of and civic controversy over the existence of anthropogenic global warming suggests that some sort of argumentative abuse is going on; the controversy appears to be "manufactured" (Ceccarelli, 2011). Presented with such a gap, we commonly suspect the presence of *improper arguments* or *procedural misconduct* – in other words, of fallacies. In this paper I aim to extend both our theories of argumentation and our understanding of the climate debates by directing attention instead to the *arguer* and his *activities*. Revivifying the classical concept

"sophistry" provides a new lens with which to view the interminable debates over climate science and to identify approaches for managing them.

Charges of sophistry were first made against teachers and thinkers in ancient Greece as a way to express a negative judgment of their (alleged) method, in contrast with the (purportedly) preferable approach of the philosophers. Sophistry appears to remain an available "possibility of culture" (Olivier, 2007) or interactional practice (Liberman, 2008) within any community that takes arguing as central. From the tradition well traced by scholars in a variety of disciplines (Gore, 2011; Hawhee, 2002; Van Laar, 2010; Whedbee, 2008) we can get a sense that the sophist is a deft and shrewd arguer. He takes up outrageous positions, perhaps for pay, and crushes his adversaries in argumentative combat – or at least, *appears* to crush them, with some combination "of bluffing and persuasion" (Liberman, 2008).

Climate controversies provide a fertile field for the sophist to cultivate and thus an excellent site for studying sophistry. As is evident from other contributions to this special issue, climate controversies sprawl across fact, value and policy issues. They are polylogic (Rodrigues, Lewiński & Uzelgun, 2019; Lewiński & Aakhus, 2014), embracing an indefinite number of parties with partially competing, partially overlapping points of view (Lewiński & Mohammed, 2019). Both these factors put a premium on a particular type of skill: that of getting one's favored issues raised, defended and heard in the midst of an argumentative "fog of war." As we will see, the intersection of technical and political spheres on climate issues also provides opportunities for the sophist to exploit. Science can occasionally provide a degree of certainty challenging the ordinary political sense that issues never really close. At the same time, political arguers can find it tempting to seek shelter for their standpoints in science, even when it relies on choices of uncertain scenarios and models that even the modelers may not fully understand. The sophist, dedicated to finding uncertainty in things that others take as certain, is well equipped to exploit friction between the two spheres.

In this paper, I proceed inductively by following a sophist in action. I begin with three starting points: the commonsense view of sophistry sketched above, a diagnosis that professional climate skeptic Marc Morano is a sophist, and an observation that he trounced climate scientist and experienced science communicator Mark Maslin in a short televised debate. After a brief introduction to the sophist and the debate, in Section 2 I use close textual analysis (Leff, 1986) of the interchange to explain how Morano managed to defeat a knowledgeable and skilled scientist. This analysis is used as the basis for articulating a conception of sophistry in Section 3. As we will see, the sophist possesses two characteristics. First, he has a knowledge of climate content (science, policy, politics, positions) specifically adapted to fluently invent, organize and deploy arguments. Second,

he has a relish for disagreement that allows him to take even consensus scientific positions as open to question. I close by surveying the available means for controlling sophistry. The primary advice must be: don't debate a sophist – a choice the scientist was not offered here. The alternative is to become as skilled as he is, and as tolerant of disagreement. But in that case, the sophist may turn out to look not so outrageous after all.

1.   Starting points

1.1   Scene and dramatis personae

The debate that will be the focus here occurred during the December, 2009 United Nations Climate Change Conference (the "Copenhagen Summit"). The fourth Intergovernmental Panel on Climate Change (IPCC) report, quoted above, had established that climate change was "unequivocal." With the recent election of a less intransigent administration in the US, the Summit was expected to produce a binding framework for international climate policy. Activist organizations from around the world had mobilized to ensure success. But the Summit was fractious from the start. The recent release of the Climategate emails had revealed backstage maneuvering by scientists. Competing demands from diverse blocks – countries with developing economies, small island states – derailed the proceedings. At the last minute, frantic negotiations among a small group produced a non-binding, symbolic text that despite its weakness failed to receive majority approval.

On a Saturday morning partway through the ten-day summit, Sky News arranged a five minute joint interview between our two protagonists, Marc Morano, on the ground in Copenhagen, and Mark Maslin, in studio in the UK ([videoScribble], 2009).

Maslin was Director of the Environment Institute at University College London and a much-published scientist with research on both physical and social aspects of climate change. He had maintained an active program of public communication on climate issues across diverse media, including his frequently reprinted 2004 *Very Short Introduction* to climate change (Maslin, 2004).

Morano had begun his career in various right-wing media outlets in the US. After a stint as communications staffer for conservative Senator James Inhofe (of snowball on the Senate floor fame), he had recently started *Climate Depot*, a one-man clearinghouse for climate news (or "climate entertainment," Richardson, 2010) catering to a skeptical audience. This text-heavy website aggregates content from sources on all sides of the climate debates. Posts are often simply

direct links, with pro-climate-action sources headlined to emphasize aspects that skeptics find ridiculous.

Morano has been labelled a sophist for his willingness to debate settled climate science (Glassman, 2015). Maslin had not in fact been warned that he was going up against him (Personal Communication); if he had been, he presumably would have declined. Nevertheless, despite his knowledge and experience, once tricked into debating, Maslin was dominated by Morano. How did this happen?

1.2   Dénouement

This five-minute segment would join in oblivion the thousands of others produced by dozens of news organizations over the ten days of the Copenhagen Summit were it not for one thing: Morano, a blogger, defeats Maslin, a climate scientist and science communicator, in argumentative contest. Before a close analysis of *how* Morano managed this, I want to start at the end, establishing *what* Morano did – just what it means to say that Morano won. So here is Maslin's final turn: the fourth in the part of the exchange with Morano focused on climate science, and just before the interviewer closes the discussion:

(4)   **Maslin:** Absolute rubbish.
         You know, I've been, I've been having this debate for the last twenty years.
         The key thing is every single intelligent person, every key politician in the world, listens to the key scientists, they actually look at the data.
         And you've quoted Jim Hansen. Jim Hansen may want Copenhagen to fail for some reason. But are you actually taking a liberty? Jim Hansen actually said, this is the most important thing on the planet, and we have to deal with it.
         And actually American coal and Chinese coal is the biggest problem.
         I'm sorry! Your ideas of the science is wrong are completely false. And you're actually spinning![1]

Consider the various reasons why this passage is an argumentative train wreck.

The dialectician will see here a clear and inappropriate attempt to shut down disagreement. Maslin opens in apparent exasperation by noting that he's been debating the issue for twenty years, implying that it is time to stop. Continuing an appeal to the authority of "key scientists" that he began (as we will see) in his previous turn, he declares his adversary's standpoint to be "absolute rubbish," "completely false," a product of "spinning" that does not deserve respect. He couples his

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1.   The debate is transcribed from YouTube video, eliminating influencies and participants' attempts to interrupt. Indentation is used to suggest possible argument structure.

demand for closure with an only slightly indirect ad hominem attack on his adversary as not an "intelligent person."

Add to this the perspectives of an informal logician on weakness of the two arguments Maslin does offer. Morano had at the very beginning of the segment quoted noted "NASA scientist James Hansen" as saying that "he hopes [the] Copenhagen [Summit] fails." Maslin's quite late refutation here points out (correctly) that Morano is taking the words out of context, but then proceeds to give only a vague and unsourced paraphrase of Hansen's real view. Similarly, Maslin's very large claim that coal from two countries is "the biggest problem" remains unsupported, as well as being irrelevant to any point previously raised in the debate.

Finally, a rhetorician would rate poorly Maslin's style and delivery. Maslin unnecessarily hedges his arguments, undermining their strength. For example, he speaks as if he does not recognize the quotation from Hansen ("may"), and phrases his refutation as a question ("are you taking a liberty?" – yes, Morano is!). In the video, Maslin appears heated and flustered. The impression of agitation is reinforced by verbal influencies, including the over-repeated "actually" and several syntactical errors ("American coal and Chinese coal is…" "your ideas of the science is wrong").

Contemporaneous commentators were well justified in giving this round to Morano. Science communicator Randy Olson rated it a "KO [knock out]" (Olson, 2010a), and an *Esquire* magazine profile of Morano deemed it a "slaughter" (Richardson, 2010). So, what did Morano do to get Maslin into this condition? Can Maslin's poor showing be justified or excused by abusive argumentative behavior on Morano's part? Let's examine what Morano did to bring Maslin to this point.

2.   Maslin v. Morano

2.1   Morano frames the issue – and Maslin accepts

The discussion was not fated to end up in mud wrestling over the existence of human-caused climate change. The Sky TV interviewer begins the segment with a very open question "Copenhagen [Summit], is it worth it, do you think?" – while also squeezing the answers into only two possible perspectives: YES, represented by Maslin on the left of the screen, and NO represented by Morano on the right. The interviewer then prompts Maslin to focus on "your big issue…the developing countries" – in other words, the need to find a fair approach that would allow nations like Bangladesh to improve standards of living while also decreasing CO_2

emissions. Maslin starts the debate by developing a substantial, value-based argument on the topic. Morano responds by (ironically) taking over a voice in the polylogue that isn't present, characterizing Maslin's progressive stance as "neo-colonialism" against "people of color." He quotes a source adverse to him, climate scientist James Hansen, hoping for Copenhagen to fail. And he ends his turn by tossing down a gauntlet against climate science:

> **Morano:** …as the scientific case for man-made global warming collapses in data and in peer-reviewed studies.

At this point, Maslin refuses to pick up this gauntlet:

> **Maslin:** Well I have to say that I have to disagree because the science is very strong and we know that. Throwing out that as a last bit of your argument seems to be a bit weak.

Instead, Maslin returns to his value-based argument, responding to Morano's critique of his policy for the developing world. Morano replies:

(1) **Morano:** Right. So what Professor Maslin's arguing is these climate models should *scare* everyone.

and then continues with an extended attack on climate science, to be examined in the next sections. Morano is here completely mischaracterizing Maslin's argument; Maslin had said something about the "developing world," but nothing about "climate models." Does Maslin again refuse the debate? No. He engages.

Changing the subject is a traditional strategy of political argumentation (Zarefsky, 2014). Aristotle identifies it as a typical "sophistic turn…whereby we draw our opponent into the kind of statement against which we shall be well supplied with lines of argument" (*Top.* 2.5; also *Soph. El.* 12). But it takes two to make an issue – both side have to take the topic as worth arguing (Goodwin, 2002). The interviewer did not force the scientific issue – indeed, he did not intervene in the exchange between his first prompt to Maslin thirty seconds in and his cues to bring the discussion to a close at around the five-minute mark. Morano could only wave a red cape. Maslin could have again dismissed Morano's attack on the science, and even scored some points by characterizing it as an attempt to distract from the real, value issues – what climate policies would be effective and just. It was Maslin's choice to charge at the red cape and position climate science as the central issue for the remaining discussion.

2.2   Morano refutes his adversary

Framing the issue creates the overall terrain over which the arguers will contest; let us now examine how each arguers' moves position Maslin for ultimate disaster. There are three extended turns leading up to Maslin's final statement, beginning with Morano's:

(1)   **Morano:** Right. So what Professor Maslin's arguing is these climate models should *scare* everyone –

    the climate models which violate 71 out of 89 principles of forecasting, according to the experts;

    climate models that the UN says aren't predictions but merely emissions scenarios;

    climate models that are used to fulfill a political narrative

when real-world data's failing.

    Sea level's not showing the acceleration – the Netherlands World – Meteorological Society said this.

    One scientist said that if global, that if sea level's rising due to global warming, no one's bothered to tell sea level.

This is two appeals that Professor Maslin has:

    appeal to authority, the UN,

        which Climategate thankfully has exposed,

    and climate model scares of what could, might, may happen

        based on, you know, speculative models which again, violate the basic principles of forecasting according to the top forecasting experts.

We have already noted the mischaracterization with which Morano starts – Maslin had not in fact mentioned "climate models." We can now see that Morano ends the same way, since Maslin had not yet made an "appeal to authority" or mentioned the IPCC (i.e., "UN") either. Morano also here deploys an argumentative technique called the Gish Gallop, or in American debate lingo, spreading. If unrefuted arguments are considered to be conceded, there is a strong incentive to make as many arguments as possible, hoping that some will slip through the cracks. And as Aristotle commented, adversaries will find long arguments delivered quickly hard to keep track of (*Soph. El.* 15). Depending on how one would want to diagram Morano's turn, he is making at least two main lines of argument – the weakness of climate models and the lack of empirical data – each supported with at least two pieces of evidence; quite a lot to squeeze into 45 seconds of talk.

    Maslin's response ignores almost all Morano's points:

(2) **Maslin:** This is a wonderful bit of spin, because again, none of the science has
been actually changed.
> If you look at the IPCC report, 5,000 leading climate change scientists put
> together all the leading science together.
> And if you actually look at Climategate, the Climategate was about
> whether climate 2000 years ago ties up with the last 150 years.

[Global temperature increase]
> Actually, if you look at the evidence, temperatures have been rising for the
> last 150 years.
> If you look at this week the World Meteorological Organization and the
> Met Office showed that this decade is the warmest we've ever recorded.
> This year alone is the fifth warmest year.

[Sea ice]
> If you look at the satellite data, sea ice has been retreating.
> 2007, you could actually take a supertanker from the Atlantic all the way
> to the Pacific for the first time in human history.

Why do you not believe, why do you not believe the science? Why are sud-
denly are scientists lying to you?

Maslin starts as if he had in fact previously made an appeal to authority, defending
the IPCC report against Morano's attacks by quantifying the number of scientists
involved and arguing that Climategate was irrelevant to its soundness. But he fails
to offer any refutation of Morano's points about the potential weakness of climate
models and the data about sea level rise. Instead, he responds with a bit of a Gish
Gallop himself, offering two new points about increasing temperatures and the
retreat of Arctic sea ice, each expressed through two pieces of evidence. All of
Maslin's arguments – the number of scientists involved in the IPCC, the irrele-
vance of Climategate, global temperature trends and arctic sea ice – were standard
talking points at the time. All, for example, were mentioned by IPCC head Rajen-
dra Pachauri in his opening remarks at the Copenhagen Summit (C-SPAN, 2009).

Gish Gallops such as Morano's are often thought to be an unfair tactic, since
it is difficult for anyone, and perhaps especially a precision-oriented scientist, to
respond effectively to a large number of weak points within a limited amount of
time. So perhaps Maslin's failure to refute Morano can be excused? Unfortunately,
Morano's next turn shows that it is indeed possible to respond to a large set of
arguments, even under time constraints:

(3) **Morano:** Let's go one at a time.
> The, the sea-ice tanker they used satellite monitoring and they had Russian
> ice-breakers breaking up the ice.
> If you go through it, 2007, we've now gained the size of one and a half
> Texases in the Arctic in the summer.

>   Antarctic sea ice is at a near record sea-ice extent, they had the record
>   summer of sea ice.
> Why isn't the professor talking about that?
>   Yes, temperatures have been rising since the end of the Little Ice Age. That
>   proves nothing.
>   Peer-reviewed journals science has said the twentieth century was not
>   anomalously warm.
> You can't get away with this professor.
>   Climategate has shown it.
>   And your idea that 5,000 UN scientists? – you need to apologize and
>   retract that immediately. The biggest number you can come up with if you
>   include delegates is 2,800.

Notice that Morano responds to each of Maslin's points, in nearly exact inverse order. He undermines the Northwest Passage example, provides two pieces of counter-evidence to sea ice retreat, admits an upward temperature trend but denies its significance (he likely would say that it is due to natural causes), provides counter-evidence against the claim of unusual warming, repeats his charge about Climategate, and objects to the number of scientists Maslin had claimed. It is at this point that that Maslin labels everything Morano has said as "absolute rubbish," and proceeds with (4), his final turn.

At a minimum, Morano's turn (3) is a demonstration that it was *possible* for an arguer to engage closely a complex set of points about climate science within a short time frame. Part of Morano's success seems to be due to his preparation: he appears to have had a good idea about what Maslin was likely to say, and had refutations at hand to meet those points. Indeed, Morano explicitly claims this in the final turn of the debate, where he talks over the interviewer trying to end the segment in order to repeat his point about the number of IPCC scientists and echo his original idea of a climate "scare":

(5) **Morano:** Matt [the interviewer] – check out the claim of 5,000 UN scientists. That is a bald-faced…error. The professor needs to retract it. There is no 5,000. And interestingly a few days ago you [Maslin] said 4,000. Why not just say 100,000? You gave it away sir when you said "key scientists." It's a small cadre, only 52 UN scientists signed the treaty. Peer reviewed studies are showing the scare is ending.

2.3 Morano provides support

So Maslin seems to have gotten off balance in trying to refute Morano. But perhaps we should not judge his performance too negatively, because we might think that Morano's points were spurious and didn't deserve refutation. In the debate,

Maslin assesses his adversary's arguments in increasingly harsh terms as "a bit weak," "a wonderful bit of spin" (2), and finally as "absolute rubbish…completely false…actually spinning" (4). Unfortunately, Maslin probably can't use the weakness of Morano's evidence as an excuse to refrain from responding.

First, the standards of premise quality applicable to an interaction like this set a low bar. So it would be a misjudgment for either side to object too strongly to poorly supported arguments. There is no doubt that arguments on both sides were relatively weak. Morano's example of sea ice in the Antarctic was not relevant to the question of Arctic sea ice, which is likely what Maslin had meant in (2) – although note that Maslin had opened the way for Morano by leaving the hemisphere unspecified. Maslin's example of the tanker going through the Northwest passage is likewise weak: an illustration that while vivid doesn't have much weight in demonstrating long-term trends. But as David Zarefsky has explained, the "messy," "unregulated" and "loosely structured" nature "of political argumentation dictate wide latitude for the arguers" (Zarefsky, 2014). There are likely only two possibilities in a five-minute segment exploring the vast issues of climate science: relatively poor arguments, or no arguments whatsoever. That an arguer might be "actually spinning" should hardly be cause for surprise.

Further, Morano's points are not all *conspicuously* bad – that is, bad in ways that an auditor of the debate could immediately spot and assess. If anything, Morano actually shows a degree of care in citing evidence. He positions his facts as having come from sources – "experts, one scientist, top forecasting experts, peer-reviewed studies." And he helpfully provided links to those sources the next day on *Climate Depot* (Morano, 2009). By contrast, with three exceptions (reports by the IPCC, WMO and Met Office), Maslin tends to assert evidence directly. Perhaps he was claiming his right as a scientist to be able to testify to them himself; perhaps he simply didn't have the sources at his fingertips. Either way, the way he presents his evidence doesn't help his audience assess it.

Even had Maslin been more able address the details of Morano's case, he would have found it difficult to reject outright all his evidence. While Morano does draw from non-peer-reviewed materials (e.g., skeptical blogs), he also uses evidence from what Aristotle called "the views of those whose words and actions his adversary admits to be right" (*Soph. El.* 15; see also Goodwin, 2005). According to interviews, Morano himself recognizes this as one of his primary strategies: "'Don't quote the skeptics…Use the words of [your adversaries'] fellow scientists….*Use their words*'" (Richardson, 2010). Put in more argumentation-theoretical terms, Morano draws in part from Maslin's own commitment stores: peer reviewed publications in reputable journals and statements by leading climate scientists.

Along the same lines, some of Morano's points are exploiting weaknesses opened by Maslin, who thus only has himself to blame for making them relevant. This is another strategy Morano claims: he believes that some of his adversaries are "giant pompous balloon[s] waiting to be popped" (Olson, 2010b), and that his responses to them are justified attempts to rein in their hype (Parsons, 2017). For example, the number of scientists involved in the IPCC report – the issue which occupies the end of the debate – might look to be a mere quibble. That's plausible – except that by then Maslin indeed had made an appeal to the authority of the IPCC and had strengthened his claim by asserting a specific number of scientists.

And finally, even assuming Morano's entire case was spurious, it is still up to Maslin to press that criticism within the debate itself. But Maslin fails to make the charge. Consider each arguer's metadiscursive commentaries on the other's arguments:

> **Maslin:** "Throwing out that as a last bit of your argument seems to be a bit weak."
> "This is a wonderful bit of spin."
> "Why do you not believe, why do you not believe the science? Why are suddenly are scientists lying to you?"
> "And you're actually spinning!"
>
> **Morano:** "So what Professor Maslin's arguing is these climate models should *scare* everyone."
> "Why isn't the professor talking about that?"
> "You can't get away with this professor."
> "You need to apologize and retract that immediately."

Maslin's charge that Morano is "spinning" is a weak way to put the matter. Maslin tries to make Morano to answer for his arguments. But against Aristotle's advice he phrases his charge as a question (*Top.* 8.2) and directs the question to Morano's mental state ("why [he] do[esn't] believe?" – which Morano would likely be happy to answer), as opposed to the truthfulness or relevance of what Morano has said. By contrast, Morano directly accuses Maslin of suppressing or distorting evidence, and makes a direct demand for retraction.

2.4   Morano maintains composure

We've seen that Morano does a better job responding to his adversary and mustering support. It's also the case that he is superior in managing the presentation of his case – conveying his arguments and managing his interpersonal interactions, with both precision and flair.

Compare, first, the argumentative indicators used by each debater. Morano starts and ends (1) with clear statements of his overall standpoint. He marks off

specific arguments with a nice anaphora ("climate models…"). In (3) he starts by warning his audience that he's going to be going "one at a time," and then responds to each of his adversary's points with (mostly) strong declarative sentences in "last in, first out" order. Maslin, by contrast, in (2) piles up his points. He does start and end (2) by contrasting the science and scientists with his adversary's "spin" and disbelief. But in between he gives no further indicators, beyond using "if you look at" to mark most points, regardless of their depth in the argument structure. In both (2) and (4) "actually" also seems to be more a verbal tic than an indicating device.

A similar disparity marks Maslin and Morano's facework – their verbal management of their relationships with each other and the moderator. In (1) Morano maintains the decorous fiction that he is addressing the (invisible and silent) moderator, speaking of Maslin in the third person and with a formal title as "Professor Maslin." He also characterizes what Maslin is doing in respectful terms, referring to it as "arguing" and "appeals." He begins (3) by similarly focusing on the points not the person, again making a third person reference to "the professor." At the end of (3), Morano does become more aggressive, demanding retraction; still, he continues to address Maslin with his title. In (5) he mixes both forms of address – both calling on the moderator to check Maslin's claim, demanding "the professor" retract it, and finally directly addressing "you." Even then, however, he mitigates the attack by addressing Maslin as "sir," and pulls back from characterizing him as a liar, characterizing what Maslin has said as "a bald-faced, unh, error."

Compare Maslin. In his initial refusal to debate the climate science and the beginning of (2) Maslin criticizes Morano's conduct without mentioning the man explicitly. But at the end of (2) he expresses incredulity directly to Morano – "why do you not believe?" And the entirety of (4) addresses Morano as "you," charging him with speaking "absolute rubbish," presenting "completely false" ideas, and "actually spinning!", with no softening through titles or other respectful modes of address.

Interpretations of nonverbal behavior can be subjective. But the moderator's closing assessment seems accurate:

> **Moderator:** Marc Morano in Copenhagen, Mark Maslin here in the studio, a very robust debate here. It will continue of course, but thank you both very much for putting either side of the debate for us.

Figure 1.

Despite the "robustness" of the interaction, Morano remains smiling (or smirking) throughout. As shown in this image (Figure 1), Morano gives an especially big chuckle when Maslin with apparent arrogance insists that "every single intelligent person" is on his side.[2] Maslin is unsmiling throughout, and by the end seems heated, even angry, and flustered – in short, seems like a person who knows he's been bested in debate. And as Aristotle commented, an arguer who gets annoyed when he can't adequately answer looks bad (*Soph. El.* 16).

3.   Sophistry: A conception

Aristotle was perhaps the least biased observer at the origins of sophistry, and we have already seen him to be useful in tracking Morano's approach. We can start developing a contemporary conception of sophistry by elaborating his remarks. The sophist, Aristotle tells us, does not differ from the good arguer in his capacity, but in his deliberate choice (*Rhet.* 1.1). In the following, I discuss in turn the sophist's capacity and his choice, before closing with remarks about how the sophist might be managed.

3.1   The sophist's capacity

By the end of the debate, Maslin was reduced to disconnected points, unintended insults, and incredulity that Morano could even be defending his standpoint. Morano has driven Maslin close to the state Aristotle called "babbling" (*Soph. El.* 3). What enabled Morano to do this? Let's start by eliminating some possibilities.

We can't say that Morano, with undergraduate training in political science, *knows* more about climate change than does Maslin, an eminent and well-respected professor of physical geography. Nor is it obvious that Morano, a journalist and advocate, would turn out to be superior to a scientist in *argumentation skills*, whether measured by a critical thinking test or an assessment of ability to engage in argumentative transactions (e.g., Kuhn & Udell, 2003). Indeed, Maslin had been developing the case for anthropogenic warming in a variety of media for years, and was certainly a highly skilled arguer.

Instead, Morano demonstrates throughout the interaction that he has a knowledge of climate science that is better adapted for the specific purpose of debating climate science in the public sphere. His appears to be a domain-specific knowledge, structured in ways that allow him to quickly identify potential issues,

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2.   As additional support: everyone who has interviewed Morano reports him to be the kind of person that it'd be fun to have a beer with; see e.g. Olson, 2010; Bauman, 2018.

open lines of argument/refutation, and adduce relevant, acceptable evidence supportive of his standpoint.

Argumentation theorists can borrow a conception of such domain-specific knowledge-for-use from educational theory. Lee Shulman writing in the 1980s identified "pedagogical content knowledge" (PCK) as a key capacity of the expert teacher (Shulman, 1986, 1987). Reacting against standards for teacher education and certification that stressed "generic" teaching techniques that could be layered on top of separately-acquired subject-matter knowledge, Shulman drew attention to a "particular form of content knowledge that embodies the aspects of content *most germane to its teachability*" (Shulman, 1986, p. 9). Such PCK includes "the most useful forms of representation of…ideas, the most powerful analogies, illustrations, examples, explanations, and demonstrations – in a word, the ways of representing and formulating the subject that make it comprehensible to others" (ibid.). It also includes an inventory of learners' most common misunderstandings of particular content, together with effective approaches for addressing those misunderstandings. PCK thus is

> that special amalgam of content and pedagogy that is uniquely the providence of teachers, their own special form of professional understanding … Pedagogical content knowledge … identifies the distinctive bodies of knowledge for teaching. It represents the blending of content and pedagogy into an understanding of how particular topics, problems, or issues are organized, represented, and adapted to diverse interests and abilities of learners, and presented for instruction. Pedagogical content knowledge is the category most likely to distinguish the understanding of the content specialist from that of the pedagogue.   (Shulman, 1987, p. 8)

By analogy, skilled arguers such as Morano may be said to possess *argumentative content knowledge* (ACK) – knowledge of a domain selected and structured in ways that are most germane for its arguability in a range of settings. ACK allows the arguer to transform content knowledge into argumentative representations (e.g., issues, arguments/refutations, evidence) and then to select appropriate devices from a presentational repertoire to embody these representations in discourse (e.g., argumentative indicators, patterns of organization), all in ways well adapted to the audience (e.g., their conceptions, interests, attention span). It is the *argumentative* content knowledge of an arguer like Morano that distinguishes him from content specialists like Maslin, and that renders him better at debating. For example, we saw that Maslin drops almost all of Morano's points, only picking up the early mischaracterization of James Hansen's position in his final turn. Maslin did not appear to have his more extensive knowledge of climate science "at hand" in a way that would help allow to first recognize a line of argument from the truncated verbal cues required by the televised segment, then pick out the best

response, and finally convey the response with indicators that would help his audience understand its force. Morano, by contrast, refutes Maslin point by point. He appears to have available in memory all the arguments Maslin ends up making, coupled with potential lines of reply and a repertoire of verbal indicators to keep his audience oriented. He has mastered an art of arguing about climate change, incorporating all five of the traditional canons of rhetoric: invention, organization, style, memory and delivery.

It should be noted that if we recognize a role for ACK in argumentative practice, we may have to re-think approaches to modeling argumentation that aim for content-free representations. Argumentation schemes, for example, aim to make explicit inferential patterns that are available across contexts and topics. But ACK such as Morano demonstrates would be better represented by some of the older attempts to capture argumentative patterns: either *topoi* as mostly worked-out blocks of discourse (e.g., on the iniquity of parricide!) or as lines of argument typical in a particular context (most notably in the classical handbooks, the criminal trial). In contemporary times, Rigotti and Morasso (2010) have put forward a similar model, in which argument schemes incorporate both formal and material elements. Of course, it is not necessary for argumentation theory to model only the capacities of the skilled arguer, but it would be strange for the field to entirely ignore them.

Morano's capacity becomes most visible when Maslin gives him openings for refutation, *elenchos*. Grappling with an adversary's arguments is cognitively demanding, requiring the arguer to manage simultaneously both the reasoning of the opposing cases and the proprieties of the interpersonal exchange. The first sophists similarly emphasized the *agon* or contest between adversaries. As Hawhee (2002) has explained, this is not (as commonly thought) because the sophist was focused on achieving victory. Instead, the contest forces each adversary to create for the other opportunities to display their *arete* – here meaning more *virtuosity* than *virtue* – to the onlooking audience. Hawhee comments:

> Gorgias's conception of the contest thus called for rhetorical athletes, for a certain kind of cunning and flexibility that enabled a rhetor to think on his feet, to anticipate an opponent's moves, and to respond with appropriate moves. In their requisite and commended daring and skill, athletics and rhetoric converge as arts of cunning.   (2002, p. 201)

We can hear Morano echoing this sophistic theme when he identifies *responsiveness* as one of his argumentative excellences:

> Contrary to what most debaters would say, "seize the agenda," and "use your talking points," and "frame it in the way you want," I'm actually very content in those

> types of debates to allow them to seize the agenda and frame it, because they're
> typically going to do the laundry list of talking points. And I specialize in going
> through those one-by-one.   (Olson, 2010b)

Morano's interviewer here, science communication commentator Randy Olson,
confirms Morano's self-assessment:

> At the start of the interview [Morano] talks about his best debate, which was a
> radio debate against George Monbiot. He doesn't say it was his best because he
> feels he cut his opponent to shreds. To the contrary, he feels it was his best because
> of how tightly intertwined their exchanges were – that each of them was able to
> listen to the other one and play off what they were saying.   (Olson, 2010c)

The emphasis here is not on defeating the opponent, but on conspicuous display
of argumentative virtuosity.

Given Morano's confidence in his skill in refuting, it's no surprise that he's
been willing to debate all comers. In addition to the segment pitting him against
Mark Maslin that we have examined here, at least a dozen other direct inter-
changes are preserved on YouTube alone, against adversaries including climate
scientists like Michael Mann, science spokespeople like Bill Nye, and climate
advocates like Joe Romm.

3.2   The sophist's deliberate choice

Morano takes his superior argumentative content knowledge and devotes it to
making a case against the world's best synthesis of climate knowledge. He argues
for what Aristotle termed an *adoxon* – a disreputable belief, something unbeliev-
able or incredible (Miller, 2013), a view spurned (as Maslin tried to point out) "by
everyone or by the majority or by the wise – that is, by all of them, or the majority,
or the most notable and illustrious" (*Top*. 1.1). Here Morano is again following the
ancient sophists, who were known for their willingness to back disreputable views.
Most infamous was Gorgias' defense of a woman whose adultery occasioned a
world war; others spoke in praise of fleas or to deliberate whether, if your father
orders it, you should kill him.

We experience a dissonance between the virtuosity the sophist displays in his
reasoning and the unreasonableness of his cause. How could a good arguer make
a sophisticated argument for a conclusion that's so conspicuously wrong? We typ-
ically try to restore harmony among arguer, arguments and standpoint by revising
our views of the reasoning and of the man himself. We tell ourselves that the argu-
ments must be illegitimate or the arguer, insincere. Either of these views could to

provide a satisfying explanation of apparent argumentative skill supporting disreputable views. Unfortunately, neither holds up.

On the one hand, we could focus on the argumentative techniques the sophist uses to make what we know to be the weaker case appear the stronger. This could lead us to look for reasoning that is *apparently* skilled, but in some hidden way flawed (*Soph. El.* 11.1) – i.e., for "fallacies." This search will likely be fruitless (Hamblin, 1993). The sophist's techniques are just the techniques of argument – as we saw in Section 2.3, there are no significant differences between Morano's and Maslin's arguments.

On the other hand, we could insist that the sophist himself is not so unreasonable as to really believe his own disreputable view. He must have interests other than alethic; for example, he must be arguing for money. As Uzelgun, Lewiński and Castro (2016) have documented, accusing the other side of defacing science with political interests is a typical move in climate change debates. For Morano, at least, this search for ulterior motives is also likely to be fruitless. He repeatedly insists that he is fully committed to his standpoint:

> I actually believe everything I say. I'm passionate about it, and I research it, I investigate it. I actually criticize other skeptics if they go too far, like…. I will never say "Global Warming is a hoax." But I will say "Solving global warming with UN treaties and EPA regulations if we did face a catastrophe – *that* is a hoax." …Even in language I try not to use the word "alarmist," I try to use "warmist," which I consider a more neutral term…It's a passion that I have to do this. I love reporting on environmental issues.   (Parsons, 2017)

So revising our views of the man or his reasoning is not likely to restore harmony between the virtuosity of the sophist's performance and the unreasonableness of his conclusion. Instead, it may be better to focus on that conclusion, and revise our views of its disreputability. The sophist, it appears, does not take the *adoxon,* the (socially) disreputable view, to be an (epistemically) unarguable view. Making arguments on both sides of *any* question – crafting *dissoi logoi* or antilogies – was perhaps the defining practice of the original sophists.[3] The arguments these sophists developed for rejected views may have been "shocking, even perverse," or indeed "completely unconvincing"; they also opened new perspectives and stimulated discussions (Gagarin, 2001). Morano seems to embody this sophistic delight

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3. As a reviewer usefully pointed out, Sky TV and media generally may be sophists in this sense, since their segments argue two sides of most topics, sometimes even topics that don't have them. The media's tendency to promote such false controversies on climate science has been thoroughly documented and critiqued (e.g., Boykoff & Boykoff, 2004), although it also should be noted that by 2006, mainstream print media had largely stopped such "false balance" (Boykoff, 2007).

in antilogies; throughout the debate with Maslin he evinces an acceptance of, and even relish for, disagreement. Although he does not defend both sides of the question, he deeply engages the climate *dissoi logoi*. As mentioned above, Morano draws much of the material on *Climate Depot* directly from advocates for climate action. This means that on a daily basis he immerses himself in the case his adversaries are developing. By contrast, Maslin appears to be surprised and perhaps even offended when presented with disagreement early in the debate, and by the end is not only refusing to listen but heatedly characterizing his adversaries as not worth listening to. In short, Maslin acts as if his adversary needs not *arguments*, but *punishment* or *perception* (*Top.* 1.12). This is not an attitude likely to lead to success either in the debate itself or in gaining the ACK needed to prepare for it.

It may seem ironic, but sophistry as the deliberate choice to argue for disreputable views is most likely to flourish in an environment rich in reputable ones. Politics seldom encourages sophistry, since the range of politically viable views is broad. But on socioscientific issues, the public sphere rubs up against a technical sphere with different standards for argumentative closure (Collins & Evans, 2002; Goodnight, 1982; Goodwin & Honeycutt, 2009). Contemporary science routinely produces consensus positions – views held out as those of all of the wise, or a majority of them, or the most notable of them. It is thus also opens the way for the sophist who will contest them. And where the scientifically reputable view the sophist attacks is providing the basis for a compromising, "fragile consensus" (Lewiński & Mohammed, 2019; van Laar & Krabbe, 2019) around needed action, the sophist will, as in ancient Greece, be seen as a significant threat, corrupting those whom he influences and undermining collective commitment to basic truths.

3.3   Managing the sophist

To summarize: the sophist has deep argumentative content knowledge of a given domain and puts it to use to defend disreputable positions. His skill at refutation is developed by his enthusiasm for the contest of views and his willingness to engage with both sides of any question. While it may make us feel better to think that he's using argumentative tricks in support of positions he doesn't really believe, in fact he may be just as sincere as and using arguments no worse than those defending more reputable standpoints.

How then can we manage the sophist in our midst? The most obvious approach is not to debate him at all. As mentioned above, Maslin was not given this choice. The debate with Morano was foisted on him by the station with only five-minutes notice (Personal Communication). We can presume that Maslin would have declined to debate, if he had been given fair warning. This would have

deprived the sophist of the opportunity to ply his trade – although also depriving us of the opportunity to study sophistry in action.

A related approach is to accept an interchange, but to refuse to address the sophist's disreputable views. This was Maslin's initial and correct instinct when Morano attempted to shift the subject from the open, value issues around integrating economic development and decarbonization, to the closed, scientific issue of whether anthropogenic global warming exists. To Morano's lure, Maslin responded: "Throwing out that as a last bit of your argument seems to be a bit weak." Adding a conclusion – "therefore it's clear that you are desperate to distract attention from the real issues" – would have made this a sound response, if he had been able to hold to it. Similarly, the National Center for Science Education has long advocated against debating creationists or intelligent designers. There are other more productive issues, including the scientific illegitimacy of the sophist's position (Scott, 2004) and the legitimacy of the argumentative process that has already taken place within the sciences (Ceccarelli, 2011), not to mention the all the value and policy issues that no amount of settled science resolves.

Refusing to debate an issue, however, has consequences: it allows the sophist to proclaim victory by default and undermines the public appearance of reasonableness that democratic societies depend upon to legitimate decisions. It may also be difficult to quarantine one scientific issue when so many are legitimately contestable; to stop debating the existence of AGW, for example, while allowing discussion of the impact of AGW on severe weather.

So instead, the appropriate response might be to debate the disreputable view, but in a format that will level the playing field between the sophist and his adversary. A stream in contemporary argumentation studies recognizes that what happens in argumentative interactions is a result of choices – choices by the interactants themselves (Goodwin, 2018) or by the designers of the institutions within which the interactions take place (Jackson, 1998, 2015; Musi & Aakhus, 2019). We can imagine a redesign of the Maslin versus Morano contest that would slow down the interaction and shift it to a written medium. The extended timescale would have neutralized Morano's advantage in argumentative content knowledge, allowing Maslin to examine his adversary's case and mobilize his deeper understanding of climate science. A written interaction would also have allowed Maslin to consider his selection of responses, improve his argumentative style and eliminate signs of peevishness.

While such changes might improve the quality of the interaction, they would also likely render it invisible. Five minute televised segments meet the constraints of both media and audiences who are juggling multiple issues with multiple communicators all demanding attention. An extended written exchange would

decrease the comparative advantage of argumentative content knowledge, but at the cost of eyeballs.

Assuming we retain the televised segment format, can anything be done to limit the sophist's ability to maneuver within it? Morano seems to be making some sort of unfair use of power to sustain an unsustainable position – can this power be limited in some way? The institutions which support argumentative exchanges can also define, and thus restrict, the appropriateness of moves within those exchanges (Fairclough, 2019). The moderator did not intervene in the debate analyzed here, perhaps because it seemed to be flowing well – or perhaps because his producers let him down, not preparing him for this early-Saturday segment (Personal Communication). Was there anything he could have done to control Morano's behavior? Argumentation theorists for long have been concerned about restricting the distorting impacts of sources of power external to the argumentative interaction; the only power relevant to such interactions should be the power of reason itself. The problem is that Morano's power is the power of making arguments. We don't want the world of the Vonnegut story, where capable people have to wear earphones blasting random sounds to keep them "from taking unfair advantage of their brains" (Vonnegut, 1961). We don't want to restrict argumentative inventiveness and relish. So it may not be possible to develop a sophist-proof interactional design.

This leads to a final proposal for managing the sophist. As Aristotle comments, since the truth is by nature more robust, only the advocate is to blame if it fails to prevail (*Rhet.* 1.2). If the debate with the sophist is turning out badly, debate *better*. This is Morano's own recommendation. After praising one climate scientist as "a very capable, powerful debater," and noting "it was hard for me to lay a glove on him in my interview," Morano then comments: "And the thing I was struck with when I walked away from my interview:…why the hell aren't climate scientists on the other side…why aren't they willing to debate skeptics?" (Parsons, 2017).

Equipped with argumentative content knowledge on a par with the sophist's, an arguer for the reputable standpoint ought to be able to hold his own in the contest. Developing such ACK will require not just immersion in one's own side's talking points, but deep engagement with disreputable views. The debater-in-training will have to follow Aristotle's advice to pursue antilogies:

> Always, in dealing with any proposition, be on the look-out for a line of argument both pro and con; and on discovering it at once set about looking for the solution of it. For in this way you will soon find that you have trained yourself at the same time in both asking questions and answering them.   (*Top*. 8.13)

Realistically, to throw himself into such training the anti-sophist is going to have to give up on the idea that the sophist's standpoint is *adoxon*, a disreputable view. For who would waste time studying vile and appallingly misleading discourse? Instead, the anti-sophist is going to have to view statements like "warming of the climate system is unequivocal" as indeed, potentially arguable.

There's an irony here. I've proposed that we only characterize an arguer as a sophist when we see him defending a disreputable position. To develop the argumentative content knowledge we need to argue with him, we need to give up the idea that his position is disreputable. But if we do that, the sophist disappears, leaving only a really good arguer. In debating a sophist, we are handicapping ourselves by refusing to share his relish for disagreement. But we'll never be able to break out of our self-imposed restraints as long as our first reaction is "Why do you not believe, why do you not believe the science?"

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