Knowledge into action: Rhetorical strategies for using science in climate activism

Irina Herneaho
University of Helsinki

Emmi Lahti
University of Helsinki

Abstract

This article examines how climate activists utilise scientific knowledge, particularly IPCC reports, in their efforts to bridge the gap between climate science and policy. The dataset consists of 119 texts from 2018–2023, produced by four Finnish environmental NGOs or campaigns: Coal-free Finland, Extinction Rebellion Finland, The Finnish Association for Nature Conservation and Greenpeace Finland. Drawing on discourse analysis and genre studies, a total of six rhetorical strategies for using science have been identified. The findings highlight how IPCC reports are flexibly adapted to different activist agendas and genres, expanding understandings of genre interactions in grassroots activism. Further research is needed to explore how genres used by activists influence broader public and institutional discourses.

Keywords: Rhetorical strategies, genre, discourse analysis, climate change communication, climate activism

1 Introduction

As climate change progresses, more and more people will face its consequences on a first-hand basis. Nevertheless, knowledge about climate change – and possible solutions to mitigate it – is largely the result of long-term scientific research (Moser 2010; see also Bazerman 2020: 35). Indeed, for a long time inadequate climate action has not been about a lack of knowledge: since at least the 1980s, there has been sufficient scientific knowledge about the causes, risks and possible mitigation measures to prevent and minimise the damage caused by human-induced climate change (see Moser 2010: 31–33). Despite such advances as the 2015 Paris Agreement, necessary action has not been taken at the national and supranational level. Against this background, one of the key tasks of climate activism is to highlight the disconnection between climate science and existing climate change policies. In this article, we look into the role of scientific knowledge in climate activism. More specifically, the focus is on how IPCC reports are being used in the communications of four environmental NGOs or activist groups operating in Finland in the post-Paris climate agreement period.

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The Intergovernmental Panel on Climate Change (IPCC) plays a key role in communicating scientific knowledge outside the academic community. The IPCC "provides regular assessments of the scientific basis of climate change, its impacts and future risks, and options for adaptation and mitigation" (IPCC n.d.). However, the IPCC does not recommend specific response options but instead provides relevant information to support decision-making; as the IPCC itself puts it, the objective "is to provide governments at all levels with scientific information that they can use to develop climate policies" (IPCC n.d.). The IPCC prepares comprehensive Assessment Reports about knowledge on climate change, its causes, potential impacts and response options, as well as Special Reports, which offer an assessment of a specific issue, and Methodology Reports, which provide practical guidelines for the preparation of greenhouse gas inventories. Between 1990 and 2023, six comprehensive assessment reports have been published, and each assessment report has four parts: contributions from each of the three working groups and a synthesis report. Additionally, the IPCC issues a Summary for Policymakers, which is a summary of the reports aimed specifically at policymakers.

The IPCC reports themselves can be seen as a tool for synthesising, explaining and communicating scientific knowledge on climate change, particularly for the needs of decision-makers (see IPCC n.d.). The reports have been the subject of a number of studies from a linguistic standpoint. Previous studies have, for example, focused on the linguistic features (e.g. Fløttum & Dahl 2014; Fløttum et al. 2016), argumentation (Kanerva & Krizsán 2021) and readability (Barkemeyer et al. 2015) of the IPCC reports. The IPCC reports are considered to be the highest scientific authority on climate change (see, e.g. Fløttum 2013: 282), but have also been criticised for their conservatism and lack of readability (e.g. Brysse et al. 2013; Barkemeyer et al. 2015; Kanerva & Krizsán 2021).

Auken and Sunesen (eds. 2020) have approached the public debate on climate change from a genre perspective, paying particular attention to how knowledge about climate change flows – or is blocked or disrupted – between different contexts and communities. For instance, Bazerman and Kuntzman (2020) have shown how a congressional hearing, an institutional genre designed to enable the uptake of knowledge to support decision-making in the US, can be used to suppress scientific knowledge about climate change (see also Bazerman 2020). Focusing on a less formal genre, Mehlenbacher and Mehlenbacher (2020) have examined efforts by scientists to spread climate science to the general public through tweets. The dynamic use of genres in the climate change debate has led Auken (2020: 1) to conclude that "genre structures both facilitate and hold back knowledge about ACC [anthropogenic climate change]".

Indeed, research shows that scientific knowledge provides a flexible resource that can be used in different genres and to fulfil different purposes. Climate science and scientific discourse can be utilised not only by those concerned about the consequences of anthropogenic climate change but also by climate denialists who, using a number of rhetorical strategies based on the selection and manipulation of information, seek to undermine the credibility of climate science (Smart 2013; Smart & Falconer 2020). Relying on the consensus of climate science does not necessarily lead to environmentally, ethically and socially sustainable action, either. Invoking the authority of climate science may inadvertently depoliticise the debate by framing climate change primarily as a technocratic issue (see Zulianello & Ceccobelli 2020: 626–628). By privileging scientific consensus as the principal foundation for action, debates about the ethical and social conflicts embedded in any proposed climate strategy may be unintendedly marginalised (Pepermans & Maeseele 2014: 221). Consequently, the emphasis on "listening to science",

while rhetorically powerful, risks obscuring the fundamentally political character of decision-making (Evensen 2019). It can be assumed that also for climate activists, despite their appreciation of climate science, the use of scientific knowledge is not an end in itself, but a tool to achieve activist objectives. However, the role and use of scientific knowledge in climate activism has not yet received much attention. Our article addresses this research gap.

We situate the research within the field of discourse analysis and genre studies, drawing notably on the tradition of Rhetorical Genre Studies (see, e.g. Miller 1984; Freadman 2002; Reiff & Bawarshi 2016), which emphasises the dialogical and functional nature of genre. We are interested in the interplay between genres, in particular the role of the IPCC reports in the texts of climate activists. Our research question is as follows: What rhetorical strategies do NGOs and climate campaigns employ to make use of the IPCC reports?

The article is structured in the following manner. Section 2 presents the data and the analytical process. The theoretical framework of the study is discussed in more detail in section 3. The analysis (section 4) is divided into six sub-sections, each of which focuses on one rhetorical strategy manifested in the data. We conclude the article (section 5) by drawing together the main findings of the analysis and discussing their implications for climate change communication.

2 Data and analysis

The study data consists of material produced by four different climate activist groups or environmental NGOs operating in Finland: Coal-free Finland (Hiilivapaa Suomi), Extinction Rebellion Finland (Elokapina), The Finnish Association for Nature Conservation (Suomen luonnonsuojeluliitto) and Greenpeace Finland. For this study, a dataset of 119 texts referring to an IPCC report were collected from the NGOs' and campaigns' websites and social media (Twitter/X and Instagram). Every text/post published in the years 2018–2023 that mentions an IPCC report was included.[1]

The number of texts by publisher and genre in the dataset is presented in Table 1. Texts marked with * have been published on the websites of the NGOs and campaigns in question.

Table 1: Number of texts by publisher and genre

	Press release*	Blog post*	Statement*	Petition*	Letter*	Tweet	Instagram post	In total
Coal-free Finland	0	6	0	1	1	5	1	14
Extinction Rebellion	5	1	0	0	0	8	2	16
FANC	8	3	12	0	0	26	1	50
Greenpeace	12	6	0	0	0	14	7	39
In total	25	16	12	1	1	53	11	119

[1] The texts in the dataset are originally in Finnish. We have translated the data examples we present in this article into English. The entire dataset can be requested from the corresponding author of the article.

Coal-free Finland (Hiilivapaa Suomi) is a campaign whose objective is to use citizen activism to engage Finnish companies with the highest emissions to move onto the path set by the Paris Climate Agreement, which limits global temperature increase to 1.5 degrees Celsius. In 2019–2022, Coal-free Finland targeted the state-owned company Fortum, which, through its German subsidiary Uniper, owned fossil power plants in Europe and Russia (Coal-free Finland 2022).[2]

Extinction Rebellion (Elokapina in Finland) is an international movement that uses non-violent civil disobedience to halt the progression of the sixth mass extinction and to minimise the risk of social collapse caused by the current climate and environmental crisis (Extinction Rebellion n.d.).

The nature conservation organisations, The Finnish Association for Nature Conservation (FANC, Suomen luonnonsuojeluliitto) and Greenpeace Finland, are more traditional, non-profit NGOs with some paid employees whose main sources of funding are membership fees and donations. FANC is the oldest environmental organisation in Finland, and it has 150 local associations and thousands of active members throughout Finland (FANC n.d.). Greenpeace is a global network of independent national and regional Greenpeace organisations, with Greenpeace International as a coordinating organisation (Greenpeace n.d.).

The texts in the dataset represent a variety of genres, as presented in Table 1. Texts of different genres are aimed at different audiences: a press release is initially aimed at media representatives, statements and petitions at decision-makers, while blog posts and social media posts are aimed more broadly at all followers of the NGOs and campaigns in question and those interested in their activities. However, all the texts we have collected for our dataset have also been published on actors' websites or social media channels, where their presumed audience is readers interested in the activities of the NGOs and campaigns.

The dataset for the study covers the years 2018–2023, the period of publication of the IPCC 6th Assessment Report, which includes three Working Group reports and a synthesis report.[3] Within the same assessment cycle, three additional Working Group special reports were published.[4] All these reports are referred to in the data. Table 2 shows the number of texts that mention the IPCC report in question.[5] In cases where there is more than one reference to the same report within the same text, the text has been included in the table only once.

[2] In 2022, Fortum sold all of its Uniper shares to the German state, after the company had run into a crisis following Russia's decision to stop importing natural gas to Europe.

[3] The Working Group reports are titled as follows (abbreviation used in Table 2 in brackets): AR6 Climate Change 2021: The Physical Science Basis (PSB); AR6 Climate Change 2022: Impacts, Adaptation and Vulnerability (I, A & V); AR6 Climate Change 2022: Mitigation of Climate Change (Mitigation).

[4] Working Group special reports are titled as follows (abbreviation used in Table 2 in brackets): Global Warming of 1.5°C (1.5ºC); Climate Change and Land (CC and Land); The Ocean and Cryosphere in a Changing Climate (O & C).

[5] In Table 2 the total number of references is higher than the number of texts in the data (N = 119), as some texts mention more than one report. In addition to the references presented in Table 2, the IPCC 6th Assessment Report is mentioned in one text and the previous 5th Assessment Report in three texts without reference to a specific sub-report. There is also one reference to an IPCC report which does not indicate which text is being referred to.

Table 2: References to IPCC reports in the dataset

	1.5ºC	CC and Land	O & C	PSB	I, A & V	Mitigation	Synthesis	In total
Coal-free Finland	4	0	0	2	3	3	1	13
Extinction Rebellion	2	1	0	6	4	1	2	16
FANC	7	3	2	5	8	6	20	51
Greenpeace	7	6	5	8	10	4	7	47
In total	20	10	7	21	25	14	30	127

In all but one case it was possible to identify which IPCC report was referred to in the texts. Unambiguously identifiable were the references where the report is transparently named and/or includes a hyperlink to the original source. In other cases, classification was based on information about the date of publication or recency of the report (e.g. *recent report, latest IPCC report*).

All the texts in our dataset mention an IPCC report, but while some of the texts discuss the content of the report at length and from various perspectives, others are more loosely linked to it. We classify references to IPCC reports into four main categories: *citation, appeal to authority, characterisation* and *mention*. *Citations* include a reporting clause or another linguistic expression indicating that the text refers to the content of the IPCC report, either verbatim (*direct quotation*) or in paraphrased form (*rephrase*). Rephrasing is the most common way of referring to IPCC reports in the dataset (N = 76), whereas only four texts contain direct quotations from the reports. *Appeal to authority* refers to instances (N = 55) in which the IPCC report is referenced to support the position or agenda of the organisation or movement in question. These cases contain a lexical element, usually a verb, that signals alignment (e.g. *the report confirms, the report supports*). *Characterisation* (N = 27) involves explicit evaluation of the IPCC report itself, for example, regarding its tone, credibility or reading experience. *Mention* applies when the report is named without any further evaluation or reference to its content; this method is used in only four tweets.

After collecting the research data, we began to work through the data by reading the entire dataset several times. In the analysis, we looked at the parts of the text that explicitly refer to an IPCC report and analysed their relation to the text as a whole to identify the purposes for which the IPCC reports are used in the data. After several rounds of analysis, we began to discern regularities, eventually resulting in the categorisation of six rhetorical strategies that accompany mentions of and references to IPCC reports. The categorisation is based on the functions performed by the strategies in the texts and the linguistic means used to realise them. We present the categories in section 4. In section 3 below, we describe in more detail the theoretical framework of the study.

3 Genre interaction

Genre studies have explored how genres, broadly understood as social and semiotic action often connected to specific contexts and purposes (see, e.g. Miller 1984), are linked to and interact with each other. Such a perspective on genres emphasises not only their

production but also their reception, i.e. the dialogical interplay enabled and encouraged by genre. Traditionally, research has addressed specific institutional contexts, where genres form relatively stable networks (see Reiff & Bawarshi 2016: 3–4). In such settings, the hierarchical and sequential relations between genres enable the production, mediation and circulation of information within an organisation.

More recently, the focus has been on the chaining and interconnection of genres across institutional boundaries (see, e.g. Freadman 2002; Tachino 2012; Reiff & Bawarshi 2016; Bray 2019). Cross-institutional genre interactions are often unpredictable because they lack the routines and rules that are typical of genre relations within a given institution (Freadman 2002: 44; Reiff & Bawarshi 2016: 12). When the aim is to mediate social action and knowledge between institutions or communities, the use of *intermediary genres*, i.e. genres that seek to combine two otherwise unrelated genres (Tachino 2012), can increase the likelihood of uptake. The IPCC report serves as a prime example of an intermediary genre: the main purpose of the reports is to compile and convey scientific knowledge on climate change to policymakers, thus bridging the gap between research and decision-making. Following this line of thinking, the scientific studies cited in the IPCC reports serve as *source genres*, while the texts in our data, despite not being the primary target of IPCC reports, can be thought of as *recipient genres* (see Bray 2019: 158). Insofar as the genres used by activists aim to pass on scientific information presented in the cited IPCC reports to their own audience, they can also be seen to function as intermediary genres.

While acknowledging the merits of genre studies in the study of different institutional settings and the relatively stable genre relations that exist within them, Reiff and Bawarshi (2016: 4) call attention to contexts that "function less as systems and more as assemblages". One such context is activism, which does not form a clearly defined discourse community governed by institutional processes and norms. Nevertheless, activist communities use genres in ways that have potentially significant effects on society. According to Devitt (2020: 22), genres operate not only *as* social action but *for* social action, meaning they operate in settings in which "people act through [genres] deliberately, consciously, and toward desired social ends". Especially in the digital age, social movements frequently push genre boundaries and merge them into complex hybrids, allowing adaptation to diverse contexts of action (van Dijk 2024: 94). Thus, genre conventions can be drawn upon creatively and strategically to serve, above all, the needs and goals of language users themselves (see Bhatia 2016: 59, 142).

Devitt (2020: 22–23) further argues that genres used in climate activism, such as petitions or protest signs, can empower both collective and individual agency with the potential to bring about change in society. For instance, Reiff and Bawarshi (2020) have analysed the uptake of petition and petitioning as social action, shedding light on the possibilities for and obstacles to taking action against climate change. Our data represent a wide range of genres, some of which are widely used in different spheres of society (e.g. press release), others more specific to activism (e.g. petition). Despite their linguistic and functional differences, the genres used by activists are interconnected in their struggle for social change. For the purposes of this article, we refer to the emerging network of genres as a *genre ecology* (see Spinuzzi & Zachry 2000; Spinuzzi 2004) to highlight the dynamic and flexible nature of the genre relations that emerge in the data.

In the next section, we will discuss the results of our analysis. In the analysis, we have explored the relationships between the IPCC reports and the genres in our data, focusing on the ways in which IPCC reports are used for activist purposes within the genre ecology.

4 Rhetorical strategies for using IPCC reports

NGOs and climate campaigns utilise IPCC reports in ways that fit their aims and ways of communicating. Based on the analysis, we have identified six activist purposes for which IPCC reports are used in the dataset: *raising crisis awareness*, *assigning responsibility*, *demanding action*, *call to action*, *fostering hope* and *demonstrating progress*.[6] More than one strategy may be employed within the same text. In the following, we will discuss each strategy with examples from the data.

4.1 Raising crisis awareness

To achieve its goals, the climate movement must be able to communicate convincingly about the negative impacts and risks of climate change. The IPCC reports play a central role in this effort, as evidenced by the most prevalent strategy identified in the dataset, *raising crisis awareness*. Appearing in 91 texts, this strategy frames climate change as an urgent and severe crisis, highlighting the risks and underscoring the necessity for immediate and substantial action.

For example, references to threats, risks, dangers, natural disasters and extreme weather events, coupled with a tone of urgency, collectively construct a picture of an escalating crisis. This approach is consistent with existing literature on the framing of climate change as a catastrophe or disaster (see Penz 2018: 283–284). This strategy employs a wide range of linguistic tools, including a variety of affective expressions and extreme case formulations, to evoke a profound sense of crisis. The representation of climate change as a crisis is further reinforced by vocabulary associated with destruction and death on the one hand, and protection and rescue on the other.

(1) *Emme ole varautuneet tulevaan, toteaa uusi IPCC-raportti [otsikko]*

Kansainvälinen ilmastopaneeli IPCC julkaisi tänään laajan arvion ilmastonmuutoksen vaikutuksista.

Ilmastokriisin vaikutuksiin, sopeutumiseen ja haavoituvuuteen keskittyvä raportti pohjustaa pelottavan yksityiskohtaisesti, kuinka vakavia ilmastokriisin vaikutukset ovat jo nyt, aiheuttaen haittoja ja menetyksiä ihmisille ja ekosysteemeille kaikkialla maailmassa. Jokaisen asteen kymmenyksen myötä seuraukset pahenevat entisestään. – –

We are not prepared for the future, says new IPCC report [title]

The Intergovernmental Panel on Climate Change (IPCC) published today a comprehensive assessment of the impacts of climate change.

Focusing on the impacts, adaptation and vulnerability of the climate crisis, the report sets out in frightening detail how severe the impacts of the climate

[6] Three of the texts in the dataset do not contain any of the named rhetorical strategies. In these texts, an IPCC report is mentioned without a clearly identifiable rhetorical function.

> *crisis are already becoming, causing harm and loss to people and ecosystems around the world. With every tenth of a degree, the consequences get worse. – –* (Greenpeace, press release, 28/2/2022)

Texts utilising *raising crisis awareness* portray climate change as an existential threat, causing widespread environmental damage, threatening species survival and demanding swift intervention. While some texts emphasise the current impacts of climate change, others focus on the catastrophic consequences of inaction, as in example 1, an extract from a Greenpeace press release. In the headline, Greenpeace presents its own interpretation of the key message of the IPCC report (*rephrase*). In addition, the content of the report is characterised using an affective tone through the evaluative expression *in frightening detail* (*characterisation*). The very choice to refer to climate change as 'climate crisis' underlines the seriousness of the situation, which is further reinforced by various emotionally charged word choices and expressions (*causing harm and loss*, *get worse*). Linguistic choices like these not only underline the gravity of the situation, but also seek to legitimise action on climate change.

It is noteworthy that the concept of *climate crisis* used in example 1 does not appear once in the IPCC report (I, A & V) discussed. This can be explained by scientific ideals such as neutrality, dispassion and rationality, which are reflected in the argumentation and style of IPCC reports (Brysse et al. 2013; Fløttum et al. 2016: 125–128). The civil society actors under study, in contrast, commonly use highly affective language in their communications, which is prone to creating a sense of crisis. This difference in tone compared to IPCC reports is evident throughout our data.

4.2 Assigning responsibility

The strategy we refer to as *assigning responsibility* involves explicitly identifying the individuals, groups or entities accountable for contributing to climate change, engaging in specific environmentally damaging activities or failing to implement necessary corrective actions. This approach can also encompass highlighting those who are not responsible for such outcomes. Within our dataset, this strategy is evident in 17 texts.

While the identification of responsible parties often accompanies calls for remedial actions (as discussed in the subsequent sub-section 4.3), it also functions independently as a rhetorical technique without necessarily demanding specific interventions. The linguistic features characteristic of this strategy include explicit references to culpability, responsibility and obligations. Entities identified as responsible include Finland and, more broadly, wealthy nations, as well as politicians, governments and the corporate sector, especially fossil fuel and airline companies. Additionally, some texts use more generalised references, such as *polluters* or *people*, without specifying particular actors. Responsible entities are typically depicted as active and intentional actors whose actions (or lack of actions) negatively impact the climate.

> (2) *Uusi IPCC-raportti julkaistiin maanantaina. Sen viesti ilmastotoimien kiireellisyydestä on sama kuin Elokapinalla. Kaikille elinkelpoisen planeetan turvaamiseksi tarvitsemme välittömiä ja nykyistä paljon perustavanlaatuisempia toimia. – –*

> *Ilmastonmuutoksesta kärsivät eniten ne, jotka ovat sitä vähiten aiheuttaneet. Raportti painottaa, että jokaisella maalla on erilaiset mahdollisuudet ja vastuut ilmastotoimista. Elokapina vaatii, että Suomen on maksettava oma osansa ilmastovelasta globaalille etelälle.*
>
> *The new IPCC report was published on Monday. Its message on the urgency of climate action is the same as that of Extinction Rebellion. To secure a livable planet for all, we need immediate and much more fundamental action than at present. – –*
>
> ***Those who will suffer most from climate change are those who have contributed least to it. The report stresses that each country has different opportunities and responsibilities for climate action. Extinction Rebellion insists that Finland must pay its share of the climate debt to the Global South.***
> (Extinction Rebellion, Instagram post, 26/3/2023)

The Instagram caption in example 2 contains two types of references. First, Extinction Rebellion appeals to authority by stating that the IPCC report is in line with the movement in its demands (*Its message on the urgency of climate action* ***is the same as that of Extinction Rebellion***). Second, the message of the report is summarised in the author's own words (*rephrase*) in a way that indirectly supports the movement's demand for climate debt payment (*The report stresses that each country has different opportunities and responsibilities for climate action*).

In example 2, the IPCC report is used to argue that different countries or regions have different opportunities and responsibilities to take action on climate change. The example constructs a stark contrast between those responsible for causing climate change and those most affected by it. The concept of *climate debt* performs a similar function, metaphorically dividing countries or geographical areas into creditors (*the Global South)* and debtors (*Finland*, among others), emphasising that those who have contributed to climate change have a duty to compensate for the damage they have caused. Unlike traditional debt, however, climate debt is not recognised in national or supranational legislation, leaving climate activists with no choice but to try to build public pressure for a just outcome.

The IPCC report referred to in example 2 (Synthesis) distinguishes between developed and developing countries and notes that emissions, opportunities for action and the consequences of climate change are distributed unevenly between and within countries. With regard to financing, the report states that "[a]ccelerated financial support for developing countries from developed countries and other sources is a critical enabler to enhance adaptation and mitigation actions and address inequities in access to finance" (IPCC 2023: 33). However, the IPCC does not directly name the "culprits" of climate change or recommend a specific model for improving equality between and within countries in matters relating to climate, and the concept of *climate debt* used by Extinction Rebellion does not appear in the report. Nevertheless, the report can be used to argue in favour of a particular country, in this case Finland, taking responsibility in the fight against climate change, as example 2 demonstrates.

4.3 Demanding action

The IPCC has defined its work as "policy-relevant and yet policy-neutral, never policy-prescriptive" (Fløttum & Dahl 2014: 68). While the IPCC reports themselves do not recommend specific measures to be taken, Finnish NGOs and climate campaigns use the reports to justify the need for particular climate actions by employing the strategy of *demanding action* in 76 texts. The demands can target different groups or institutions, e.g. politicians, the government and decision-makers, as well as the business sector, especially energy companies, or citizens and people in general. In contrast to the previous strategy, these cases always involve some kind of explicit demand for action.

Some of the texts in the genre ecology, such as various statements, are directly addressed to politicians and policymakers, and they express the demands of NGOs and campaigns directly to those who have the power to bring about the required changes. Most of the texts, however, are directed at the reader, who is shown who or what are the responsible parties.[7] The rhetorical strategy of *demanding action* also functions as a way of indicating to the reader what the campaigns and NGOs are all about: What is their understanding of the key problems relating to climate change and how to solve them? By showing the reader what kind of action is required and from whom, the reader is made aware of the situation and at the same time possibly encouraged to be politically active, to vote a certain way, to participate in demonstrations and to put more pressure on decision-makers (see the next sub-section 4.4).

The required action is usually presented as necessary rather than optional. The linguistic means used in representations of demands include modal verbs and other modal expressions that express necessity and obligation. They are expressions of deontic modality, which are concerned with what is deemed necessary or possible according to various rules, such as the rules of morality and law, and are directed towards the actions of morally responsible agents (e.g. Lyons 1977: 823). Additionally, deontic necessity usually derives from some source: someone or something is responsible for making the obligation (Lyons 1977: 824).

The target of the demands can be expressed explicitly, as in following example 3, or they can remain implicit. For example, when talking about legislation, subsidies and fossil fuel divestment, it is relatively clear that the demands are targeted at decision-makers, even though they are not explicitly mentioned.

> (3) *Kansainvälisen ilmastopaneeli IPCC:n tuore raportti alleviivaa nopeiden ilmastotoimien välttämättömyyttä. Ilmasto lämpenee 1,5 astetta todennäköisesti jo vuoteen 2030 mennessä. Nykyisillä päästövähennyksillä olemme menossa kohti ihmisille tuhoisaa kolmen asteen lämpenemistä. – –*
>
> *Toimiakseen tilanteen edellyttämällä tavalla hallituksen on aloitettava säännöllinen valtiollinen kriisitiedostus ja julistettava ilmastohätätila. Suomen on*

[7] By reader, we mean the putative reader, the position constructed in the text (reader-in-the-text), which is written into the text through linguistic features, not the actual person who reads the text (Thompson & Thetela 1995). Usually the reader-in-the-text is constructed as someone who already has some kind of pre-existing interest in nature conservation or climate change, is looking for information or opportunities to take action, or may already be involved in some way.

lopetettava ilmaston kuumentaminen omalta osaltamme niin pian kuin mahdollista, vuoteen 2025 mennessä. Päätöksenteon nopeuttamiseksi hallituksen on kutsuttava koolle tutkijoiden informoima, kansalaisista satunnaisotannalla valittu kansalaisfoorumi.

A new report by the IPCC underlines the imperative for rapid climate action. The climate is likely to warm by 1.5 degrees by 2030. With current emissions cuts, we are heading towards a 3 degrees warming that will be devastating for humans. – –

To act as the situation demands, ***the government must initiate a regular national crisis communication and declare a climate emergency****.* ***Finland must stop heating up the climate*** *on our part as soon as possible, by 2025. To speed up decision-making,* ***the government must convene a citizens' forum****, informed by scientists and randomly selected from the public.*
(Extinction Rebellion, press release, 14/8/21)

Example 3 begins with a summary of the key content of the IPCC report (*rephrase*). The text goes on to announce demands addressed to the government and Finland. The report's message is thus translated from the global to the local level, as the text passages deal with the Finnish context and explicitly mention Finland and Finnish decision-makers. By demanding the government engage in regular national crisis communication and declare a climate emergency, as well as establish a citizens' forum, the activists are calling for more indirect action. The demand to stop heating, on the other hand, directly targets harmful activities. However, the demand remains at a very abstract level, as it is directed at Finland in general, and the term *heating* does not yet indicate just what types of activities should be restricted.

In example 3, the demands are represented as necessary (*must*) and urgent (*as soon as possible*, *by 2025*), as are the majority of the demands in the data. This is a significant contrast to IPCC reports, which, as noted earlier, do not argue for specific policies or make demands on policy-makers. The measures called for in the example (initiating national crisis communication, declaring a climate emergency and convening a citizens' forum) are not mentioned in the referenced IPCC report[8] (PSB). In addition, our data differs from IPCC reports in terms of how categorically statements are presented. When communicating observations and findings, the IPCC frames its claims in its reports in terms of their likelihood (from *exceptionally unlikely* to *virtually certain*), level of confidence (from *very low* to *very high*) and the underlying evidence and agreement (IPCC 2023: 3; see also Fløttum & Dahl 2014: 69–71). Traces of this type of approach can be found in example 3, where it is stated that *the climate is* ***likely*** *to warm by 1.5 degrees by 2030*. However, this is rare in the texts in our dataset; typically, the NGOs and campaigns under study present the situation in question as certain by using declarative sentences without modal elements.

[8] The report does mention that some media publications have adopted stronger terminology than 'climate change' or 'global warming', using terms such as 'climate emergency' and 'climate crisis' (IPCC 2021: 173). However, the IPCC itself does not use these terms in its report.

4.4 Call to action

The power of social movements lies in the collective action of citizens. It is therefore not surprising there are calls to action addressed to the reader in our data (in 28 distinct texts). When appealing to the reader, calls to action target fellow citizens rather than decision-makers, and the call is for civic participation, such as voting, signing petitions or joining the movement, while also seeking to raise awareness (on different action requests, see, e.g. Hestres 2018). The linguistic means used include e.g. imperative mood, other directives and forms of address. Simply put, as Searle (1983: 166) defines it, directives are used when we try to get our hearers to do things. The most prototypical mode of directive expression is imperative mood.

The following example is from a blog post, which first presents the main findings of the new IPCC report, before appealing to the reader.

(4) *5 asiaa, jotka sinun täytyy tietää uudesta ilmastoraportista [otsikko] – –*

Joko mennään? Tässäpä luettelo asioista, jotka voit tehdä heti muutamalla klikkauksella.
– –
Otetaan tulevaisuutemme haltuun ja pakotetaan hallitukset toimiin!
Levitä sanaa.
Näytä, että tiede on tullut kuulluksi.

5 things you need to know about the new climate report [title] – –

Ready to go? Here's a list of things you can do right away with just a few clicks.
– –
Let's take control of our future and force governments to act!
Spread the word.
Show that science has been heard.
(Greenpeace Finland, blog post, 28/2/22)

The blog post in example 4 first discusses the key findings of the latest IPCC report (*rephrase*). This is followed by a section that introduces the reader to various options for action. After the title, example 4 continues by addressing the reader with a rhetorical question (*Ready to go?*) and a second-person singular expression (*a list of things **you** can do*). The blog post from which the example is taken includes links to petitions concerning fossil fuel advertising, the marine protection treaty and the protection of the Amazon rainforest, which the reader is persuaded to sign.

In example 4, the reader is given instructions and persuaded to act using the verb *voida* ('can') and by the imperative mood (*spread the word, show*). The expression *Let's take control of our future and force governments to act!* builds a sense of community and encourages collective action. The writer and the reader are portrayed as being in the same boat, on the same side, calling on governments to act. The reader is thus mainly encouraged to take action to put pressure on decision-makers; it is clear, then, that it is at the structural level that change must take place, rather than in the sphere of individual choices.

At the end of example 4, a connection is made between the proposed action and science (*Show that science has been heard*), implying that the action is motivated by scientific research, in this case, the IPCC report. Demands to listen to science have also been made in other contexts within the climate movement, perhaps most famously by the #FridaysForFuture movement founded by Greta Thunberg. The prominent role of science within the climate movement, and particularly in Thunberg's rhetoric, has attracted criticism: Evensen (2019) points out that science cannot provide answers to the ethical and political dilemmas that are inevitably linked to climate change and its management, while Zulianello and Ceccobelli (2020) see the emphasis on expert authority as a potential problem for democracy. In our data, explicit demands to "listen to science" are rare, and without exception, they appear in conjunction with more specific demands, as in example 4. Rather than relying on expert authority, the texts in the dataset use IPCC reports to justify the NGOs' and campaigns' own goals and actions, as is evident in the case of *call to action*. At the same time, it is worth noting that in many respects, the texts in the dataset can be interpreted as being in line with the IPCC's core message.

Furthermore, we see *mobilisation* as a specific form of the call to action, by which we mean cases where citizens are persuaded to take part in the activities of the NGO or campaign in question, i.e. to join the movement, as in example 5:

> (5) *Näyttää vakavasti siltä että aloitamme kk päästä 29.9. Syyskapinan. Kesällä hallitus kuuli viestimme. Elokuussa uusi IPCC raportti lävähti päättäjien pöydälle. Silti kiirettä ei näy, ja talouskasvun pidäkkeetön tavoittelu palasi politiikan prioriteetiksi. Siispä, kaduille!*
>
> *It seems very likely that we will start the Autumn Rebellion in a month's time on the 29th of September. In the summer, the government heard our message. In August, a new IPCC report reached the tables of decision-makers. Yet there is no rush, and the relentless pursuit of economic growth is back as a political priority. So, take to the streets!*
> (Extinction Rebellion, tweet, 30/8/21)

Example 5 mentions an IPCC report and the failure of decision-makers to take action to mitigate climate change, which is followed by an invitation to join in the Autumn Rebellion. The concessive conjunction *silti* ('yet') creates the impression that the inaction of decision-makers is in conflict with the recent IPCC report. The conjunction *siispä* ('therefore'), which establishes a causal relationship between the last two sentences, indicates that Extinction Rebellion's actions are motivated by the aforementioned contradiction, thereby implicitly presenting the movement's actions as aligned with the content of the IPCC report. The Finnish expression *kaduille* (lit. *to the streets*) is a verbless directive consisting of the nominative *katu* (*street*) with a plural sign (*-i-*) and a directional suffix (*-lle*). The end of the tweet is followed by two emojis representing a tent and a roadblock, which indicates that protesters are going to camp on the road, blocking it. Blocking roads is one of Extinction Rebellion's typical practices of civil disobedience.

When people are persuaded to join the movement, the focus is mainly on the internal goals of the organisations or campaigns: social movements need members to function. Participants are also needed to achieve external goals: the more people involved, the greater the impact and power of an organisation or a demonstration. According to

Hestres (2018), these kinds of calls for higher participation activities that are carried out offline, such as taking part in demonstrations, are more typical of newer, less established organisations, whereas traditional actors often request lower participation activities that can be done online, such as signing petitions (see example 4). This distinction can partly be explained by the structure of the organisations: unlike established NGOs, movements like Extinction Rebellion do not have a hierarchical organisational structure with paid staff, which makes them dependent on citizens' active participation.

Calls to action addressed to the reader are not represented as being as obligatory as those directed at decision-makers, since they do not contain verbs and expressions indicating necessity and obligation (*must, must be, must be not*), while the imperative mood is mainly used for advising and encouraging rather than commanding. The reader is therefore encouraged, advised and persuaded rather than commanded to act, which emphasises the horizontal nature of the movements in question.

4.5 Fostering hope

In addition to conveying the seriousness of the climate crisis, NGOs and climate campaigns must ensure the public retains hope that meaningful change is achievable and that taking action remains worthwhile. Achieving this balance is crucial, as overly optimistic narratives risk diminishing the perceived urgency of the crisis, whereas overly alarming rhetoric can lead to disengagement (see Markowitz & Guckian 2018: 40–41). In the data, this is reflected in the rhetorical strategy of *fostering hope*, which emphasises that despite the gravity of the situation, people have the potential to make a difference and build a better future. This strategy is identified in 29 texts within the dataset and is characterised by the use of modal expressions of possibility and references to the future.

> (6) *Tämä tarkoittaa sitä, että Suomen tavoite olla hiilineutraali vuonna 2035 tuo maailmalle toivoa. Maailman onnellisimpana maana voimme olla suunnannäyttäjiä osoittamalla, että kestävää talous ja hyvinvointiyhteiskunta ympäristön rajoissa on mahdollinen. #IPCCraportti*
>
> *This means that Finland's goal to be carbon neutral by 2035 brings hope to the world. As the happiest country in the world, we can lead the way by showing that a sustainable economy and a welfare society within environmental limits is possible. #IPCCreport*
> (FANC, tweet, 20/3/2023)

The tweet in example 6 is a part of a Twitter thread dealing with the IPCC synthesis report published in March 2023. While the tweet includes a hashtag linking it to the IPCC report, it does not directly address the report's content, but merely mentions it. The relationship between the hashtag and the rest of the tweet is therefore left open. The tweet presents an optimistic perspective on Finland's climate policy and future prospects. Specifically, it refers to Finland's official carbon neutrality target, which is described as bringing *hope to the world*. Possibility is expressed both by the use of the modal expression *voimme* ('we can') and the adjective *mahdollinen* ('possible'). The example portrays Finland as a success story and a potential pioneer that can play a vital role in the global fight against climate change while maintaining a welfare state. The example thus creates hope not

only that the climate crisis can be solved, but also that this can be achieved without the collapse of social, economic and political structures.

As is typical of our data in general, example 6 does not rely on evidence, probabilities or certainties associated with scientific language and practices. No particular reasoning or logic is presented to support the vision of the future painted in the example. Instead, the text operates in the realm of political imagination and states that a bright future is also possible. It is worth considering whether the example reveals something more general about the limits of political imagination in the era of the climate crisis: instead of envisioning a radically different society, it instils faith in the possibility of preserving the current social model despite climate change.

4.6 Demonstrating progress

In a total of seven texts, the *demonstrating progress* strategy is employed to highlight the positive changes that have already taken place. In contrast to *fostering hope*, which emphasises future possibilities, this approach focuses on past achievements. By using this strategy, activists suggest, at least implicitly, that an IPCC report has contributed to favorable outcomes for the climate, such as public mobilisation or victories in legal battles against fossil fuel companies. The primary linguistic resources utilised in this strategy include the past tense and structures expressing causal relations.

> (7) *Lokakuussa tapahtui kuitenkin merkittävä käänne, kun hallitustenvälinen ilmastopaneeli IPCC julkaisi 1,5 asteen raporttinsa. Raportin viesti ilmastonmuutoksen hillitsemisen tärkeydestä korkeintaan 1,5 asteeseen sai ilmastonmuutoksesta ahdistuneet kansalaiset toimimaan, ja lokakuun lopulla 10 000 ihmistä marssi Suomen historian suurimmalla ilmastomarssilla vaatimassa kunnianhimoisempia ja nopeampia toimia päättäjiltä. Myös Hiilivapaa Suomi ja Joulupukki olivat paikalla vaatimassa toimia valkoisten talvien säilyttämiseksi ja fossiilienergian alasajamiseksi. – –*
>
> *But in October, a major turning point occurred when the Intergovernmental Panel on Climate Change (IPCC) published its 1.5 degrees report. The report's message of the importance of limiting climate change to no more than 1.5 degrees prompted citizens anxious about climate change to take action, and in late October 10,000 people marched in the largest climate march in Finland's history, demanding more ambitious and rapid action from decision-makers. Coal-free Finland and Santa Claus were also present to call for action to preserve white winters and cut fossil fuels. – –*
> (Coal-free Finland, blog post, 7/1/2019)

In the blog post by Coal-free Finland, the publication of the IPCC's 1.5 degrees report is characterised as *a major turning point*. The message of the report is summarised in a single phrase (*The report's message of* ***the importance of limiting climate change to no more than 1.5 degrees***). The use of the transitive verb *saada* ('prompt') in past tense indicates that the report led people to take action. A causal relationship is thus established between the two states of affairs, suggesting that informed citizens are driven to act when presented with scientific evidence. The reference to the large number of participants in the climate march (*10,000 people*, *the largest climate march in Finland's history*) underlines

the scale and significance of the event. However, it is noteworthy that the report is not credited with directly influencing climate policy, but rather with prompting demands for more ambitious measures. The infrequent use of this strategy in the data could be due to the fact that the texts generally refer to recently published IPCC reports, the impacts of which are still too early to assess. Furthermore, it should be noted that the main goal of the activists is not to present the IPCC reports or the changes they bring about, but rather to use them strategically to support the climate movement's own agenda, which in many respects often appears more radical than that of the IPCC reports. To put it briefly, in our dataset, the IPCC reports – and science more broadly – are a means to an end, not an end in themselves.

5 Conclusions

In this article, we have explored the uses of scientific knowledge, in particular the IPCC reports, in climate activism. Since the IPCC reports are widely regarded as the highest scientific authority on climate science (Fløttum 2013: 282), it is only expected that the authority of the reports and scientific knowledge is not undermined but utilised in various ways across the data. Regardless of the focus and genre of individual texts, the IPCC reports prove to be a flexible resource for climate activism, capable of being adapted to the needs of different actors and agendas across the activist genre ecology. Our analysis reveals that activists do not generally engage in making scientific arguments themselves, but instead predominantly invoke the authority of the IPCC reports as a means of promoting their own goals, both internal (e.g. encouraging participation) and external (e.g. advocating for emission reductions). This distinction highlights that, in light of this data, the role of scientific knowledge in climate activism functions less as an argumentative resource grounded in scientific reasoning, and more as a source of authoritative validation for the movement's broader social and political objectives.

The strategy of *raising crisis awareness* relies on IPCC reports to emphasise the severity and urgency of the climate crisis, aiming to establish a shared understanding of its critical nature. *Assigning responsibility* functions to identify the actors – whether governments, corporations or influential individuals – who are accountable for contributing to or inadequately addressing climate change. Potentially it also influences public perception and policy discussions by framing climate change as a consequence of deliberate actions by identifiable agents, creating a sense of moral and ethical obligation to address the situation.

While the IPCC reports do not directly recommend or require certain actions, the texts employing the strategies of *demanding action* and a *call to action* go further and explicitly demand certain measures as well as persuade and encourage people to take action. At the same time, some of the strategies focus on the internal goals of the social movement organisations. This is especially relevant in the case of *mobilisation*, a specific type of call to action, which aims in particular at ensuring the continuity of the social movement. In addition to their activist aims, the texts also differ from the IPCC reports in terms of the linguistic means they employ: they use, e.g. appeals to the reader, directives and second-person forms of address.

The four strategies outlined above underscore that climate change is a crisis requiring rapid and substantial action to mitigate its impacts. Communication concentrating heavily on the risks and dangers of climate change may prove counterproductive (Moser & Dilling 2011: 164–165), highlighting the need to address the psychological and motivational

aspects of climate change communication (see, e.g. CRED 2009). In our data, two strategies in particular serve this function: *fostering hope* highlights the potential for positive outcomes and a sustainable future, whereas *demonstrating progress* showcases actual achievements followed by the publication of IPCC reports.

Prior research does not provide an unequivocal answer on the role of hope in the fight against climate change (see Ojala 2023). Whereas an over-optimistic view of the current situation can lead to passivity, hope fuelled by collective efforts encourages people to engage in climate action (Marlon et al. 2019). Within the genre ecology of this study, strategies that emphasise the possibility of positive change appear as a balancing component in communications that focus on highlighting the seriousness of climate change and the need for immediate climate action. It is worth noting that hope also plays a role within the climate movement: among climate activists, hope has been found to help tolerate and deal with negative emotions related to climate change, such as fear and anxiety (e.g. Ojala 2007; Kleres & Wettergren 2017).

This study has focused on how climate activists advocate for social change at the grassroots level of society, examining how they use genres *for* social action (Devitt 2020). Turning the spotlight on the use of genres outside widely studied institutions contributes to an understanding of inter-genre relations and genre interaction in less regulated and hierarchical contexts, as advocated by Reiff and Bawarshi (2016: 4–5). To bring about the changes in climate policy that the climate movement is striving for, activists must succeed in spreading their message beyond their core supporters. Previous findings suggest that texts published by environmental NGOs have not typically found their way into institutional genre networks in the past (see Solin 2004), but this may have changed as public awareness of the impacts and risks of climate change has grown. Further research is therefore needed to complete the picture of how, in turn, texts belonging to the activist genre ecology are used by citizens and institutions, such as the media or government – or whether they receive any attention at all.

The use of scientific knowledge in climate activism raises important questions about the (de)politicisation of science. While appeals to scientific authority, such as references to IPCC reports, can enhance the credibility of activists' statements, they may also risk depoliticising climate debate by framing it as a purely technical issue (see Pepermans & Maeseele 2014: 221; Evensen 2019). At the same time, science can become politicised when it is drawn into broader ideological struggles within public discourse. In either case, employing scientific framing within climate activism does not serve as a silver bullet that guarantees the achievement of activists' goals. Simply listening to the message of the scientific community will not solve the climate crisis, as scientific research does not provide answers to the complex ethical and political issues involved in addressing climate change (Evensen 2019). Moreover, as Moser and Dilling (2011: 162, 165–166) point out, scientific knowledge does not in itself motivate people to act. Translating scientific knowledge into concrete, value-based action is therefore a key task for the climate movement.

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Contact information

Irina Herneaho
University of Helsinki
irina.herneaho@helsinki.fi
https://orcid.org/0000-0002-2246-1989

Emmi Lahti
University of Helsinki
emmi.lahti@helsinki.fi
https://orcid.org/0000-0002-6553-6696