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Storying Climatically Changed Worlds — Potentials and Pitfalls of Future Journalism

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ABSTRACT

This study explores the emerging phenomenon of future climate stories in journalism: stories where the Intergovernmental Panel on Climate Change's (IPCC) future scenario graphs are combined with storytelling using prior narration as a way to take the reader into climatically changed futures. By analysing five stories and interviewing the journalists behind them, the study aims to better understand narrative choices and potential challenges of such journalistic engagement with possible futures. Through perspectives of professional journalism, science fiction theory and social futures theory, the findings suggest that this journalistic form has the potential to engage readers on the topic of climate change, as it creates a close linkage between climate science and people's experiences and emotions. By engaging with not only ecological, but also cultural and emotional tipping points, the use of prior narration in climate journalism may create cognitive estrangement similar to that of science fiction, which stimulates contemplation on the status quo and ultimately may have transformative potential.

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Introduction

Journalism is geared towards events in the here and now, yet, communicating about – and even more so – communicating engagingly about the currently evolving climate crisis has proved a daunting challenge. Although perhaps less so than a decade ago, the reality of climate change still feels distant in time and space to a large part of the world's population. The Intergovernmental Panel on Climate Change's (IPCC) future scenarios¹ are an important tool for journalism when attempting to conjure up potential consequences of climate change for their audiences (Guenther, Bruggemann, and Elkobros 2022; Kumpu 2013). While these graphs have been used by journalists to tell spectacular stories of both doom and technological salvation, they have not been used so much to explicate what a two-degree increase in average temperature implies for peoples' lives in local places that are so far modestly impacted by climate change. In recent years, however, some journalists have picked up a more multi-hued palette to paint possible futures in their journalistic stories based on the IPCC graphs.

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The particular kind of future climate stories studied here are all based on IPCC's future scenarios, which show how much the temperature will rise according to different emission paths ranging from "best case" through "business as usual" to "worst case". At the same time, they all contain elements of a storyteller position called prior narration (Genette 1983). Prior narration means that the storyteller talks about events taking place in the future. By way of prior narration, the journalists try to bring to life different future scenarios that are changed due to climate change or put differently, they try to take the reader into the future. This study approaches these future climate stories as an emerging journalistic phenomenon. Through text analysis and journalist interviews it explores the challenges and pitfalls of journalistic engagement with climate futures.

Literature Review and Research Questions

Temporalities of Journalism and Climate Change

There has in recent years been a growing body of studies dealing with different aspects of journalism and time. The centrality of the present in journalism has long been emphasised by scholars. In an attempt to distil journalism's epistemological core, Nash points out the present as the modal place of operation (Nash 2016). Zelizer, however, questions this strong focus on the present in journalism studies and asks for a more nuanced research agenda on the temporalities of journalism (Zelizer 2018).

Recent years have seen the emergence of literature on journalism and time that deals with different temporal aspects of journalistic work and products in more varied ways. Central to this field is Tenenboim-Weinblatt and Neiger's work and their concept of "temporal affordances in the news", concerned with how the possibilities and constraints of material and technological aspects of news production constitute the temporal construction of news narratives (Tenenboim-Weinblatt and Neiger 2018). The authors argue convincingly for the value of studying temporalities in the news, saying that:

News is both constituted and constitutive of time. On the one hand, time is one of the major factors that shape and constrain the production of news. On the other hand, news narratives, in their representation and construction of societies' past, present, and future, contribute to the shaping of public time. (Tenenboim-Weinblatt and Neiger 2018, 50)

Although the study at hand focuses on climate journalism, it does respond to Tenenboim-Weinblatt and Neiger's appeal to untangle the interplay of affordances, content manifestations and journalists' role perceptions (2018).

Whilst there has been an increasing research interest in the temporalities of journalism, relatively few studies have focused on journalistic engagement with the future (Zelizer, 2021). Pentzold and Fechner contribute to filling this gap in a study of data-driven journalistic projects doing what they call "probabilistic storytelling". Out of large troves of digital data and the application of predictive analytics, the journalists in the study make news about probable futures (Pentzold and Fechner 2021). The study not only investigates how this kind of work is done but also engages with the professional and epistemological underpinnings involved. By interviewing project workers, they find that despite a drive to create a more precise prognosis in a shorter amount of time, this kind of work is seen as extremely time consuming and dependant on past numeric information. The latter results in stories that, rather than engaging with a myriad of probable futures, are mere

extrapolations of past data. These “temporal exigencies” are important reasons why journalists downplayed the journalistic relevance of such projects. The study nevertheless concludes that the reluctance and ambivalence the journalists entered into projects enabled a fruitful digital experimentation with future engagement within the boundaries of fact-based journalism.

Hornmoen et al.’s study of future stories in journalism draws attention to more linguistic aspects. They develop a conceptual framework for analysing journalistic future stories based on a separation between “stories about the future”, “stories from the future” and “conjures of the future” (Hornmoen, Hågvær, and Alnæs 2023). Furthermore, they discuss how central narrative categories, such as narrativity, narration, plot and storyteller level may be helpful in understanding future stories in journalism (2023). They point out that future stories tend to emerge in crisis contexts, such as the climate crisis, the corona crisis or the Russian war on Ukraine, and that they often contain elements of prior narration, where the storyteller talks (almost prophetically) about something that might happen in the future.

This study positions itself somewhere between the above two, as it looks at both narrative strategies and professional challenges in the making of future stories. Whereas the above studies focus on future-oriented journalism in general, the study at hand narrows in to look at climate stories and asks.

RQ1: What kind of narrative strategies did the journalists use in their future climate stories and what are their reflections about these choices?

A Clash of Temporalities

Bødker and Morris underscore how journalism’s here-and-now focus clashes with the temporalities of climate change: an invisible process stretched far out in time and space (Bødker and Morris 2021). The only climate change “events” for the press to cover was for a long time restricted to high-profile meetings, report launches and sporadic protests. This picture has somewhat changed in recent years, as extreme weather events have been linked to climate change in more explicit ways (Strauss et al. 2022).

Other studies show more journalist/editor driven strategies to overcome the event focus. Weldingh compares “event driven” and “topic driven” climate coverage in Danish newspapers from 2018 and 2021 and finds slightly more topic driven climate journalism and that this kind of journalism often appeared in newsroom-initiated “serials” (Weldingh 2023). Ytterstad and Bødker investigate how Norwegian journalists have increased and altered the frequency of reporting about climate change by linking it to the much debated “green shift” of the national economy, and thus overcome some of the event-focus in journalism (Ytterstad and Bødker 2022). By further exploring the ways journalists try to overcome the temporal challenges of reporting about climate change, this paper builds on the insights of these studies.

Reporting Climatically Changed Futures

A few scholarly inquiries have looked into how the future is portrayed in climate reporting. Guenther et al.’s longitudinal qualitative content analysis looks at multimodal framings of our future with climate change in international magazines from 1980 to 2019.

They identify the frames “Global doom”, “Local tragedies” and “Sustainable future” (Guenther, Bruggemann, and Elkobros 2022) and recognize a shift from “apocalyptic to more sustainable future visions with empowering solutions”, reflected both in texts and visuals (Guenther, Bruggemann, and Elkobros 2022, 141).

Kumpu’s study of futures imagined in Finish newspaper’s coverage of UN climate summits (COP’s) in Bali 2007, Copenhagen 2009 and Cancún 2010 shows how the summits functioned as a nodal point that structured the ways futures were imagined: either as a desired future of emission reductions or an undesired future of climate consequences, with the establishment of a treaty as the only success factor (Kumpu 2013). Kumpu questions whether “the articulation of climate change as “a mega-problem waiting for a mega-solution” and the restricted ways of imagining futures related to it is the best way to build a durable relationship with it” (Kumpu 2013, 61), thus also pointing at the restrictions of event driven climate journalism in general.

Kumpu builds his study on Hulme’s notion of the hegemony of natural sciences in climate discourses (Hulme 2011), and finds similar tendencies in his COP material. He sums up the consequences this bias has for journalism: “for this reason, the future is easily reduced to changes in climate while human agency as well as social and cultural changes that do not easily fit with these models are left unexplored” (Kumpu 2013, 54).

Fact, Fiction and Futures in Journalism

Together with its focus on events in the here-and-now, facticity is at the core of journalist epistemology (Nash 2016). In the case of future climate stories, the challenge related to facticity is twofold: whereas Pentzold and Fechner emphasize the question of how to deal with the uncertainty of future prognosis, Hornmoen et al. highlight the question of how to balance between an engaging story and the most probable outcome. In the material presented here, both these challenges are relevant, as the stories contain both probabilistic prognosis and prior narration.

Pentzold and Fechner (Pentzold and Fechner 2021) express the epistemological trouble of probabilistic storytelling in journalism, saying that

The challenge, then, is how to engage with the innate uncertainty of probabilistic prognoses, which interferes with the journalistic norm of providing valid, fact-based, and verifiable evidence. (Pentzold and Fechner 2021, 720)

In this study’s material, the issue of probabilistic prognosis is partly solved by leaving the responsibility of data presentation to the IPCC and leaning on their authority. The panel’s future scenarios function as a sort of “ready-made” visualisation that journalists can make use of and that might support both trustworthiness and engagement. Standing alone, however, the trustworthiness of the IPCC scenarios would rely solely on readers’ general trust in the IPCC as an institution, with all its shortcomings. That climate sceptics would reject such information is perhaps a lesser problem, as these would be hard to convince in any case. A larger challenge is rather reaching out to audiences who find IPCC graphs too abstract and disconnected from local knowledge and life experience, rendering the knowledge irrelevant (Kunelius et al. 2016).

In a foreword to *Climate change and journalism: negotiating rifts of time*, time sociologist Barbara Adam notes that a main obstacle in journalistic reporting of climate

change is the status of the future as “neither real nor factual” (Adam 2021, 18). She argues that this deeply seated notion hinders a full grasping of climate phenomena, that,

straddle the full range of temporal modalities, where past, present and future not only interpenetrate but also mutually implicate each other and where associated intangible processes tend to have dramatic effects some time, somewhere. (Adam 2021, 18)

Furthermore, she emphasises that there is a need to recognize other ways of understanding time for issues that are systemic and time–space-distantiated, saying that

As a future in-the-making, climate change needs to be recognized and accepted as *an engendering process in progress* [emphasis in original], thus factual and real in ways that transcend conventional understandings. (Adam 2021, 18)

Thus, what she calls the “future facts” of climate change is “located not like conventional facts in the past or present, but in the not-yet of calculations and projections” (Adam 2021, 13). Following that, Adam urges journalists to re-think the epistemological status of the future in their climate change reporting.

The question is, however, how to weave such facts into a compelling and convincing journalistic narrative? In written text, journalism usually conveys scientifically based future predictions by quoting scientists and presenting their graphs. Then at least the scientist has in fact said it and stands as a guarantor for its validity. In some of the articles in this study, the journalists use prior narration to describe future events and persons that, although built on a scientific basis, are in fact not real. This fictional mode of storytelling may come into conflict with journalistic norms. Thus, it is crucial to explore how the journalists behind future stories conceive of these fact-fiction tensions in the context of professional journalism. The second research question orients towards these and other potential issues in journalistic engagement with climate futures and asks.

RQ2: What are the challenges of storying climatically changed futures within the context of professional journalism?

Climate Change and Audience Engagement

The question of how to engage audiences with climate change stories has puzzled journalists and scholars for decades. The failure of the knowledge deficit model of science communication has shown that a clinical transfer of scientific knowledge about complex issues like climate change is not enough to engage people or to make them act (Arnold 2018). At the same time, engagement has numerous meanings and is hard to measure. Steensen et al. emphasize the difference between engaging audiences in the sense of making people click on a story and a more profound engagement that may come out of reading or interacting with stories (Steensen, Ferrer-Conill, and Peters 2020).

Brannon et al. note the potential of gamification and interactive storytelling in journalism to create engagement, enhance climate literacy, and reduce the impact of misinformation (Brannon et al. 2022). In their study of three different interactive climate-related journalistic projects, they focus on the intersection of interactive documentary (I-Docs)

and immersive journalism and show how the producers seek to create a sense of spatial and emotional presence for the audience (2022). The material in the study at hand contains elements of both interactive and immersive storytelling as defined by Brannon et al., and thus (as will be explicated below in RQ3) the study answers to their call to further investigate the communication and engagement potential of these innovative niches of journalism.

Considering Transformative Potential by Way of Science Fiction

As noted by Guenther et al, media effect studies show that characteristics of climate futures, including their visual representation, can motivate people to act (Guenther, Bruggemann, and Elkobros 2022). Reception studies show that whereas strong images of climate change impacts may invoke powerlessness in people, images of actions and solutions may invoke self-efficacy (Guenther, Bruggemann, and Elkobros 2022).

This idea of a connection between future stories and engagement/action has also been explored within the field of science fiction (SF) studies. Already in the early 80-s, de Laurentis theorizes that the combination of scientific facts and imagination could be.

(...) creative in the sense of mapping out areas where cultural change *could* take place, of envisioning a different order of relationships between people and between people and things, a different conceptualization of social existence, inclusive of physical and material existence. (De Laurentis 1980)

What SF does is to create a cognitive estrangement, what Suvin calls a *novum* (Canavan and Suvin 2016), an element that represents something new and that opens up a *discursive space*. This is frequently referred to as the “method” of SF (Hellstrand 2020). At the same time, SF is anchored in the time of its production, and it is the dialogue between a possible future and a factual present that makes up the core of SF. In this way, SF does not only make audiences look into the future, but it also makes them contemplate their current lives and societies.

Approaching future climate stories in journalism from the perspective of SF may facilitate a discussion about the engagement potential of stories. Acknowledging that the findings will be of a theoretical character, as audiences are not asked about their reactions to the stories, this study asks.

RQ3: To which extent can future climate stories in journalism engage audiences?

Social Futures – From Probable to Preferable and Possible

The complexity and emergency of climate change have made scientists call for a stronger emphasis on the social in various forms of future thinking (Galviz and Spiers 2021; Urry 2011). The shift towards foregrounding *social futures* means “attending to a wider range of social considerations necessary for humanity, other species and the planet to flourish, and adapting a broader, more creative set of approaches and methods in order to do so” (Galviz and Spiers 2021, 25). Moreover, this implies a shift in attention towards “specific *times, places and people*, from which intersections futures emerge” (2021, 26). Social futures are about what matters, what makes a difference and thus they are value laden.

In his typology of future scenario thinking, sociologist John Urry distinguishes between the normative, the extrapolation and the building of scenarios. The aim of *extrapolation* is to present *probable* futures (Urry 2011, 139). This way of future thinking has been the dominant paradigm in the west after the Second World War, particularly within the fields of economy and technology, and so also the media (Galviz and Spiers 2021; Urry 2011). However, this way of future thinking alone falls short when dealing with climate change, where abrupt changes might – and probably will – change the development path in various and highly uncertain ways (Urry 2011).

Normative approaches present futures that are *preferable* to achieve certain goals. In de-growth studies, for instance, the normative future is one where the social imaginary of growth has been de-colonized (Varvarousis 2019). Urry and others note how this approach pays little attention as to *how* to reach the goals (Urry 2011; Varvarousis 2019). However, such notions build on the idea of the constitutive role of social imaginaries (Taylor 2004); that forecasting can become a self-fulfilling prophecy, and that by changing the narrative of the future, the probability of that future to materialize increases (Urry 2011; Whiteley, Chiang, and Einsiedel 2016).

Building of scenarios is a more instrumental approach that explores different scenarios with a focus on how to reach those. This “method” of futuring is context sensitive and it involves “imagining the interdependent effects of economic, social and resource events and processes upon each other in the future, and hence upon likely future outcomes” (Urry 2011, 140). Urry presents many such scenarios in his scholarship, for example, different routes to a post-oil society (Urry 2013). Scenario building is thus more concerned with *possible* futures.

In the concluding discussion, the findings of the study will be considered in light of social futures, so as to better understand the workings of different kinds of future thinking within the field of climate journalism and journalism in general.

Materials and Methods

Observations of stories about climate change using prior narration in Norwegian news outlets sparked the interest of this study. The search for articles in this category, in the beginning, resembled looking for a needle in a haystack. At first, attempts were made to search in media databases, but this proved difficult due to the many hits on words such as “climate” and “future”. However, the stories were quite easy to describe and when people in different academic and non-academic settings were asked if they had seen something like that, they seemed to easily catch it, and many had already read some of the stories in the sample and told about other cases. Thus, the selection of material – five stories and the five journalists behind them – was a result of purposive snowball sampling (Noy 2008). Using this sampling method means that relevant items may have been missed. This would not, however, be a problem to the analysis, as the approach is purely qualitative and focuses on similarities and differences and what these mean, rather than measuring variables. The same logic holds true for the small size of the sample: the analysis does not measure or make points about numbers but rather looks for meanings in the material.

In the research for future stories, colleagues abroad were also helpful with suggestions from their media. Whereas their suggestions supported the idea that journalistic future

climate stories could be seen as an emerging phenomenon, the final sample is exclusively from Norwegian news outlets. This decision was made to create a more focused discussion with the interviewees (the journalists behind the stories) based on their familiarity with the Norwegian press.

Semi-Structured Interviews

Five journalists were recruited for the study. They were all contacted based on their authorship of the sampled stories. Two of the journalists had worked on the same project and one had written two future stories that made up a small series. Before the interviews, all the interviewees were presented with the full selection of texts, and during the interviews, both the interviewees' own texts and the other journalists' texts were discussed. Presenting the interviewees with all the texts was done to stimulate reflections on different ways of using prior narration in journalism. This strategy was helpful and produced several interesting reflections.

All the stories could be considered larger journalistic projects that had taken from three weeks to one year to produce, and in all instances, there were other professionals involved, such as illustrators, developers, and photographers. The interviews took about one hour and all but one took place in newsrooms. All the interviewees identified as journalists, although not all had formal training. The five were permanently employed and had several years to decades of experience with journalistic work. This "secure" position of the reporters may have been important to them as they went about experimenting with future stories.

The Future Climate Stories

All five stories in this study are thoroughly illustrated, based on IPCC scenarios and use elements of prior narration in their storytelling. Three of the stories are "scrollytelling" stories, where the reader actively propels the story by scrolling down (Hornmoen, Hågvar, and Alnæs 2023), and two are feature stories.

Title	News outlet	Date of publication	Type of story	Design/illustrations (modality)
Welcome to 2050: The light green version (Nipen and Fallsen 2021)	Aftenposten	29 October 2021	Magazine story reworked for online	Illustrations (futures) Filmed portraits of young people (present)
How will climate be like in ... (type in municipality) (Støstad and Skjæraasen 2020)	Norwegian Broadcasting (NRK)	28 November 2020	Digital story based on database Scrollytelling	Illustrations/movement (future) Animation (present)
What happens to Syver's winters? (Mathismoen 2022b)	Aftenposten	19 February 2022	Digital story Scrollytelling	Photography (present/past) Drawings (futures) IPCC-graphs/movement
What happens to Syver's summers? Norway will become the new South (Mathismoen 2022a)	Aftenposten	02 July 2022	Digital story Scrollytelling	Photographs (present/past) Drawings (futures) IPCC-graphs/movement
Ylva's world (Drefvelin 2015)	Norwegian Broadcasting (NRK)	22 November 2015	Digital story	Photographs (present) Drawings (futures)

Interviews

The analytical approach in the study is abductive, in the sense that there is a dialogue between theory and empirical data (Järvinen and Mik-Meyer 2017). The questions in the interview guide were both open-ended and hypothesis testing in nature, so although the approach has been explorative to a large extent, it has been guided by an understanding of professionalism and its normative underpinnings. Hence, some questions were asked to tease out reflections concerning the boundaries of professional journalism, such as between fiction and journalism or science and journalism. The interviews were thematically coded, and some of the themes were mainly constructed by the researcher's interests and hypothesis and others mainly drawn from the spontaneous reflections of the interviewees. The themes will be sorted under the headlines "narrative strategies" and "professional challenges", reflecting the RQs of the study.

Text Analysis

Although the focus of the study is the journalist interviews, the analysis section will start by looking at the texts, providing an opportunity for a dialectical approach between text and interviews as the analysis moves on. Hornmoen et al. argue that a fruitful approach to future stories in journalism is to discuss how the narratives can both create *engagement* in the reader and strengthen the *trustworthiness* of the possible futures they draw up – and how these two functions are balanced (Hornmoen, Hågvar, and Alnæs 2023). The following brief description and analysis of the future stories will consider how these aspects play out in the texts. In order to give a better impression of the total material, the analysis will mainly focus on similarities and differences in the sample, but particularities that are of relevance to further analysis will also be pinpointed.

Analysis/Findings

The texts: Creating Engagement and Building Trustworthiness

Engagement

In addition to having the scrollytelling-format, the stories are richly illustrated with photos, drawings, animations, and simplified graphs that help the reader through the text. Detailed scientific information and references are "hidden" in text boxes, something that further enhances readability.

By way of prior narration, the reporters describe how scenes and events play out in the future, which could potentially engage the reader by drawing him/her into the storytelling. The use of prior narration in the texts varies from a short lead in the intro to almost the whole story. A central feature is the switching between a storytelling voice in the present (the journalist) and elements in prior narration. In all the texts, the storyteller's voice makes a contract with the reader (Hornmoen, Hågvar, and Alnæs 2023), making explicit that what is to come is a "thought experiment": the reader is invited to imagine futures together with the journalist.

Three of the articles, "Ylva's world", "Syver's winters" and "Syver's summers" follow a child into adulthood and eventually old age in imaginary futures. The children have a similar function to that of a journalistic "case", but at the same time, they also represent

“children in general” or “future generations”, as they are chosen mainly because of their age. This narrative strategy represents an alternative way of measuring time, what Kvern-dokk calls “family time”, which helps “link” climate-changed futures to the present (Kvern-dokk 2020), with the potential of creating identification and evoke feelings of both responsibility and engagement, perhaps particularly in elder generations.

The story “Welcome to 2050” is framed by interviews with young activists, who are introduced at the beginning of the story, and at the end of the story they are asked about their hopes for the future and what they think their lives will be like in 2050. Compared to the “children in general” cases, this narrative strategy gives the cases more active roles and an opportunity to reflect upon their own situations and potential futures. The focus on hope and solutions may potentially have both empowering and engaging effects, especially on younger readers who can identify with the activists.

A central engine in the storytelling in all the stories is the IPCC scenarios. Those are used in different ways in the stories, which has different implications for the stories as wholes. “Welcome to 2050”, looks at the “best case scenario” and claims to show what the future could be like if we reach the 1.5 degree goal – and how we got there. In “Syver’s winters” and “Syver’s summers” the reader scrolls down to see in graphs temperatures and different other factors (skiing days, days of heat waves or extreme rainfall) in concrete locations in Oslo in “best case”, “most likely” and “worst case” scenarios. In this way, the reader is invited to contemplate the different implications of these three scenarios. In “How will climate be like in your municipality?”, the authors have chosen the “most likely” scenario. In “Ylva’s world”, readers get to see both best and worst-case scenarios as they play out in the year 2100. This story most strongly shows the contrast between a “successful” and “failed” climate future. The contrast is supported by illustrations showing Ylva as an old woman in two different futures, and her facial expressions reflect the hardship of the failed future and the happiness of the successful future quite explicitly.

Trustworthiness

All the stories are based on IPCC future scenarios and other natural scientific research. In two of the stories, a more varied set of sources are consulted, including social scientists, psychologists, and popular science books. The different source choices have different implications for how trustworthiness is built in the stories. As noted above, there has been a strong tendency to turn to the natural sciences in climate journalism, and the broad reliance on IPCC graphs in the material may reflect such a bias.

Three stories depend mainly on IPCC scenarios and other natural scientific knowledge: “Syver’s winters”, “Syver’s summers” and “How will climate be like in your municipality?”. Whereas these stories to a large extent build their trustworthiness on natural sciences, the journalists make efforts to highlight and explain scientific uncertainty, and thus perform a kind of journalistic source criticism to heighten the credibility of the text, while at the same time making the data relevant by linking them to local places and local weather data.

“Welcome to 2050” and “Ylva’s world” differ in that they also bring in science from a wider range of disciplines, something which opens the possibility for the storyteller to narrate about futures that are transformed on social and political levels too. These two stories are the ones with the most and longest passages of prior narration in them. In

these stories, the trustworthiness is more strongly rooted in the authority of the journalist and the journalist profession. The journalists rely on the readers to trust that they have done solid and critical research and combined relevant scientific sources in their texts.

Cognitive Estrangement by Exploring Tipping Points

As outlined above, the transformative potential of SF is to make readers take another perspective by introducing a “strange” element that enables them to reflect upon their lives in the here-and-now. In the following, it will be argued that the engagement with different kinds of climate tipping points in the future stories have a similar function in the narratives and thus may have a transformative potential.

As noted above, a central task of journalists is to show and argue for the probability of the phenomena playing out in their stories. The analysis so far shows how making use of natural scientific knowledge, numerous scientific sources and highlighting scientific uncertainty works to this end in all these stories.

At the same time, the stories introduce some elements where the scientific uncertainty is of a different kind. One example from “Ylva’s world” is the prospect of white sharks in the Oslofjord. Both in the lead text and in one illustration, this exotic and scary shark figures.

White sharks are spotted several times in the Oslofjord. This summer, when Ylva was fishing with the children in their small motorboat, she thought she saw a shark just above the surface of the water. Later that day, the children were bathing. She looked at them as they were bobbed up and down in the ocean, and she could feel that irrational fear. (Drefvelin 2015)

The passage is supported by a quote from a scientist at the Institute for Marine Research, saying that “In 2050, it is probable that we will see white shark along the Norwegian coast, from the Oslofjord to Bergen, and perhaps further north too”.

Although the quote from the scientist keeps the prospects of the white shark in the Oslofjord within the confines of the “probable”, the emergence of such a figure in the fjord may be seen as a kind of tipping point in the sense that it will change the cultural meaning of the fjord from a safe space to an unsafe space. So even if the emergence of the white shark does not represent a tipping point in a strict ecological sense, it does so in a cultural sense - and an emotional sense - as a (rational) fear of encountering a dangerous shark in these waters does not exist today.

In “How will climate be like in your municipality?” and “Syver’s winters”, the main aspect of the storytelling is snow cover. The absence of snow cover can be viewed as a kind of tipping point, and the scenario of a white winter completely relies on the quicksilver to fall below zero. Although snow is not a vital factor for people and societies, snow is strongly connected to culture in Norway, and the prospects of a shrinking snow cover may produce both grief and nostalgia in readers. In “Syver’s winters” the nostalgia is teased out in a subtle way by comparing the past (by showing the authors childhood photos), the present (Syver playing in the snow) and the future (describing the decline in snow days in the Oslo area).

A last example is from the “Welcome to 2050” story. Here, the reader is invited to imagine a “best case scenario”, and although many things are the same, some things are quite different, too. For example:

The wardrobe does not take up much space anymore, because you do not have much to choose among. Just what you need for work and leisure. The ideal is only 4 kg new

clothes a year. Some have more, some less. Trouser, sweater, t-shirt, socks, underwear, there you have 1 kg. Towels and linen, there you have another 1 kg. Using up your part of the resources happens very quickly. (Nipen and Fallsen 2021)

The story ends with reference to the “you” person’s feelings towards his/her life in a transformed climate future: “As you brush your teeth, the radio plays an old classic from you parents’ days, R.E.M. *“It is the end of the world as we know it (and I feel fine)”*” (Nipen and Fallsen 2021). There is a strong sense of lightness in this narrative, but underneath the surface looms a political tipping point that might be both strange and scary. The story portrays a society where the amount of clothes you may buy is regulated, either by personal morals or politics, and where “your part of the resources” is clearly limited. Such an imagination might lend thought both to successful climate policies and to more authoritarian regimes. However, in the context of a “best case scenario”, this limitation on consumption is presented as a “preferable” future, as a trade-off that is possible to live with if the climate is saved.

In all these examples, journalists go beyond probabilistic storytelling, such as rising temperature or sea level within different scenarios, and direct attention to different kinds of tipping points in their storytelling. By presenting these “What if?”s, the journalist, rather than leaning on the authority of scientists, invites the reader to contemplate out of his/her own conscience: given the potential consequences, is it worth taking the risk? From an SF perspective, this could be seen as a movement towards cognitive estrangement. Furthermore, these “tipping points” are narrated with a close link between place, everyday life and emotions, and climate change is thus explicitly linked to the unfolding changes.

Interviews: Narrative Strategies and Professional Challenges

Part 1: Narrative Strategies

This first part of the interview analysis will examine the ways in which the journalists make sense of their narrative choices in future stories.

Distant in Time, Close in Space

The theme “closeness” is explicitly mentioned by all the interviewees. Placing the stories geographically close, could compensate for the distance in time and thus make the story more relevant and engaging to readers. Some quotes may illustrate how this strategy is made sense of:

The idea, the original idea at least, was that because it was not close in time, then we should rather make it even closer in pure geography. (Støstad)

(...) one of the key things in journalism is closeness, right, that you have to come close to people. And the future is per definition distant. So, I guess it is an attempt to make it a bit closer, the reader experience, I mean, that it concerns you. (Nipen)

This closeness also exceeds geography to mean close as “concerning peoples’ everyday lives”

(...) I think about what is important in everyday life, right, food is important and things like skiing, and then we select what we want to write about (...) that we thought was close to people. (Drefvelin)

“Casing” the Future

Another narrative strategy to increase closeness and identification is using a child as a “model” or a journalistic “case”. Drefvelin reasons about this choice as a wish to make the story closer, but also more “alive”.

How will the world look like to them (today’s children)? (...) make it more alive. So, that was the reason for making these scenarios. To pull it closer, that we could immerse ourselves into this Ylva, that I found and that became a kind of a journalistic case. So that was how it started. (Drefvelin)

Whereas the case in the former example is a random girl, the child making up the case in “Syver’s winters” and “Syver’s summers” is the journalist’s own son.

And when I suggested we could use Syver, who is my son, and at that time five and a half, as a picture (...). Because it is interesting when you can, not necessarily personify, because nobody else but those who know him know him, (but) he is kind of like a model of a five-year-old, right? (Mathismoen)

The fact that Mathismoen brings in his own son in the story (where he himself is quite visible as a storyteller) brings closeness in the sense of the parent–child relationship into the centre of the narrative, thus potentially linking climate change to a generational justice perspective. The story about Ylva, although not told through the voice of her mother, but a journalist that comes to visit, does something similar as the link between generations is emphasised.

The journalists argue for this narrative choice in the context of “casing” up the story, which is something journalists work with daily and which is a central strategy for creating identification and engagement in stories that otherwise would be dry and inaccessible to audiences.

Prior Narration as Concretization of Possible Futures

When the journalists discuss their strategies for working with closeness and identification, they refer to the routines and values of professional journalism. However, they also acknowledge that these stories are a bit different. The two journalists that use prior narration most in their stories actively reflect upon the implications of this storyteller positioning when presented with the term:

I think it can be effectful. To pull the reader into the scene and into understanding, yes, understanding how things might play out. (Drefvelin)

It was an attempt to make it more easily digestible to people. That it is a story with a dramaturgy and that (...) yes, that it is not somebody telling you something, but that we kind of imagine how it can be ... the premises are clear. (Nipen)

At the same time, Nipen underscores that predictions are not rare in journalism and that it is the narrative form that differs from the standard way of doing it.

Well, journalism usually deals with things that have happened and not things that are going to happen. So, it is a somewhat different kind of journalism. At the same time, we write about predictions about the future a lot, be it about the weather (...). In a traditional way, we often write about what people think about the future. So, it is really mainly the form that is different here. Yes, we have chosen a narrative form that is a bit different. (Nipen)

Both Nipen and Mathismoen underscore the importance of *concretizing* what climate change might mean to peoples' lives, and that prior narration is one way of doing that.

We try to show in a very concrete way what the winters in Oslo will be like (...) less snow in the winters, less minus degrees, milder summers, very concretely in that one place. I think that is the clue and that is the message we convey. (Mathismoen)

Yes, that is the trick with storytelling to have people smell ... you need those details of what the tablecloth looks like (...) or have them immerse into the smell of freshly brewed coffee. (Nipen)

Nipen draws a parallel to the way feature journalists work with other types of topics to emphasise that not all descriptions in journalism are based on things that have actually happened, but can still be based on research. Sometimes, as she points out, privacy protection issues might force journalists to be creative. Her example to illustrate this was a project about violence happening in elderly care institutions. The project was based on reports about violence in several institutions, and to make an engaging and not too depressing story out of the material, the journalists went on a "fieldwork" to learn about a typical day at one centre for elder people. The observations they made at the centre served as a "scene" for the story about the reports.

Drefvelin describes a similar approach when talking about the work with "Ylva's world":

I tried to write like you do in journalism and somehow create scenes and pictures the same way as I do when I meet Ylva for real at Nesodden when she runs across the lawn and all that, that is what I normally do, so I try to do the same in the (prior narration) story. (Drefvelin)

Part 2: Professional Challenges

This second part of the interview analysis focuses on the challenging aspects of future climate stories in the context of professional journalism.

Fact-Fiction Tension

The potentially problematic aspects of both probabilistic and more creative storytelling about the future stem from a combination of the difficulty of predicting the future in itself and from journalism's epistemology of being a producer of stories based on facts in the here and now. Prior narration as a narrative strategy offers an additional problem – what is being told is not some scientists' more or less plausible prediction of the future, it is a story told by the journalist herself that has in fact not happened. As shown above, the interviewees discussed their work in relation to professional journalistic routines and values related to source criticism and narrative strategies. However, the interviewees who had made the two stories with the most prior narration had some reflections on this:

It is very different from anything I had done before. This is all about coming up with something, but based on facts, but the story itself, that frame-story about Ylva and her feelings and such, is just a fabrication. And we had quite a few discussions in the newsroom about this. How far can you go in journalism in making a story that is not real? (...) I remember we were thinking ... shall we take it a bit further, so that people get sadder and have more feelings? No, then it will be too speculative, maybe (...). (Drefvelin)

Nipen emphasises how all the details in her future story are based on research.

But I think that it is extremely important in such a story not to fabricate anything (...) we are not doing that. But it has such a form that makes people start to wonder, perhaps, if you do not check the source list, if this is something I just came up with, kind of, and it is not interesting what I believe. (Nipen)

Both these stories are written with a clear contract with the reader to enter an imaginary future. What separates them, however, is that “Welcome to 2050” is told from the perspective of “you” – inviting the reader to think about herself in this future version, whereas “Ylva’s world” talks from the perspective of a future imaginary Ylva, a character given both a life story and emotions by the journalists.

The Pitfalls of a Local Focus

Another issue that came up as problematic was related to the narrative strategy of combining IPCC graphs and focusing on local places to create both trustworthiness and closeness in the stories. The attempt to draw the climate crisis close by focusing on local places could perhaps engage more people, but at the same time, it draws attention away both from the global situation and from the risk of tipping points. The team behind “How will climate be like in your municipality?”, reflect upon this dynamic, relating their project to “Ylva’s world”:

We have not chosen that “Ylva’s world” that is almost literary in style. While all we are saying is based on numbers and science. But we have some paragraphs about not to forget that migration waves might come and things like that. But the form we chose is much more fact close and it has a considerable weakness there. Because, if the world economy collapses due to drought in the Equator and (failed) food production. And migration waves come from all over the world, then that is a hundred times more important to Norway than two extra rain days in your municipality. But that we are not showing. (Støstad)

The journalists were conscious of this trade off, and presented it as problematic, but also as a fruitful way to avoid stepping into the trap of alarmism and scaring off readers or feeding into apathy. Several of the interviewees underscored that this kind of storytelling is one out of many to reach and engage different kinds of readers on the topic of climate change.

Concluding Discussion

This study shows that the journalists’ narrative strategies in the “future climate stories” are based on “normal” routines of journalist production: creating identification to engage audiences and exercising source criticism to build trustworthiness. The journalists’ experimentation with prior narration, illustrations and “model future cases” helped concretise various consequences of climate change, thus dealing with some of the temporal challenges that hamper climate journalism. By making the future close, one might say that the stories created a temporal presence similar to how the interactive stories in Brannon et al.’s work created spatial presence (Brannon et al. 2022).

At the same time, using prior narration in the stories is problematized and identified as something “different” from regular journalism, as it threatens the boundaries between facts and fiction. However, if the premises are made clear by expressing that “we are

now going to make a thought experiment”, and the story is not pushed too far in evoking emotions in readers, it passes as acceptable. Importantly, as the journalists emphasised, all the stories are built on a wealth of scientific sources to uphold trustworthiness.

Seen through the prism of social futures theory, the stories all build scenarios with social dimensions. The IPCC scenarios that make up the basis of the stories are themselves an example of scenario building, however, the IPCC scenarios do not incorporate the social, as they only show different paths of temperature rise as these relate to different paths of carbon emissions.

The two stories that most clearly bring in the social in their narratives (Ylva’s world and *Welcome to 2050*) have a stronger element of “how we got there” in terms of how various social, economic and resource-related issues brought about the scenarios in the story. Meanwhile, the same two stories also have significant normative elements, that exceed arguing that we must cut emission for the best of the planet. In *Welcome to 2050*, we see how smart technology and limited consumption can create happy, meaningful lives. In Ylva’s world, the best-case scenario shows a world more oriented towards sustainable food production and strong communities.

The last three stories rely solely on the climate data of the IPCC graphs and thus come closer to probabilistic future storying. They are all based on extrapolation of past data within the different IPCC scenarios, while at the same time discussing uncertainties along the way. However, the linking of the various probable outcomes to various local places (in all the stories) and to future generations (in Syver’s winters and summers) is instrumental in bringing into life social futures as well. For Syver, it is a future where he will have to turn to other means of leisure than skiing unless “something” is done to curb emissions. These stories are less “how to”-oriented and less normative, but they also show in very subtle ways what is at stake both to local nature and societies.

Thus, it can be argued that there is room in professional journalism for preferable, probable and possible futures alike. It is the linkage to places and people that makes them genuinely social, and journalism has a great potential to do just that through its routinized practice of “casing up” stories so as to awaken emotions and engagement in their readers.

Finally, this study explores the relevance of SF theory to theoretically assess the transformative potential of future climate stories in journalism. Many cli-fi novels thematizes the unleashing of climate tipping points and the consequences these have for societies. Some of the stories in this material engage with tipping points in a similar vein, asking: “What if we actually reach one or more of those tipping points science tells us about?”. This way of storytelling opens a discursive room from which to contemplate what is at stake and thus might work to engage readers in profound ways.

Note

1. Representative Concentration Pathways, “IPCC scenarios” hereafter.

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