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Satire in the Anthropocene

An Ecocritical Analysis of Ian McEwan's *Solar*
and Jonathan Franzen's *Freedom*

Master's thesis in English literature

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Abstract

This project argues that contemporary satirical novels are helping the environmental discourse progress and should therefore be regarded as valuable contributions to the collective story about climate change. The thesis discusses leading environmental ideas and representations in Ian McEwan's *Solar* and Jonathan Franzen's *Freedom*. The discussion focuses on the connection between capitalism and climate change, and tries to assess whether the best way to prevent climate breakdown is through a rational approach, where new technology is prioritised, or a more idealistic approach, where a new set of economic and environmental rules are seen as necessary. The thesis is divided into five sections. "Fiction in the Anthropocene" introduces the role and possibilities of fictional stories in contemporary society. "*Solar*" and "*Freedom*" illustrate the relationship between human beings and the environment and criticise the way currently deal with climate change. "The irony of climate change" investigates the use of humour and irony as methods of social critique related to environmental issues. "The Satire Paradox" concludes the thesis by exploring how comedy and especially irony might have an opposing effect on the reader.

Sammendrag

Dette prosjektet argumenterer for at satiriske samtidsromaner hjelper til med å føre miljødebatten videre og burde derfor bli ansett som verdifulle bidrag til den samlede fortellingen om klimaforandringene. Oppgaven tar for seg sentrale miljørelaterte ideer i Ian McEwan sin *Solar* og Jonathan Franzen sin *Freedom*. Diskusjonen fokuserer på sammenhengen mellom kapitalisme og klimaforandringer, og forsøker å vurdere om den beste måten å unngå klimasammenbrudd vil være gjennom en rasjonell tilnærming, hvor ny teknologi blir prioritert, eller en mer idealistisk tilnærming, hvor et nytt sett med økonomiske og miljørelaterte lover blir sett på som nødvendig. Oppgaven er delt inni fem deler. «Fiksjon i antropocen» introduserer rollen og mulighetene som fortellinger har i dagens samfunn. «*Solar*» og «*Freedom*» illustrerer forholdet mellom mennesker og natur og kritiserer måten vi i dag forholder oss til klimaforandringene. «Ironien bak klimaforandringene» utforsker bruken av humor og ironi som metoder for samfunnskritikk relatert til miljøproblematikk. «Satireparadokset» konkluderer oppgaven ved å utforske hvordan komedie og spesielt ironi kan ha en motstridende effekt på leseren.

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Most importantly, a special thanks to Maria who has kept Isak out of the room when I have been writing. And another special thanks to Isak for ignoring his mother's commands and entering my room anyway. Thank you so much for giving me time to work on this thesis. I could not have asked for better motivators. I will now be participating in weekend activities and vacations.

It seemed to the owners of full stomachs sealed with wine that it was only reason that could prevail against short-term interests and greed, only rationality could draw, by way of warning, the indistinct cartoon of a calamitous future in which all must bake, shiver or drown.

—Ian McEwan, *Solar*

The great hope of the Enlightenment—that human rationality would enable us to transcend our evolutionary limitations—has taken a beating from wars and genocides, but only now, on the problem of climate change, has it foundered altogether.

—Jonathan Franzen, “Carbon Capture”

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Introduction: Fiction in the Anthropocene

Irrational short-term thinking has led us into the beginning of an unfathomable environmental crisis. The recent increase in wildfires, floods, hurricanes and droughts has given us some pointers to how the earth will look in a few decades, but for most of us, the destructive consequences that human caused climate change will induce still seem distant. Governments and big businesses keep ignoring their environmental responsibility – or, rather, the people who have given these institutions their power, through financial and electoral support, keep avoiding taking responsibility. George Marshall (2014) argues that climate change is uniquely difficult to deal with due to the “moral challenge” of everyone being “personally responsible” for the problem at the same time as being overwhelmed by the “powerlessness of individual action” (p. 1). He says that the primary reason for why we have been able to ignore climate change for so long has been that we have been “developing personal narratives that help us to manage the anxiety, moral challenge, and required sacrifices inherent in climate change by choosing to make it yet more distant, less certain, more hopeless, or less relevant to our own values” (p. 2).

Despite the biological shortcomings that make it difficult for us to deal with climate change, human beings also have the unique ability to tell stories and believe in them. Yuval Noah Harari (2015) points to how we historically have created fictional stories that have enabled “millions of strangers to cooperate and work towards common goals” (p. 35). He uses examples such as the stories behind “states”, “churches” and “legal systems”, and emphasises that, “[s]ince large-scale human cooperation is based on myths, the way people cooperate can be altered by changing the myths – by telling different stories” (pp. 35-36). According to this argument, then, in order for us to minimize the damage that climate change is creating and will continue to create, we need to tell and be told different stories. We need a new set of stories that will not only make us question simple political lies, but also question the grand narratives about how we should live our lives. However, as Harari says, “Telling effective stories is not easy. The difficulty lies not in telling the story, but in convincing everyone else to believe it” (p. 35). And the collective story about climate change, and how we should deal with it, has proven to be especially difficult to agree upon.

The grand climate change story that will unite billions of people, like the stories of gods, justice or money, is yet to be completed, but, in 2010, at least Ian McEwan had figured out how he was going to tell *his* part of the story. The same year as McEwan published *Solar*, Jonathan Franzen – situated on the other side of the Atlantic, facing the same environmental and literary challenges – published his novel, *Freedom*. Even though it is almost ten years

since the novels were first published, and despite being fairly topical to the time, they still feel relevant a decade later – with CO₂-levels at an all-time high, a climate change-sceptic as American President and a global community unable to agree upon a sustainable path forward. Both Franzen and McEwan were known within the literary community, through critical acclaim and sales-numbers, as two of the western world’s most appreciated storytellers. So, when I wanted to get a better understanding of how these new climate change stories could be told, I found it interesting to look at these two authors, and the question that I had when I was beginning this research was: how do two of this generation’s highest rated writers address this generation’s most important and difficult subject?

Before I begin my analysis of the two novels, I want to expand on Harari’s thoughts regarding how words and stories change our perception and behaviour. Due to the recent human-made global environmental changes, it has been suggested that Earth has entered a new geological epoch, moving from the Holocene to the Anthropocene (Lewis & Maslin, 2015). This is a simple change of two words that would mark a “fundamental change in relationship between humans and the Earth’s system” (Lewis & Maslin, p. 171), and it would also emphasise the fact that since human beings are responsible for starting this new epoch, we can also decide the outcome.

For us to be able to deal with climate change properly, we must be able see it for what it is. In his book *Anthropocene Fictions*, Adam Trexler (2015) writes that by taking the word Anthropocene into the climate change discourse, we might help environmental discussions progress from “questions of truth and falsity with regard to climate science” to accepting climate change as “a world-historical phenomenon that has arrived” (Trexler, p. 4). Similarly, environmental journalist George Monbiot (2018) uses the word “climate breakdown” to stress the complexity of Earth’s climate system and the fact that “complex systems do not respond to pressure in linear ways”. As the temperatures rise we are triggering a set of positive feedbacks (e.g. through melting permafrost and darker waters) that are accelerating global warming (Monbiot, 2018). Due to this complexity, climate scientists argue that “[s]ome of the most significant impacts of climate change are ones that we likely have not foreseen”. (Romm, 2016, p. 251) It is therefore impossible to tell at what exact temperature above pre-industrial average we will be experiencing an unstoppable “runaway climate breakdown” (Monbiot, 2018).

As this kind of knowledge is starting to be understood and accepted by the public, the debate between “sceptics” and “believers” has become less relevant, and a more productive discussion on climate change has emerged. This discussion centres around one of the most

all-consuming stories ever told: capitalism. At the heart of the discussion lies the question: is it possible to prevent an environmental catastrophe while keeping faith in capitalism? This is obviously an impossible question to answer, but by attempting to answer it we might get closer to an understanding of our chances of succeeding and of how we should go forward, both individually and as a global community. Exploring this question will be central to my thesis, so I will give a brief presentation of two of the opposing voices that I find most pertinent to this discussion.

Steven Pinker (2018), who is one of the most appreciated contemporary proponents of capitalism, writes in his essay, titled “Enlightenment Environmentalism”, that the environmental problems we are now facing are not particularly different from other problems that we have been able to solve in the past. He argues that if we encourage technological progress through increasing the economic pie, we will be able to solve climate change too. Pinker says that instead of downgrading our living standards, we should take upon us the challenge of “how do we get the most human benefit with the least environmental damage?” (Anthony, 2018). To illustrate his point, he compares atmospheric pollution with dirt in a house and says: “Cleaner is better, but not at the expense of everything else in life” (Pinker, 2018). When it comes to rhetorical tactics, he argues that it is more useful to look at what we have achieved in the past and be optimistic about the future, than by using the type of rhetoric, which he calls “Romantic declinism”, offered to us by the mainstream environmental movement (Pinker, 2018).

Representatives of this mainstream environmental movement, such as George Monbiot, see Pinker’s optimism as a careless trivialisation of the issue, and argue that because “continued economic growth is incompatible with sustaining the Earth’s systems,” climate change simply cannot be dealt with within the capitalist framework (2018). There is no doubt that capitalism has lifted hundreds of millions of people out of poverty, but the question that needs to be asked is, at what cost. Monbiot says: “Like coal, capitalism has brought many benefits. But, like coal, it now causes more harm than good” (2018). Finally, he sets up the ultimatum: “Do we stop life to allow capitalism to continue, or stop capitalism to allow life to continue?” (Monbiot, 2019). Although the two sides disagree on the method of preventing environmental breakdown, both agree that people need to take climate change more seriously, and that we cannot remain passive and pretend that it will solve itself.

So, how can discussions about these fundamental questions be shaped into the form of a novel? Brigid Lowe says that, “[w]hen we tell a story, although we may hope to teach a lesson, our primary objective is to produce an imaginative experience” (Wood, 2009, p.179).

According to Marshall (2014), it is the emotional part of our brain that makes us take action, and this part is better stimulated by stories than by information (p. 1). Therefore, a story that makes us feel, will also be the one that will most likely make us act. Lowe emphasises that the power of fiction lies in its ability to make us *imagine* things, not only *believe* in them (p. 178). To illustrate this she says that “[i]magine the heat of the sun on your back is about as different an activity as can be from believing that tomorrow will be a sunny day. One experience is all but sensual, the other wholly abstract” (p. 179). The same point can be made about climate change. *Imagining* the sensation of being in the presence of a global catastrophe is completely different from merely *believing* that the future will become a little warmer. But can we really demand that fiction writers should make us imagine this, when not even live images of firestorms or hurricanes are able to do the job?

In recent years we have seen an increase in authors trying out different approaches to portray the pressing environmental issues of the Anthropocene. Family sagas have captured the impact of climate change over the last few decades, dystopian novels have considered the horrors of a world post climate-breakdown, and science fiction has looked at the technological possibilities of avoiding a crisis. Trexler writes that an interesting aspect of climate change fiction is that it threatens “to rupture the defining features of genre” (p. 14). Due to the narrative difficulties of the Anthropocene, “literary novels bleed into science fiction” and “realist depictions of everyday life involuntarily become biting satire” (Trexler, 2015, p. 14). Both McEwan and Franzen are known for their realist depictions, and when dealing with climate change, their novels certainly possess many of the literary traits of what has typically been categorised as satire. For that reason, I want to give specific attention to satire and how satirical writing affects the reader.

The main idea behind how satire works is: as the reader laughs at the mad logic of what is presented, the reader is tempted, or forced, to consider the logic of his or her own thinking (Elliot, 2019). However, this is not always the case. For more than 300 years ago Jonathan Swift observed that, “[s]atire is a sort of glass wherein beholders do generally discover everybody’s face but their own” (2007). Today, this inability to challenge our own perceptions, and instead seeking out information that we agree with, is referred to as confirmation bias. When we are confronted with information about important and self-relevant issues, we tend to interpret it so that it becomes consistent with our existing beliefs (Casad, 2016). Thus, due to the ambiguity of satire, readers will be particularly susceptible to confirmation bias, and they will possibly just end up seeing what they want to see (LaMarre, Landreville & Beam, 2009, p. 213).

In this thesis I will present an ecocritical analysis of Ian McEwan's *Solar* and Jonathan Franzen's *Freedom*. So, what exactly is meant by an ecocritical analysis? Greg Garrard (2012) writes that what separates ecocriticism from other contemporary literary and cultural theories is "its close relationship with the science of ecology" (p. 5). He quotes Richard Kerridge, who says: "The ecocritic wants to track environmental ideas and representations wherever they appear, to see more clearly a debate which seems to be taking place, often part-concealed, in great many cultural aspects" (Garrard, 2012, p. 4). Kerridge says that since we now are in an environmental crisis, ecocritics' jobs are to evaluate literary texts by looking at their "coherence" and "usefulness" as responses to this crisis (Garrard, 2012, p. 4). Thus, my task will be to investigate how the two novels give us a better understanding of the most prominent environmental ideas of the beginning of the Anthropocene, and whether the authors' narrative approaches can be helpful in motivating us to prevent climate breakdown. It is my opinion that both novels have valuable insights to offer on how we currently deal with climate change and how we should go forward, but the authors' use of irony might prevent readers from leaving the stories with their minds changed. What follows is an attempt to communicate these insights, in light of the ideas presented in this introduction, and further explain why the authors' choice of satire is especially problematic when it comes to writing about climate change.

Solar

Ian McEwan's (2011) *Solar* is a story about the "short, fat, clever" (p. 3), and very disagreeable Nobel prize-winning physicist, Michael Beard, and how he cynically moves through the world of academia, arts, and business, while luxuriating in unhealthy food, stipends and women. Beard begins his climate change journey by accepting a role at the "the National Centre for Renewable Energy" (p. 20). At the Centre, he meets the young post-doc Tom Aldous, who has figured out a way to use Beard's Nobel-prize winning calculations to artificially imitate photosynthesis and, through photovoltaic solar panels, use this to generate electricity. After coming home from a trip to Longyearbyen, Beard catches Aldous in having an affair with his wife and ends up involuntarily killing him. Beard successfully pins the murder on another of his wife's lovers, but his actions will haunt him throughout the story. After having escaped accusation of Aldous's death, Beard goes through the post-doc's research papers, which he refused to do when Aldous was alive, and understands the potential of the post-doc's discovery. Beard then takes possession of the ideas and goes on to start a project in the US, putting the theory into actual solar panels. Throughout the story, Beard is constantly being warned about the consequences of his short-sighted exploitation of his surroundings. In the last few pages we witness the build-up to the big event that will force him to confront everything from stolen scientific ideas to ignored health issues and neglected relationships – all the problems he has been aware of but pushed aside in the hope that it would fix itself.

Reason and greed

Ian McEwan said in an interview that he had wanted to write about climate change since the 90's but that he saw it as "the most intractable subject for a novel: so impacted with science, statistics, and more importantly, with a moral load that was going to make a novel a very uncomfortable form for it" (Friends of the Earth, 2010, 0:54). After publication of *Solar*, he said that he expected to be criticised for the way his novel lacked a strong moral position. He said that "people are so passionately committed to the idea that we're facing a calamity and have to do something very quickly, and any novel that doesn't say that will be very irritating for them" (Brown, 2010). He was right. Greg Garrard (2013) writes: "Disappointment was general throughout the Anglophone reading public when *Solar* came out" (p. 122). As anticipated by McEwan, Garrard says that the problem with *Solar* is that the novel is not able to "acknowledge the anguish climate change might induce in us" and that it fails "to pinpoint the moral failings that contribute to it in a way that encourages us to rectify

them” (p. 123). Garrard also says that because we now have entered a global catastrophe, we should be allowed to chastise McEwan for writing a bad book (p. 123).

Despite Garrard’s invitation, I will instead try to focus on the useful elements that McEwan’s novel brings to the discourse. For instance, *Solar* contains many important observations about our current relationship with climate change. An example of this is when Michael Beard’s business associate, Toby Hammer, starts to worry about whether climate change is real or not and he says: “If the place isn’t hotting up, we’re fucked” (p. 297). Beard, who is certain that they will find buyers for their solar panels, responds: “Here’s the good news. The UN estimates that already a third of a million people a year are dying from climate change” (p. 298). To fully convince Toby that climate change is real, he goes on to list examples of certain consequences, like droughts, melting ice sheets and rising oceans, and he then says: “Toby, listen. It’s a catastrophe. Relax!” (p. 298). McEwan’s focus is not on trying to make the reader *feel* the immediacy of climate change. Instead, by contrasting the light-hearted nature of the passage and the seriousness of the issue, McEwan makes us question our emotional detachment to climate change. Additionally, the fact that Toby Hammer is comforted, rather than conflicted, by Beard’s information, shows us the problematic relationship between human nature and the nature of capitalism, in light of climate change. Toby is more concerned with losing his money than he is of millions of people losing their lives. One might say that the combination of how money distorts our thinking, and the fact that it is so difficult to get emotionally engaged in global issues like climate change is what has gotten us into this situation in first place. However, this urge for not losing money is also what drives Toby and Beard towards perfecting the solar panels that one day will be crucial in reducing the use of fossil fuels.

One reason why so many critics disliked the novel seems to be that they do not agree with McEwan’s personal beliefs when it comes to how we should be preventing climate breakdown. Garrard (2013) suggests that the ultimate reason for why *Solar* fails as a useful climate change novel is that “perhaps McEwan’s commitment to Enlightenment values makes fundamental critique of capitalism almost inconceivable for him” (p. 128). However, the fact that McEwan’s story is told within the capitalist framework, does not mean that he is not fundamentally criticising the system – we have already seen an example of how capitalism distorts our humanity. But since McEwan sees technological progress, driven by capitalism, as the most likely way forward (Friends of the Earth, 2013), it is understandable why he has chosen to problematise this path, instead of discussing other possibilities that he sees unlikely.

If capitalism is our only option, then it is important to consider the possibilities of how we can use it to our favour. After Michael Beard has gotten deeper into the renewable energy scene, he delivers a speech to a group of pension-fund managers where he argues that “[v]irtue can motivate individuals, but for groups, societies, a whole civilisation, it’s a weak force” (p. 206). If we consider the current global attempt at dealing with the crisis, and take the democratically elected President of the US – who openly stated that their withdrawal from the Paris agreement was purely based out of selfish reasons (BBC, 2017) – as an example, it seems difficult to argue against the statement Beard makes, that: “For humanity en masse, greed trumps virtue” (p. 207). Instead of asking the reader to act virtuously, *Solar* asks the reader to consider the economic rewards of environmental actions. In the pension-fund manager speech, Michael Beard says: “[renewable energy] will be even more lucrative than coal or oil...Colossal fortunes will be made. The sector is seething with vitality, invention – and, above all, growth” (p. 211). Beard tells the audience to imagine themselves at the beginning of the first industrial revolution and being told that they should invest in “coal and iron,” and then asks them to imagine a situation where they were told to invest in oil before the rest of the world had realised the importance it would have (p. 207). He then compares this with the current economic opportunities of renewable energy and says: “So here, ladies and gentlemen, is another such moment” (p. 207). *Solar* shows us that we at least should consider the possibilities of using reason to appeal to people’s greed and make the system work *for* the environment, instead of against it.

McEwan’s abilities as a science communicator makes Beard’s investment advice seem trustworthy. Backed up by scientific explanations, Beard points out that investors should “not be tempted by the illusion that the world economy and its stock exchanges can exist apart from the world’s natural environment” (p. 207). He therefore tries to convince the audience that we need to leave fossil fuel where it is: “The basic science is in. We either slow down, and then stop, or face an economic and human catastrophe on a grand scale within our grandchildren’s lifetime” (p. 206). To give the audience a more concrete suggestion of what to invest in, he lists several possibilities, including “making hydrogen from algae, aviation fuel from genetically modified microbes,” “electricity out of sunlight, wind, tides, waves, cellulose, household waste” (p. 211).

Adam Trexler says that “[s]cientific realism gives novels like *Solar* the ability to invoke, and even contribute to, knowledge and truth” (p. 46), and he says that, “extraordinarily, *Solar* pulverizes climate deniers” (p. 25). In *Solar*, McEwan does not dwell on trying to convince people about whether climate change is real or not. In his speech, Beard

gives the audience a short summary of the recent evolution of climate science, starting with the understanding of the greenhouse effect in 1859 (p. 209). He continues:

By the beginning of the twentieth century it was known to a few that industrial civilisation was adding carbon dioxide to the atmosphere. In succeeding years it was understood precisely how a molecule of this gas absorbs and contains the longer wavelengths of radiant light and traps heat. The more carbon dioxide, the warmer the planet. (p. 209)

To leave the audience in no doubt about whether climate change is real or not, and also how this can be an opportunity, he says, “the earth is warming and we know why. There is no scientific controversy, only this plain fact. That may sadden you or frighten you, but it also should position you beyond doubt, free to consider your next move” (p. 210). Ecocritics might disagree with McEwan’s method of conveying urgency, but readers are left with little room for retaining ignorant beliefs about climate change. At one point in the speech, we also see McEwan trying to motivate us with having Beard saying:

You have the data in front of you, you have the choice – the human project must be safely and cleanly fuelled, or it fails, it sinks. You, the market, either rise to this, and get rich along the way, or you sink with all the rest. We are on this rock together, you have nowhere else to go. (p. 207)

Solar does not only destroy hardened climate change deniers, it is also brilliant at destroying people and ideas that merely pretend to do something about climate change. Early in the novel, it is pointed out of how governments tend to pretend to take action, while in reality “the green” initiatives are nothing more than green paint on rotten policies. “The National Centre for Renewable Energy” (p. 20) where Michael Beard gets a leading position, was built because “the Blair government wished to be, or appear to be, practically rather than merely rhetorically engaged with climate change” (p. 22). One of the Centre’s first assignments, which was given to them by a newly appointed minister who “told a press conference that he would ‘tap the genius’ of the British people,” was to go through “clean-energy ideas and drawings” submitted by the British people (p. 22). The Centre then spent a considerable amount of resources on looking through all the ridiculous submissions that, if they would work, would “destroy the entire basis of modern physics” (p. 23).

In addition to trying to make us see through the obvious bad environmental initiatives we as a public are being served, *Solar* also considers the more nuanced aspects of how well-meaning ideas might become diversions from solving the real issue. On an assignment for the Centre, Tom Aldous develops a revolutionary wind-turbine for roof tops, but he is afraid of

showing it to the board, knowing that the Centre would then be wasting years of resources on an issue that a private company can do profitable instead (p. 46). About the project, Aldous says: “it’s not important enough, micro wind is not going to solve the problem... We need a new energy source for the whole of civilization. There really isn’t much time” (p. 46). This points out the importance of critical thinking when dealing with climate change. McEwan’s hope is that a better understanding of science and of our and social world will make it possible to steer our biological urges towards solutions that will have a positive instead of negative impact.

Metaphors and human biology

McEwan has said that his gateway into writing about climate change was an exploration of “human nature” and of how climate change pose “such a problem” for us as a species (Friends of the Earth, 2013, 2:23). His inspiration for the novel came from spending a week with a group of artists and climate scientists on a boat, frozen into a fjord near Longyearbyen. While the participants filled their days with making climate change art and discussing what they could do to minimize the climate crisis, they also frequently went on snowmobile excursions and McEwan could not help but notice how the boat’s bootroom – where they kept all their clothes and equipment – got increasingly more chaotic. Interestingly, McEwan also lends this realization to Michael Beard (who is sent on the same trip to the arctic), and their observation is as follows: “How were they to save the earth...when it was so much larger than the bootroom?” (McEwan, 2011, p. 109).

The realisation did not only inspire a thematic approach to the novel, but also a narrative approach. The bootroom analogy is one of many analogies and metaphors used in the story, with the overarching metaphor being the comparison between Michael Beard’s physical and psychological health and the “health” of the planet. At one point Beard remarks: “Eight years ago he could still touch his toes. Surely, it was not inevitable that he should get heavier by the month until he dropped dead?” (p. 101). Despite being “fifteen pounds overweight” and under the impression of having to “[a]ct now, or die early” (p. 101), Beard continues to feast on unhealthy foods and alcohol.

Trexler (2015) points out McEwan’s fondness of evolutionary biology as explanation for human behaviour and says that McEwan is trying to show us how our biological impulses makes it impossible for us to deal with climate change (p. 48). He says that “Beard is hardwired by evolution to find these impulses irresistible, despite rational knowledge of the consequences” (p. 47). Michael Beard is constantly thinking about short-term pleasure, and

his seeking of small bursts of happiness are often in direct conflict with his general feeling of satisfaction. Even though his physical health is decaying, he still seeks pleasure in unhealthy food, and although he is dissatisfied with his relationships to other people, especially women, he continues to find pleasure in exploiting them. Beard is so wrapped up in his urge for short term pleasure that he unthinkingly ignores the welfare of both his surroundings and his future self. Beard's situation is definitely comparable with humans' relationship with Earth. As a collective species, we are currently fully aware that the ways we seek happiness and satisfaction, whether it is meat eating or air travel, are in direct conflict with the well-being and preservation of our surroundings, our future selves and our future generations, nevertheless, we continue our wasteful way of life. The only difference between us and Michael Beard is the scale.

Based on the previous comparison, it should be alarming to observe that Beard seems to be such a lost cause. Throughout the book, he is constantly ignoring the blinking warning lamps. He ignores the fact that Tarpin (the man he pinned the murder of Tom Aldous to) has been let out of prison and is headed to America where Beard is setting up a factory of solar panels. And he ignores the phone calls from the head of "the Centre", who, it turns out, has discovered that Beard has stolen the photosynthesis ideas from the dead post-doc. Eventually it all comes crashing down. After Tarpin has smashed all the solar panels, and Beard has realised that he has been caught for stealing Aldous's papers, Beard sits down at a restaurant. As he is eating his meal, he looks down at his hand and considers what he should do with the growing, "angry purplish brown" melanoma: "Was he really going to deal with this now, along with everything else? He thought it unlikely. It would take care of itself." (p. 383). As Beard is suddenly confronted by the two women he is having romantic relationships with, his three-year-old daughter comes running towards him, and McEwan ends his book by writing: "As Beard rose to greet her, he felt in his heart an unfamiliar, swelling sensation, but he doubted as he opened his arms to her that anyone would ever believe him now if he tried to pass it off as love" (p. 384). Although the sentence follows pages of negative consequences of a life in selfishness, it has a little touch of optimism in it, with Beard possibly starting to feel love for his surroundings and the next generation.

Although the book has a clear pessimistic overtone, there are some optimistic scenes where Beard seems genuinely happy and satisfied. Interestingly, these are most often coinciding with situations where he is having a positive impact on his surroundings. Especially noticeable is his trip to Longyearbyen. At the airport in Trondheim, after the trip, Beard thinks back on the week where he unselfishly put other people's needs in front of his

own, and is able to reflect that this kind of behaviour actually gives him more pleasure than the self-absorbed life he had been living for decades: “In all, he was reminded that by way of running undemanding errands on the ice and pretending to care about wind turbines, he had attained a degree of unfamiliar popularity... Beard was still smiling to himself thirty minutes later” (p. 111). The description of Beard’s elevated mood resembles Marshall’s (2014) view of that the “sense of belonging and the satisfaction that comes from contributing to a shared project” is something that must be emphasised when discussing how to deal with climate change, and we have to realise that there is a big personal reward in being virtuous (p. 4). Marshall believes that “[c]limate change is the one issue that could bring us together and enable us to overcome our historic divisions” (p. 4).

Trying to prevent climate breakdown is almost making Michael Beard a better person, but unfortunately for Beard, he only gets a short taste of the satisfaction that comes from acting in a morally conscious way. When going home from Longyearbyen, Beard reflects on how the experience has made him prepared to deal with the divorce with his wife without making a big fuss: “He was full of regrets, he was sorry that he did not know the trick of making Patrice love him, but he was resigned” (p. 113). He had “planned to only take personal belongings...she could have the house as well. Beard would make the disengagement as painless and efficient as he could” (p. 113). For a little while we experience the Michael Beard that could have been, but then he discovers that he has been betrayed by both his wife and Tom Aldous. The scene ends with Aldous stumbling on a polar bear rug and falling dead, and the betrayal and death leads Beard back to his previous cynical and bitter self where he stays for the rest of the novel.

Truth instead of feelings

In an article titled “Inventing Climate-Change Literature”, Benjamin Kunkel (2014) writes that because of the scale and the unknown consequences of climate change, it is difficult to make the subject relatable in other ways than through allegories – despite the technique’s outdated notion. McEwan seems to agree. In addition to use Michael Beard as a metaphor, McEwan incorporates short parables to show the predicament we are in. At the end of the pension-fund speech, Michael Beard is trying to explain Western society’s way of harnessing and consuming energy with the use of a story about a thirsty man who instead of drinking rainwater straight from the source, cuts down the whole forest around him “in order to suck sap from the trunks” (p. 212).

The parable obviously invites us to see ourselves in this lost man, but does it work? Gerrard (2013) says that it does not. He argues that “[t]he novel is limited both by McEwan’s choice of satirical allegory as a genre, and by the topical parables that continually dissipate the momentum of the allegorical plot (p. 122). Novelist and critic, Walter Kirn (2014), is also disappointed with McEwan’s use of allegory and describes Beard as “a figure so stuffed with philosophical straw that he can barely simulate lifelike movement”. Trexler’s answer to why *Solar* is perceived this way is that giving the reader a better scientific understanding of climate change comes “at the expense of eliminating action” (Trexler, 2015, p. 46). As Kirn also says: “The McEwan of ‘Solar’ can’t just tell a tale, he has to teach a truth at the same time, ceaselessly, compulsively”. If we agree with these critics, then *Solar* does certainly not meet the acquirements of great fiction as described by Brigid Lowe in the introduction.

However, if we believe that the lack of ability to reason is what has put us in this situation, and that better reasoning is our best chance to get out, as *Solar* repeatedly argues, then the parables and the use of allegory might not be as misplaced as the critics argue. In addition to the story of the man in the rain, there is another climate change parable that is first experienced by Beard and then retold twice. Seated on a train, opposite a young man with a gymnasium-thickened neck, piercings and shaved head, Beard opens up a bag of crisps and starts eating (p. 168). He immediately feels the intense stare of the other man, and all of a sudden the other man steals a crisp from Beard’s bag. Without saying a word, the other man continues eating from the bag and Beard is silently furious. The two men eat the rest of the bag in an intense, silent competition, and when the young man finishes the bag, throws it in the waste bin and brushes off the table with his hand, Beard gets so outraged that he grabs the other man’s water bottle and drinks it empty in one go. The young man responds with helping Beard with his heavy suitcase, an act that Beard does not see as an act of virtue but as an aggressive act of claiming superiority. After they have left the train and the other man is out of sight, Beard discovers an unopened bag of crisps in his own pocket and he understands that it was *he* who had acted like a “vicious madman” (p. 174). When retelling the story to the pension-fund managers later on, Beard concludes:

What I discovered on Paddington station was, first, that in a grave situation, a crisis, we understand, sometimes too late, that it is not in other people, or in the system, or in the nature of things that the problem lies, but in ourselves, our own follies and unexamined assumptions. And second, there are moments when the acquisition of new information forces us to make fundamental reinterpretation of our situation. (p. 215)

The parable and Beard's analysis of the situation sum up an important aspect of what is needed for us to properly deal with climate change. Each and every one of us must stop and look at ourselves and try to see whether or not we are contributing to the problem, and if we discover that we are, we should not try to justify our previous behaviour and continue the same way, but instead consider ourselves lucky for having been given the opportunity to change – and do so. Seeing other people trying (or not trying) to reinterpret their situations might improve our own ability to examine our own behaviour. By giving us a better understanding of the nature of ourselves and of our surroundings, climate change novels like *Solar* might have a valuable role in guiding us through life in the Anthropocene.

During Michael Beard's trip to Longyearbyen, there are mainly two different approaches to how we should deal with climate change, that is discussed. The first one, which is articulated in the epigraph, represents the Enlightenment style thinking, advocating reasoning as our best tool for preventing climate breakdown. The second is a more idealistic approach and is expressed as follows: "what was required was a different way of life for everyone, lighter tread on the precious filigree of ecosystems, a near-religious regard for new rules of human fulfilment in order to flourish beyond supermarkets, airports, concrete, traffic, even power stations" (p. 105). *Solar's* focus on science and rational thinking is centred around the problematisation of this first point of view. When we now move on to Jonathan Franzen's *Freedom* we will get an environmental reflection that is more concerned with the second.

Freedom

Freedom is a family drama about a suburban Minnesota family struggling to find meaning in a self-obsessed culture, where moral values and natural habitats are disappearing side by side. The characters at the centre of the story are the four members of the Berglund family, Patty, Walter and their children Joey and Jessica, and their family friend Richard Katz. The novel begins with a description of the family's stay in a suburban neighbourhood, which for some yet unknown reason, has come to an end. We are then taken into the life of Patty Berglund, from whom we are told the story of how she meets Walter, how they form a family, and then, around the year 2004, when their own children have started college, how the family falls apart. From there on, we experience the rest of the story through the lives of Walter, Richard and Joey, mostly based around Walter and Joey's involvement with the financial corporation LBI.

The main environmental discourse springs out of Walter's concern for population-growth, which starts out as his favourite subject for college dorm-room discussions and leads to him forming the anti-growth movement "Free Space". The work with the anti-growth movement also introduces the idealistic and decisive young woman, Lalitha, who becomes Walter's co-worker and lover, but who sadly dies in a car accident right after their movement has started to gain some attention. Although the story throughout shows a pretty demoralising view of the last 30 years of American middle-class life and its devastating effect on the natural world, the novel ends on a somewhat positive note, with more or less everyone finding their ways out of misery with a closer appreciation for their surroundings, despite continued growth and environmental destruction.

A liberalist dystopia

In an essay, titled "Carbon Capture", Jonathan Franzen writes: "Climate change shares many attributes of the economic system that's accelerating it. Like capitalism, it is transnational, unpredictably disruptive, self-compounding, and inescapable" (Franzen, 2015). In her book *This Changes Everything*, Naomi Klein (2014) sets climate change up against capitalism and argues that the free market is the reason why we are not making enough environmental progress and that the solution to prevent climate breakdown lies outside of the current political system. In *Freedom*, Franzen portrays the corruption of the capitalist society and how this system brings out the worst in us. Early in the story, Patty writes about how she was raped at seventeen by a college senior, and that unfortunately for her, the boy who committed the rape belonged to the most powerful political family in the area, who were also

“political friends” with her own parents (Franzen, 2011, p. 48). After having been critically questioned by her parents about the seriousness of the rape, and after she has tried to convince them that she needs to go to the police, Patty frustratedly asks her dad what he wants her to do, and he answers: “You shake it off. Move on. Learn to be more careful” (p. 58). And so she does, while witnessing her parents become closer friends with the rapist’s parents. For Patty’s parents, gaining increased status within the political community is more important than the well-being of their own daughter. If we see this as a realistic depiction of the American political system, it is difficult to disagree with Klein’s point that the current system seems unlikely to fix any problem that demands altruistic behaviour.

Klein argues that we have to force some of the most powerful and profitable companies in the world to give up on future earnings worth trillions of dollars if we shall avoid climate breakdown (p. 391), and Monbiot (2018) says that, “Because we cannot save ourselves without contesting oligarchic control, the fight for democracy and justice and the fight against environmental breakdown are one and the same.” Franzen (2015) also believes that the current American political system “can’t deliver action” on climate change, but he points out that it is not as easy as blaming the corporate and financial elites for corrupting society. Franzen (2015) argues that, in fact, climate change is not happening due to lack of democracy, climate change “is the result of democracy”. He says that it is “the citizens of the major carbon-emitting democracies who benefit from cheap gasoline and global trade, while the main costs of our polluting are borne by those who have no vote: poorer countries, future generations, other species” (2015). Indeed, most western nations have a fair opportunity to give political parties the power to end the oligarchic control, but the fact is that the majority of these nations’ citizens choose not to.

It is the distrust in regular citizens and their inability to take action on environmental issues that ironically puts Walter, who was said by his neighbours to be “greener than Greenpeace” (p. 3), into the hands of the oligarchs of the American fossil fuel industry. When explaining his involvement in the coal industry to his best friend Richard Katz, Walter says that “[t]he land is disappearing so fast that it’s hopeless to wait for governments to do conservation. The problem with governments is they’re elected by majorities that don’t give a shit about biodiversity” (p. 266). So, Walter starts working for the “oil-and-gas guy” Vin Haven, a bird conservationist and personal friend of Bush and Cheney, whom Walter believes might actually have the power to make a difference. But as it turns out, Vin Haven’s love for birds is only a cover for making more money. In helping Vin Haven legitimize his bird interest, Walter makes it possible for him to trick other fossil fuel companies into selling their

land and then destroying it for economic purposes later. Steven Pinker argues that “[a]s people get richer and better educated, they care more about the environment, figure out ways to protect it, and are better able to pay the costs” (2018). Based on Walter’s experience, this is not true. Walter understands that although regular citizens seem unable to get us out of the environmental crisis, there is even less hope in the financial elites.

Walter’s misanthropic tendencies grow and in a discussion with Richard he argues that the main reason for our environmental problems is that there are too many people with too many “personal liberties” (p. 453). He says that what is ruining the country is the American idea that “the one thing nobody can take away from you”, even if you are poor, “is the freedom to fuck up your life whatever way you want to” (p. 453). In an interview, Jonathan Franzen discusses his own view of freedom and points out that although the US has the best system of civil liberties in the world they are not happy – especially when compared with the happiness and satisfaction rates of more regulated countries in Europe (BBC, 2015, 30:40). He argues that the reason for this is the big lie that Americans are told about consumerism (30:10). Based on what he calls “the tyranny of choice,” he says that “if you give the consumer 4 options ... they will happily choose one, but if you give them 34 options, they are miserable” (29:40), and it is this concept that seems impossible for the average American to understand.

Franzen’s view is reflected by Richard in the discussion with Walter, where he says that the real problem “isn’t civil liberties”, but “free-market capitalism” (p. 453). Richard believes that it is the idea of consumerism, not necessarily liberalism, that is the root of the problem. This becomes especially clear when considering the destruction of the environment, because, as he says, “[i]n free-market economic theory, you have to leave stuff like the environment out of the equation” (p. 453). The fact that everyone is free to pollute as much as they like, and that it is easier to make money on destroying the environment than by building it up, seems to be the core of our environmental issues.

Richard and Walter’s ideas seem to be inspired by thinkers from the Frankfurt school who argue that the civil liberties designed to protect the citizens are now used as a method of keeping them under control (Marcuse, 2007, p. xxiv). While proponents of capitalism will say that technological progress has given American citizens more freedom, using the abolition of slavery as a concrete example (Pinker, 2018), Herbert Marcuse argues that free-market capitalism is not freeing these people, but simply “modifying the attitude and the status of the exploited” (p. 27), by creating a false sense of freedom. Marcuse believes that the US has grown into a totalitarian society, where regular citizens are simply working to satisfy the

interests of the leaders of technology (p. 4). In *Freedom*, this is illustrated through Walter and Joey's time as employees at LBI. While both initially believe that their involvement with the corporation will bring meaning to their lives, they end up realising that all they are achieving is to satisfy the needs of those higher up in the chain.

If Marcuse is right, and capitalism is merely a sly form of totalitarianism, using the idea of "freedom" as a type of opiate, then Jonathan Franzen's realist depiction of contemporary America suddenly starts to show similarities with the totalitarian societies in for example George Orwell or Margaret Atwood's dystopian novels. In *Freedom*, Franzen does not show us the possible post-climate breakdown dystopia that other climate fiction writers are doing, he shows us the dystopian world many of us are already living in. *Freedom* becomes a meditation on what happens when you give people too much of the wrong kind of freedom within a system that encourages destructive behaviour.

Freedom as a contemporary American pastoral

In a speech at the 2019 economic forum in Davos, Sir David Attenborough said: "There has never been a time where more people have been out of touch with the natural world, than there is now" (The Sun, 2019, 5:13). His main point for new generations regarding how to deal with the environmental crisis is that "we have to recognize that every breath of air we take, every mouthful of food that we take, comes from the natural world, and if we damage the natural world, we damage ourselves" (5:25). When asked about his advice to future leaders, Attenborough said: "Care for the natural world" and "treat it with a degree of respect and reverence" (The Sun, 2019). In *Freedom*, Walter is the only character who truly realises the importance of the natural world and the only one who tries to work against the human destruction of it. But as his commitment to the coal-industry shows, despite his well-meaning intentions, he struggles with finding a way to make a positive impact.

Adam Trexler's big issue with *Freedom* is that, "[i]nstead of circulating through the characters of the novel, the environment is merely a *psychological* preoccupation, never meaning much to Walter's wife, their children, or most of their extended circle" (p. 226). Indeed, the environment does not mean much to Walter's family, but this does not seem to be a failed attempt, rather, it seems like a deliberate narrative choice to emphasise how detached the American people have become from nature. Walter tries to live consciously side by side with nature, but he fails due to the social forces around him. In a flashback from when he was seventeen, Walter tries to escape family intrigues by spending a summer fixing up the family

lake house and making an experimental nature film (pp. 571-72). On his trip, he brings a secondhand copy of Henry David Thoreau's *Walden*, one of the most important literary works of American pastoral literature (Garrard, 2012). The many similarities between Thoreau's lake house and Walter's lake house makes it likely that Franzen wants us to draw comparisons between contemporary America and the America that is commented on by Thoreau. While Thoreau's transcendentalist meditation argues that a simple and deliberate life in harmony with nature is key to a happy and meaningful life, Franzen's novel turns this around and shows how a superficially complex life which is out of touch with nature, might be the key to depression.

What could have been a life-enhancing experience, similar to the one Thoreau made by the pond, becomes, for Walter, a short-lived adventure leading to a greater distaste for both nature and humanity. After ten days at the lake, Walter is interrupted by his brother Mitch (who suddenly has decided to start living there as well) and a group of loud friends with their sputtering motorcycles and pick-up trucks, and Walter is forced to move back to the city (p. 575). Thoreau wrote that during the two years he spent at the lake house he saw every morning as "a cheerful invitation to make my life of equal simplicity, and I may say innocence, with Nature herself" (Thoreau, 2016 p. 68). Walter, who had also tried to "come openhearted to nature", seemingly with similar expectations as Thoreau, ends up seeing nature as weak and feels that it has "let him down" by letting herself "be overrun by noisy idiots" (p. 575).

Thoreau used his escape to nature as a method of criticizing the American middle-class for their disengagement from nature and the meaningless lives this often leads to, and Franzen's depictions might be seen as a continuation of this. *Freedom* is a portrait of a society where even Thoreau's ideas themselves have become commercialised. Franzen seems to have wanted to describe the same lake house and its surroundings, only some hundred years later, and his overarching observation is that human territory is no longer partially overlapping with nature, it is taking its place. In *Walden*, Thoreau writes: "The whistle of the locomotive penetrates my woods summer and winter, sounding like the scream of a hawk sailing over some farmer's yard" (p. 89). Thoreau clearly sees the industrial sound as an intrusion, yet, the sound comes across as a natural sound, "like the scream of a hawk". This observation, of the locomotive taking the hawk's place, may not only be a contemporary critique, but also a warning of what is to come. In *Freedom*, human activity invades and disrupts habitats that have remained undisturbed for thousands of years. In the final chapter of the book, the nameless pond by Walter's lake house, has been renamed "Canterbridge Estates Lake" and

the lake house has been joined by “twelve spacious homes in the modern many-bathroomed style” (p. 679). Franzen’s own Walden pond no longer serves as a contrast to American consumerism, but rather, a mere extension of the same superficial and environmentally destructive ideas.

In the essay “Civil Disobedience,” Thoreau argues: “That government is best which governs least” (2016, p. 261). In an era where the leader of the free world still believes climate change is a hoax, giving less power to the government seems like a rational idea. But, as Thoreau emphasises, the only way that less centralised power might work is if the American people keep in mind that when they devote themselves to non-governmental “pursuits and contemplations,” they must make sure that they “do not pursue them sitting upon another man’s shoulders” (p. 267). *Freedom* shows that the contemporary American society, a society that economically rewards the oppression of others, is not suited for a non-governing governance. For the US to continue on the free-market path, there has to be a widespread change in the moral mindset of Americans.

In *Freedom*, the destructive, totalitarian aspects of American capitalism are represented by the oilfield-services giant, and leading defence contractor, LBI, a fictional version of Halliburton. While Walter is connected to the conglomerate through the coal industry, Joey gets involved with it through the military industrial complex. Both are initially intrigued by the unfathomable amount of money that the corporation is able to accumulate, and which they might get a share from, but they eventually realise that they do not want to be a part of the immoral ways that LBI accumulates its wealth.

Joey’s first experience with LBI was at a think tank, funded by LBI, where he is spending a summer “researching ways in which LBI might commercially exploit an American invasion and takeover of Iraq, and then writing these commercial possibilities as arguments for invading” (p. 487). A year later he is contacted by his former boss at the think tank and asked to invest and help procuring a “fleet of heavy duty trucks” for use in the Iraq war (p. 515). Joey says yes, and after a couple of turbulent weeks of tracking down spare parts he ends up in a “slummy suburb” in Paraguay to negotiate a deal (p. 546). By buying and selling thirty tons of rusty, broken truck parts (that he understands will set American soldiers in danger), paid for by American tax-payers, Joey is able to earn the \$500,000 that he was promised (p. 554). Joey’s experience illustrates the issue with living in a society where the decisions we make affect people we do not know and might never meet. Just as it is impossible to single out one person who is directly injured by climate change, no single person loses money on Joey’s legal scam. A few weeks after, Joey is watching television and

sees the news of several American soldiers having been butchered in an ambush in Iraq, due to their trucks having broken down (p. 555). Although it is impossible not to see the direct correlation between Joey's actions and the deaths of several human beings, the fact that he is part of system that ignores personal responsibility, prevents him from being held accountable for his criminal actions.

Naomi Klein (2014) says that if we shall make the civilizational leap necessary for preventing climate breakdown we have to believe that "humanity is not hopelessly selfish and greedy" (p. 399). At the end of the negotiation process Joey is suddenly getting morally inflicted: "Joey wished there were some different world he could belong to, some simpler world in which a good life could be had at nobody else's expense" (p. 550). And once he has received the sum, he feels sick of himself: "The depression that for years had stalked the women nearest him seemed finally to have its rightful prey and sunk its teeth in him" (p. 555). By experiencing first hand that material wealth is not necessarily the route to happiness, especially when it is accumulated immorally, Joey realises the same thing that Thoreau realised by the pond: "A man is rich in proportion to the number of things which he can afford to let alone." (Thoreau, 2016, p. 63). Joey decides to give all his money to charity and cut his ties with LBI. The depiction of Joey's experience is a necessary contrast to the commercial stories that tell us that excessive material wealth will increase our happiness.

Joey's story also suggests that there might be hope for a more environmentally conscious future within a capitalist framework. After having quit his job, Joey still has the urge to make money, but this time he wants to do it right. On advice from Walter, he starts investing in South American shade-grown coffee, which turns out to be both good for the environment and highly profitable. Joey eventually finds a way to be respectful of the natural world and other human beings at the same time as making money. But the question is, do we have time to wait for people to have the same realisation as Joey?

Social movements and the other cost of climate change

In the 2018 IPCC report about the consequences of going above 1,5 and 2 degree post-industrialised warming, it says that if we shall have any chance at staying below the 2 degree target we have to see an unprecedented global mobilization similar to the global mobilization we saw in the prologue to the World War II (Wallace-Wells, 2018). Naomi Klein (2014) says that "Only mass social movements can save us now. Because we know where the current system is headed" (p. 389). When we see all the negative aspects of capitalism that Franzen

points out, in addition to the fact that it is clearly accelerating climate change, it is easy to see where Klein's arguments are coming from. However, when we consider the rigidity of modern-day capitalism, is there really any point in spending time and resources on trying to change it? Klein says yes, and points to the movement for the abolition of slavery and argues that its success, despite the initial economic impact abolition had on slaveowners and consumers, shows that it is possible to go through large societal transitions, and that it is possible to revolt against a financial system that mostly benefits the elite (p. 393). After having been used as cover for the personal gain of the financial elite, Walter decides to follow Klein's advice and make his impact from the bottom-up, and together with Lalitha he uses some of Vin Haven's money to form a social movement. Since he sees population growth as the root cause of all the world's problems, including climate change, he decides to start a movement that will urge Americans not to have children. Although Walter's initiative eventually gets a certain following, it shows us that social movements and mobilizations are only beneficial if they are directed at the right cause.

Walter is blaming the government for reacting too slowly to the environmental crisis, but his own environmental contribution will at best be impactful a few generations ahead. After having decided on calling their movement "Free Space" and decided that their way to get attention will be through arranging small concerts across the US, Walter starts doubting if their movement is of any use. After a rally he asks Lalitha: "I saved a hundred square miles in West Virginia. Even more than that in Colombia. That was good work, with real results. Why didn't I keep doing it?" (Franzen, 2011, p. 622) To this Lalitha responds: "Because you knew it's not enough. The only thing that's really going to save us is to get people to change the way they think" (p. 622). When deciding on how they can be of help they try to be as ambitious as possible and go after the core of the issue. But by being too ambitious they end up without accomplishing anything. Although their movement gains some attention, it eventually ends up being dissolved, partly because of Lalitha's death, but also seemingly due to a greater understanding of that their attempt was completely pointless.

When it comes to environmental issues, especially related to climate change, deciding where to spend resources, both in terms of effectiveness and desired outcome, is an intricate process that not only splits environmentalists and those who do not care about the environment, but it also divides the environmental community. Whenever a new windmill park is in the planning or if there is talk about placing waterfalls into pipes, people tend to get very emotional. Should we do everything we can to reduce our carbon footprint, even if it means destroying parts of the natural world? In *Freedom*, by making Walter engage in the

mountain-top-removal industry to save the cerulean warbler, the dilemma is turned the other way around. By wanting to save a species of birds by polluting the atmosphere, Walter chooses conservation over climate change. As Walter later realises himself, the idea of this being positive for the environment is extremely flawed, but it sheds light on an issue that has clearly occupied Franzen's mind for a long time: that climate change dwarfs every other environmental issue (Franzen, 2015). Franzen (2015) writes that after having "started watching birds, and worrying about their welfare [he began] to feel miserably conflicted about climate change". He writes that he "accepted [climate change's] supremacy as the environmental issue of our time, but felt bullied by its dominance". "Not only did it make every grocery-store run a guilt trip; it made me feel selfish for caring more about birds in the present than about people in the future," Franzen writes. One of his most controversial arguments in the essay is that instead of ruining nature with renewable energy installations, it might be better to "settle for a shorter life of higher quality, protecting the areas where wild animals and plants are hanging on, at the cost of slightly hastening the human catastrophe" so that "if a miracle cure like fusion energy should come along, there might still be some intact ecosystems for it to save" (Franzen, 2015).

Franzen's points about conservation and birds are reflected in Walter. To Walter, birds have meaning in themselves, and not only as satisfying artefacts for human enjoyment. When Lalitha tries to understand what he sees in birds (which, through their "constant killing", she thinks of as "worse than human beings"), Walter says: "The difference is that birds are only killing because they have to eat. They're not doing it angrily, they're not doing it wantonly. It's not *neurotic*...that's what makes nature peaceful" (617). But Walter's love for birds makes him hate almost every living thing without feathers. Right after Joey has told Walter about his sinful actions as an LBI employee, Walter is told to hold a speech for workers at a newly opened LBI body-armour plant. Influenced by the knowledge of the affair between his wife and his best friend, and three antidepressants, Walter congratulates the new members of the American middle class for finally being able to participate in the destruction of the environment and accelerating global warming through the use of "coal-fired generators that are the number-one cause of global warming and other excellent things like acid rain" (p. 608). Walter, who is experiencing a morally inflicted breakdown as he speaks, ends his speech by screaming out loud: "IT IS A PERFECT FUCKING WORLD AS LONG AS YOU DON'T COUNT EVERY OTHER SPECIES IN IT! WE ARE A CANCER ON THE PLANET!" (p. 609). To Walter, the human population has started to resemble an uncontrollable growth of abnormal cells, rather than a healthy species in an ecosystem.

After his breakdown, Walter ends his engagement with the fossil fuel industry, which lets him engage truthfully with nature, uncontaminated by economic interests. The shift in Walter's mindset also brings a shift in the novel. Right after the heated speech we get a depiction of the cerulean warbler migrating back to the United States from the coast of Mexico:

Each year, they arrived to find more of their former homes paved over for parking lots or highways, or logged over for pallet wood, or developed into subdivisions, or stripped bare for oil drilling or coal mining, or fragmented for shopping centers, or plowed under for ethanol production, or miscellaneously denatured for ski runs and bike trails and golf courses. Migrants exhausted by their five-thousand-mile journey competed with earlier arrivals for the remaining scraps of territory; they searched in vain for a mate, they gave up on nesting and subsisted without breeding. (p. 611)

One of Trexler's critiques of *Freedom* is that "The cerulean warbler, coalfields, and changing climates are never allowed to intervene into characters' fortunes" (p. 226). He also says that the novel, "Fails to articulate the things involved in climate change or extinction" (p. 226). However, throughout the novel, Franzen considers how the political, social, and economic factors ("the things involved in climate change") are connected in a seriously flawed system that allows environmental destruction. And, if we see the cerulean warbler as a type of character, its tragic fortunes in the Anthropocene are well articulated. Trexler seems to want a story where the American middle class is hurt by climate change, but the fact is that it is not the American middle class that is hurt by climate change (at least, not yet), it is the American middle class, and other middle classes all over the world, which are responsible.

Towards the end of the book, Walter finally gets his chance to live out the Thoreauvian life in the woods. But due to a depressive state caused by the death of Lalitha, and due to the newly arrived citizens of the Canterbridge Estates and their bird-murdering cats, he spends 6 years by the pond in misery. Eventually, Patty manages to bring him out of the depression and they decide to leave the lake house together and move into the city. Instead of selling the house, Walter sets up walls around it, hangs up a small picture of Lalitha, and makes it a sanctuary for birds. Although the sanctuary in many ways resembles a tombstone, symbolizing the death of Thoreau's ideas of a well-functioning American middle class in touch with the natural world, it also marks a new beginning for Walter and his approach to how he might have a positive impact on the environment. Walter's realisation echoes Franzen's own suggestion on how we should try to live our lives in the Anthropocene:

“Absent any indication of direct harm...live the life I was given, be a good citizen, be kind to the people near me, and conserve as well as I reasonably can” (Franzen, 2015).

The irony of climate change

In “Carbon Capture”, Franzen (2015) points out the “tragedy and weird comedy of climate change,” and illustrates this with the “shifting of goalposts” in the “tragicomedy of climate activism”. Franzen says that for ten years ago we were told by activists that we only had ten years to do the adjustments that would prevent climate breakdown. Today, the same activists say that “*we still have ten years*” (Franzen, 2015). For many this will seem absurd, and they will see it as if the joke is on the activists. But the real tragedy lies in the ironic fact that the reason why we now have ten more years is that we have simply inflated the view of our ability to make drastic changes, while the truth is that “the actions that many governments now propose are *less* drastic than what they proposed ten years ago” (Franzen, 2015). Although the science has been pretty clear on what we have to do in order to minimize the upcoming catastrophe, the small uncertainties that surround climate change make it possible for us to justify doing the exact opposite of what we are being told.

Both McEwan and Franzen examine this ironic behaviour throughout their novels, and while many of the explored aspects of life in the Anthropocene are deeply tragic, their approach to addressing them is through the use of comedy. Malcolm Gladwell (2016) says that serious, humourless writing, in sombre, reasonable tones, limits the writer, but if a writer criticizes society in a humorous manner, anything can be said, without restrictions (4:40). Comedians, he says, “have become our truth tellers” (2:25). In addition, George Marshall says that because climate change writing is often very informational it mostly speaks to our “reasonable” part of the brain – the part that does not make us act (p. 1). So in many ways, a satirical novel would seem like the perfect instrument for conveying information about climate change that will also lead to action.

During the planning of *Solar*, Ian McEwan said that if he were going to use allegory he had to sprinkle the story with a lot of wit (Garrard, 2013, p. 124). *Solar* is filled with McEwan’s witty remarks about topical issues and a lot of typical slapstick humour. An example of this is when Beard “playfully” throws (in return) a tomato in the face of a woman who is demonstrating against the “Neo-nazi professor,” a reputation Beard earned from having stated that “girls tended to be more interested in people, boys more in things and abstract rules” (p. 185). Although this kind of humour might seem somewhat cheap, its intention is clearly to make the story more entertaining by way of sugarcoating political and scientific aspects that might be more difficult or laborious to deal with. In the scene where Michael Beard is presenting his climate change speech to the pension-fund managers, we see a more direct example of this type of sugarcoating. While trying to entertain the audience and

fight the fossil fuel-encouragers who have spoken before him, Beard is also fighting a battle with his own stomach – which does not want to accept the smoked salmon-sandwiches that Beard recently slid down his throat due to a feeling of pre-hunger (p. 202). Climate scientist and friend of McEwan, Stefan Rahmstorf (2010), applauds McEwan’s comic abilities and says that “what could have been tedious – a whole lecture embedded in a novel – is turned into a hilarious scene”. However, not everyone is satisfied with McEwan’s approach, and another critic says that McEwan’s “lyricism” and humoristic writing is like “a buttery, rich sauce ladled onto overcooked, dry meat to help readers swallow an otherwise indigestible meal” (Kirn, 2010). Indeed, comedy has the ability to make information more entertaining, but due to the subjectivity of humour it might also discourage readers.

Franzen has also been both lauded and criticised for his comedic approach. Literary critic, B. R. Myers writes that Franzen’s use of irony in *Freedom* is “indiscriminate and directionless,” which, in combination with the novel’s lack of “frame of reference from which we are to judge his prose critically”, makes *Freedom* “a 576-page monument to insignificance”. As a comment to Meyers’s review, David Brooks (2010) writes that “surely this is Franzen’s point”. How else would he paint a realistic picture of a society where people feel less and less significant? In terms of a frame of reference, Brooks points out that Franzen is repeatedly referencing Leo Tolstoy’s *War and Peace* and wants the reader to see the difference between Tolstoy’s characters, who, according to Brooks, are “spiritually ambitious – ferociously seeking some universal truth that can withstand the tough scrutiny of their own intelligence,” and Franzen’s own “distracted and semi-helpless” characters (2010). We do not go to the likes of Walter and Richard – the environmentalist working for a coal company and the Marxist building luxurious decks for rich fans – for advice. However, in the spirit of satire, we laugh at their actions and observe how these superficial characters resemble real-life characters around us, and possibly even ourselves.

Benjamin Kunkel (2014) argues that because of the planetary proportions of climate change, any individual attempt to confront the crisis would be seen as a joke. Walter and Lalitha are great examples of this. When they eventually understand that they cannot morally justify their involvement with the coal industry, they decide to start the “Free Space”-movement in hope of doing making a difference. When the early establishers of the movement, Walter, Lalitha, Richard and Jessica, are sitting down to discuss how they should go forward, Richard points out that their project is meaningless because overpopulation does not make any sense in a capitalist culture seeing that “capitalism can’t handle talking about limits” (p. 454). Jessica responds ironically: “So maybe we should just call it a day, then,” to

which Richard replies, “I didn’t invent the problem...I’m just pointing it out” (p. 454). Following Richard and Jessica’s interaction, Lalitha then says, “we’re a pragmatic organization. We’re not trying to overthrow the whole system, we’re just trying to mitigate” (p. 454). The irony of this movement is that it is the complete opposite of pragmatic. Believing that a campaign about Americans having fewer children will have any impact on climate change at all is completely ridiculous.

Garrard said that in times of crisis we are allowed to point out bad novels. I would argue that the same goes for social movements. If we compare the “Free Space” movement with real world initiatives, like for example the newly proposed economic stimulus program, the Green New Deal, we see how meaningless Walter’s initiative really is. Climate journalist David Wallace-Wells (2019) said that if the Green New Deal were to pass (which it did not), it would still only affect emission in the US, which is no more than 15 percent of the global total. Wallace-Wells points out that China (a country where population control already has been tried out) are responsible for “more than a quarter of emissions – and that figure does not account for any of the massive infrastructure projects the country is undertaking across Asia and Africa” (Wallace-Wells, 2019). Indeed, Wallace-Wells’s emphasis on the insufficiency of the Green New Deal, if it had passed, devalues almost every attempt of mitigation, but, like Tom Aldous pointed out in *Solar*, the solution to climate change has to be global, and it has to be quick. Thus, the standards of what should be called pragmatic initiatives have to be set higher than social movements about population awareness. For a movement to be pragmatic it should at least aim at forcing restrictions on greenhouse gas emissions or it has to encourage the use of renewable energy.

When Jonathan Franzen researched what kind of shady business, related to the Iraq war, he could make Joey engage in, a journalist who had been covering the war said to him: “Make it up. Whatever you do is not going to be as crazy as what’s happening down there” (BBC, 2015, 27:12). Writing satire in times when reality often seems to outdo fiction might seem pointless. However, being exposed to satire might still make us more aware of the hypocrisy around us. For example, without contemporary satire, would it have been as easy to spot the absurdity in having the world’s financial elite flown in to Switzerland from all over the world, each in his own private jet, to listen to David Attenborough speak and to discuss how they can improve the state of the world? In a world where we are constantly bombarded by demands to believe in all sorts of mad fictions, whether it is served to us by a salesperson, a politician or a professional intellectual, it can be difficult not to be fooled. Reading satire can be a good method of practicing critical thinking and it is also a great place to develop our

own opinions before bringing them out into the world. The climate change discourse is in no need of more inconsiderate argumentation.

Conclusion: The Satire Paradox

Robert C. Elliott writes this about the great satirist Joseph Heller: “If he could no longer...tell his audience with confidence what they should be for, he was splendid at showing them what they must be against” (Elliott, 2019). However, does showing us what we must be against lead to progress? According David Foster Wallace (1998), the answer to this is *no*. In the essay “E Unibus Pluram”, he describes how satire was thought of in postwar art and culture: “It was assumed that etiology and diagnosis pointed toward cure, that a revelation of imprisonment led to freedom” (p. 67). This, Wallace says, is not necessarily true of later use of irony. In the 60’s, he says, the use of irony was a sensible response “to a ridiculous world,” but a few decades later irony gradually became “tiresome” (p. 67). Wallace quotes Lewis Hyde who says that “Irony has only emergency use. Carried over time, it is the voice of the trapped who have come to enjoy their cage” (p. 67). Readers of *Freedom* and *Solar* will be in little doubt about whether the authors have enjoyed themselves while writing. Indeed, the relaxed and playful tone in the two novels does not resemble two authors who desperately want to create change. It is as if they too have been dwarfed by climate change and the only meaningful thing to do is to laugh about it.

Wallace says that irony “is singularly unuseful when it comes to constructing anything to replace the hypocrisies it debunks” (p. 67). This idea is reflected by David Brooks in his review of *Freedom*, where he writes that although it “is a brilliantly written book,” it is “lacking an alternative vision of higher ground” (Brooks, 2010). Franzen, who was close friend of Wallace, is obviously aware of the problem that irony might inflict and seems to make a comment about it through his character Richard Katz. Throughout the story, we rarely get to know Richard’s true feelings and when he speaks his mind it is mostly in a sarcastic manner to point out bad ideas. We get a good example of irony’s negative function when Richard is working as a roofer for a rich fan in New York, after having become a successful musician, and agrees to do an interview with the houseowner’s son. When the boy asks, “So what’s the next step for Richard Katz?” Richard answers: “I’m getting involved in Republican politics” (p. 251). The boy obviously understands the sarcasm, but Richard keeps going:

Seriously. Getting nominated for a Grammy was such an unexpected honor...I’ve been given the opportunity to participate in the pop-music mainstream, and manufacture Chiclets, and try to persuade fourteen-year-olds that the look and feel of Apple Computer products is an indication of Apple Computer’s commitment to making the world a better place. (p. 251)

The passage reflects what Wallace says about gifted ironists being “wickedly fun to listen to” but that the information they bring “is unmeaty” (p. 67). By turning to irony, even though the interviewer asks for honesty, Richard distances himself and refuses to participate in the dialogue in a manner that otherwise could have been beneficial for both of them.

As we see in Richard’s use of irony, it is an easy method of creating a sense of objectivity, but the balancing act between objectivity and indifference is difficult. This is especially true on a topic like climate change. By not wanting to take a moral stance, McEwan risks giving readers the impression of being this unsubstantial ironist, providing the reader with little more than what can be found in scientific articles.

I believe that the main reason why Garrard, and, according to him, so many other literary critics disliked *Solar*, is because of the nature of comedy, and especially irony. In a podcast episode named “The Satire Paradox”, Malcolm Gladwell (2016) points out that “satire is complicated” (21:50). He says that satire “requires interpretation – That’s what draws you in...but that active interpretation has a cost” (21:55). In the same conversation, Heather Lamarre expands on this and says that “the trade-off with satire” is that when we read or listen to comedy, “a lot of the thinking becomes devoted to what the comic means,” especially with regards to “who the target of the joke is” (22:10). In addition, she says that instead of spending time interpreting whether the message “warrants any kind of real consideration,” we tend to spend our time counterarguing “the merits of that message” (22:10).

Garrard’s analysis of *Solar* is a perfect example of what Lamarre describes. Garrard writes: “climate change is the insoluble limit case for McEwan’s liberal humanist progressivism” (2013, p. 133). Garrard reads *Solar*, not as an objective discussion of climate change, but as a badly disguised homage to the author’s fundamental beliefs. Further, Garrard writes: “*Solar* may be as far as McEwan can go while keeping faith with the Enlightenment. We will know, probably in the next two decades, whether such reformist hopes were justified. A great deal more than disappointment is at stake” (p. 133). Garrard accuses McEwan of not being able to satirize his own Enlightenment beliefs, but how is Michael Beard – both a Nobel prize winner (which would indicate a pretty high level of enlightenment) and a grotesque human being who exploits his surroundings simply because he is given the opportunity to do so – not a critique of these exact enlightenment beliefs? Lamarre says that with satire, “you’re spending all of your time thinking about the nature of comedy, which leaves very little mental resources to think about whether the comedy has truth” (22:50). Despite the fact that *Solar* easily can be read as an argument against an Enlightenment approach to climate change,

Garrard's presumptions about McEwan's beliefs prevents him from reading the novel as an objective problematization of whether reason and technological progress actually might be the right approach.

Marshall (2014) says that since climate change "lends itself to multiple interpretations of causality, timing, and impact," readers will "select or adapt information so that it confirms our preexisting assumptions" (p. 2). In other words, since both climate change and satire are open to interpretation, the combination of the two of them together might make it especially difficult for readers to acquire any new understanding. McEwan makes a point of the power of confirmation bias in a scene right after Michael Beard has performed his illuminating climate change speech to the pension-fund managers: "It was obvious that no one's investment strategy was transformed. He learned that earlier in the day an oil analyst had persuaded the room that, with tar sands and deep sea drilling counted in, there were five decades of known reserves" (p. 216). The pension-fund managers are literally so heavily invested in their pre-existing assumptions that it seems impossible to make them invest in something else. From a reader's perspective, if one believes in Beard saying that if we want to give our next generations a future we must all start to invest in renewable energy instead of fossil fuels, and that this might even be a great economic opportunity, then one would probably be agitated by the ignorance of the fund managers. But to readers who do not see a change towards renewable energy as necessary, Michael Beard would probably come off as an ignorant "climate scientist" without any understanding of the financial system.

It is not only the pension fund managers or Greg Garrard who are unaffected by Beard's allegories. Ironically, Beard himself does also seem to be untouched by the stories he tells. In correspondence with Jonathan Swift's observations in the introduction, while trying to convince others to look into themselves and see how they could improve their lives by trying to reinterpret their own situations, Beard is unable to look into himself and he ignorantly continues down his own destructive path until everything blows up in the last scene.

In *Freedom*, Franzen too points out the problem of confirmation bias and how this not only will prevent people from obtaining new information but how it also leads to stronger social polarization. After Walter has performed his controversial speech, a film of the speech goes viral and he suddenly becomes a well-known figure within certain environmentalist circles. As a part of the "Free Space" movement Walter starts to tour the country with a new speech about how people should stop having children, and he reflects:

Every time Walter took the stage, he was cheered for his Whitmanville meltdown and his intemperate blog entries, but as soon as he spoke of being smart and letting the facts argue for themselves, the crowds went quiet or started chanting the more incendiary words of his that they preferred—‘Cancer on the planet!’ ‘Fuck the Pope!’ (pp. 621-622)

Walter also points out how his fans are excited about “travelling to West Virginia and shaming it for its high birth rates, its ownership by the coal industry, its large population of Christian fundamentalists, and its responsibility for tipping the 2000 election in George Bush’s favor” (623) It is pretty clear that the people at Walter’s rallies are not coming to get new perspectives on population growth or any other environmental issues. These types of rallies seem to have become nothing more than a space where people can come together with likeminded people from same political tribe, to celebrate their own moral superiority and confirm their pre-existing biases. Satirical novels might have the same effect.

According to novelist Will Self (2015), satire, if executed successfully, should “comfort the afflicted and afflict the comfortable”. After having read Garrard and Trexler’s reviews of *Solar*, it is clear that they have neither been comforted nor afflicted by McEwan’s novel. Instead, their readings seem to represent Wallace’s thoughts on what much of satire after the 60’s feels like: “Sitting through a 300-page novel full of nothing but trendy sardonic exhaustion, one ends up feeling not only empty but somehow...oppressed” (p. 67). The same can be said about Myers’s reading of *Freedom*, who writes that the “author’s attempts at humor descend to the sort of puerility that Americans tolerate only when reading a so-called literary novel” (2010). Due to the use of comedy and irony, the reviewers are not only disappointed, they are annoyed.

Jonathan Coe argues that “Laughter, in a way, is a kind of a last resort” (Gladwell, 2016, 23:18). He says that “If you’re up against a situation for which there is no human solution and never will be, then ok, let’s laugh about it” (23:26). But, as he says, “[s]ome political problems are intractable, and some political problems can be solved, and perhaps instead of laughing about them, we should try and do something about them” (24:04). In the meeting where the early members of the “Free Space” movement talk about how to run their “pragmatic organization” (p. 453), Lalitha says: “We’re not trying to spend the entire day laughing at how impossible it is to accomplish anything.” (451). Instead, the reader ends up laughing at their ridiculous attempt at accomplishing something. However, towards the end of *Freedom*, Franzen shows that it is possible to tell a story about people dealing with climate change in a sincere and realistic way. Joey puts his financial abilities into an environment-

friendly project and Walter finally finds an approach to conservation that is both self-fulfilling and beneficial for the environment. Franzen could possibly have given more attention to these positive alternatives earlier in the story, but who is going to read long climate change novels filled with sincere characters doing the right thing for the environment?

To McEwan, a story about characters who are dealing with climate change in an unhypocritical manner would seem to carry with it too much of the “moral load” that he is trying to avoid. After his trip to Longyearbyen, Michael Beard could have become the person who engages with climate change in a manner that might inspire the reader to do the same, but by having him be partly responsible for killing Aldous’s death, and by removing Aldous from the story, McEwan also kills off the idea of depicting the fight against climate breakdown in an encouraging manner.

Greg Garrard says that “*Solar* is so full of metafictional minimization of expectations, it ought to wear a badge: ‘The novel will not save the planet’ (2013, p. 126). McEwan would probably not have objected to a badge like this. Satire might not make us imagine how an environmental crisis will feel like. Nor is it likely that it will fundamentally change people’s perception of climate change. But if we take satire seriously and enter the reading with a desire to learn, instead of entering it with a desire to outsmart the author, then it might make us realise that there is always room for improvement, also in ourselves.

It is said that the purpose of satire is: “to destroy whatever is overblown, faded and dull, and clear the soil for a new sowing” (Jacobson, 1997, p. 117). In the Anthropocene it is a satirist’s job to point out what is wrong with our relationship with the environment; it is not necessarily a satirist’s job to come up with a solution. If readers were only allowed to receive information about climate change through satirical fiction, then its negative function would be problematic. However, there is an enormous corpus of climate change writings that is not satirical fiction, that can help fill the void that satire might create. Instead of criticising authors for not writing a perfect climate change novel, we should be looking at what each novel is contributing to the grand collective story about climate change. *Solar* and *Freedom* help move the climate change discourse beyond questions concerning whether our current way of dealing with climate change is acceptable or not, and whether we should let the fossil fuel industry continue as it does. The novels make it clear that in order for us to prevent a climate breakdown we need to develop new technology, we need tougher restrictions, we need to take more personal responsibility and we need to demand more genuine freedom. That something constructive comes out of this information is not up to the authors, that is our responsibility.

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Thesis' Relevance for the Teaching Profession

Working with this literary analysis has made me a better reader and writer. I have learned essential aspects of how fiction works, and I have become more aware of how to structure a text. This is knowledge that will enhance my teaching practice. I will be much better prepared to lead literary discussions and to give advice on students' writings.

One of the core values in the Norwegian Core curriculum¹ is "Critical thinking and ethical awareness." It says that "[s]chool shall help pupils to be inquisitive and ask questions, develop scientific and critical thinking and act with ethical awareness."² As I argue in my thesis, reading satire can be a useful method of developing one's own ability to think critically. The two novels and the related reading material have also given me many examples of ethical questions that I can use in the classroom (e.g. what do we do with the fossil fuel industry? What about windmills? Who is right, Pinker or Monbiot?).

Another core value is "Respect for nature and environmental awareness". Here it says that "[s]chool shall help the pupils to develop an appreciation of nature so they can enjoy and respect nature and develop climate and environmental awareness."³ Although the best way to learn how to appreciate nature is by being outside, reading fiction about environmental topics can, at least in my experience, also lead to an increased appreciation of nature. By including environmental texts in my classes I might give students the same experience.

After having investigated how environmental issues could best be communicated, and after having spent a lot of time trying to dissect the current climate change discourse, I will be well prepared to discuss environmental issues and methods of environmental activism with other teachers or students. Working with this thesis has also made me more aware of how English environmental fiction can be used across different subjects. In addition to teach English, I also teach science, and by working with these two novels I have realised that it would be possible to use English literature in a science class.

¹ Regjeringen, 'Core curriculum – values and principles for primary and secondary education', *Regjeringen* (April 2019) <<https://www.regjeringen.no/en/dokumenter/verdier-og-prinsipper-for-grunnopplaringen---overordnet>

-del-av-lareplanverket/id2570003/> [15 May 2019]

² Regjeringen, 'Core curriculum'. p. 8.

³ Regjeringen, 'Core curriculum'. p. 9.

