

Invisibility, Colors, Snow: Arctic Biosemiotics and the Violence of Climate Change

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Abstract

This article conceptualizes contemporary geopolitical violence in the Arctic through a semiotic register. Different living beings perceive different things, and these differences amount to different worlds, not merely different worldviews. Building on Eduardo Kohn's reading of the semiotics of Charles Sanders Peirce, and theorists of biosemiotics and ecosemiotics, the article analyses how signs in and between living organisms and their environments are political matters of life and death. Via the themes of invisibility, colors, and snow, the article traces semiotic relations between different living beings and their Arctic ecologies to weave a semiotic understanding of contemporary geopolitical violence in the Arctic and the role of climate change therein. The article defines the violence of climate change as a violence of not being able to recognize oneself, and builds on Eduardo Viveiros de Castro's concept of multinaturalism to explain what it means that one world ruins other worlds.

Keywords

Arctic, biosemiotics, climate change, geopolitics, Sámi

You know it brother
you understand sister
but what do I say to strangers
who spread out everywhere
how shall I answer their questions
that come from a different world

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How can I explain
that I cannot live in just one place
and still live
when I live
among all these tundras
You are standing in my bed
my privy is behind the bushes
the sun is my lamp
the lake my wash bowl
(Valkeapää, 1994)

Introduction

This article conceptualizes contemporary geopolitical violence in the Arctic through a semiotic register. Building on Eduardo Kohn's reading of the semiotics of Charles Sanders Peirce, and theorists of bio- and ecosemiotics, the article contends that signs in and between living organisms and their environments are political matters of life and death. Different living beings perceive different things, and these differences amount to, as Eduardo Kohn (2013: 10) writes based on his ethnographic encounters with Amerindian thought, 'different worlds, not merely different worldviews'. This article argues that there is violence woven into the inability to perceive the worlds of others, and the inability to recognize oneself in one's world.

In the opening poem, the Sámi poet, writer, artist, and musician Nils-Aslak Valkeapää (Áillohaš in the Northern Sámi language) describes a nomadic world of Sámi reindeer herders and how this world is difficult to perceive for 'strangers'. His use of the term 'different worlds' is echoed in the quote above from Kohn and taken up in this paper's semiotic reading of geopolitical violence in the Arctic at this time of climate change.

As a way to 'identify a change or intervention as violent rather than merely as a change', Jairus Grove (2019: 2–3) utilizes the concept of 'form of life', by which he means 'not quite race and more than culture or style'; 'those ways of being in the world – always lived collectively – without which one would no longer be who or what one is'. Grove takes the concept from Giorgio Agamben (2000), who defines a form of life as 'a life that can never be separated from its form' and 'a life for which what is at stake in its way of living is living itself'. In the poem above, Valkeapää exemplifies a nomadic form of life with the words 'I cannot live in just one place / and still live'.

Merging this notion of a form of life with the biosemiotic principle that all life is intrinsically semiotic (Kull et al., 2011; Kohn 2013; Maran, 2014), this article rests on the premise that a form of life is also characterized by a particular semiotic orientation, and that such semiotic

orientations amount to different, dynamic and changeable, worlds. It is on this basis the article uses the terms ‘form of life’ and ‘different worlds’ interchangeably.

‘The geopolitical project of planet Earth’, Grove (2019: 3) continues, ‘is a violent pursuit of a form of life at the cost of others – full stop’. Geopolitics – nation-states maneuvering at a global scale – ‘is structured to be selective, and to ensure that selectivity by lethal force’ (Grove, 2019: 3). This article attempts to understand how this geopolitical violence plays out in the Arctic in this current moment of melting ice. Climate change and resource extraction in the Arctic are results of the same geopolitical violence, a violence that proceeds at the expense of forms of life – human and non-human – that depend on relationships with the surrounding Arctic ecology that are at odds with Euro-American regimes of growth, profit, and development. As examples of such forms of life, this article focuses on Arctic inhabitants making their homes in the Arctic north of Finland, Sweden, and Norway, more precisely Sámi forms of life as well as non-human animals such as reindeer, ptarmigans and hares.

Building on Peirce, Kohn (2013: 8) acknowledges how representational forms go beyond language and beyond the human. Icons (based on similarity) and indexes (based on physical or causal connections) are non-symbolic semiotic modalities that humans share with all non-human biological life, and different forms of life represent the world in ways that are intrinsic to their being (Kohn, 2013: 9; Maran and Kull, 2014). Biosemiotics is concerned with sign processes in and between living organisms (Maran, 2014), and overlapping herewith, ecosemiotics is concerned with sign processes that relate organisms to their spatial environments and how ‘organisms interact with a natural environment that does not function as the intentional emitter of messages to the interpreting organism’ (Maran and Kull, 2014; Nöth, 2001: 72).

This semiotic framework is here put into conversation with scholarship and material from a broad range of fields and sources concerned with Arctic ecologies. For its understanding of ecologies of melting ice, the paper relies on western science. My interpretation of semiotic relationships between Sámi people and their environments is based on Sámi scholarship, scholarship and news articles based on interviews with Sámi people, and the work of Sámi poets Valkeapää and Rawdna Carita Eira.¹

The impetus of the paper is to understand practices of violence carried out by settler states whose actions I benefit from. The paper does not present an ethnographic account of the ways in which the Sámi relate semiotically with Arctic landscapes, as I am not in a position to directly engage a Sámi perspective or cosmology. Rather than seeking to represent the Sámi, the paper seeks to understand the violence that is perpetrated on the Sámi, and on non-human animals, in the Arctic. As a native citizen of a Nordic welfare state that reaps benefits from global

capitalism, extractionism and the geopolitical project of planet Earth, I am a stranger to Sámi forms of life. My questions come from a different world, as Valkeapää writes. In essence, this paper seeks to figure out how my world ruins other worlds.

Arctic Climate Change and Geopolitics

Humans did not know they had the power to melt the Arctic ice, but here we are. Air temperature in the Arctic is warming at double the global rate, sea ice is melting rapidly, permafrost is thawing, snow cover is lessening, and the ocean is warming (IPCC, 2019). The geopolitical mirror image of this tale is equally well known: Melting ice uncovers underground resources and new sea routes, ‘climate change is opening the Arctic up for business’ (Frederiksen, 2019), and states are ramping up military infrastructure and presence in the region to protect their growing interests there (Breum, 2018). Insofar as current Arctic ‘development’ is premised on global ecological destruction, the notion of ‘sustainable development’ in the Arctic is a dubious concept. The fact that global planetary destruction is seized for more planetary destruction is the geopolitical project of planet Earth in a nutshell. It also highlights what Cubitt (2015) calls the ‘suicidal tendency of the corporate cyborg’.

What is left to say? How can one represent and perceive climate change and the violence it causes? A ‘redistribution of the sensible’ beyond polar bears is necessary (Yusoff, 2010). Labelling the tropes described above ‘the one about the disappearing ice’, Dittmer et al. (2011) call for research on Arctic geopolitics that pays attention to the Arctic as a homeland rather than as an abstract space and thus security commodity. Analysis, they suggest, should be attuned to embodiment, the local, and the everyday, and should resist the determinism inherent to discourses of environment- and climate-security. There is a difference between science as facts that arise out of detached observation, and meaning emerging from embedded experience (Jasanoff, 2010), and there is sense in diverting some ‘attention away from the task of a causal analysis of climate change, and instead to try to understand it in terms of semiosis and meaning’ (Szerszynski, 2010: 22).

This article heeds this advice in trying to articulate contemporary geopolitical violence in the Arctic at this time when melting ice and warming temperatures change environments. This geopolitical violence entails a self-accelerating one-two of increased resource extraction and local changes in climate, where the latter is both a result of and further facilitates the former. The focus of this article is to pay attention to how a global apparatus of destruction comes to bear on entities as local as specific birds and reindeer herders.

In the three following sections – invisibility, colors, and snow – the article sketches semiotics of different actors in the Scandinavian Arctic

(Sámi people, mining engineers, NATO soldiers, reindeer, ptarmigans, and snow hares) in an effort to trace contemporary geopolitical violence in this moment of climate change. The themes of invisibility, colors and snow refuse to be confined to their respective sections. Colors slip into the invisibility section, snow slips into the color section, and invisibility slips into the snow section. Together, the sections weave a semiotic understanding of contemporary geopolitical violence in the Arctic and the role of climate change therein. The article has two concluding sections. The first defines the violence of climate change as a violence of not being able to recognize oneself. The final section builds on Eduardo Viveiros de Castro's concept of multinaturalism to explain what it means that one world ruins other worlds.

Invisibility

Different living beings perceive different things. In the Arctic of Finland, Sweden and Norway, differences in perception contribute to an ongoing erasure of an indigenous Sámi minority. The following section explores how the majority settler states, in several different ways, fail to perceive Sámi existence.

'Nomads have no history; they only have a geography,' Deleuze and Guattari (1987: 393) write. History, as a science of the sedentary state, tends to dismiss the characteristics and semiotics of nomadic forms of life as unimportant. This is also the case for the Sámi:

The Sámi haven't written their history. We just have these marks in the landscape and a few objects. We haven't written four hundred books about our past. There are only a couple of books written by Sámi authors. We have the most important shared memories in the landscape and in our knowledge about it. (Berit Åse Johnsen, cited in Lien, 2014, translated from Norwegian by author)

Tervaniemi and Magga (2019) describe how traditional Sámi existence is tied to a landscape and certain ways of perceiving and providing meaning to it. The traditional Sámi way of being in an environment, they write, is neither based on demarcated borders nor a need to build any permanent structures; home is an area in which people move around and use, not connected to a building or private property:

The Sámi have a long history in the area where they live, but very few traces of their culture can be seen today in the environment. The signs of their culture might have been so subtle that outsiders failed to see or understand them. (Tervaniemi and Magga, 2019: 81)

Tervaniemi and Magga (2019: 82) describe a ‘spiritual, unseen cultural environment’ of the Sámi that is connected to knowledge about how places and areas are used. ‘Through this knowledge meanings are created that change the physical landscape into a cultural landscape’ (Tervaniemi and Magga, 2019: 82).

An old dwelling site, spring, *sieidi* (sacred place) or boundary of a grazing area may go unnoticed by most people, but their significance and value are apparent to the Sámi by virtue of their traditional knowledge. What to others appears to be the wilderness may be a cultural environment to the Sámi regardless of whether one can see concrete signs of human activity in the terrain. (Tervaniemi and Magga, 2019: 82)

Because a Sámi cultural landscape to an outsider looks like an empty, remote or marginal environment, it is easy to overlook Sámi presences and homes, and only have eyes for the natural resources in an area – natural resources that first and foremost benefit states, not the people who make a home there (Tervaniemi and Magga, 2019: 75).

They come / and ask where is your home / they come with papers / and say / this belongs to nobody / this is government land / everything belongs to the State / They bring out dingy fat books / and say / this is the law / it applies to you too / [. . .] But when they ask where is your home / do you answer them all this / On Skuolfedievva we pitched our lávvu / during spring migration / Čáppavuopmi is where we built our goahti during rut / Our summer camp is at Ittunjárga / and during the winter our reindeer are in Dálvadas / You know it sister / you understand brother. (Valkeapää, 1994)

In 1981 the Norwegian Supreme Court ruled that the Sámi did not have a right to herd reindeer in Trollheimen, because they had never been there. The ruling was based on the fact that no Sámi presence was noted for this particular area in available written sources such as an 1801 census (Hermanstrand, 2017). Since the ruling, archeologists have found evidence of Sámi settlement in Trollheimen back to the Iron Age. It turns out that Sámi people were often simply not counted in official documents such as church books, public protocols, or census reports, or it wasn’t noted that they were Sámi (Hermanstrand, 2017). Valkeapää (1997: poem no. 509) puts this Sámi invisibility into words:

we do not even exist
we are subterranean beings
we are invisible

you can walk through us
 and they will laugh
 if you tell them
 that we have homes, camps
 that we also have rights
 that we also exist

 we do not seem to exist
 and those
 who do not exist
 cannot demand
 anything

 anything

Part of Sámi invisibility is the fact that Sámi people share skin color with the majority societies they have been colonized by:

As long as we were wearing our *gaktis*, our traditional Sámi clothing, we were part of the indigenous group, everyone could see we looked different from the ‘white’ people attending the conference, but the moment we took off our *gaktis*, we looked ‘white’. There were in fact voices at the conference expressing skepticism towards the Sámi, because of our ‘whiteness’. (Gaski, 1997: 202–3)

This whiteness is the reason the Sámi can be assimilated into the Nordic majority societies in ways that erase they were ever Sámi. As a result of more than a century of cruel assimilation policies carried out by the Nordic states, some Norwegians are re-discovering their own Sáminess without having any knowledge, language or living family history to base it on (NRK, 2013). Tervaniemi and Magga (2019: 79) describe that embracing the *gákti*, along with embracing a Sámi homeland (*Sápmi*), flag, national day, and national anthem, are ways in which the Sámi ‘defend their culture in relation to the majority society’, ‘make themselves visible’, and are ‘acknowledged as a separate people’. It is about standing out, semiotically, against the majority states. If outsiders can’t see a Sámi home, perhaps they can see a Sámi flag.

The patterns and colors of different *gákti* display elaborate semiotics of places and homes. Weaves, stripes and ornaments tell where their carrier is from, and what family he or she is part of – they tell of relations and meanings, kinship and belonging. These relations are invisible to those who only perceive different Sámi ‘costumes’. Appropriations of the *gákti* erase these spatial and kinship relations.

Most Sámi today work the same occupations as other Swedes/Norwegians/Finns, and reserve wearing a gákti for special occasions. When tourist discourses teach visitors that the Sámi wear a gákti and herd reindeer, tourists will not perceive a person – or an area – as Sámi if no one is wearing a gákti and herding reindeer:

In practical politics this view of the ‘other’ makes it difficult to inscribe a relation between the Sámi and a territory, because few Sámi conform to the image of the ‘emblematic Sámi’. (Olsen, 2004: 292)

The image of the ‘emblematic Sámi’ posits the ethnic as a counterconcept to the modern, and ethnic culture as something that has to be preserved and protected from modernity (Olsen, 2004). Those Norwegian politicians who support giving more money to Sámi museums but do not support Sámi political rights (Olsen, 2004) are pushing for an erasure of Sámi futures.

In their 2017 Annual Survey of Mining Companies, The Canadian Fraser Institute (2018) ranked Finland as the ‘top jurisdiction in the world for investment based on the Investment Attractiveness Index’ due to its rich underground and generous mining policies. The Swedish mining company Boliden operates three mines in Sápmi, two in Sweden and one in Finland, and is currently ‘exploring’ other mining opportunities in the vicinity to these, for example a copper mine in Laver (with a proposed footprint of close to 50 km²!) in the traditional lands of the Semisjaur Njarg Sámi. On its website, Boliden (2020a) sketches ecosemiotics of the Arctic environment focused on the underground:

Exploration is about identifying, prioritizing, investigating and analysing mineral deposits in order to fulfil the conditions for mining. [...] Exploration can be divided into four main phases: selecting an area, initial regional investigations, local investigations and test drilling. We use various geological theories and models and interpret the collected material using multidimensional software. If the deposit meets profitability requirements on the basis of volume and metal content, more studies are conducted regarding geological, environmental, technological and financial aspects.

‘Boulder hunting’, one of Boliden’s listed ‘methods of exploration’, consists of ‘Physically searching on site for geologically interesting boulders that [indicate] the possibility of deposits in nearby bedrock’ (Boliden, 2020b). Here, rock formations are assessed based on ‘profitability requirements’, not sacredness, homes, or lived histories.

Boliden’s website also contains a well-worded page with the headline ‘Building trust with Sámi communities: Boliden’s approach’ that is in

great contrast to a report by the Stockholm Environment Institute stating that Boliden's own environmental impact assessment of the proposed mine in Laver concludes that it is 'likely that reindeer herders would have to give up their livelihoods' and that 'Boliden's proposed mitigation and compensation scheme is to offer reindeer herders jobs in the mine' (Lawrence and Larsen, 2019). A letter from the Swedish Sámi Council (2019), addressed also to Boliden, makes it clear that the mine 'threatens their lands, their reindeer husbandry, their traditional culture and their cultural identities'. Offering reindeer herders work in a mine that has decimated their pasturelands, and all the semiotic relations the herders had to these lands, amounts to a violent, genocidal erasure.

The majority Scandinavian form of life, part of the geopolitical project of planet Earth, repeatedly overlooks Sámi histories, homes, territories, relations, and futures, not because non-Sámi pretend not to see anything that is Sámi, but because Valkeapää is right: to outsiders, the Sámi often do not even exist. As I shall return to in the conclusion, the issue is ontology, not epistemology.

Colors

In the vocabulary of western science, white is what humans see when all wavelengths of light are reflected off an object. The reflective character of snow and ice is important for Arctic ecologies, because also the heat of ultraviolet light is reflected. A snowy, icy Arctic reflects around 90 percent of the UV light that hits it, whereas snow-free land typically reflects only a few percent (Hogg et al., 2011). As the ice melts, the decrease in reflection intensifies melting, what is known in western climate science as Arctic amplification, which is related to albedo-surface-feedback: a measure for how much light (and thereby heat) a certain surface reflects back into the atmosphere. Liquid water for example absorbs more electromagnetic radiation than snow-covered ice, which is highly reflective.

It is worth noting that while ultraviolet light is out of the visible spectrum for humans, it is visible to reindeer, one of few mammal species that see it (Hogg et al., 2011). Reindeer thus continue to see much deeper than humans into the blue ecology of short wavelengths that is characteristic of the Arctic winter environment with its extended periods of twilight (Hogg et al., 2011). When neuroscientists experimented with a UV camera, they found that some important reindeer signs absorb UV light and therefore appear in high contrast against snow. These signs include urine (a visual and olfactory sign of predators or competitors); lichens (a major food source in winter); and fur, making predators such as wolves easy to see even if they appear camouflaged to other animals that don't see UV (Hogg et al., 2011). The amount of UV light reflected off different qualities of snow surfaces varies, which suggests that reindeer can perceive a lot, perhaps about foraging conditions, from what

others perceive as a bland surface of snow (Hogg et al., 2011). This difference in perceptive ability points to the world of the reindeer.

In the Arctic, the results of the geopolitical project of planet Earth are ominously colorful. A ‘blueing’ ice-free ocean absorbs more heat than ice, leading to even warmer oceans (Thackeray and Hall, 2019). ‘Greening’ of the Arctic refers to shrub-growth on the tundra as a result of warmer temperatures, and these shrubs absorb more heat than the tundra with no shrubs (Hoag, 2019). Arctic ‘browning’ refers to landscapes of burned or dead plants due to wildfires, insect invasions or as a result of warm winter events: when plants are no longer thermally protected by snow cover, they become vulnerable (Hoag, 2019). Black carbon is sooty black material emitted from diesel engines and biomass burning that settles as black dust onto Arctic snow and ice, thereby darkening it, again amplifying melting (Winiger et al., 2019). As a final aspect of this palette of destruction is the color explosion of plastic debris that has flown and floated north. To a human, these colors of climate change might signify the ‘depths, nay, fathoms of shit we are in’ (Grove, 2019: 11). The colors are signs of destruction, but are also materially, non-semiotically, destructive in themselves.

In the poetry of Valkeapää and Eira, the Arctic isn’t particularly white. It is blue, golden, silver, and many other colors that are reflected back to a human eye in the light of different Arctic seasons. Eira (2011: 56) writes that ‘the diamonds of the ice land / adorn the forehead / wrapped we are / in chiffon-shimmer / the lost rays / don’t let us go / clinging on / to the silver belt’, and compares her belt to ‘the flames of the northern lights / around the waist’ (Eira, 2011: 54). Dressing colorfully is a way of relating to the surrounding ecology. The poem below describes the *gákti* and its colors as part of a way to communicate with the environment, and takes the semiotic selves of reindeer into account:

And when we came to the summer camp
 some of us dressed in red *gákti*
 adorned ourselves
 offered a libation as well to our light beautiful camp
 and asked it to open its embrace for protection once again
 And when we went to the reindeer we did not go to work
 we adorned ourselves too
 so that it would be more fun for the reindeer to see us. (Valkeapää,
 1994)

‘Chromophobia’, writes David Batchelor (2000), is a tendency in western thought to perceive color as primitive, rudimentary, savage, feminine, and uncontrollable. Batchelor analyses how a fall into color – for a ‘fall’ it is – is a fall into drugs, psychosis, purple rain, and gay rainbows. Minimalist, sterile surroundings are sought in western architecture,

medicine, finance and government: suits, cloaks and ties are kept in tones of white, grey, black and dark blue. In western thought, color is semiotically cast as an antithesis to order, rationality, sophistication, civilization, cleanliness and seriousness. And from the idea that color must be suppressed follows the idea that those who in different ways embrace or represent color must be oppressed, or at least not taken seriously (for analysis of colors in security studies see Andersen et al., 2015).

In his protest book *Greetings from Lapland: The Sámi – Europe’s Forgotten People*, which was originally written in Finnish for the Finns, Valkeapää writes about non-Sámis, ‘They’re usually dressed in black, or at least in grey’ (1983: 22). After satirically describing the Sámi through the western gaze, as primitive, illiterate, small, stunted, bowlegged, and with sunburned and dirty skin, Valkeapää (1983: 10), describes himself:

I can speak Finnish, unfortunately. Notably better, in fact, than the average Finnish-speaking inhabitant. I am also capable of thinking in Finnish. And writing. Besides that, I’m fair, almost white-haired. I’ve even studied a bit. [. . .] I may not be very tall, but I’m well built, and I have straight legs. I dress colorfully, and what’s more I’m sexy.

As Kathleen Osgood Dana writes, Valkeapää is:

[. . .] invoking all of the characteristics of the dominant culture that are usually denied to indigenous people [. . .] Not only does his choice of Finnish as the language of his argument confront Finnish intellectuals and politicians directly, it goes to the root of the dominant culture’s abiding fears about its own linguistic and sexual prowess. Here is a direct challenge to the patriarchal, male-dominated powers in their own language. (Dana, 2003: 56–7)

I will add that Valkeapää also includes a challenge to the chromophobic characteristics of a dominating form of life that is only able to take the colors of the gákti seriously as a source of tourism profit. To some, the Arctic was colorful long before climate change brought about colors that are truly savage.

Snow

In Guovdageaidnu, Sámi herders use around 318 words to characterize different kinds of snow. Herders characterize snow cover, temperature, moisture, wind, behavior of the herd, and condition of the animals (Eira et al., 2018: 928). Five key factors characterize snow cover and snow type: access to water, food and space; physical activity, shelter

and rest; mobility for reindeer and herders; visibility of tracks in the snow; and visibility of animals and environment (Eira et al., 2018: 928). Herders don't measure or quantify the snow, and the term 'stability' is a foreign word in the language of Sámi herders (Eira et al., 2018). These ecosemiotics are a far cry from a western way of relating to the environment that is based on technology and accurate measurements.

In the past, reindeer herders' traditional ecological knowledge, flexibility in access to pasturelands, and diversity in reindeer herds and pastures, ensured sustainability in reindeer herding, perceived as taking place in a non-equilibrium-system (Tyler et al., 2007). State-enforced top-down management of reindeer herding as a meat production industry focused on quantification of reindeer, pastures, and production, and a state-mandated perception of the tundra as an equilibrium system has made sustainability difficult (Tyler et al., 2007; Johnsen and Benjaminsen, 2017).² On top of this, reindeer herding in the Scandinavian Arctic is generally made difficult by infrastructure development (roads, railroads, tourism) and resource extraction (hydropower, oil and gas exploration, forestry, mining, windmills) that encroach onto and fragment Sámi lands (Johnsen et al., 2017).

Future climate scenarios suggest that mean winter temperatures could rise by 7 to 8°C over the next 100 years in Sámi pasture lands, and that the snow season may be one to three months shorter (Eira et al., 2018). Herders already report more extreme and fluctuating weather, higher temperatures, later onset of winter, earlier onset of spring, rising tree lines, and shrub-growth on tundra lands as current changes to their environments (Furberg et al., 2011; Jaakkola et al., 2018; Forbes et al., 2019). These climate changes alter the Arctic snow. The snowpack is more compressed, which makes it more difficult for the reindeer to reach lichen underneath (Riseth et al., 2010; Eira et al., 2018). In the spring, warm nights mean no crust forms on top of the snow, making migration more difficult. Warmer weather at the onset of winter means lakes and rivers that are normally frozen migration corridors are suddenly life-threatening or impossible to travel by, and mushrooms coming earlier and leaving later means it's harder to round up the reindeer for autumn slaughter (reindeer love mushrooms and will scatter far and wide to find them) (Furberg et al., 2011). The most detrimental effect of these changes is the increasing frequency of pastures 'locked' by hard ice because of 'rain-on-snow' events or melts followed by re-freezing. Locked pastures can make it impossible for reindeer to access food sources under the snow. Further, a bottom ice-crust on a non-frozen ground can cause mold in the lichen, which kills the lichen and sickens the reindeer (yellowish coloring of reindeer muzzle hairs is a sign of mold-formation to herders) (Riseth et al., 2010). Compressed snow-packs and ice crusts hamper access to food under the snow and can result in years with large reindeer die-offs. Years like these are increasing in

frequency. As a result of these climate changes combined with the general pressures on pasturelands, herders are increasingly forced to invest resources in artificially feeding their reindeer for them to survive the winter, and even to migrate their reindeer by truck (Riseth et al., 2010; Furberg et al., 2011; Forbes et al., 2019). The general encroachment of pasture lands further limits adaptation responses to climate change-induced changes in snow (Eira et al., 2018). Herders report feeling like they are 'reaching the limit of resilience' (Furberg et al., 2011).

The militaries of NATO and allies, whose training in the Scandinavian Arctic has increased in response to melting ice and Russia's military build-up, have their own Arctic ecosemiotics. As British Royal Marines Major Jim Lawson says about the Norwegian Arctic: 'The environment is as much your enemy as anybody else. If you just stand here and do nothing, it will kill you' (cited in Hines, 2019). A text accompanying a recent photo essay on troops training in Norway says: 'Hostile Territory: The sparsely populated, frigid, and forbidding landscape along the Malangen fjord in the Norwegian Arctic Circle presents a profound challenge for military forces' (Nickelsberg and Matloff, 2013). Contrary to the Sámi, who have problems with how invisible they are, the militaries who train their troops in Arctic ecologies have problems with visibility. Capt. Samuel Moreton from the British Royal Marines: 'You leave tracks everywhere, so you need lots of deception. For example: Blow past your intended dropoff point, ski around and try to create an ambush' (cited in Hines, 2019). Soldiers wear camouflage white over their winter gear and disguise their weapons with strips of white tape. In order to see further into the dark Arctic ecology, helicopters and ships are equipped with infrared sensors and cameras that detect heat and motion (Turk, 2019).

Herders dressing colorfully for the enjoyment of their reindeer or to celebrate and connect with their environment are in semiotic opposition to soldiers who want to blend in. Those who try to hide are visible while those who seek recognition are invisible. Within a hegemonic order, there is value in invisibility. Camouflage is inversely related to erasure: If you need camouflage in the first place, you are by definition visible.

In contrast to the ways in which mining explorers and militaries semiotically relate to the Arctic environment, Nils Oskal (2000: 179) writes:

In reindeer herding society you should not deny the world by fleeing from it or by trying to dominate or control it. You should not conquer the world but try to get along with it and come to an understanding with it.

Likewise, Hætta (2008: 20) writes that culture based on hunting and gathering requires that people work with nature, rather than attempting to change or master it. Nomadism and semi-nomadism exploit nature's

resources in a different way than a permanent settlement pattern (Hætta, 2008: 26).

the land / is different / when you have lived there / wandered /
sweated / frozen / seen the sun / set rise / disappear return / the
land is different / when you know / here are / roots / ancestors.
(Valkeapää, 1997: 71)

In sørhellingene / you will find us / where the mountain plunges
steeply / we stretch defiantly / towards the light / hum in the wind /
us who / withstand the storm. (Eira, 2011: 58)

To the Sámi herders described above, and to other Arctic inhabitants such as rodents, reindeer and ptarmigans, snow is the way. To the extractionist perspective of the Euro-American form of life, it is in the way.

The Violence of Climate Change

A mountain hare who routinely changes the color of its fur twice a year timed with snow-cover suddenly finds itself exposed: The hare is white, and the ground has turned brown. Snow melted earlier than usual, and now the hare has trouble hiding from predators, the result being increased mortality and lower population numbers (Pedersen et al., 2017; Zimova et al., 2018). Animals such as Arctic foxes and willow ptarmigans also experience ‘climate-change induced molting mismatch’ (Zimova et al., 2018). Highlighting their semiotic awareness, ptarmigans regulate their behavior to sustain camouflage even when mismatched, for example by resting and feeding in areas that match their color, even when the areas are of lower nutritious value, and making themselves dirty when mismatched after snowmelt (Zimova et al., 2018). The color of the hare or ptarmigan is an iconic sign that relates the animal to its natural environment. Changes in climate destroy semiotic relationships between the animal and its environment, thereby exposing it to death. This is the violence of climate change.

The case is similar for Sámi reindeer herders. A Sámi form of life is exposed to death when semiotic relationships between herders and landscapes are severed. The Arctic has always been ripe with ecological changes, and adaptation and flexibility have always been hallmarks of a Sámi way of knowing and being in these lands (Tyler et al., 2007, Furberg et al., 2011; Huntington and Fox, 2005). But as these three elderly herders explain, the current changes in climate are beyond recognizable continuums:

[...] traditional weather reading skills cannot be trusted anymore. In the olden times one could see beforehand what kind of weather it will be. These signs and skills hold true no more. Old markers do

not hold true, the world has changed too much now. We can say nature is mixed up now. (Veikko Magga cited in Huntington and Fox, 2005)

Today we can have almost 30 degrees of variation in temperature in a very small time period. In the olden days the Saami would have considered this almost like an apocalypse if similar drastic changes had taken place so rapidly. [...] Nowadays the traditional weather forecasting cannot be done anymore as I could before. Too many significant and big changes have taken place. Certainly some predictions can be read from the way a reindeer behaves and this is still a way to look ahead, weather-wise. But for the markers in the sky we look now in vain. Long term predictions cannot be done anymore. (Heikki Hirvasvuopio cited in Huntington and Fox, 2005)

The traditional markers of nature do not hold true anymore. Ecosystem seems to have changed. (Ilmari Vuolab cited in Huntington and Fox, 2005)

When the traditional ecological knowledge of reindeer herders, developed over generations, can no longer be applied to a changing Arctic landscape, the herders report not being able to recognize themselves (Furberg et al., 2011), just like the hare doesn't recognize itself against its new background.

The Sámi that via their traditional ecological knowledge 'read nature' (Heikkilä, 2006: 86), interpret signs from and communicate with both living organisms and the landscape. Gaski (2015: 272) notes that Valkeapää's poetry includes a lot of sound: 'nature has its own language that must be interpreted and understood on the same level as human language'. As Eira and Valkeapää put it in each their work:

the rough bark / licking the cheek / relieves the loneliness / we speak
the same language. (Eira, 2011: 84)

I converse with the earth / and hear the creeks answer / their voices
the sounds of silver / I converse with the earth / beyond time.
(Valkeapää, 1997)

In her poetry collection *Lop svartore lop* [Run Blackear Run] (2011), which she describes 'takes place in a very Sámi universe' (Nordic Cooperation, 2012), Eira describes nomadic life in the fells through the perspective of a reindeer herder. She describes how she sees her grandmother in the clear spring stream and rim frost twigs, how the reindeer Blackear leads and carries the wind, how snowflakes sing, how the wind is music, and how the rocks always bid her and the animals welcome. She

names plants and herbs to nourish and heal both humans and reindeer and asks if the fell is crying. Whether this animism of Sámi ecosemiotics entails a perception of rocks as alive or of non-living entities as intentional emitters of signs, it demands nuances to bio- and ecosemiotic maxims. According to Dana (2003: 196), Sámi kin include birds, animals, stones, fells, brothers and sisters, sun, moon, and stars.

The violence of climate change consists in changing the languages, songs, and voices, as well as the wind, temperature and snow, of an environment on which some Sámi depend for their form of life. As Elina Helander-Renvall (in Huntington and Fox, 2005) writes, Sámi ecological knowledge is a precondition for Sámi survival.

Words for snow won't match. The wind will change. Clothes will be too warm. Sacred places will be different colors at crucial times of the year or will be dug up for mining or flooded. The reindeer will lose the benefits they gain from UV vision. And so on. For the snow hare, its mismatch exposes it to death. On a species level, to extinction. For some Sámi, there is also a mismatch between a form of life and the environment on which it depends, and this mismatch also exposes this form of life to death, to extinction. It is a matter of life and death when one can no longer recognize oneself because the signs of an environment around which one had orchestrated one's life change.

As a result of state as well as ecological pressures, the Sámi have time and again been forced to prove themselves as extraordinary adapters. Pointing to this adaptability can be (and is) used to legitimize continued resource extraction deemed 'necessary'. The question is not whether a combination of climate change and continued pasture encroachments due to resource extraction will be the final straw for the mountain hare, the ptarmigan, or a Sámi form of life. The point is that a semiotic reading of the violence of climate change pushes back against the idea that forced climate migration is a practical problem of adaptation and not a genocidal process.

Semiotics helps us discern climate change as a violence of not being able to recognize oneself; a mismatch between oneself and one's surroundings. Extra shrubs up the tundra mountain, while not harmful in themselves, become discernable as violence if viewed through a semiotic lens. Severing relations of meaning, the result of this violence is that one can no longer rely on a landscape one's ancestors have known, predicted and relied on for millennia. This is a loss of a form of life, precisely because the form of life depends on certain relationships with the landscape.

Intra-Species Naturalism

The pot-bellies can walk right past you, without even noticing that there's anyone else there. Maybe that can be interpreted as meaning

that the local inhabitants have advanced so far in adaptation that they have become invisible. Or maybe the reason is that the potbellies lack sensory capacities. (Valkeapää, 1983: 42)

Different living beings perceive different things. As Eduardo Kohn (2013) writes, humans are not the only selves in the world, and the world is not only made meaningful by humans (see also Conty, 2018). Reindeer are able to see ultraviolet light, humans are not. As a result, the world of a reindeer is different from the world of a human. Based on his engagement with Amerindian thought, Eduardo Viveiros de Castro explains these differences in worlds with the concept of multinaturalism:

The term ‘multinaturalism’ could be used to designate one of the most distinctive traits of Amerindian thought, which emerges upon its juxtaposition with modern, multiculturalist cosmologies: where the latter rest on the mutual implication between the unicity of nature and the multiplicity of cultures – the first guaranteed by the objective universality of bodies and substance, and the second engendered by the subjective particularity of minds and signifiers [...] – the Amerindian conception presupposes, on the contrary, a unity of mind and a diversity of bodies. ‘Culture’ or subject as the form of the universal, and ‘nature’ or object as the particular. (De Castro, 2014: 56).

In other words, differences in perspectives do not entail different views of the same world, but the same view of different worlds (De Castro, 2004: 6). Perspectivism presumes ‘an epistemology that remains constant and variable ontologies’ (De Castro, 2004: 74). With multinaturalism, there are no self-identical entities:

Cultural relativism, which is a multiculturalism, presumes a diversity of partial, subjective representations bearing on an external nature, unitary and whole, that itself is indifferent to representation [...] Amerindians propose the inverse, namely a real or objective radical diversity of perspectives, not representations. (De Castro, 2014: 72, 74)

Representations are ‘properties of mind’, whereas a perspective is ‘in the body’ (De Castro, 2014: 72). Every self represents, every self to whom something means something, has a mind, so the representation, the mind, is the constant. The difference lies in the specifics of the body (De Castro, 2014: 72): ‘Animals perceive in the same way as us but perceive different things than we do because their bodies are different than ours’ (De Castro, 2014: 72). And here, a body is not physiological appearance

but ‘an ensemble of ways or modes of being that constitutes a habitus, ethos or ethogram’, a ‘bundle of affects and capacities’ (De Castro, 2014: 72ff). Physiological differences can be signs of these differences, but not necessarily.

De Castro describes multinaturalism between different species, but I think there is also intra-species multinaturalism: What Valkeapää calls a pot-belly is a different body than a Sámi reindeer herder, not necessarily because they look different – they might not – but because they perceive, do, feel, look for, and notice different things. The Sámi bodies that ‘read nature’ through their traditional knowledge of the ecology of which they are a part are attuned to reindeer and the Arctic in a very different way than the bodies of mining engineers or NATO soldiers. These are differences in ontologies in the Amerindian sense: differences in worlds. A reindeer herder in a mine, missing her reindeer, is a result of the world of the geopolitical project of planet Earth ruining other worlds.

It is not, De Castro stresses, a matter of there existing something = X out there, that different animals, or different humans, then interpret differently. And the problem posed by Amerindian perspectivism is not to find the common referent of different representations, or to find synonyms between cultures. The point is that two different bodies meaning (or saying) the same thing might not be referring to the same thing. Translating between perspectives is therefore a matter of what De Castro calls ‘controlled equivocation’, which includes paying attention to the differences concealed by ‘deceiving homonyms’ (De Castro, 2014: 74). To presume a univocality, an essential similarity, between what different perspectives are saying, is a way to silence other perspectives (De Castro, 2004: 10).

Apart from radically decentering the human mind as the only one that matters and as the only one that creates meaning (a superfluous lesson for the Sámi herders cited in this article), Amerindian perspectivism as described by De Castro eschews the view that there is an objective Arctic environment, for example as it is presented by western science, and that any other perspective on this environment is ‘subjective’ and ‘cultural’. By denying that there is a universal knowledge, held by the West, multinaturalism is an act of what Walter D. Mignolo (2009) calls ‘epistemic disobedience’. When Tervaniemi and Magga describe a ‘spiritual, unseen cultural environment’ of the Sámi that is connected to knowledge and meanings that ‘change the physical landscape into a cultural landscape’ (Tervaniemi and Magga, 2019: 82), they are being too modest. According to De Castro’s translation of Amerindian cosmology, there is no objective physical landscape; there exists only the limits between different worlds. What we stand to lose as a result of contemporary geopolitical violence is diversity in these worlds, even as the human species persists. One human world is destroying other human and non-human worlds. Sustainability is a bad word because it conceals overlapping meanings.

A miner and a herder might both say sustainability, but they are referring to different things. A lack of sensory capabilities, as Valkeapää wrote, can also be an alibi for destruction.

Notes

1. The article cites from English translations of Valkeapää's poetry. Citations or paraphrases from Eira's work I have translated from Norwegian.
2. This is not to say that the state would automatically stop oppressing reindeer herding were it to adopt a view of the tundra as a non-equilibrium system. Nonlinear science can also be focused on efficiency to the detriment of semiotic relationality and the value of different forms of life.

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