

Clashing cosmologies: Contrasting knowledge in the Greenlandic fishery

Andreas Roepstorff

Current worldwide discussions about management regimes for natural resources are increasingly focusing on forms of knowledge: for example on the discussion on scientific knowledge versus 'other' forms of knowledge (Inglis 1993; Scott 1996; Kalland this issue), be it 'local', 'indigenous', aboriginal, or users' knowledge. Many of these discussions have been highly politicised interactions between scientific specialists, administrators and locals. Knowledge has, in other words, become located at the 'inter-face' between the different actors ('faces') in the discourse (Roepstorff 2000). When 'knowledge' becomes more of a battleground than a field of mutual exchange, the pieces of knowledge exchanged may appear as politicised free-floating signifiers (see e.g. Agrawal 1995). This veils the fact that the pieces of knowledge discussed are normally derived from another interface: the interface between certain persons and groups and their environment, and therefore that there are important differences in what counts as knowledge and how this is constructed. I have previously suggested (Roepstorff 2000) that a study of the 'who, what and how' of knowledge may be a first step in understanding how conflicts over knowledge might conceal different conceptualisations of the very elements discussed. This chapter attempts to take this argument one step further. Based on a study of the fishery of Greenland halibut in Greenland, it demonstrates that different cosmologies are connected with the different forms of knowledge about the fish. Cosmology is here conceived as the conceptualisation of what is out there (an ontology), a method to validate and examine it (an epistemology) and a prescription for how people should ideally relate to it (an ethics).

The argument builds on case material gathered in Greenland during several fieldwork periods between 1996 and 1998, but its structure is not directly derived from the field. It is inspired by an analysis of a Greenlandic version of a common

Inuit myth. This reading is used as a tool to conceptualise a semantic topography where an epistemology of knowledge is interwoven with an ontology of nature and an ethics of the interaction with animals. This is unravelled as the hero in the narration travels back and forth between two phenomenologically different positions, a global and a spherical perspective respectively. Once this narrative space has been established, it is used to compare and contrast the phenomenological and cosmological position of the biologists and the fishers respectively in the current Greenlandic context. The choice of a 'mythical' framework is not meant to imply that in the Greenlandic reality people live out myths in their actions, or to imply that biologists or fishers subscribe to mythical explanations or rationales. Rather the choice is heuristic. The story, which is in itself interesting, establishes in an efficient way a cosmological, narrative universe: a phenomenological and semantic topography with a set of relations between people, animals and their doings and knowings. This topography is then used to discuss simplified versions of the perceptions and doings of the fishers and biologists respectively. Once they are established as permutations within a common scheme, it is easier to conceptualise the differences and understand why there are serious problems in the communication.

The Mother of the Sea

One of the best known mythological figures among Inuit is the Mother of the Sea. Known under different names such as Sedna and Nulijuk (Central Canada, Boas 1888) Arnaquassaaq, Sassuma Arnaa or Arnap Naalagaa (Western Greenland) or Ímap Ukúa (East Greenland), tales of this mythological being have been recorded in many versions from Alaska in the West to Greenland in the East (Boas 1901: 364) and since the first colonial encounters, the character has fascinated many missionaries, administrators and anthropologists. The story comes in many variations, and several attempts have been made to analyse versions of the myth in a comparative perspective, for example, as an expression of common Inuit ideas about the soul of man and animal (Boas 1901: 364-65), as an example of the structural elements in Inuit mythology (Savard 1970), interpreted in the light of the known ethnohistory of the Inuit (Holtved 1966/67), or as a source for early contacts between Inuit and Whites (Sonne 1990). These scholarly attempts to understand the semantics and historicity of the myth seem to point in very different directions (for the most comprehensive review, see Sonne, *op cit.*).

Unaffected by the fact that the ‘real’ meaning of the myth is a disputed area among the specialists, the Mother of the Sea has been widely popularised in books, paintings, TV-shows and theatre-plays, and she is as an iconic figure probably the best known character in the Inuit mythology in Greenland today. The generalised version of the myth is a story of a girl, usually an orphan, who is expelled from the social order. She is thrown into the sea with her dog, and her fingers are cut off (Savard 1970; Sonne 1990) as she struggles to hold on to the boat. The fingers transform into various types of sea animals, whales, seals, etc. All these animals dwell with her in a house at the bottom of the sea. When the animals disappear from the visual world of the humans, it is because she retains them in her house as a punishment for different types of improper behaviour among the Inuit. The acts of impropriety conducted by humans somehow transform into dirt, which gathers in the hair of the Mother of the Sea. This infuriates her, and in order to get the animals back, a shaman or *angakkoq* has to embark on a trip to clean her hair. As a reward to the *angakkoq*, the Mother of the Sea releases the animals.

The version of the myth (Mathiassen 1904), which I focus on here, is found in one of Knud Rasmussen’s lesser known myth collections.¹ It is one of the most detailed Greenlandic versions, and it is recorded relatively late in southwest Greenland, perhaps originating from recent immigrants from southeast Greenland (Birgitte Sonne, personal information).

A young orphan girl goes sailing in an umiak with her dog. The cox is an ill-tempered man, and he suddenly throws her overboard. As she tries to hold on to the gunwale, he cuts off her fingers with an axe in such manner that they fall into the sea. She loses her grip and sinks with the dog deeper and deeper. After an initial period of nausea the girl regains her consciousness and notices everything that happens on her way down. At the bottom of the sea she discovers four paths leading North, South, East and West respectively.² Heading out on the path to the West, she walks and walks until the promontories behind her are out of sight and only the inland mountains are visible. At this point, she discovers that she can take a bearing of all settlements all the way up to the North and all the way down to the South, and that nothing in the settlements can happen without her seeing it.

Here she builds a house with two rooms, one for herself and one for the animals of the sea. She places the dog on the roof. The girl and the dog grow at a fast rate. After a while the girl, who has grown up to be a woman, notices that in her sleep something nasty hits her face. It turns out to be all the waste discarded by humans in their settlements. This happened

again and again and, in the end, her face swelled so much that she could not see out of her eyes, her hair was matted in refuse, a strong river gushed out of the house and the dog started barking furiously.

Finally, the *angakut* (shamans) discovered that the girl who had drowned had become a powerful woman and the mistress of the sea animals: the fish, the birds and the seals. By a glance of the eyes she ruled over the animals and decided where they should swim. The shamans realised that everything that came from impure women stuck to her face and hair. This made her angry and she kept the animals of the sea away from the humans so they could not catch anything. Once, when the animals had as usual made themselves invisible, a shaman *Utarkaq* gathered his fellow villagers to tell them that he would go to clean the face of the lady of the sea ...

Before we embark with *Utarkaq* on his journey to the bottom of the sea, let us analyse the semantic and physical topography of the narrative space set up by the story by following in detail the movements of the little girl. At first she sinks to the bottom of the sea. Here she finds paths leading in four directions, and she walks to the West, away from the coast, until she reaches a point from where she can see all settlements. In this Olympian position she sits as a somewhat pitiful personage, she has no fingers, and she is therefore unable to clean herself when all the waste from the settlements lands in her face and hair. She compensates, however, for her poor manual abilities with a strong gaze. This, together with her privileged position, allows her to know what is going on in all settlements. She furthermore uses her eyes to control the motions of the sea-animals living in her house, thereby deciding what the people may catch.

Topographically speaking, the world of the settlements and her dwelling are connected, she follows a continuous trajectory, and it is possible to see from one to the other. The movements of the animals of the sea – back and forth between the two places – further confirm the continuity between her dwelling and the settlements. The space is, however, not given direction by gravity since her vertical position is at the same time above and below the settlements. In terms of power and perception she overlooks them and the animals swim down the river from her house to the coast.³ She is, however, below the sea, and in terms of the movement of pollution, she is also below as the dirt falls down on her head. Rather than moving in an orthogonal, physical space structured by gravity, our main character moves, in other words, in a curled semantic space where position is related to power and per-

ception. The space delineates the life-world of the social, where people hunt and mate, from the home of the animals. This home is created by a person ostracised from the social world: an orphan with no one to take care of her (a classic motive in Inuit stories, e.g. (Qúpersimân 1982) or, in some versions, a girl who refuses to marry.⁴

Globes and spheres: Setting up a cosmology

How are we to understand a semantic topology as the one outlined by the story? Tim Ingold (1993) has suggested a contrast between two perceptions of the environment: the spherical and the global perspective (Figure 1), that can help to give meaning to this peculiar space. His distinction is inspired by Ann Fienup-Riordan's writings about the pre-modern cosmology of the Yu'pik eskimos (Fienup-Riordan 1990), that shares many traits with the traditional cosmology of the Greenlandic Inuits.

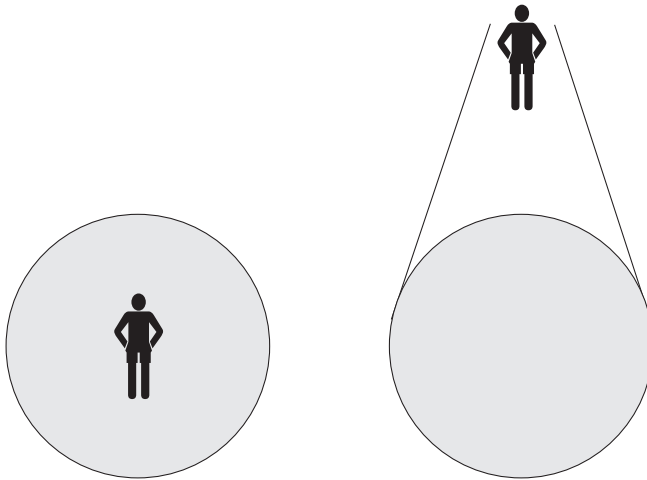


Figure 1: Two perspectives on the environment, redrawn from Ingold 1993

In a spherical perspective, Ingold suggests, the human being is set in the middle of a universe that extends outwards in a set of rings and spheres. In this perspective, the human is always embedded in the middle of a world that reveals itself through an interaction with its inborn structures, rather than through direct perception. In the global perspective, the world is constituted as an object apart from the human

beings that can be studied independently. This means that the lifeworld, imagined from an experiential centre, is spherical in form, whereas a world divorced from life, that is yet complete in itself, is imagined in the form of a globe (Ingold 1993: 35).

The properties of the global perspective are very similar to the definition of reality and objectivity put forward by Thomas Nagel in his influential essay on (scientific) knowledge, *The view from Nowhere*, where 'we may think of reality as a set of concentric spheres, progressively revealed as we detach gradually from the contingencies of the self' (Nagel 1986: 5). This is an understanding of reality in which '[t]o acquire a more objective understanding of some aspect of life or the world, we step back from our initial view of it and form a new conception which has the view and its relation to the world as its object' (op.cit: 4). This conception of objectivity is, according to Nagel, inspired by standard notions in physics where '[t]he physical world as it is supposed to be in itself contains no points of view and nothing that can appear only to a particular point of view. Whatever it contains can be apprehended by a general rational consciousness that gets its information through whichever perceptual point of view it happens to view the world from' (op.cit: 14-15). This ideal of a potentially completely centreless and detached point of view as a prerequisite for objectivity underlies Nagel's suggestive title. The path to objectivity is in this conception derived from physics described metaphorically as a physical movement of detachment: a stepping out through the spheres to get a view that becomes less and less subjective, less and less bound to a particular standpoint. This understanding of objective knowledge is not only a view from nowhere, it is also an 'epistemology without a knowing subject' (Popper 1972: 106-53)

Ingold finds the spherical perspective typical of pre-modern thinking as it is exemplified by the Yup'ik Inuit cosmology outlined by Fienup-Riordan, but it can also be found in other pre-modern societies, for example in Renaissance Europe. He suggests, however, that sometime during modernity, 'something' happened that caused a change so the world came to be understood in a global perspective. This movement from spherical to global imagery is one in which 'the world' is drawn away from the matrix of our lived experiences (Ingold 1993). This marked, he claims, a change from cosmology to technology:

Cosmology provides the guiding principles for human action *within* the world; technology provides the principle for acting upon it. Thus, as cosmology gives way to technology, the

relation between people and the world is turned inside out [fig. 1.b], so that what was a cosmos or lifeworld becomes a world – a solid globe – externally presented to life. In short, the movement from spherical to global imagery corresponds to the undermining of cosmological certainties and the growing belief in, and indeed dependence upon, the technological fix. It is a movement from revelation to control, and from partial knowledge to the calculated risk (op.cit: 41).

Ingold's analysis of the properties in the two perspectives, the spherical and the global, is imaginative and inspiring. It appears to suggest at least two different forms of knowing, each deriving its characteristics from a particular set of metaphors. One of them, the global, is based on detachment and visual perception. The other one, the spherical, is based on involvement and engagement, like knowing another person, his tastes, moods and idiosyncrasies (Ingold 1994: 16–17) and we shall shortly return to this fruitful distinction.⁵ The analysis is, however, not convincing when Ingold historicises the phenomenology by stating a before (spherical) and an after (global). This analysis parallels one of the most powerful origin myths about modernity: Once the world was full of meaning and coherence, cosmology, but then 'something' happened, the world lost its meaning and inner coherence, and it became the way we know it today: namely technological and modern. This is a very powerful narration of decay and decadence that properly found its most powerful spokesman in Heidegger (Latour 1999: 195, 211). It is, however, not one that should just be accepted at face value (Latour 1999: 174–214). Let us therefore see how well it fits with the story just outlined.

It is tempting to identify in it the phenomenological positions outlined by Ingold. The story of the Mother of the Sea is told in the villages on the coast, and if we should follow Ingold this is at the centre of a spherical universe. Here, the angakut have discovered the existence of a powerful entity. She is described as a person who has chosen to build a house on a particular point from where it is possible to overlook all the villages along the coast and to see/know what is going on. In other words, she is physically detached from the settlements, and she does not participate directly in the life there. On the contrary she originated as someone who did not belong properly to the social order. She is therefore a person that already from the start of the story was divorced from the life in the settlements where the story is told. She does, however, see/know this from the distance with the same gaze that gives her control over the resources that life depends on. This part of the story,

therefore, appears to describe in detail how the ruler of the sea animals came to reside in a place that – relative to the settlements – fits Ingold’s description of the global perspective: Phenomenologically and epistemologically she is outside in the all-perceiving distance and semantically and socially she is outside the social life understood as the actual unfolding of exchanges, hunting and procreation. This is furthermore a position that gives her a perspective reminiscent of Nagel’s ideal of the objective standpoint: detached from the concrete human reality and so far away that she may oversee every village at once. With this metaphor at hand let us then follow Utarkaḡ on his journey.

Utarkaḡs journey

As every proper hero, *Utarkaḡ* sets out to solve a problem. The animals have made themselves invisible, but when he travels under the sea to a place from whence his normal world may be overlooked, and in that place solves some problems, the animals can be made to reappear. On one level the myth therefore deals with the relationship between the visible animals that are available for hunting, and the invisible animals. However, in a hunting society, this is in a hunting society just one version of how to deal with life and death.

Utarkaḡ begins his travel with a drum-dance in a hut surrounded by his fellow villagers. From this centre in the life-world he jumps out of the window runs to the beach and jumps through the ice. As he gets to the bottom, he moves against the current of the fierce river until he comes to the house of the Mother of the sea. There he finds a large woman with a face so swollen she cannot see anything. After a fierce fight, he manages to clean her of all the dirt from impure women. When he is finished, she tells him that she will repay his friendliness:

She opened the curtain to the room beside her living room. When she opened the curtain, a young, smiling couple came tripping out, but as they went into the midpassage out of the house, Utarkaḡ could recognise the tail feathers of the guillemot. They were of course birds in human form that lived in her house, and as they went out, they became birds again. In this way, she released all the seabirds into the corridor. When all the birds had passed, a tiny man with a round face and dotted coat came out. He went smiling down the mid passage, and one could see a pair of seal flippers disappear into the river. He was followed by his wife and children. They were followed by another man in fine, dark clothes with tiny white patterns.

He went down the corridor and one could see the flippers of a common seal and after him came a big, heavy man in red clothes. He had a running nose and constantly wiped it as he went into the corridor. When he jumped into the river, *Utarkaq* saw that it was a walrus. In that way, the mother of the sea released all kinds of seabirds and animals.

When all the animals were released, the Mother of the Sea told *Utarkaq* that the next day, all kinds of birds and prey would appear at the settlement. That day, however, people should not go hunting. The following day the ice would disappear, and the people could go hunting, but all catch should be given to *Utarkaq*. The *angakkoq* then returns to his settlement and everything happens the way the Mother of the Sea foretold.

Seen from the centre of the cottage where *Utarkaq* begins his journey, he has moved out through the spheres to a very different position: a point from where his normal life world (of women and prey) appears to the Mother of the Sea as a distant object with which she can only interact through vision. Relative to his 'normal' social world, *Utarkaq* is, in other words, in a global position, at least this is the perspective that the Mother of the Sea takes on his world. In this position, however, *Utarkaq* finds another world structured just as his own: an angry, dirty woman who needs to be cleaned, living in a familiar house together with other couples. In other words, the contrast here is not only different perspectives, the global and the spherical, but also different types of knowledge. The knowledge possessed by the Mother of the Sea is bound to her vision, as is her power. *Utarkaq* has, however, to rely on a very different form of knowing, he has to rely on knowing the Mother of the Sea like a person (Ingold 1994: 16-17; Roepstorff 1999a) i.e., her mood (she is angry) her taste (she does not like to be dirty) and idiosyncrasies (she wants to fight him when he approaches). This aspect of knowing and doing, which demands engagement and attachment, is central for *Utarkaq's* success, but the myth does not mention whether *Utarkaq* gets the detached visual knowledge/power that the Mother of the Sea possesses, this does not appear to be an issue at all.

In the (life)world of the Mother of the Sea the animals appear as humans, but as they exit her world and enter *Utarkaq's* normal world, they appear as prey. In this way the story explains why prey are sometimes visible and thereby huntable, at other times invisible. Animals do not disappear, they rather withdraw to their home which, relative to the human settlement is a global, olympian point. Here the animals take on their other appearance: that of humans. An iconic similarity in figure

and behaviour connects their animal existence in the domain of the villages and the human existence in the house of the Mother of the Sea.

The story appears to say that behind the plurality – both in species and abundance – which is visible in the normal human sphere, is another reality. Paralleling the apparent difference between humans and animals is a similarity, and paralleling the apparent plurality of many specimens of the same species lies a singularity, since in the world of the Mother of the Sea both distinctions are reduced to families of humans each resembling an animal. This is an ontology of nature, where nature is understood pragmatically as that which, at first glance, is not human.

In the position that appears as global relative to the world of the people, *Utarkaq* discovers that this is really just another version of the known, local world. His trip helps him to discover why the animals make themselves impossible to catch. The withdrawal is triggered by symbolic pollution imposed on the global point by ignorant people, women in particular.⁶

This ethic, dealing with pollution, and the ontology of nature, dealing with the availability of prey, are locked together in a necessary but difficult exchange. The fingerless Mother of the Sea with the powerful gaze, whose fingers gave flesh to the animals and whose gaze controls them, may be handled by the *angakkoq*, the only one who is able to clean her. The people, on the other hand, depend entirely on the animals, but the availability of the animals is connected to social behaviour: i.e., whether people behave properly in their interactions with matter and with each other. Phrased in ‘modern’ terms, the myth outlines and connects the ontology of animals with the social ethics of people. Break a rule, and the animals will make themselves invisible, behave, and there will be plenty of them.

Although the activity of people is related to availability of prey, there is no direct relationship between the hunt and the amount of animals available. Rather, the interaction is mediated via the social: the adherence to rules, norms and taboos. *Utarkaq* is of course central to the story. He travels back and forth from the spherical social life world into what appears as a global point, just to discover another version of the known, spherical world. This appears to be a very different conception of reality than the one outlined above by Nagel where ‘we may think of reality as a set of concentric spheres, progressively revealed as we detach gradually from the contingencies of the self’ (Nagel 1986: 5) and where proper (i.e. objective) knowledge is obtained by detachment.

Utarkaq, however, is a doing and knowing person who mediates between the

global position of the distant perception and action of the Mother of the Sea (both ascribed to her vision and topographical position) and the practical knowing and doing of people in a life world that is based on action, movement and physical manipulation. It is precisely his knowing the Mother of the Sea as a person, and his ability to act accordingly – i.e., clean her after a fierce fight – that restores order, purity and abundance. In my interpretation the story therefore outlines a cosmology that relates such serious matters as the ontology of nature the phenomenology of knowledge and the social ethics. To paraphrase Bruno Latour (1993) the myth connects phenomena that are *real like nature, narrated like discourse, collective like society and existential like being*; and in the end it is – as all good narratives – about the local and the global, and about life and death.

Following Ingold's analysis, this story indeed outlines a cosmology since it provides some guiding principles for human action *within* the world. However, it does not appear to obtain this by sticking to the spherical perspective alone. On the contrary, it is the interplay between these perspectives, as they are unfolded in the movements and doings of the narrative persons, that establishes the cosmology. This could suggest that rather than being instances of two stages that follow each other in a historical development, the global and the spherical perspectives represent two types of phenomenological stances that are present and possible in the modern as well as in the pre-modern situation. Equipped with this working hypothesis, let us make a mental shift from the universe of *Utarkaq* and the Mother of the Sea in old and partly forgotten narratives to a few localities in Greenland in the late 1990s.

Biologists and the virtual stock

Since the turn of the 19th Century the Greenland halibut fishery has had its centre in the small town of Ilulissat in North Greenland where the enormous Jakobshavn Glacier, the largest in the Northern Hemisphere, creates optimal conditions for the fish in and around the deep fjord that lies between the glacier and Disko Bay. The fishery is highly sophisticated, and despite being relatively low-tech is very effective. From the middle of the 1980s onwards there was a steady increase in catches of this fish and it became – and still is – the second most important export product in the Greenlandic economy. At the same time a new area, the ice-fjord Torsukattak, further north, was opened for fishery for the Ilulissat fishermen, and new technologies, gill nets, were introduced (Roepstorff 1998; Roepstorff 2000; Simonsen & Roeps-

torff 2000). To some observers, however, the development was rather alarming, and the biologists at the Greenland Institute of Natural Resources were asked by the Greenland Home Rule authorities to evaluate the sustainability of the fishery. In a complicated epistemological development, these investigations created an interesting phenomenon: the 'virtual stock' of Greenland Halibut in Disko Bay. It was an attempt to define and characterise mathematically the behaviour and number of fish in Disko Bay. As described elsewhere (Roepstorff 1998) this notion was a hybrid between the mathematically describable (or narratable), biological assumptions (some of which appeared better founded than others), and political pressures (to establish firm knowledge that could be implemented). The concept slipped more or less out of the hands of the biologists, and it lived a life in a network between these biologists who created it, the politicians who used it as a rationale for the implementation of new legislation, and the fishers who disagreed with the whole concept. As such it is a knowledge phenomenon like so many others described by anthropologists of science, that at the same time is *real* like nature, *narrated* like discourse, *collective* like society and *existential* like being (Latour 1993; see Roepstorff 1999b, 2000, for a discussion).

Similar to the findings of Ian Hacking regarding certain transitory mental illnesses (Hacking 1998), the stock's mode of existence can best be understood in relation to the particular 'conceptual ecological niche' that forms and informs it and allows it to proliferate. As with real species, unless it manages to adapt, the concept goes extinct once the niche disappears, and it survives only in the works of historians, anthropologists and the like. Many things indicate that the conceptual niche in which the virtual stock of Greenland Halibut lives has already changed (Boje 1999; Simonsen & Roepstorff 2000), and the following analysis therefore describes a very young but already historical process rather than the actual state. This does not mean, however, that traces of the past cannot be found in the present.

The report that created the virtual stock of Greenland halibut in the Disko Bay (Boje 1993), contained some very serious conclusions, namely that if catches were maintained at the same level as in 1992 (6,000 tons), the total biomass of Greenland halibut would decrease from 30,000 tons in 1991 to 10,000 tons in 1998. In other words, the stock appeared to be threatened by overfishing. This is indeed a serious story which calls for heroic action in management and regulation.

The sombre predictions were based on a so-called 'Virtual Population Analysis' that attempted to put numbers on the total amount of fish in the local stock and

follow their destiny through a lifetime. Of course, in order to carry out such an analysis, one has to give identity to the stock. It should – somewhat like a nation-state – consist of a community of relatively homogenous individuals, statistically describable and clearly distinct from other such entities. In other words, they should form what could be called an ‘imagined community’, but contrary to Anderson’s (1991) imagined communities, they were not imagined in the minds of the members of the communities – the fish – but only in the minds of the describing biologists (see also General Introduction, this volume). Through a series of technical papers written in the 1980s and 1990s the hypothesis was put forward that the fish would swim into the area as young specimens from the spawning grounds, enter the fjords and grow larger and larger until they died of age or predation, in this context mainly fishery.

These papers gave the biologists a well defined community of fish, visible from a hypothetical, global viewpoint and – at least in principle – countable. The next step was to establish ways to describe the ‘natural’ development of the fish where natural is understood as migration, growth and mortality without human interference. Seen from a global perspective, such things do exist in theory. It is extremely difficult, however, to calculate it in praxis, but since this stock was an imagined community, in itself well-defined but comparable to other similar ones, what was more natural than to import such formula from other, similar simulations conducted elsewhere. If one ‘knows’ how many fish enter, how they grow, and when they die naturally, only one variable is left: death due to fishery. This variable could be obtained relatively easily from the highly reliable Greenlandic landing statistics. The system modelled was, in other words, one where fixed amounts of fish arrive in a certain area every year. They stay in that area until they die, either of natural causes – which a fixed fraction does every year – or because they are fished. The only proper variable left in the simulation is then the total fishing mortality, which is proportional to the total size of the catches. It is no wonder then, that after catch levels increased, as they did through the late 1980s, these simulations showed some extremely sombre results.

Read as a story, the report created a narrative about a *character*, the stock of fish, valuable to the society and threatened by ‘overfishing’. Like the story about the Mother of the Sea it connects an ontology of nature with ethics and with a phenomenology of knowledge. Behind the single fish caught is a potentially countable meta-individual ‘the stock’. This stock is in itself an entity definable as the simple

sum of its parts. One fish out of the water is therefore one fish less in the stock. In the logic of the mathematical models, it is possible to calculate a hypothetical maximum with the most efficient relation between fishing efforts and catch level output. This maximum is, however, threatened by the fishers who are so busy that they 'overfish' the stock, thereby potentially diminishing the returns in a classical 'tragedy of the commons' (Feeny et al. 1990; Hardin 1968). The fate of the stock is, however, not only a matter for the biologists. Contemporary Greenland is increasingly emerging as a modern nation state (Dahl 2000: 253–60): an imagined community (Anderson 1991) that unites in one perspective all Greenlanders and all of Greenland. As a consequence of this, the stock is considered as belonging to the Greenlandic community in general and it is important to harvest it in such a way that the *output* to the society is maximised and the input minimised. The output of the fishing is therefore closely linked to social ethics, but this set of ethics is not, however, linked to any concrete individual. It does not matter to the biological models who does the fishing, the ethics concerns solely the relationship between one imagined community the 'Greenlandic community' and another imagined community 'the stock' where the members of a third imagined community 'the fishers' are caught in a complicated logic of exchange: on the one hand, it is their actions that transform the stock into actual fish that can be exchanged for money. On the other hand, it is their actions that threaten the integrity of the same stock.

The knowledge about as well the fish as the fishermen centres on concepts – the stock and overfishing – that are both 'global'. By this I mean that they are in principle determinable to an all-knowing subject, located at a point from whence one can survey the whole coast and all the villages at the same time. One may thereby count all the fish and see all the consequences of the fishery. Ideally, these concepts are therefore determinable as a view from nowhere in particular (Nagel, 1986), as knowledge without a knowing subject (Popper, 1972). In practice, however, this knowledge is not so easily acquired and the biologists need to leave the global position at the Institute of Natural Resources and enter the field to get data from both their own and the fishers' catches. These concrete, individual fish are then interpreted to be representative of the generalised stock which is behind the single fish, but only visible from the global position.

This global position is more than just a metaphor. Physically the relevant Home Rule administration and the Institute of Natural Resources are located in the capital, Nuuk, far away from the fishing grounds. Ideally, as one employee in Home

Rule administration expressed it, all information from along the coast is channelled there, so that it is possible at one and the same time to gather knowledge from the whole coast and get a broader perspective on local phenomena. In an almost ironic twist to this analysis, the newly built Greenland Institute of Natural Resources is furthermore physically built on a hill outside and partly overlooking the city of Nuuk – global not only relative to the villages along the coast but also relative to the political and administrative centre. Although the institute and the Home Rule administration may appear as ‘global’ – at least seen from the towns on the coast – they are of only global relative to the villages. In themselves they form local worlds of their own. The global perspective refers, in other words, to one phenomenological stance – one relationship among others to the world, rather than to an absolute, historically set condition. This was, indeed, the discovery of *Utarkaq*.

The fishers and the fish

The concepts central to a biological management of fish, namely overfishing and stock, have been notoriously difficult to communicate into Greenlandic. One of the reasons is of course the language barrier between the biologists who are mainly Danish speaking and the fishers who are mainly Greenlandic speaking. The difference is, however, not just a matter of finding the right words. It is also a question of communicating between semantic spheres that connect the ‘same’ words to different basic understandings. In parallel with the readings of the Mother of the Sea story and the reading of the virtual stock papers above, the concepts form yet another semantic set that integrates an ontology of nature, an epistemology of knowledge and an ethics of resource use.

I have described elsewhere in more detail (Roepstorff 2000) how the notion of the fish commonly found among the fishers is very different from the relation between the fish and the stock as a part-whole relation found in the stock estimates. Rather, the fishers usually talk about the fish – in singular and in plural – in the same way: A fish is a living and sensate being with specific habits and behaviours, an animal which, like other animals, follows its prey, avoids its enemies and has specific routes and migrational patterns. At times it may be present in large numbers, at other times it may completely disappear. In other words, behind the visible fish that is caught there is a ‘general fish’ whose character and behaviour one tries to understand. This ontology of the fish resembles the description of the human couple

behind the prey as described in the Mother of the Sea myth, and knowledge about the fish is mainly assembled as if it were a person-like entity whose idiosyncrasies and habits one should know.

This general fish is therefore not an object, it is rather a living organism, a non-human person (Fienup-Riordan 1990: 167), and like getting to know persons, one gets to know the fish by interacting and engaging with it. One aspect of this understanding of animals as non-human persons is that they, like humans, acquire particular knowledge about their environment, knowledge that the hunter may access by engaging with the animals. If the Greenland Halibut suddenly disappears, it can, for instance, indicate that the Beluga whale, a common predator, has arrived. Similarly, fishing near major icebergs is considered relatively safe if there are seals around, but if the seals suddenly disappear it can be a sign that the iceberg is about to break up and that people ought get away as well. This emphasis on general behaviour is reflected in an impressive amount of knowledge about specific patterns in the availability of the fish. These patterns are discussed on many time scales, from different times of the day and different seasons, to decennial variations, where some draw on experiences from two generations. Similar findings on the forms of knowledge of fish common among the fishers have also been found in other studies on local environmental knowledge in Greenland (H.C. Petersen, personal information). Hitherto, these patterns have to a large extent been unknown to the biologists that only recently have become aware of the extent of spatial and temporal variability (Boje 1999; Simonsen & Roepstorff 2000; Roepstorff 2000).

Apart from the many differences in practice between the fishers and the biologists, both groups see the fish not only as a single entity or as a source of money, the fish is also interpreted as a knowledge object that points to a more general reality than the immediate visible fish. There are, however, some important differences as to what is the nature of this underlying reality.

To the biologist doing a stock analysis, the concrete fish is seen as an index of the stock, an abstract but ideally quantifiable entity. In terms of space, this abstract entity is localised within certain boundaries, but in this area it is 'smeared out' and omnipresent, so that the random samplings of the catches can create a representation of the totality. This entity is seen as changing over time in terms of abundance and age composition, and the aim of the research is to determine changes over time on a yearly basis, rather than spatial variations.

For the fishers the generalised fish 'behind the fish' appears not to be seen as

omnipresent within a confined space. Rather they see it as omnipresent in time, as something that extends back in time, has always been there, and has always been characterised by self-development and a certain unpredictability. This difference is best interpreted as related to different practical ontologies of the fish. This difference between the biologists' quantitative notion of the stock and the fishers' person-like perception of the fish, collides in the language where a common translation of Greenland halibut stock into Greenlandic is *qaleqassusseq*. Literally translated this means something like: 'the existence of Greenland halibut', a qualitative notion very different from the inherently quantitative stock (see Roepstorff 2000, for a discussion of this problématique).

The different ontologies are connected to different epistemological ideals. The fishers' most common accusation against biologists is that the latter do not engage in the constant interaction necessary to understand 'the nature of the fish'. Hence their knowledge is considered thoroughly partial, because they do not see the systematic – but unpredictable – variations in availability that underlies their samplings. The biologists are typically accused of fishing in places where 'everybody' knows there are no fish; of arriving at fishing grounds when the fish have just left; or of fishing with rotten bait, something that every fisher knows will scare the fish away. Conversely, many biologists have in interviews demonstrated a deeply grounded scepticism towards fishers' knowledge, typically for one of two reasons. Either the fishers are considered to be too personally involved in the fishery to be objective witnesses, or their knowledge is considered thoroughly partial since it is derived from one particular location only and does not take the greater perspective into account. When one moves back and forth between the fishers and the biologists, none of the criticism appears entirely fair. But the actual criticism supports the identification of two very different understandings of the fish that are coupled to very different epistemological ideals. On the one hand the fish as a living being that is best understood through constant interactions – an understanding that is compatible with a spherical phenomenology; on the other hand, the fish as an exemplar of a quantifiable stock that has to be dispassionately estimated – an understanding that favours a global phenomenology.

Turning to the other central notion in the discourse on fish management, over-fishing, we see an almost parallel clash of understandings. In a very interesting article (Kristensen 1998) a prominent fisher from Ilulissat tries to explain how he understands the present state of the fish and the fishery. He describes in detail how the fish

in the Torsukattak ice-fjord have become fewer and smaller, and therefore the fishers need to fish more intensively to get the same catch. This seems a perfect example of overfishing, and this is something the biologists have for years warned against in this particular fjord (Boje 1993; Riget & Boje 1987). But in Kristensen's account, the story has a semantic twist. As stated above, overfishing of a stock is a technical term that signifies that the stock could be 'harvested' more efficiently (more yield per effort), if the fishing pressure is reduced. Who exactly does the fishing is not relevant to the concept in itself. Now, according to Kristensen (and confirmed by other informants), the word used in Greenlandic for overfishing, *aalisapilunneq*, means something very different. It is an abstract noun related to *aalisapilutoq*, denoting – in a strongly reproachable manner – someone who fishes more than he needs. To be accused of *aalisapilunneq* is therefore to be accused of violating one of the most basic rules in the exchange with animals: namely to take more than one needs, and that is a serious insult. Even though the fishers in Torsukattak are so efficient that Kristensen describes a clear case of overfishing in the biological sense, they are not committing *aalisapilunneq* in the Greenlandic sense because they do not take more than they need.

Aalisapilunneq in Greenlandic is, in other words, a moral concept related directly to a person; it is not, as 'overfishing', related to a stock as an abstract entity out there. As was the case with the relation between 'the stock' and *qaleqaleqassusseq*, we see in the relation between 'overfishing' and *aalisapilunneq* a conflict between two very different phenomenological perceptions. Like 'the stock', overfishing makes sense only from a global perspective, and like *qaleqaleqassusseq*, *aalisapilunneq* is a word connected to a spherical perception where fish come and go at certain periods, but where discussions on ethical behaviour and accusations of doing the wrong thing is a constant part of life. This suggests, therefore, that the ethic which connects people to the fishing is not in itself related to the fish, it is social throughout. This understanding has elements of the ethics outlined in the Mother of the Sea story, in that there is hardly a direct ethical relation to the animal conceived as a quantifiable notion. Behind the fish is a generalised fish that is sometimes present, at other times withdrawn. In the Mother of the Sea story, the absence of animals was triggered by the wrong doings of the people, thereby connecting the actions of the people with the actions of the animals. This link is difficult to identify in the rhetoric of the fishery today. When the question of overfishing becomes phrased in terms of *aalisapilunneq*, the ethical dilemma becomes phrased in terms of the fulfilment of needs rather than

the adherence to symbolic rules of purity. It is not, however, about the maximisation of the output to society, as with overfishing, but rather about the needs of the individual fisherman.

A similar accusation against the fishers, that they are simply modern capitalists, more concerned with the fulfilment of their own needs than with the long-term well-being of society, can be heard from other members of the community. The fishers can rightly respond, however, that their needs, in a reality of taxes and mortgages on houses and boats, are not limited and that they therefore are not guilty of *aalisapilunneq*. Within the fishing community itself, however, the issue is more complicated, and several fishers would express strong disapproval of the acts of other fishers on grounds that are compatible with *aalisapilutoq* as a central derogatory term. These discussions appear to be variations of the ‘need’ theme, but different from the abstract *aalisapilunneq*. This is seen, for instance, in discussions about who should be allowed to fish commercially. The standing argument among fishers is that only full-time fishers should have this prerogative since they are the ones who need the fish. There is criticism of certain types of fishing that may damage fish and render them useless for consumption. This is expressed as a strong ethical disapproval of taking something that is not used. There are also vigorous discussions about which types of fishing gear should be allowed, and where. These discussions are not phrased as an attempt to limit the total catches, as is the purpose of the imposition of quota and other ‘global’ regulations. It is, rather, a discussion about who should be allowed to fish and *where*, and *how*, the fishery may take place. I have, however, seldom heard this phrased in terms of ‘overfishing’ in the biological sense, i.e. taking more of an abstract finite resource than it can economically sustain.

Conclusion

Most of this chapter has unfolded stories and narratives, but it is an attempt to understand concrete people in concrete situations. First of all to describe how fishers and biologists in various ways make sense of the extraordinary natural phenomena, the richness of the Greenland halibut fishery in the deep ice-fjords of West Greenland. Secondly to explain the basis for the frequent misunderstandings between biologists, administrators and fishers, where one part talks of stocks and overfishing, while the other speaks of *qaleqaleqassusseq* and *aalisapilunneq*.

Hopefully, the semantic and cosmological conflicts outlined in this chapter

appear quite straightforward. In the Greenlandic context, however, they are not so easy to identify. When conducting interviews mediated by excellent interpreters and in studying with bilingual newspaper articles, the translation runs smoothly back and forth between the Greenlandic and the Danish versions. Only when these are carefully compared does it become clear that although the two versions of the same text, or the same interview, both talk about fish, fishers and how they should interact, they do so in very different ways. It takes, in other words, much basic semantic work on exact wordings and metaphors before it becomes obvious that the apparently seamless interpretations connect to very different conceptual domains; two different cosmologies. This communicative situation in Greenland might be an extreme one. Greenland has developed into a highly complicated post-colonial setting, where many of the former colonial administrative and power structures have been taken over by a highly centralised administration in the capital Nuuk. An administration that relies to a large extent on young Danish-educated and Danish-speaking specialists who take a few years in Greenland as part of their career trajectory. As a consequence the ruling strata of society seem to an increasing degree to develop into a hybrid between the colonial and the local, the 'Greenlandic' and the 'Danish', the Greenlandic political and administrative elite, many of whom are educated in Denmark, and the Danish professionals. This means that differences between the centre and the periphery – to an even larger extent than in 'normal' modernised societies – are also a matter of cultural and linguistic differences.

The point of departure of this paper was a reading of a Greenlandic myth that defined a cosmology which interrelated a spherical and a global phenomenology. By separating 'nature', 'society' and 'knowledge' as different domains connected by the story, I have made a 'modern' (Latour 1993) reading, since I separate the world into different independent domains that the story claims to connect rather than separate. I then outlined how the fishers and the biologists working with Greenland halibut in Greenland perceive and interact very differently with the species. Here the same three domains re-occur in different configurations in the biological reports and practices and in the narratives and practices of local fishermen. In other words the three 'semantic universes' or 'cosmologies' all connect the social and the natural, the narrated and the knowing, but they do so in very different ways. The main differences in the actual configurations seem related to different phenomenological positions: the spherical and the global. In their writings and practice, the biologists are mainly working from an ideally 'global' position, and their concepts

are linked to, and derivable from, that perspective. The biologists, of course, travel to the actual locations in the field to do their work and collect their samples, but this movement is an inversion of Utarkağ's journey since they move from the global perspective to the local place with all its difficulties, only to return again to the global position where the important work is done. The fishers, on the other hand, seem to rely on value and derive their notion from a consistently 'local' and 'spherical' perspective.

Tim Ingold suggested that the shift from the spherical to the global perspective should be seen as a historical process marking the move into modernity, a move from cosmology to technology (Ingold 1993).⁷ All of the three cases do, however, appear equally non-modern (Latour 1999: 309) since none of them consistently separates the world into distinct, independent domains of the natural, the social and the narrated. In all three cases the domains are rather stabilised by the connections to the other domains and each of the cosmologies therefore create a consistent whole in itself. This could suggest that the grand narrative underlying Ingold's analysis is too simple: it is not correct that we once were pre-modern, engaged, cosmological and spherical, and then modernity came and with it disengagement, technology and the global perspective. Rather it seems, as also demonstrated by Hornborg (this volume), that cosmologies connecting the natural and the social are still very much alive, and that modernity understood as disengagement, technological, global, etc. may be seen as a grand auto-narrative about a certain epoch rather than a precise analysis of that epoch. In reality, we have, perhaps, never been modern (Latour 1993) at least not in that simplified sense as technological and disembodied, as opposed to cosmological and embedded.

Although the distinction between the global and the spherical may not be used to structure a Hegelian world history, it does identify two very different phenomenological stances taken by the fishers and the biologists respectively. The story about Utarkağ appears to relate an important point: the global perspective and the spherical perspective are related, seeing it in one way is 'to render conceivable the possibility of its logical inverse' (Ingold 1993: 41) and it further suggests that it is indeed possible and fruitful to move between the two. Rather than a given in itself, the phenomenological stance is a perspective, a relation between subject and world, and it changes when people move, physically or metaphorically. One way of getting out of the polarised discussions may therefore be to develop practices that ensure a movement, metaphorical or real, between the spherical and the global perspectives

and ways of communicating and acknowledging the characteristics of the knowledge derivable from each perspective.

As discussed by Kalland (this volume), indigenous populations have often been described as ecologically noble savages, or original ecologists (Fienup-Riordan 1990: chapter 8; Voget 1994). This is a highly problematic conception, not only because it is a reproduction of a classical dichotomy between the West and the Rest as indicated by Kalland, but also because it appears to rest on a simplified conceptual analysis. A proper 'ecological analysis' that focus on the interactions between organisms and their environment as they unfold (Ingold, this volume), appears to have to switch back and forth between the spherical and the global perspective in order to see the organisms as well as the environment. This is, however, in the contemporary Greenlandic situation difficult to do since the most important actors will insist on taking only one stance.

I began this chapter with the concept of knowledge in the management of living resources, a discussion that can now be recapitulated. The knowledge form underlying most biologically based management of living resources is ideally characterised by being objectively based biological knowledge. This analysis suggests that the ideal is part of a particular cosmology that claims validity only for knowledge generated in a view from nowhere (Nagel) ideally without a knowing subject (Popper). It is cosmology that appears as exotic as the one outlined by the story of the Mother of the Sea.

In his outline of a organism/person-centred anthropology, Tim Ingold (this volume) proposes that knowledge 'far from lying in the relations between structures in the world and structures in the mind, mediated by the person of the knower, is immanent in the life and consciousness of the knower as it unfolds within the field of practice set up through his or her presence as a being-in-the-world'. This understanding of knowledge appears to describe very well why the biologists and the fishers – engaged in very different beings-in-the-world – generate almost incompatible bodies of knowledge, one talking about overfishing and stocks, the other about *aalisapilunneq* and *qaleqaleqassuseq*. This perspective does not, however, give much idea as to how one should be able to transcend these differences since forms of knowledge derived from different practices appear to be incommensurable. But perhaps there is more to knowledge than a simple unfolding through practice. Through his studies of scientific knowledge, Bruno Latour has suggested that knowledge does not reside in the face-to-face confrontation of a mind with an

object, (and on this point Ingold would agree). Furthermore, knowledge is, according to Latour, able to circulate through a chain of references that transforms and changes it as it is inscribed into other networks (Latour 1999: 69–71). This understanding allows knowledge to gain an existence separated from the immediate practice that generated it. It does not, however, exist as a free-flowing entity, but it remains inscribed in particular networks and contrasted against particular references.

If Latour is correct in this understanding, then it suggests an important correction to Ingold's understanding where different knowledge – derived from particular beings-in-the-world – potentially leading to incompatible universes of knowledge. Rather, knowledge can be made to converge through being inscribed in networks that go beyond one particular life world. For this to happen, however, much work needs to be done in studying the particular set of imaginings of nature as well as of people that enter into each of the converging chains of transformations.

NOTES

1. This is a selective reproduction and not a direct translation of the myth. I have attempted to keep the wordings and metaphors close to the Danish version, which has been compared to the Greenlandic original *Arnap Nálaga*, found in the Knud Rasmussens Archives at the Royal Library in Copenhagen, Ny kgl. samling 2130, 2°, Eskimoiske Sagn og Fortællinger, (59–65).
2. In modern Greenlandic, a formalisation of a dialect spoken in West Greenland, as well as in the other Inuit languages, the four points of the compass are etymologically derived from orientations relative to the coast. 'North' is 'up' the coast, 'South' is 'down' the coast, 'West' is to the sea, and 'East' to the land. These orientations rotate compared with the absolute directions among the different Inuit groups (Fortescue 1988).
3. In an East Greenlandic version of the visit to the Mother of the Sea (Anonymous 1921) this twist of 'ups and downs' becomes even more complicated. The hero realises that the river leading to her dwelling changes direction at a certain point. It runs both into her house and onto the coast. Only after he has cleaned the woman does the river flow 'properly' to the coast so the seals can come out.
4. Rémi Savard (1970) has identified structural similarities between the Mother of the Sea and another mythological figure mainly known from the Western Inuit territory: the Man in the Moon. There appears to be interesting parallels and inversions in topography

and semantics between these two characters, see for example the myth recorded by Knud Rasmussen from Western Canada (Anonymous 1929): A woman follows her beloved that turns out to be the moon-man on a complicated journey into the sky. She finds his house full of caribou, seals and whales, and as she looks through a hole in the floor, she may view all settlements in the world.

5. In English, these two understandings share the same verb, but it appears that in other Germanic languages, such as German or Danish, the two notions are separated onto two different verbs *kennen* and *wissen* with very different etymologies (Roepstorff 1999).
6. If we allow 'stretching of the metaphor' this suggests that 'global pollution' is not a modern discussion only.
7. In a later commentary on this paper, Tim Ingold has suggested that the work by Viveiros de Castro (1998) on deixis and perspectivism could provide an important analytical addition to the points pursued here.

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