

Animal architextures¹

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4 Introduction

5 Surely animals are neither objects nor people?

6 Perhaps they are not endowed with reason, but they respond to their surroundings; they can
 7 feel pain; perhaps they have emotions; and sometimes they have cultures too. True, animals are
 8 often treated as if they were ‘objects’, especially if they are made useful for humans. Hence,
 9 theories of domestication tend to define animals through idioms of purposeful human mastery,
 10 and emphasize control as a characteristic feature of human–animal relations². But the stories
 11 about the uses of animals that emphasize control have been paralleled by stories about care that
 12 recognize the sentience of animals. Indeed, biology runs the two together too, in one version
 13 telling us that happy farmed animals are productive animals and vice versa³. And then there are
 14 lay concerns with animal welfare, and the recent remarkable growth in animal studies, post-
 15 human and otherwise⁴. Animals have become actors with rights or propensities, and have
 16 become significant topics for social research. At the same time and as a part of this, human excep-
 17 tionalism has been eroded: human beings are no longer unique.

18 In these stories people and animals go together. As many have noted, to learn about animals
 19 (for instance about dogs or farm animals) is also to learn about people. In this short chapter, we
 20 address human–animal relations by taking a less obvious case, that of salmon farming. Using
 21 resources from anthropology and STS (science, technology and society), we explore how human
 22 beings and animals emerge in specific relations embedded in material practices. Our focus is on
 23 what a person or a salmon *is made to be*, relationally, in particular circumstances. Our counterin-
 24 tuitive guiding assumption is that the character of objects (and animals) has no shape or form
 25 outside practices and their relations. In short, it is that practices are *performative*⁵. Second, and
 26 following from this, we explore how different practices generate different versions of what it is
 27 to be an animal or a person. Then, and third, we consider what is animal about the ‘animal object’
 28 in human–animal relations. In particular, we touch on the qualities or *textures* of those relations,
 29 and their choreography as they extend through and order relations in time and space, in what we
 30 refer to as *architextures*. Finally, we briefly note that agency is a relational matter, and that,
 31 notwithstanding the self-evidently restrictive and industrial character of agriculture, animals
 32 shape people just as much as people shape animals.

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1 So what can salmon tell us about animals, or human–animal relations? Some differences are
 2 obvious. Unlike four-legged, furry mammals, farmed salmon occupy fluid spaces. The surface of
 3 the water marks a boundary between our habitat and theirs. They are mostly out of sight, their
 4 body language is difficult to ‘read’. Some would even argue that they do not count as animals at
 5 all, because they are fish, and fish are not animals. Or perhaps they are, for cultural categories are
 6 dynamic. Recent animal welfare legislation in the European Union includes farmed fish, and
 7 recognizes their ability to feel pain.

8 Exploring animals from the vantage point of farmed salmon, we draw attention to the
 9 margins, to relations that are currently in the making. We enter a field in which few things are
 10 ‘given’, where practices are invented every day, and where new ways of being animal (and being
 11 human) are constantly performed. The textures of material practices that we describe here are
 12 indeed ‘salmon-specific’: animals are known only through situated practices. Hence, it is through
 13 their different textures, and architectures that human–animal relations take their distinctive form.
 14 A study of pigs or cattle would necessarily involve different relations. However, we suggest that
 15 this study of an animal that is so visibly in the making is instructive, precisely because its very
 16 marginality raises the question of what it is to become animal.

17 **First feeding: symmetry and performativity**

18 STS ‘material semiotics’ explores *how* objects (or animals or people) get assembled in different
 19 practices. In order to do this, it adopts what Michel Callon calls ‘*generalized symmetry*’.⁶ We need,
 20 he says, to try to put our assumptions about objects (or actors or animals or people) on one side,
 21 and treat all the elements in a practice in the same terms. Famously, he explored the relations
 22 between fishermen and scallops in this way, looking to see what form these took in practice. So
 23 what happens if we extend this approach to the salmon farm?

24 In the hatchery the eggs hatch out to form alevins. The alevins are not-quite-fish that feed
 25 on their yolk-sacs. They live in shallow, water-filled trays lined with Astroturf. After a few
 26 weeks, they turn into tiny fish and are decanted into cylindrical tanks a metre and a half
 27 across, and a metre deep. At first, they mostly cower at the bottom, clustered together, heads
 28 facing into the flow of water.

29 Irene is looking down at them. Then she presses a button to start the feeding system. This
 30 is a screw-thread that gently sprinkles tiny amounts of powdered feed onto the surface of
 31 the water. Irene looks into the tank intently. She’s holding still: she doesn’t want to frighten
 32 the tiny fish. She’s not quite holding her breath, but she’s just a little tense. For a few minutes
 33 she watches. Then, suddenly, she smiles and relaxes. ‘They’re *feeding*’, she says. And indeed
 34 they are. Every ten or fifteen seconds one of the small fry is detaching itself from the dark
 35 shoal at the bottom of the tank. It darts up, gulps down a particle of feed, and then it darts
 36 down again. Now she is smiling broadly. It’s a crucial moment. Sometimes they don’t feed.
 37 There’s something wrong. But there isn’t going to be a problem with this tank.

38 Seen in this way, first feeding is a *performative* practice. Something important is being done in the
 39 web of relations that make up the practice. We can see this if we try, symmetrically, to avoid
 40 making assumptions about the attributes of fish and see what they are being made to be. This
 41 practice starts with fish that are passive, fish that do not feed, and it ends with active fish that do.
 42 The transformation is possible because the fish are lodged in a web of relations with other objects
 43 or actors including Irene, the feeding mechanism, the feed itself, and the water. *It is this web of*
 44 *relations that turns the fish into feeders* and people into carers worrying about those fish. However, to

1 be sure, that web reaches further into fish propensities, or fish biology, and into other materials
 2 too. So, for instance, the feeding mechanism depends on electricity, whereas the feed is an indus-
 3 trial product that draws on a web that includes fishing fleets in Chile, feedstock fish, and a net-
 4 work of financial and logistical relations. All of these (or something like them) are webbed together
 5 to turn non-feeding fry into feeding fry. Fish (or feeding fish) – are *done* in practices. They are an
 6 *effect of relations*. This is our core argument. It is the core argument of material semiotics.

7 **Vaccinating: heterogeneity and insecurity**

8 Actors, objects and animals are shaped in practices, and their relations, but those relations are
 9 *materially heterogeneous* and they are *never entirely secure*.

10 A few months on, and the fish are around eleven centimetres long. They’ve been delivered
 11 by lorry from the hatchery to a second site, where they will grow until they move to the
 12 sea. And the first task is to vaccinate them.

13 There’s a complicated arrangement of pipes and pumps that delivers them to the
 14 vaccination cabin. Here, they slide down a stainless steel chute, flapping in protest, and fall
 15 into a wire basket in a trough. There’s water in this, together with anaesthetic: the fish need
 16 to be anaesthetized before they are put in the vaccination machine.

17 Kristin pulls a lever: the basket lifts out of the water—anaesthetic mix, and the fish slide
 18 onto a tray where she picks them up, two at a time with rough waterproof gloves. She makes
 19 sure they are pointing the right way, and drops them into the grooves on a tiny conveyer
 20 belt, which feeds them into the vaccination machine. It is all quite fast. And it is important
 21 that the fish are limp when this happens. If the anaesthetic gets too dilute the fish start
 22 flapping in protest. Then Kristin needs to stop everything, add anaesthetic to the water, and
 23 feed the fish back into it until they are docile.

24 This scene can also be understood as a web of relations that shapes the fish on the one hand and
 25 people on the other. But this time it is the other way round: the fish start out lively and they end
 26 up passive. The web of relations includes the fish themselves, Kristin, and her gloves. And then it
 27 includes water, pipes, some more or less high-tech machinery, anaesthetic, pumps, and an electricity
 28 supply. The vaccination machine includes vaccine itself, optical sensors, electric motors and needles,
 29 so the web of relations leads quickly to the pharmaceutical industry. But let’s make two other points.

30 First, the elements in the web of relations are materially and socially *heterogeneous*. As with the
 31 first feeding, humans, animals, technologies, institutions, and naturally occurring elements (such
 32 as water) are all being woven together. The character of the animal (the passive salmon) is being
 33 done in a particular socially and materially heterogeneous weave. And then, second, that weave
 34 is *precarious*. It does not go wrong most of the time, but the potential for failure is always there. If
 35 the anaesthetic gets too dilute then the fish are lively. If the electricity fails everything stops.
 36 (Indeed, the site has a back-up generator). How objects (or animals) are done in practices depends
 37 on the weave. Nothing is fixed or given. Everything is in process, everything is a matter of
 38 becoming. As it unfolds (and notwithstanding the industrial concern with order) a large part of
 39 what is happening looks more like tinkering than centralized planning or control.⁷

40 **Feeding on the fjord: multiplicity**

41 If objects (and animals) take the shape that they do in webs of practice, then this implies that they
 42 are likely to change their form between different practices. Salmon starting to feed are not, for

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1 instance, like those about to be vaccinated. But let us add another ethnographic layer to this tale
2 of difference

3 We are another year on. The fish have moved to the sea. Nearly a metre long, they are now
4 in large sea pens, 25 metres across, and 30 metres deep. If you look down into the water you
5 can see some them, but most are invisible. The feed, now in the form of pea-sized pellets,
6 rattles down air ducts and blows out onto the surface of the pen. But how much feed do
7 they need? How much do they want? These are pressing questions: the cost of feed is around
8 60% of the cost of raising a salmon.

9 Christoffer is up on the gantry above the water with a bucket of feed and a scoop. He is
10 flinging pellets at the surface of the water, and he is trying to see what is going on. Do the
11 fish rise greedily and gulp the pellets down? Does the surface of the water boil as they do
12 this? That would be a good sign (though it may mean they are not getting enough to eat).
13 Or, here is another possibility: do they eat but without very much enthusiasm? Perhaps,
14 then, the level of feeding is just about right? And then, here is a third possibility: perhaps the
15 salmon are ignoring some or all of the feed? If this is happening, then it is worrying. Perhaps
16 they are being overfed. But why? There may even be disease in the tank.

17 In the first ethnographic snippet, passive salmon were rendered active. In the second, active
18 salmon were rendered passive. And now, in this third ethnographic moment, the salmon are being
19 done in the web of relations as hungry, not very hungry, or not hungry at all. Again this is a rela-
20 tional effect. It is tempting to say 'they *are* hungry', full stop, or 'they are not'. But in practice this
21 is misleading, because the only direct way of determining this from a human point of view is by
22 dropping feed on them, and looking to see what happens. So what we are saying is that although
23 we tend to imagine that objects (or salmon) have more or less stable and context-independent
24 attributes, in practice if we look at scenes in this way, then *they are done differently in different*
25 *locations*. In this world of becoming, this has the following consequence: any kind of *continuity is*
26 *an empirical matter*.⁸ This means that if we talk of 'objects', 'animals' or 'salmon' as stable between
27 practices, then this is itself some kind of achievement. It takes effort to link different practices
28 together to arrive at continuity. So how is this done? STS answers this question in three ways.⁹

29 First, much of the time the issue simply does not arise because differences (and their practices)
30 do not overlap. So, for instance, if salmon in relation to humans take one form in the hatchery
31 and another different form out on the fjord, then usually this does not matter. The issue of
32 difference does not arise; nobody knows, and nobody cares: there is social and geographical
33 segregation.

34 Second, it is taken for granted that objects express themselves in different ways in different
35 circumstances. Salmon get bigger, or they get ill and stop eating, or they need to move from fresh
36 water to the sea, or they escape and are encountered in rivers as 'alien species'. These are cases in
37 which they, the salmon, express themselves differently, so they need to be handled differently
38 too.¹⁰ This pragmatic and 'realist' assumption has a powerful grip on Western ways of thinking
39 about the world.¹¹ The argument is that reality (including objects) is pretty determinate, but it
40 has to be handled in different ways in different places. A similarly 'realist' strategy focuses more
41 on knowledge, and says that *perspectives* vary. So, for instance, if you look at a textbook on salmon,
42 it juxtaposes the anatomical, the endocrinological, the behavioural, the physiological and the
43 environmental. Each chapter says something different, but the assumption is that the different
44 approaches simply offer different perspectives on a single (kind of) entity.

45 The third approach, and the one adopted here, is different. This says that salmon (or objects)
46 are shape-shifters: that in practice, they are not particularly stable because different practices do

1 them in different ways; that they are therefore multiple in form; perhaps, indeed, that they are
 2 fluid, changing shape as they flow between practices. To put it succinctly, the assumption is that
 3 *objects have a variable geometry*. And then the argument is that if we want to understand the
 4 character of objects (or animals) in practice, in this way of thinking, the challenge is to find ways
 5 of tracing and talking about that variable geometry.¹²

6 **Dead fish: texture**

7 Objects are done in practices and their webs of relations: this is our argument, and it applies to
 8 people and to animals, including salmon. But at the same time it is clear that animals are not the
 9 same as objects, and indeed that different kinds of animals are not like one another. So what is it
 10 that distinguishes animals (or salmon, or farmed salmon) from objects? How is this to be under-
 11 stood from an STS or material-semiotic point of view? To answer these questions we need to
 12 talk about *choreographies* and *architextures* on the one hand, and *textures* on the other. Textures first.

13 Out on the fjord with 50,000 fish in each of the pens, the farm as a whole may be holding
 14 over half a million fish. With a population that size, some die each day. It is important to
 15 separate out the dead from the living each day. There is a pipe that pumps up water and dead
 16 fish from the bottom of each pen and deposits them on the deck. Then you pick up the fish
 17 and put them in a wheelbarrow. They can be large (around five kilos) and picking them up
 18 is not easy for beginners. You put on rough gloves and you go to pick them up, but then you
 19 discover that even with those gloves they are very slippery. Sometimes you think you have
 20 got a grip of a fish, only to discover that you have not, and it slips from your hands. Those
 21 who know what they are doing grab the fish very firmly around the base of the tail. This is
 22 because the tail itself is rigid cartilage, and very slightly broader than the fleshy base of the
 23 tail. Then, if your grip is tight enough, you can lift the fish with one hand and toss it into
 24 the wheelbarrow.

25 Here is the argument: that the webs of relations in practice have specific relational *textures*. That
 26 is the importance of this ethnographic moment. For the people doing this work, salmon, even
 27 dead salmon, are *slippery*. Return, now, to Christoffer.

28 He is flinging pellets at the surface of the water and then he is looking intently at how the
 29 salmon react. But this is not as easy as it sounds. If he is lucky the day is calm; it is overcast,
 30 but it is not raining. Then at least he can see a little way into the water. If he is unlucky, then
 31 wind, waves, or rain are breaking up the surface of the water, or sun is reflecting off it and
 32 he cannot see much at all. But even when conditions are ideal, he can see only two or three
 33 metres into the water. If there are 50,000 fish, he can see only a few dozen of them. He really
 34 cannot see what most of them are up to. And they are constantly on the move as well.

35 What can we say about the web of relations here? What do salmon become for people in this
 36 context? Here they are no longer slippery. Instead, and barely visible at best, they have become
 37 *elusive*. So here we have a second relational texture to set alongside the first. Slippery, elusive, and
 38 in other ethnographic contexts we could go on adding to the list; timid, perhaps, for Irene at the
 39 moment of first feeding; lively and resistant for Kristin when the anaesthetic gets too dilute in
 40 the course of vaccination. And so on.

41 So this is our argument: the *textures* of the relations that make up the webs of practice
 42 characterize whatever is caught up in them. They also differentiate animals from one another

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1 (the textures of dog–human relations are unlike those relevant to fish and people.) The argument
 2 is relational. Salmon are slippery in relation to people in particular practices, and not, for instance,
 3 in relation to parasites such as sea-lice, which anchor themselves firmly to scales or fins.) On the
 4 farm, they are slippery, and they are elusive, they are difficult to see, secretive and sometimes
 5 mysterious. *For people*. What are they up to, down there in the pen? The answer is that even
 6 although they are confined, it is not very clear, at least to the humans on the farm.

7 The argument needs to be made with care. We are not necessarily (and perhaps even usually)
 8 talking about relations between salmon and people that are direct. In the heterogeneous webs of
 9 practice textures are more often *mediated*.

10 At the end of their lives, the salmon end up in the slaughterhouse. Piped from a boat, they
 11 slide flapping down a chute. Carried by a small conveyer belt, they enter a long metal box,
 12 where they are stunned. At one moment, this is the theory, the salmon are conscious, they
 13 are sentient, and they are capable of suffering pain. And at the next moment, they are
 14 unconscious, still alive but unconscious. Emerging from the box they are carried to a place
 15 where they are killed, with a quick knife stroke to the major artery to the gills.

16 This is another practice: the practice of humane slaughter, the way of minimizing pain
 17 for the fish. Contemporary veterinary science has condemned the alternatives. For instance,
 18 suffocating fish with carbon dioxide causes them distress. Electrical stunning is to be
 19 preferred in the moment before death.

20 Textures, then, are mediated. There are other materials and other relations at work in the textures
 21 that relate animals and humans, and these help to define animals for humans in those practices.
 22 If you need to pick up dead salmon, gloves are useful. Indeed, they are more or less necessary.
 23 They make the fish slightly less slippery. And Christoffer's attempts to see whether the salmon
 24 are eating (themselves mediated in relations that include pellets, scoops and polarizing sun-
 25 glasses) are assisted in a few of the pens by underwater television cameras.¹³ And then, at the end
 26 of life in the slaughterhouse, the web of relations extends through machinery to welfare science,
 27 to the study of fish sentience, and to the official state regulations that follow from those studies.
 28 And here is the bottom line: the textures of fish–human relations have changed in the
 29 slaughterhouse. They are being done differently. Now fish can feel pain. Even fear.

30 **Roofs and lights: choreography and architecture**

31 Textures define and characterize the qualities of relations in practices, including the only relations
 32 we know about: those that bind and shape people and the worlds in which they are caught up.
 33 Some of these assemble animals and people. Read Donna Haraway on dogs, and you see those
 34 textures take a series of specific forms: eye contact; gesture; the importance of treats; the touch
 35 of hand and fur, or tongue and face¹⁴. Go to a fish farm and look at how people work with
 36 salmon, and those textures are entirely different: slippery, elusive, timid, and all the rest. So textures
 37 help to determine the character of the animal in relation to the human, but so too do *choreogra-*
 38 *phies* or *architectures*.

39 Go back to the moment of vaccination. The fish are washed along a pipe and dropped
 40 into a large tank in a building. There is no daylight here. Instead there are powerful
 41 lights. The young salmon are going to spend four, six or eight months here feeding and
 42 growing. And sometimes those lights will be on, and sometimes they will be off. So what is
 43 the pattern?

1 The answer is, it depends. Some salmon follow the cycles of the Nordic season, short
 2 days in December and more daylight towards June. Triggered by these changes they become
 3 smolt, ready to go to the sea, in spring. Others, destined to be autumn smolt, are speeded up.
 4 Given artificial light for twenty-four hours a day for six months in the Norwegian winter,
 5 they live through an artificial six-week winter in the Norwegian summer. Then the lights
 6 go back on to trigger smoltification in the autumn. The reason for this? The fish farmers do
 7 not want to send all their fish to the fjord at the same moment. The market for salmon is
 8 not seasonal.

9 Choreographies have to do with ordered arrangements. Partly these have to do with heteroge-
 10 neous relations *within* particular practices; think of the process of vaccination. However, they also
 11 have to do with relations *between* practices. The latter extend across space: the processes of fish
 12 farming include hatcheries, fresh-water farms, and sea farms. And they also extend across time:
 13 chronologies and successions and repetitions are ordered in a fish farm. More correctly, times are
 14 relations that are ordered or choreographed within and between practices. Times may be
 15 stretched out or contracted. This is what is happening as the farmers switch the lights on and off.
 16 And/or they are chained together, so that the fish indeed move from hatchery to the fresh-water
 17 farm to the fjord, and then, at the end, to the slaughterhouse. Or they may come in the form of
 18 cycles; daily, weekly or seasonal.

19 So what does this have to do with animals? The answer is that the timing, sequencing and
 20 choreographing of relations needs to be set alongside the textures of relations. Human–animal
 21 relations are defined by textures (slippery or furry, or lively or elusive, or susceptible to pain) but
 22 they are also defined by the ordering of sequences. And it is the quality of these orderings that
 23 we want to call architectures. The dog needs to be walked twice a day. The fish need to be fed
 24 eight hours a day, or vaccinated at certain times, or moved from fresh water to the sea. Our
 25 argument is that it is particular combinations of relational *textures* and *architectures* that character-
 26 ize human–animal links and turn animals into objects or subjects with particular lively attributes.

27 Conclusion

28 We have argued that objects are an effect of heterogeneous and more or less precarious webs of
 29 performative practice that also enact humans. These webs take different forms in different practices,
 30 and those different forms are woven together to make more or less continuous objects. But we
 31 have also suggested, first, that the relations enacted in practices display particular qualities or tex-
 32 tures, and second, that there are specific patterns or textures of choreography (or architectures) that
 33 order time and space and their qualities both within and between practices. And finally we have
 34 argued that it is in these textures and architectures that animals (or more precisely human–animal
 35 relations) take their distinctive form. Animals are not in and of themselves furry, scaly, elusive, prone
 36 to sickness, endowed with a life cycle, loyalty, and all the rest. They develop attributes such as these
 37 in relation to people who are also, and at the same time, being given form and endowed with
 38 relational qualities and attributes. In short, practices enact people and animals together.

39 This way of thinking about animals has a number of implications. First, it stands in tension
 40 with any version of human exceptionalism: both people and animals are taken to be relational
 41 effects. Second, it resists those versions of materialism that argue that it is possible to apprehend
 42 the material world outside, or apart from, situated practices.¹⁵ It argues instead that although
 43 humans are not exceptional, it is only in practices that enact humans alongside animals that it is
 44 possible to know anything about the latter. Third, it makes no assumptions about agency, human
 45 or otherwise, outside the webs of practice that constitute these. In the first instance, people are

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1 not prime movers, but then again, neither are animals or objects. Rather, it is assumed that
 2 agency draws on and is distributed through webs of relations. It is only in particular practices
 3 (and for particular reasons) that it becomes possible to locate it in particular human (or animal)
 4 places. And then, finally, and as a part of this, it notes that it only makes sense to say that people
 5 control domesticated animals in very particular contexts and respects. Even at a highly ordered
 6 site such as a salmon farm, it is also plausible to argue that salmon, in fact, control people. If
 7 humankind is to consume salmon on an industrial scale, then people are put to immense effort
 8 to fit round the demands made of them and their (multispecies) surroundings *by* the salmon that
 9 they farm. The breeding, the feeding, the trawling to secure fish feed, and the journey from fresh
 10 to salt water: for even if people end up eating the salmon that thus sustain human lives, what the
 11 salmon have made people do along the way is scarcely trivial.

12 Notes

- 13 1 We are grateful to the anonymised 'Sjølaks AS' for their kind agreement to let us locate our study within
 14 the firm, and for its additional generous practical support. We would like to thank all those who work
 15 for Sjølaks (they too are anonymised) for their warm welcome, help, and willingness to let us watch
 16 them at work. In many cases their kindness vastly exceeded any reasonable expectation or need. We are
 17 grateful to Kristin Asdal, Annemarie Mol, Vicky Singleton and Gro Ween for continuing discussion. The
 18 project, 'Newcomers to the Farm', was funded by Forskningsrådet, the Norwegian Research Council
 19 (project number 183352/S30), with additional research leave and financial support from Lancaster
 20 University, the Open University, and the University of Oslo, and we are grateful to all.
- 21 2 A definition which is often cited is provided by Juliet Clutton-Brock, who defines a domesticated
 22 animal as 'one that has been bred in captivity for purposes of economic profit to a human community
 23 that maintains complete mastery over its breeding, organization of territory, and food supply' Clutton-
 24 Brock (1989, 7). See also Leach (2003).
- 25 3 See, for instance, Fraser (1993).
- 26 4 For examples of a large genre see Wolfe (2003) and Despret (2007).
- 27 5 The approach comes in various forms, including feminist material semiotics (for an animal-relevant
 28 illustration, see Haraway (2007), and actor-network theory and its derivatives, and recent work in
 29 anthropology. For animal-relevant illustrations see, for instance, Thompson (2002), Hinchliffe et al.
 30 (2005), Helmreich (2009), Singleton (2010), Abram and Lien (2011) and Law and Moser (2012) and
 31 (on salmon), Lien and Law (2011) and Law and Lien (2013).
- 32 6 Callon (1986).
- 33 7 For an exploration of the tinkering implied by care in the context of health care see Mol (2008).
- 34 8 The point is carefully explored in Mol (2002).
- 35 9 For survey and discussion of these strategies see Mol (2002) and Law (2004).
- 36 10 See Lien and Law (2011).
- 37 11 Realism is a family of philosophical positions which assume that reality has more or less determinate
 38 attributes, even if these are often unclear to human beings.
- 39 12 For discussion of fluid and other more complex objects see Mol and Law (1994), and Law and Singleton
 40 (2005).
- 41 13 The use of underwater cameras adds another texture to the relation. For more ethnographic details on
 42 feeding farmed fish, see Lien (2007).
- 43 14 Haraway (2003). On people and cows, see Law (2010).
- 44 15 This is a possible reading of, for instance, Bennett (2010).

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