The encounters between animals and humans are not static. They are practiced, dynamic and ongoing. Therefore direction, velocity and the way that different power relations converge to enable or prevent movement is fundamental to the understandings of humanimal encounters. Indeed we may consider animals as movements – that we expect them to move and to move in particular ways. A cat stalks in a feline manner, a pig trots, falcons dive, and whales breech. Scaling these movements beyond the individual we get shoals, flocks and herds, which circle, migrate and define territories. Thus to comprehend the animal question is to comprehend the primacy of movement. This book therefore brings together a variety of work from a range of disciplines to begin to address the complex and diverse ways that speed, direction and velocity shape humanimal interaction.
ANIMAL MOVEMENTS • MOVING ANIMALS
ESSAYS ON DIRECTION, VELOCITY AND AGENCY IN HUMANIMAL ENCOUNTERS
Animal Movements • Moving Animals
Essays on direction, velocity and agency in humanimal encounters
Edited by Jacob Bull

Crossroads of Knowledge
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The Centre for Gender Research
The Centre for Gender Research, Uppsala University, aims to promote lasting interdisciplinary encounters and networking across the border between the cultural and natural sciences. By bridging the organisational and scientific divides, we offer a meeting place for researchers and students from different disciplinary backgrounds. With the help of the Swedish Research Council’s funding of strong research environments 2007–2011, we have created an internationally recognised research environment, which promotes empirical investigations and theoretical reflections on the way gender and gendered knowledge is produced in the borderland between the cultural and the natural sciences and in the knowledge-producing interactions between empirical research, theory and teaching.

The process is not initiated from strictly disciplinary standpoints, instead our starting points are such themes that are being investigated today and theorised within the humanities as well as the natural and social sciences. We want to create a forum for interdisciplinary encounters about sex and gender, animals and humans, nature and culture, and to develop a research environment where disciplinary differences will become methodological advantages that enrich the kinds of questions asked and theories produced. As part of the project, the centre has initiated and coordinated a highly successful book series with 18 publications so far; it covers a range of topics, approaches and issues and reflects
the diverse research at the centre.

The research is arranged between five research groups: the Body/Embodiment Group, the GenPhys Group, the Masculinities Group, the Education group and the HumAnimal group. This book project has been coordinated through the HumAnimal group.

**The HumAnimal group**

The study of human-animal relations is a fascinating but still relatively unexplored research area. This reflects the social sciences and humanities in general reluctantance in dealing with the classical nature/culture divide. While “society” consists of humans and their interaction in institutions and culture, other animals become excluded and conceptualised as “nature”. The presence of animals can thereby, on the one hand, “decivilise” human activities and urban places. But on the other hand, there is a strong Western tradition of linking the treatment of other animals with degrees of civilization: the more “humane”, the higher the civilisation. Put together, they point towards an interesting potential openness of categories and flexibility in the understanding of humans and other animals. This potential openness creates a space for questioning taken for granted discourses and truths, and this is where the critical potential of animal studies lies. Internationally, human-animal studies is a growing, interdisciplinary, field with specialised journals, conferences and networks. However, in the Scandinavian context, the existence and activities of a research collaboration such as the HumAnimal group has no precedence.

The HumAnimal group currently represent a vast diversity of disciplines and perspectives, from evolutionary biology, through sociology and pedagogy, to art history and philosophy. This is not a mere coincident. In line with the overall aims of the GenNa Programme, the HumAnimal group finds it an important advantage
to cross over the nature/culture divide in science. Thus, interdisciplinarity is a given in the group. We believe that disciplinary and other differences can become methodological advantages and present us with new insights, but also new questions and problems. The overall aim is to promote better understanding of human-animal relations in society, science and culture, to explore the critical potentials of such understanding of human-animal relations in society, science and culture, and to establish human-animal studies as a field of academic inquiry in Sweden.

Recently the HumAnimal group have been involved in organising a range of seminars, conferences and symposia, and book projects. In particular we have a number of publications including *Investigating human/animal relations in science, culture and work*, edited by Tora Holmberg (this series, 2009), *Dilemman med transgena djur: forskningspraktik och etik* by Tora Holberg and Malin Ideland (this series, 2010) and *Undisciplined animals: invitations to animal studies*, edited by Pär Segerdahl (Cambridge Scholars, forthcoming 2011). In addition, we have organised a series of seminars, workshops and conferences, including *Society, Animals and Gender* conference, August 2007; the *Meet Animal Meat* conference May 2009 and the *Animal Movements•Moving Animals* symposium in May 2010. It is from this symposium, that this volume emerged.

**Acknowledgements**

Book projects are never solo efforts and the contributions always reach far beyond the names that appear on the covers or are listed in the contents list. As mentioned above, this book emerged from the symposium held in May 2010. The symposium itself was a great success and was a truly interdisciplinary and international collaboration. Thanks to our Key Note speakers and all of the
presenters and participants for a very enjoyable and informative couple of days. The HumAnimal group work particularly hard in drafting, planning and running such a great event, so thanks must go to Anna Samuelsson, David Redmalm, Eva Hayward, Ester Ehnsmyr, Helena Pedersen, Rebekah Fox, Tora Holmberg and Pär Segerdahl; without your help in organisation the conference, and your editing and comments on the various abstracts, drafts and manuscripts; this task would have been a lot harder. Thanks also to Olov Redmalm who provided the artwork on the content pages, a great contribution! To the contributors (obviously, this would have been a slim volume without you) but thanks for all your hard work and for (usually) being reasonably close to the deadlines – we finished just about on schedule! And to all of those who have listened to me rant and complain about time, computers and workload – none of which I am particularly good at managing – I am very grateful!

Jacob Bull, Uppsala, 2011
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Jacob Bull
Introducing movement and animals

Movement
In recent years Animal Studies has continued to underline the significance of animals in human lives. The encounters are infinite and variable ranging from the mundane to the remarkable, the obvious to the unobserved, and the euphoric to the dystopian. However, encounters are not static, and recent work has highlighted how important movement is to humanimal relations, be it the conflicts arising as conservation species cross the imperceptible boundaries or very real fences of conservation areas or the “socio-economic benefits” of an egg from a hen that can range free. Furthermore, each encounter has its own pace; in agriculture the rate at which animals are raised creates competing discourses of “good meat” and speed infuses the ethical discussions in biotechnology. Equally, animals are caught up in the globalised networks of production and consumption, which materially and discursively circulate them and their body parts as currency, capital or commodities. Consequentially, movement affects human imaginings of animals and shapes political ideologies.

Direction, velocity and how various power relations converge to enable or prevent movement, therefore are fundamental to understandings of humanimal encounters. Indeed as Tim Ingold reminds us, ‘the names of animals are not nouns but verbs’ (2006:14); they are active, moving creatures which we expect to move, and which we expect to move in particular ways. A cat stalks in a feline manner, a pig trots, falcons dive and whales breech. Scaling these movements beyond the individual we get shoals, flocks and
herds, which circle, migrate and define territories. Returning to a more intimate level, Maxine Sheets-Johnstone (1999) has observed that ‘creaturely movement is the very condition of all forms of creaturely perception’ (1999:132). Thus to perceive the world is to move through it, to engage with multiplicity of things (animate or otherwise) which we call “the environment” and thereby gain the depth of understanding which constitutes and creates subjectivity. Thus to comprehend the animal question is to comprehend the primacy of movement.

The recognition of the importance of movement in understandings of humanimal encounters fits in with a wider literature which has identified the importance of movement and mobility in a range of disciplines (see for example Adey, 2010; Cresswell 2006; Urry 2007) and how to get purchase on the significances of these movements, flows and mobilities (see for example Büscher et al 2011). Such work has highlighted the importance of movement in our everyday lives and has suggested that movement is increasing in significance, at least in terms of speed and distance if not necessarily in terms of frequency (Urry, 2007). John Urry in his call for, or description of “the mobilities turn” suggests that movements are so ubiquitous, frequent and necessary that they become invisible, both in everyday life and to academic accounts. Indeed, he states that the social sciences have neglected the issues of mobility, minimized the consequences, and ignored the structures that facilitate or impede movement (2007: 19). Further, he calls for attention to be paid to the interspaces which movement and mobilities create (12); an omission that can also be raised about animal studies.

While Urry emphasises the flows of people, capital and commodities, Peter Adey (2010) also draws attention to the “small movements” within bodies – the constant change, processes and flows that constitute “the individual” and enable life. Indeed, and
drawing on the work of Bergson, he observes that the concepts of static and immobile are illusions, as time, the general stream of becoming, constantly rework and overlay the seemingly static form (Adey 2010:6). But recognising the ubiquity and omnipresence of movement should not undermine its politics. Movement is a way of orientating in the world and thus particular movements (or lack thereof) have different significance and impact. Therefore, it is important to recognise that movement makes or alters space and place and that ‘movement and the making of relations take/make time’ (Massey 2005:119); that movement is process and relational – by which I mean that individual and collective action creates, resists and perpetuates, and is constrained, directed and limited by particular social ideas, patterns and structures – avoidances are made, attractions are sought. Thus, the practices, the performativity, of mobility are important (after Adey 2010:134). What then of the animal question in all this?

The case for the importance of movement in humanimal encounters has already been made, but if we are to follow in the tradition of animal studies to suggest that “animals are good to think with” (Levi Strauss, 1991) what then do they offer understandings of movement and mobility? Urry excludes animals from his analytical framework of mobilities. Referring to Simmel (1997) he suggest that animals cannot create ‘pathways’ by which he means the ‘impressing… into the surface of the earth’ (Simmel 1997: 171 cited in Urry 2007:20), that animals cannot connect different spaces, they cannot recognise the difference of “apart” from “separate” (separate being a distance which can be bridged, whereas apart is discontinuity). The vast array of literature in animals studies (and beyond), would suggest that such statements are erroneous. Ingold (2000) has proposed that the modes of dwelling for animals are remarkably similar to those of humans. And, if we return to Massey,
the movements of animals create and change spaces. Indeed there is a significant literature devoted to examining the role animals play in our understandings of space, place and identity (see for example Wolch and Emmel 1998; Philo and Wilbert, 2000; Whatmore, 2002). Therefore, work from a range of disciplines and approaches has challenged the autonomy of “the human” and identified how human identities and bodies are inherently multiple, relational and dependent on more-than-human presences (see for example Haraway 1991; 1997; 2003; 2008; Whatmore 2002; 2007). Equally, as animals rub uncomfortably against classical social theory (Nibert, 2003; Myers, 2003), they challenge the seemingly rigid social, cultural, historical and conceptual boundaries which hold “us” apart from “them”, animal from human, nature from society. Further, to ask the animal question challenges the equally precious boundaries between academic disciplines (see Segerdahl forthcoming), thus animals permit us to move between different taxonomies and unpack seemingly dichotomous categories, just one example being the difference between mobile and immobile.

Animals force us to ‘admit and register the creative presence of creatures and devices amongst us, and the animal sensibilities of our diverse human being’ (Whatmore, 2007: 345); their presence, therefore emphasises the emergence and assemblage of being (Hird, 2009) and the constant movement of cells, organisms, fluids and chemicals passing over, through and between bodies. But they also expose another side to mobility. Urry talks of mobility as referring to the mob, the unruly (2007: 8). Animals occupy a range of categories from domesticated to wild and feral and everything in between, but they also move between these categories, challenge these systems and occur in places, which undermine human action. Disease, parasites and infection are possibly the clearest challenges to the autonomous, bounded human subject – the constant
mutations, creations of “superbugs” and the mundane persistence of internal and external parasites and infections are indicative of the unruly mob that is life on this planet.

With an increase in scale, of size if not necessarily significance, the labour that animals do in our mobilities become more apparent. Animals as mode, cause or means of movement may have had greater significance historically, but, and particularly if we take a less western and/or urban perspective, the labour that animals do in the rhythms, routes, routines, practices and performances, of riding, towing, herding, ranching, shepherding and migrating highlight how movement and mobility is a more-than-human affair. They are crucial in human dualistic definitions of “home” and “away”, self-other, nature-culture, wild-domestic, here-there and are therefore instrumental, and ever-present in the creation of the interspaces, pathways and connections that the mobile human subject makes through the world. Indeed, could they be made without animals? Animal studies and mobility studies therefore have much to learn from one another. This book brings together a variety of work from a range of disciplines to address the complex and diverse roles that movement plays in humanimal encounters. What follows here is a (far from exhaustive) list of the way that speed, direction and velocity may be conceptualised and encountered in human-animal interaction.

**Animal movements**

*The politics of movement*

Animal rights, animal liberation, animal activism, these political organisations all have movement at their core, both in terms of the social change for which they campaign, and the (at times transgressive) actions that they involve. But there is also an inherent
politics in movement. The choices which animals (both human and otherwise) make on where and when to be still, how to stand, when to move, are all political as they are dependent on the social cultural and historical situations of individuals, groups and species. These politics permit and restrain movement with different species permitted different degrees and extents of movement. Equally, different groups of animals have different capacities to move both topographically and socially. For example, the implications of migrations of birds compared to the restrained conditions of the animals on a poultry farm; such differences are made particularly apparent when considering the zoonosis of H1N1. Social movements include the way that various animals such as cats or livestock move between the various categories (and spaces in between) wild, pet, domesticated, and feral, sometimes at human bidding and sometimes transgressing human ordained categories.

Equally, animal movements have implications for human political structures. The various zoonotic and bio-security issues at local and national borders, and in agricultural systems, lives and livelihoods are clear. The socio-economic benefits of “free-range”, “higher welfare” or “organic” systems all implicitly or explicitly use animal movement in the narrative of their systems of production and consumption. The topological transgressions of different species as they move between conservation areas or across national and local boundaries, and the shifts in human perception which (re)defines different animals as pets, pest or vermin (for example the rat). Nevertheless, linking all of these movements, from animal liberation campaigns to organic farming, is an idea of movement as change, as progress. The movement as progress has strong overtones of modernity where the speeding up and technological innovation made way for physical and ideological “development”. Despite polemics that suggest that “the greatness of a nation and its
moral progress can be judged by the way its animals are treated,” (often attributed to both Ghandi and Aristotle) much violence and oppression has and is done to animals under the onward progression of (global) modernity. Such grand narratives of progress may be less relevant to the late- or post-modern situation of contemporary western society. However, the relevance of movement as change remains significant; the desire for ideological shifts, for welfare developments, for socio-economic advancements are inherently political and politicised.

**Commodified movements**

As animals, the products of their bodies, and their body parts are appropriated into various systems of globalised production and consumption, the existing orthodoxies of human-animal relations are perpetuated. The commodified animal is shipped across the globe. Animals are created and manipulated to operate as standardised units in scientific experimentations. Equally, animal movements can be considered as a fetish as they gain imaginative and capital value for productions systems that make capital gains from animals that “range-free” or display “natural behaviours”. However, in these spaces new combinations, opportunities are made. Such opportunities and reconfigurations range from the extension of the body with prosthesis, to biotechnology. None of these “developments” occur outside of the ethical or political structures which legitimise the use of animals in this way, but the animal question can also be mobilised to challenge the limits, directions and potentials of movement in systems of capital, technology, consumption and (post)colonialism.

**Movement as practice**

Animal movement is always embodied. It is not a fixed event; it
Moving and identity
All of these categories bleed into one another, and moving and identity cannot really be separated from being in movement and the political. But without trying to separate out the “self” from
“the body” or “the individual” from “the collective”, movement is crucial to accounts of identity. Much has been said about the role that animals have played in the project of defining “the human” (see for example Bryld and Lykke, 2000), but when considering the emotional connotations of “to be moved” by animals the role that the animals play in personal definitions of space, place and identity are also apparent. However, movement is also crucial in a wider definition of identity in terms of agency.

As discussed above, the capacity to move, is not sufficient; the physiological ability to run, walk, swim, fly is of little importance without the agency to realise such potentialities. The restriction of movement, the barriers to migration, the human practices, the power inequalities between species, which permit individuals, or groups, access to different spaces, are crucial to expressions of identity. Thinking through the mobilities of salmon – human impediments to migration (such as dams and weirs) prevent this animal from fulfilling its lifecycle as it attempts to return to the stream of its birth – a migration which is imbued with significant cultural meaning. In contrast, the appropriation of the Atlantic Salmon into aquacultural systems results in organisms with severely compromised agency to fulfil the movements, which are deemed crucial to their uniqueness.

**Being in movement**

The animate being – movement can be considered as quintessentially animal – their ability to move and express preferences in the way that different animal bodies respond to different contexts and stimuli are inherent in our understanding of the animal other. Indeed Maxine Sheets-Johnstone states that ‘aliveness is thus a concept as grounded in movement as the concept “I can” (1999: 135 [emphasis original]). Bringing together the primacy of
the animate and agency, she highlights how central movement is to definitions of subjectivity and comprehending the subjectivity of the other. This significance of movement has further personal resonance when we consider the moving subject: it is through movement that we (humans and animals) understand the world. It is the sensual engagement with the landscape that gives the individual perspective depth. It is through moving that the multiple senses combine in an understanding of the self-in-situ. The (anthropocentric) five senses are given a further dimension by the sense of balance, of kinaesthesia – an awareness of where you are in the world. Thus, orientation, movement and sense combine in connecting the perceptual fields of the individual (human or animal) with the various landscapes within which they exist.

(re)presenting movement
To represent movement, to form it in a text (be that “text” a written, oral, visual or other representation) is to omit aspects of the practice which constitutes that movement. The affective, precognitive, or “more-than–representational” (after Lorimer, 2005) moments, which define movement are lost in the inevitable paraphrasing which is writing. Nevertheless, there is an interplay between the text and the immaterial aspects of movement, which offers a connection between the representation and practice. Thus to engage with the representations of movement and the methods by which to capture such performances is to engage with the cuts, splices, splashes and lines which scrape, overlay or project animals and their movements onto and into the pages of our more-than-human social world. Such markings are in themselves movements and are fundamental to our understandings of humanimal encounters. Brace and Johns-Putra (2010) in their discussion of the interaction between landscape, text and process suggest that such
connections between the ostensibly immaterial and the material offer understandings of both the process and the constituent forms. By so doing they offer a handle on the concept that landscape is a verb as well as a noun – it is “done”, to borrow a phrase from Mitchell (2000), and crucially for the chapters included in this book, done with animals.

The chapters
This book brings together authors from a range of disciplines, with a variety of approaches. It follows on from a symposium\(^1\) organised by the HumAnimal Group at the Centre for Gender Research, Uppsala University. It highlights some of the diverse research currently being conducted that addresses the animal question and how it relates to issues of movement and mobility. Its content is multidisciplinary; its aim is interdisciplinary as it looks to offer conversations across disciplinary boundaries. The chapters introduce us to a range of species and individuals and begin to question what animal studies can learn from recognising the movement and mobilities of humanimal encounters. Equally it offers the animal question to the burgeoning literature on mobility to extend the possibilities of, what has been termed the mobilities turn in the social sciences and humanities.

Taking an historical geographies perspective, the next chapter by Carl Griffin, examines the complex relations between animal caretakers and their animals. He emphasises the complex and contradictory flows of power, capital, care, emotion and subjectivity embedded, created and embodied by farmworkers and animals in the nineteenth century English landscape. In emphasising the bodies of animals, he goes on to discuss how violent acts towards

\(^1\) Animal Movements•Moving Animals Symposium was organised by the HumAnimal group and was held at Uppsala University, Sweden on 27 and 28 May 2010.
animals reflect not just symbolic acts on the proxies of capital. He argues that by recognising the subjectivities and consequential emotions involved, acts of violence towards animals were also protests against the way in which bodies were enrolled in the systems of capitalism.

The third chapter also takes an historical perspective and once more includes farm animals, however rather than focussing on the animal per se, Richie Nimmo takes a vitalist perspective on the flows of milk, to discuss how flows of milk can be considered as containing flows of “cowness”. Through the chapter, he makes clear the way that the material and materialities of milk move between different spatio-temporal contexts. His chapter identifies the disordering effect of milk, as it flows through and across the boundaries of urban-rural, nature-culture, sustaining-threatening, pure-tainted, homogenous and manifold, to challenge the various conceptions of health, anxiety and (animal)proximity within the modernist systems of production and consumption.

In fourth chapter, Simone Dennis uses the language of kinship to examine the complexities and inconsistencies of the laboratory. Beginning by highlighting the way that rats and mice move between the different categories such as pet-vermin-lab animal, and within the laboratory as between subject and object, she offers an analysis of the way that laboratory workers talk about animals. In offering different notions of kinship, the chapter highlights the way that the human-animal divide is a fleshy and ambiguous meeting, as the speci-al affinities and distinctions are made, transgressed and re-affirmed.

Rebekah Fox and Katie Walsh in the fifth chapter discuss the role of pets in making and recreating notions of “home”. They identify the significance of animals in the “more-than-human” family and the emotional and practical difficulties of moving with
pets. They use the accounts of British migrants to Dubai to expose the inherent politics of pet keeping as animals are moved to countries and climates which profoundly alter their lives – for example extreme temperatures, or on-leash requirements. Further they discuss the instances and implications of abandoned pets as geopolitical boundaries prevent, limit or direct animal movement as they are, in different contexts, considered as both belongings and bound up in understandings of space, place and identity.

Chapter six continues the pet theme and similarly critiques the being-thing relationship in pet keeping by examining the relationship between a celebrity and her pet. David Redmalm suggests how the Chihuahua is both an extension of Paris Hilton and extends Paris, the movement of the animal emphasises the way that the animal exists in a multitude of different categories – pet, dog, accessory, animal, Chihuahua – extending them all and blurring the boundaries between each. David calls us to think with movement, to recognise the way that Chihuahuas disrupt, transcend, and are contained by, the various categories and processes humans create for them; the way that their movements and ours (as humans) combine, respond and refuse each other, as we attempt to communicate or ignore one another.

Bringing together technology, animals and people “bio-hybrid limbs” draw on all of our understandings of animals, humans and motion – they create new possibilities and new challenges. In the case of Oscar Pistorius, who was not permitted to compete in the Beijing Olympics because of his prosthetic legs (based up on the mechanics of a cheetah), these new possibilities cause us to rethink, redraw, and re-inscribe the boundaries between able-disabled, human-animal, competition-advantage, and raise political questions about how animals labour to facilitate human movement. In the seventh chapter Anna Rabinowicz and Amanda
Huffingham, therefore examine the relative porosities resistances of these concepts as the intertwined concepts of organic and mechinic compete (after Haraway, 2003).

Once more examining the mechanics and implications of locomotion, Perdita Phillips uses a variety of approaches to highlight the biological, social and animal narratives of cane toad migration across Australia. In particular, she highlights the different rates at which both toads and ideas reach different spaces and examines the resistance or expediency with which they are greeted. Through the chapter, she discusses the biological, social and cultural impacts these animals have on various communities along with the diverse and competing associations these meetings engender. In addition to discussing the movements of these animals and the stories told around them, the chapter also looks towards the possibilities of a future “feral” ecology.

Returning to an historical perspective, the ninth chapter brings a phenomenological question to the performances of circus. By so doing, it highlights the various emotional and bodily dynamics occurring in performance and viewing. Through the chapter, Peta Tait demonstrates the ways that performing bodies are disciplined, responded to and perceived; this act of perception itself generating its own affection-emotional consequence. The action, the movement, the affect, of moving bodies is political as it is these visceral pressings that govern our responses. Thus, this chapter examines the tangles of bodily movement, activism, pleasure and disgust.

In chapter ten, Jessica Ullrich explores the complexities that emerge between artist, subject, object and viewer as she considers the implications of animal mediated films. She leads us through a series of films that involve animals, not as objects or subjects, but as directors of the camera. She analyses with the issues, complexi-
ties and tensions arising from attempts to visually depict experiences of the city from more-than-human perspectives. Such films attempt to capture a sensory immediacy where the hegemony of sight is problematic, critiquing the primacy of vision and therefore, particularly human understandings of landscape.

Chapter eleven, whilst focussing on contemporary pet keeping, also examines the public performance of animal lives. Lesley Instone and Kathy Mee offer some interesting insight into the complexity and limits of dog-human relations in the park and how the new spatialities created through the recent legislation in Australia are affecting these relations. In particular it examines the practiced geographies of acceptability, resistance and transgression within the dog-parks of Newcastle, Australia. They examine dogs and dog-parks as boundary objects which shape and are shaped by space, dogs, people and leashes.

In possible contrast to other chapters, chapter twelve calls for greater rigour and specificity in use of the terms agent and agency. Bob Carter and Nickie Charles highlight the complexity and inconsistencies in the use of the terms “actor” and “agency” in animal studies. They call for a more sociological approach and one which emphasises “reflexivity”, in terms the cognitive application of grammar as a prerequisite for collective agency (thereby excluding animals). In contrast, animals, in this more sociological approach, can only ever be actors with primary agency – emerging from the relational circumstances in which they find themselves – rather than being able to resist and affect change (humans). By so doing, they emphasise the politics of humanimal encounters and the relative mobilities of different species and the problematic manner in which animals are labelled as actors without considering their ability to resist the structures within which they find themselves.

Taking the moving animal as his departure point, Fredrik
Karlsson, offers an understanding of the animal presence in more-than geometric terms. This final chapter, challenges us to reconsider how animal existence may be incorporated into ethical frameworks. Through the chapter, Fredrik presents a critique of the care-ethical approach. Specifically, he addresses the notion of sympathy in perceiving animals morally. Diverging from the idea of sympathy as inspired by David Hume’s emotive ethics, as well as Simone Weil’s notion of love, he argues that care-ethics may benefit from both a Humean notion of moral sentiments, as well as from Weil’s thoughts on love, but that the distinction between the notions must be preserved. By maintaining this distinction he identifies the possibilities of ‘attentive love’ as recognising existence as simply ontologically there.
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Carl J. Griffin
Between companionship and antipathy: animal maiming in the nineteenth-century English countryside

Introduction
Early photos of the English countryside essentially fall into two distinct categories: group photos of labourers, shopkeepers, artisans, schoolmasters, and the gentry outside of their respective properties; and photos of farmworkers at labour. Invariably this last category depicted labourers at the plough behind teams of horses or oxen, shepherds in the fold, gamekeepers with their catches of “vermin”, milkmaids with dairy cattle, and so on. The lives of farmworkers in Georgian and Victorian England were intertwined with those of their animal charges. The importance of these naturecultures – the term is Haraway’s (1991) – found expression in occupational nomenclature. Titles such as cowman, horselad and shepherd attest to the fact that human identities were often defined in relation to animals. Moreover, all such positions assumed greater status in the hierarchy of farmworkers than the field labourer. To work with animals gave the individual a certain social status (see Caunce, 1991). And yet, rural histories have tended to ignore these vital interconnections and co-dependencies. Until the late 1980s, histories of rural England were, with few exceptions, agricultural histories. However, criticisms that such an approach tended to relegate the importance of human culture (see Reed, 1990) have been heeded to such an extent that the ‘ploughs and cows’ approach to the study of our rural pasts has now almost
entirely disappeared. Whilst there are exceptions, most nota-
ably Jeanette Neeson’s pioneering studies of the material worlds
of commoners (1993), rural histories now tend to ignore not only
the human practices associated with ploughs and cows but the
ploughs and cows themselves.

Such a lacuna in our understandings could be forgiven if the
relationship between humans and animals in the period was
unchanging. This, however, was not true. The intensification of
agrarian capitalism from c.1750 with the attendant adoption of
new buildings, new spaces of production, new equipment, new
“improved” breeds of livestock, and a whole range of allied “social
technologies” fundamentally altered the ways in which farmwork-
ers and animals interacted. As Buller and Morris have noted, such
changes represented an attempt to apply Enlightenment principles
to the countryside, to make ‘nature useful’, to convert life into
profit (2003: 219). In relation to plants and trees, it has been shown
that the intensification of agrarian capitalism led to increasing ten-
sions between humans and non-humans. Fruit trees, for instance,
were enrolled as a form of living capital, effecting transformations
in the biophysical makeup of rural landscapes and at the same
time altering the socio-economic dynamics of local communities
(Griffin, 2008).

As Harriet Ritvo has commented, under English law animals
were no different to other ‘less mobile goods’ (1987: 2). Even in
cases of attack by animals, the law proceeded from the standpoint
that animal agency was an adjunct of human agency, the animal
the responsibility of the owner. As such, animals’ biological pos-
sibilities were to be harnessed and controlled through law, sci-
ence and the human will. Animals were enrolled as moneymaking
bodies, reduced, in the words of Agamben, to ‘bare life’ (1998).
Such legal and textual transformations in many ways mirror those
applied to agricultural labourers and farm servants. Animals, and humans without capital, were born to serve, the former as embodied capital, the latter as the applicator of capital. In short, human labour began to be equated as the same thing as animal labour. In turning animals into commodities work is necessarily performed which keeps captive, feeds, and protects the animal. Such work equates to the affective performance of care, humans tending to the animal’s (and owners’) needs whilst also, as recent work on pet-keeping suggests, attending to their own needs for connection and intimacy (see Fox, 2006). Moreover, as the radical writer William Cobbett asserted, horses often lived better material lives than many labourers. In the hierarchy of agrarian life, animals (as capital) were positioned higher than most farm workers (2001/1830). But whilst farm animals were reducible to bare life, before the widespread adoption of complex agricultural machinery, they still represented the most potent embodiment of agrarian capital. Indeed, livestock were both the most important form of living capital in the countryside and important symbols of capital.

This essay represents an initial attempt to better understand the consequences of this shift in relation to how the bonds of care and companionship between farm animals and farmworkers were impacted upon. What follows is constructed around a series of movements, both literal and metaphorical. It is concerned with the spacings and pacings of human-animal encounters. Metaphorically, it is concerned with, after Haraway (2003), the ways in which the species barrier was crossed in a variety of settings in the late eighteenth and early nineteenth centuries. It starts with a brief exploration of animals as capital and the attendant logics of care, before going on to consider companionship, and then analysing some of the consequences of this shift in the form of rising farmbound acts of animal maiming.
Animal-human in the English countryside

In the late eighteenth and early nineteenth centuries, as it is today (for which see Wilkie, 2005), to work with farm animals was to be made responsible for the well-being of the animal. There were critical differences though to twenty-first century care. The relationships were not mediated by pharmaceuticals, nor were they mediated by other relatively recent technologies of the farmyard. The socio-economic context was also critically very different. With low wages and considerable under- and unemployment, to not fulfil this duty of care would lead to almost certain dismissal. As such, shepherds would often share their hearth with sickly lambs, cowmen name their cows and attribute human characteristics to them. Most shepherds and cowmen also took a degree of pride in the appearance and health of the animals for which they were responsible. Yet the strongest bonds were those between horselads and their horses. As Caunce notes, ‘most horselads were very fond of their teams and to be severed from them… was a wrench’ (1991: 48). The bond developed through familiarity and because of the tactile nature of the relationship. Grooming was carried out before and after work and required a mutual trust and understanding. Undoubtedly fondness could develop between farmworkers and their animal charges, but there was also necessarily a certain distance. Dairy cattle, for whom human contact occurred at least twice a day, might well be companions to cowmen and dairymaids but when they were no longer able to lactate were sold on to butchers (Horn, 1978).

The bonds between small farmers and their animals were different. The fragile household economies of petty producers were often dependent on pig meat and milk from a solitary dairy cow, thus placing animal care at the centre of the commoning life (see
Neeson, 1993). Commoners’ animals thereby more defiantly occupied the space between companion and commodity than any other animals in the English countryside. In particular, pigs were of critical importance, not least in areas of forest common, heath and “waste” (see Tubbs, 1965; Malcolmson and Mastoris, 2003). According to Cobbett (2007/1821), so important were pigs to commoners that they were, in his opinion, the ‘national animal’. This status reflected both pigs’ ability to convert waste into food (and money) and the affection in which pig-keepers viewed their pigs (see Dyck, 1993). Pigs became companions, but companions whose butchered bodies would sustain the household. The keeping of pigs neatly encapsulated the complex relationship between humans and farm animals: they were, of course, beyond any other factors kept to provide food for the household and to help generate income, but they became valued companions.

Notwithstanding that turning a profit necessitated that animals were treated with a modicum of care, even some farm animals were barbarically treated. Whilst English sojourners on the continent often reflected with horror at the ritualised forms of violence inflicted on animals in other European countries, many similar practises persisted well into the early nineteenth century in England. Cock-fighting and bull-baiting were common practises (Thomas, 1983), finding human delight in the “sport” of denying life. Unlike foxhunting, such practices made no attempt to outwit the animal, instead treating the animal as a little more than a fleshy target. Other farm animals could be subject to forms of abuse too. Magistrates were often called upon to prosecute those who rode horses “too hard”. W.H. Hudson also relayed that ‘old worn out’

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1 In the context of England and Wales, commoning referred to the exercise of rights of common, for instance in relation to the collection of fuel or the grazing of animals. Commoners’ rights would vary from common to common and over time.
horses would be sold to local hunts: the horse led into a wood, shot, skinned and the carcass given over to the dogs (1987/1910).

Such considerations have important implications for how we conceptualise (and therefore place value on) different companion species. The first two sections of Haraway’s future classic *When Species Meet* (2008) offers us a narrowly proscribed set of human-animal engagements. Dogs take centre stage – even gracing the front cover, whilst cats make important appearances clawing at Derrida’s legs. The final section moves beyond the home and its allied spaces to consider other spaces – and hence other species – of encounter: the filmic spaces of ‘wild’ animals carrying cameras, and, albeit briefly, the myriad spaces of chicken (chapters nine and ten). As such, companionship is framed as something necessarily spatially bounded and mediated but also as something that occurs in mutually affective ways or as humans exploiting animals. Commoners’ pigs or the horselads’ stallions were more complex, their companion status framed by, on the one hand, both mutual respect, love and care, and on the other, capital and all that capitalism embodied, all mediated, of course, by ownership and the law. Companionship was thereby enacted in different ways at different times. It was subject to change depending on factors which neither human or animal partner could influence: a period of dearth necessitating the slaughtering of a pig to eat or a hunting dog due to an inability to afford its food.

This lack of stability in human-farm animal relationships, the knowledge that the connection was transitory, ephemeral, combined with the fact that all such animals however conceptualised represented a form of fleshy capital meant that the possibility of violence always further mediated the relationship. The dog would eventually have to be shot, the pig slaughtered, the foal gelded. This was a bloody relationship, and the shifting balance of power
between owner-employer-animal-worker meant that blood could soon be invoked (and drawn), either as an order, a regulating of bodies, a making good of capital, or as a form of violence against animal, owner or employer. What follows examines those moments of violence.

Maiming
Since the 1960s, analyses of the protests of the rural poor have been a central theme of European social history. Through the seminal work of such scholars as Eric Hobsbawm and George Rudé (1969), and E.P. Thompson (1975) we now have a detailed picture of protest practices and a well-developed understanding of protest movements in the English countryside. One such practice was animal maiming, legally defined in the ‘Black Act’ of 1723 (9 Geo. 1 c. 22) as the inflicting of malicious or vindictive injury against an animal. Hitherto there have only been two systematic studies of animal maiming: the first by John Archer (1985; 1990) regarding incidents in Norfolk and Suffolk between 1815 and 1870, the second by Tim Shakesheff concerning animal maiming in Herefordshire between 1800 and 1840 (2003). Both authors suggest that animal maiming was infrequently resorted to relative to incendiariism and the committing of malicious damage to property. For instance, Archer’s study uncovered some 1,092 cases of incendiariism but only 222 cases of animal maiming (1990: 70-1 and 203-4).

Whilst the provincial press might not report acts of maiming for fear of promoting “copycat” attacks, both relatively unbloody attacks and vicious disembowelments were reported. Most papers showed a degree of reticence about reporting brutal attacks in graphic detail. For instance, the Devizes and Wiltshire Gazette of 1 August 1830) reported that ‘a few evenings ago’ a horse belonging
to Mr. Adlam was killed in a meadow at Devizes with ‘a barbarity rarely exceeded’. Indeed, reports in the provincial press – by far the most important source for the study of past protest practices – were rarely anything more than cursory. However, as so few cases reached the courts, a function of the fact that before DNA testing most evidence in cases of animal maiming was either confessional or circumstantial, such reports are essentially all we have.

Archer has asserted that animal maiming was a ‘vengeance crime “par excellence”… a more personal act of violence by the maimer on the victim [the owner] than any other protest form’. It was ‘almost… a form of symbolic murder… an extreme form of psychological terror’ (1985: 147-8). The maimed animals’ bodies were, it follows, proxies for the bodies of their owners. Shakesheff’s conclusion from Herefordshire was similar: animal maiming was a form of violent intimidation (2003). Such analyses though fail to take into consideration that to maim an animal involved far greater physical risks – of being bitten, of being kicked – and risks of being detected – through blood stained clothes, through individuals being attracted to the scene by the cries of the animal under attack – than other forms of covert protest. It also involved more time and effort than, say, setting fire to a haystack. Why, therefore, would farmworkers target animals? The ritual form of many attacks offers us some clues.

As Archer (1990) identified for East Anglia, the act of cutting horses’ manes and tails was perhaps the most common form of animal maiming. Whilst horsehair had some value and could be sold to supplement household incomes, such acts were perceived by commentators (and the law) as forms of bodily violation. According to the Salisbury and Winchester Journal (15 August 1796), it was ‘disfiguring’. Proof that the cutting of tails and manes was not an act of simple theft can be adduced from the fact that it was often
practiced as part of a package of other protest forms. One pony had its' tail and mane cut whilst another was – fatally – locked in an ice house (*Sussex Agricultural Express*, 26 November 1842; *Rochester Gazette*, 29 November 1842). In Hampshire, a labourer was capitally convicted for unskilfully cutting off the manes and tail hair of several horses, the trial unearthing evidence that he had previously cut the ears off the same farmers' ass (*Hampshire Chronicle*, 11 March 1797). Occasionally the cutting of hair was also accompanied by attacks on tack and other items in the stable. For instance, when in 1825 the horses of a farmer at Crundale, Kent, were attacked, the wagon whips were also destroyed (*Kent Herald*, 24 November 1825). Sometimes maimers went further cutting off the whole tail – usually practiced in relation to cattle and pigs – and even the ears or genitals.

Whilst farm animals represented a form of embodied capital, so did plants, machines and buildings – all were subject to attack. What marked attacks on animals out as something different was the knowledge that pain was being inflicted. Whilst we can only speculate, to see the mutilated remains of one's maimed sheep or the corpse of one's dog hanging from a makeshift gallows would be to feel a more visceral dread, even an affectual pain, than it would be to see one's hop bines cut. Animals therefore could represent fleshy proxies for their owners, bloody effigies. Beyond such potent symbolism, it was often the very fact that in the typology of farm life animals were treated with a more obvious degree of respect than those given charge of their care that gave attacks on animals an even more charged potency. Indeed, it is important to note that, where evidence permits, it is apparent that most cases of animal maiming were not random acts of brutality but rather acts carried out deliberately by those individuals responsible for the care of the animals. The following case is instructive. When in
the summer of 1849 a threatening letter was posted to a gatepost and five lambs belonging to a farmer at Hellingly, Sussex, had their throats cut, suspicion soon fell upon shepherd Rollason. The shepherd’s handwriting was found to match that of the anonymous letter and Rollason was arrested (Sussex Agricultural Express, 18 August and 1 September 1849). Whilst this case is not unusual, it is telling that the shepherd chose not to simply write the chilling letter to his employer but also decided to symbolically invert the acts of care that he was employed to administer to the sheep.

Such symbolism was also evident in a case of animal maiming in Wiltshire in the early summer of 1824, 21 lambs being killed and a further three badly wounded after having been attacked by the iron bar used to create the fold in which they were pastured. The boy who was employed to look after the lambs soon came forward to confess: he had maimed the lambs in revenge for his master having struck him three weeks previously (Salisbury and Winchester Journal, 14 June and 16 August 1824). Again, the care for animals was inverted to parody the lack of care shown to employees. This parody was perhaps best expressed through the deliberate use of fatal doses of those substances normally used in small measures to improve horses’ coats, especially Oil of Vitriol and rolled brimstone (see Sussex Weekly Advertiser, 16 June 1800, 2 April 1810 and 18 April 1814). The embodied effects of oppression and suffering were writ in the violences against other (animal) bodies.

It is important to note that animal maiming was not always resorted to as an isolated form of rural terror. Rather, it could take on a slightly different role as an expression of popular protest in the context of broader protest “movements”. For instance, animal maiming figured prominently in the wave of protests in Sussex against the implementation of the workhouse-based New Poor Law of the mid 1830s. At Newtimber a Mr. Tapsall had one cow
stabbed with a hay cutter while the rest of the herd were turned into the standing wheat. Tapsall also had ‘a quantity’ of husbandry tackle maliciously destroyed. Mr. Ellman, the celebrated “improver” of Southdown sheep, after being elected to chairman of the Board of the West Firle Poor Law Union had two ewes destroyed by crowbar wielding maimers. Such was the extent of the ‘houghing and destruction’ of sheep, as well as the malicious destruction of other farm property, in the vicinities of Hailsham and Lewes that a general subscription was entered into to hunt and prosecute the perpetrators (*Brighton Guardian*, 22 April 1835; *Kentish Gazette*, 12 May 1835; *Sussex Advertiser*, 18 May 1835). Outside of such upturns of protest, the extent of animal maiming against farm animals as compared to levels of other forms of protest, such as incendiarism, suggest it assumed a critical importance as a weapon of the poor. For instance, in south-east England in the early 1790s, in terms of the level of known incidents, animal maiming was just as numerically important as incendiarism. Indeed, whilst animal maiming in the south-east never reached the levels attained in East Anglia in the 1830s and 1840s – a reflection of lower capitalisation on south-eastern farms and lower stocking densities – in Kent and Sussex in the 1790s it did match the level attained in East Anglia during the depression years of 1815 to 1830.

**Conclusions**

It would be absurd to state that either all farmworkers developed strong bonds with those animals they worked with or that the intensification of agrarian capitalism *necessarily* altered the relationship between all farm animals and farmworkers. But there were important shifts in emphasis in the relationship between farmworkers and their non-human charges as well as some alteration in the relative balance of importance in the agrarian hierarchy
between labourers and animals. When labour was plentiful and cheap, a carthorse would always be of greater economic value to a farmer than any individual labourer. The period therefore bore witness to a constant reworking of the relationship between humans and animals in the English countryside. These movements were not just metaphorical. If, unlike the new floral spaces of hop gardens and sylvicultural plantations, there were few obvious visible spaces that represented these changing human-animals dynamics, changes to the working of folds and farmyards, and stables and sties were evident enough to farmworkers. Animals had become living embodiments of capital and all that it stood for. This is not to say that the physicality of all interactions profoundly changed – the basic relationship between, for instance, the shepherd and his sheep had superficially remained unaltered for centuries – but rather that the intensification of agrarian capitalism threw humans and animals together in new ways as well as changing the biological management of animal and worker.

Cruelty to animals was endemic in rural society. As noted above, ritual and stylised forms of abuse were integral to rural popular cultural forms. Children were brought up to view certain animals, amphibians and birds as objects for their amusement. Indeed, many childrens’ games centred on the torture of birds, frogs and cats. Such attitudes were learnt in childhood and transferred to adulthood. Whilst there might be a leap between, say, torturing a cat and maiming a horse, animals assumed a particular place in rural culture, a liminal space where care and cruelty went hand-in-hand. To turn to an attack on an animal as a form of protest was a natural progression. But to assume, as has hitherto been the case, that acts of animal maiming were simply attacks on fleshy proxies of capital is to misunderstand the complexity of human-animal relationships under agrarian capitalism. Animals were more than
just symbols of oppression, they were also unwitting vectors in the degradation of farm workers, being better treated and more affectionately cared for than the rural poor. To set fire to a hay barn was attack to capital and a symbol of labour rendered, to maim an animal – an animal’s body – was to critique and challenge the existing order in which labouring bodies were battered and abused day in day out by an exploitative system.
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Introduction: ontology and movement

As might be guessed from the title, this paper deals centrally with milk, or dairy milk to be more specific. It does so, not merely because milk is objectively fascinating, but because it is deeply hybrid (Latour, 1993; Whatmore, 2002), a term which is now somewhat overused, but in the case of milk I still cannot think of a better one. On the one hand milk is a supremely mundane, mass produced and mass marketed commodity, consumed unreflexively on a daily basis by countless millions of humans. On the other hand it is an irreducibly vital substance, bound up inexorably with the bodily processes of a specific form of life, a living animal, and is emergent from complex interspecies relations. I want to suggest that these multiple realities are co-present in milk, though they are often in tension, as each carries with it a distinctive ontological map of the relations between the social and the natural. Another way to express this would be to say that milk is ontologically multiple (Mol, 2003); it embodies and mediates a heterogeneous ensemble of human-bovine-techno-political-socio-economic relations.

The problem then becomes one of how to think this multiple ontology of milk. One way of doing so is in terms of movement, or more precisely mobilities, a word which now describes a whole sub-field of sociology (Urry, 2007), but which I use slightly more narrowly here to mean simply modalities of movement. By focussing upon the mobilities which attach to milk and to the socio-mate-
rial assemblages infused, nourished, sustained, and engendered by milk, it becomes possible to think more concretely about multiple ontology, by grasping mobilities as modes of being. There are several reasons why movement can plausibly and productively be read in this way: Firstly, movement is always about space; as Tim Ingold’s recent work on the ethnography of lines has shown, movements configure space and inscribe certain kinds of space even as they traverse it (2007). Secondly, movement is also about materiality; as Henri Lefebvre has argued, even the most abstract symbolic space is rooted in our embodied material existence in a physical world (1991). And thirdly, movement is about relationality because it is necessarily directional; movement is always simultaneously away from and towards, and thus involves a shift in relation to other entities which thereby inscribes those entities within a relational field. So by combining space, materiality and relations, the concept of mobilities provides a useful way to think about questions of ontology, or modes of being.

When it comes to grasping the particular mobilities of milk however, a better word perhaps than mobilities is flows, not least because it captures the fact that milk is, after all, a liquid, and this liquidity is not just a salient material fact, conditioning how milk can be handled and transported, but also perfectly characterises the fluid ontology of milk, or what Peter Atkins has called its ‘liquid materiality’ (Atkins, 2010). Expanding upon this notion of flows then, I want to suggest that, as with other forms of movement, flows are spatial and relational; they both occur in space and involve shifts in spatial relations. But flows are also socio-material; they are meaningful flows of some substance. In addition flows can also be thought of as systemic or ecological; they are an element in wider structural dynamics which they may serve either to reproduce or to destabilise.
Applying this notion to an historical analysis of milk reveals a history of overlapping and interconnected flows. These are not only deeply heterogeneous, interweaving material, economic, social and cultural relations, but also very often contradictory. Indeed the tensions and synergies between these flows signifies something of the complexity, multiplicity and ambiguity of milk as a hybrid, socio-natural and more-than-human entity. But if milk is the product of interspecies relations, then where do the animals come into this vision? What I want to argue in fact is that thinking in terms of flows suggests a much more collective and distributive notion of animal being and animal agency than those which tend to emerge from focussing upon individual animals as “subjects”, as sentient and embodied creatures. Rather than producing a concept of animal agency which is essentially an extension to animals of the humanist concept of agency (that is, as the deliberate and conscious action of reflexive human subjects), a focus on flows foregrounds a notion of animal agency as something more fluid, which permeates the ensemble of social and material movements of which the animals are a part. In this way flows of milk can be understood as mediating or carrying the collective agency of cows, and hence as inseparable from what Ted Benton – drawing on Marx – called the ‘species being’ of the animal (Benton, 1993). In this sense flows of milk can be understood as flows of “cowness”; they are modes of expression or materialisation of the nature of cows as movement, or in other words bovine mobilities.

No doubt this is a vitalist cosmology, since it privileges the living animal as in some way central to the multifarious networks and assemblages surrounding milk, implying that there is something irreducible about life, that it is more than just an equivalent and symmetrical element in these networks. It is not, however, an essentialist view, since there is no claim that milk is only cows
or cowness; far from it. Rather, a focus upon flows highlights the extent to which milk is the contested ground for many other agencies, logics and mobilities. Especially significant amongst these, and what I want to focus upon here, are those processes involved in policing modern ontological boundaries, especially the boundaries between the human and the nonhuman, the social and the natural, thereby reproducing modern rationalised forms of order. Indeed, what is striking when one examines flows of milk is the persistent tension between these modern ordering processes on the one hand, and the potentially disordering processes bound up with bovine mobilities, with their capacity to disrupt and transgress modern, rationalised forms of socio-material order. More broadly, this tension appears to reflect the liminal status of animals in modern cultures (Franklin, 1999), the (only ever) partial and problematic integration of animals into modern cosmology (Michael, 1996), and the destabilising and transformative potential of human-animal encounters, however mediated (Haraway, 2003).

Vital flows of milk
Turning to the further exploration of these ideas through a historical case study, the remainder of this paper will trace the role of bovine mobilities and the tensions between ordering and disordering flows of milk and disease in the early development of the modern British milk trade. The background for this is the dramatic transformation of the milk trade, in the space of just a few years, from a highly localised cottage industry into a fully commercialised modern national industry based upon the mass movement of milk by rail.

For much of the nineteenth century, the milk trade in Britain was largely unaffected by the industrial revolution. The extreme perishability of milk rendered time and distance impassable bar-
The towns and cities were supplied with milk from cows kept in town cowsheds, or from the immediately surrounding areas on the periphery of the cities. Manchester for example obtained most of its milk from small farms located along the Bridgewater canal. This situation was transformed by the conjunction of several developments: urbanisation was leading to rising demand which put the town cowsheds under increasing pressure. At the same time, the expansion of the railway network created the technical conditions of possibility of a more extended network of milk supply. Then a severe outbreak of rinderpest from 1865-66 wiped out much of the town herds, especially in London, and the government finished the job by passing the Cattle Diseases Prevention Act, which enforced the slaughter of almost all of the remaining urban cattle (Fussell, 1966).

This occurred against the background trend in agriculture of widespread conversion from arable to dairy farming, in large part because the latter was considered by many farmers to be relatively insulated from the effects of increasing foreign competition. Thus growing urban demand was outstripping local supply. At the very same time, rural production was increasing and the towns and cities suddenly found themselves desperately short of milk; the result was a dramatic shift in the entire economic and material geography of the milk trade. The scale of the transformation is nicely illustrated by the increase in the quantity of milk transported by just one railway company. In 1865 the Great Western Railway carried approximately 9,000 gallons of milk; just one year later, as the effects of the Cattle Plague decimated urban milk production, it was carrying 144,000 gallons; and by 1900 the figure was 25 million gallons of milk (Jenkins, 1970).

On one level this is a fairly straightforward story of moderni-
sation and commodification, which can be told without much need to deviate from the conventional explanatory frameworks of modern social and economic history. But there is more to it than this; there is in fact a much more complex and hybrid story to tell, in which human-animal encounters mediated by modalities of movement are central, and in which animals are not simply part of “nature”, viewed as a mere stage for human action, but actually play a crucial historical role. This less anthropocentric history begins to emerge when one realises that the social and economic development story, with its emphasis upon the neat intersection of increasing demand and supply, is something of a modernist fiction. What it makes invisible is precisely the materiality of the milk itself. In practice the commodification of milk was highly problematic because the material properties of milk very much shaped, constrained and enabled the development of the dairy trade in fundamental ways. Or, to use the language of actor-network theory, milk exerted a certain material ‘agency’, where this is defined non-anthropocentrically as simply whatever ‘makes a difference’ (Law and Mol, 2008: 57). This opens up the possibility of a very different kind of analysis, but it still fails to sufficiently acknowledge the specific animality of milk. Thus there is a need to take it further by grasping the material agency of milk as a mediation and extension of the agency of cows, conceived as distributive and relational, and expressed in certain modalities of movement.

From our modern vantage point this may seem rather abstract, even quasi-spiritual, but prior to 1865 it was palpable, a matter of everyday experience; the milk was part of the cow, a product of its body, and as such, inseparable from its mode of species life and its fleshy bovine being. The cow, or rather, cows collectively, were very much materially and ontologically present in the milk, and the consumption of milk was a human-bovine encounter in a quite
immediate sense. Moreover, the milk itself constantly testified to its “cowness” by its very inconsistency and perishability, and by the everyday visibility of cows in the urban cowsheds which were necessarily physically proximate to the places where the milk was consumed. Due to its organic nature, its specific materiality, milk could not be transported any significant distance from the udder of the cow to the consumer whilst remaining fresh. Hence the human-animal encounter embodied in milk during this period was shaped by the short distances and limited movements which were characteristic of the flows involved; it was an encounter fundamentally rooted in proximity and presence rather than distancing and mediation.

Another aspect of this was that during this period the watering down of milk was a very common practice amongst struggling town milk sellers. There were even tales of fish swimming around in milk that was waiting to be sold (Jenkins, 1970: 38), an image that encapsulates the public perception of milk in the years before the rinderpest. For this reason there was great demand for milk that was “warm from the cow”. This warmth served in the popular wisdom as an indicator of freshness, authenticity, and the apparent absence of human intervention between cow and consumer, which was associated with “meddling” and adulteration. Hence, in this formation, far from purity being dependent upon a process of effacement of the traces of animality and a sanitisation of the nonhuman, it was precisely animality itself that signified purity. The tangible trace of the living animal within the milk was the key marker of trust, and the vital warmth transferred from the circulation of blood within the animal’s body to the milk in its udder – from the corporeal flow of one vital fluid to another – was valued positively. So much so that some unscrupulous milk sellers even took to artificially warming their watered down milk before sale.
The modalities of movement shaping this encounter can be broken down for heuristic purposes into a number of intersecting flows of matters of life: There are flows of blood within the animal, nourishing its body and warming the milk in its udder. There are flows of milk from cow to calf, a vital flow embedded in the bovine species being, and arguably the essence of milk, but redirected by humans. There are flows of milk from cows to local consumers, flows limited in scale by the organic properties of milk, by its very “cowness”. There are also material flows of energy, in the form of heat, from the blood of the cow to the consumer. In this human-animal encounter then, mediated though it was through flows of milk, mediation was a necessary evil and something to be minimised, whilst what mattered was directness, immediacy and vital presence. Hence the movements that mattered were relatively localised, vital and corporeal in nature.

Making the animal absent
This encounter was fundamentally reshaped by the transformations of 1866. Instead of localised flows based on proximity and vital immediacy, the emerging flows were far more distanciated as milk began to be sent hundreds of miles by train, introducing far greater intermediation between cows and consumers. Materially of course milk remained quintessentially an animal substance, but the human-bovine encounter embodied in milk was increasingly rendered an abstract and absent presence, rather than something tangible and immediate.

One useful way to conceptualise any encounter is as the point where two trajectories cross, easily visualised as an intersection between two lines. The meaning of a line however is highly ambiguous. Ingold (2007) draws attention to the difference between lines understood as traces left by gestures, and lines understood as
connectors between two or more points in space. Both imply very different cosmologies with contrasting conceptions of relationality, materiality and space. In the first, lines are rarely straight, being the traces of practices in space, in all their embedded materiality and messiness; these lines therefore curve, loop, twist and meander. In the second, lines are straight by definition, being the most efficient route between points; they are no longer traces of practices embedded in space but rather abstractions across space; they are designs rather than gestures, rational rather than messy, and cut logically through the mess of corporeality rather than describing its messy logic.

It is significant that there are few if any truly straight lines in the natural world. Indeed the straight line is ‘a virtual icon of modernity, an index of the triumph of rational, purposeful design over the vicissitudes of the natural world’ (Ingold, 2007: 152). In these terms, the shift which occurred in the nature of the human-animal encounter embodied in dairy milk in the late nineteenth century, was a shift from milk as a material trace of multiple corporeal gestures constituting a local and interspecies bodily economy, to milk as a vector, as a straight line between distinct locations and a connection which in its very abstractness served to inscribe the essential separateness of various domains: town and country, society and nature, human and animal.

As well as the dramatic growth of the railway transportation of milk, there were other socio-technical factors involved in this shift. Developments in microbiology, especially associated with the work of Louis Pasteur and Robert Koch, revealed for the first time the previously invisible “agency” of bacteria within milk. At the same time, statistics compiled by Medical Officers of Health were showing significant rises in urban infant mortality associated with the new rural-urban milk trade. The early suspicion of milk
that had been “tampered with” began to be replaced by a suspicion of milk in its pure state. Partly in response to these anxieties, refrigeration technology first utilised in the brewing of beer began to be adapted to milk production and used to cool milk before transportation, allowing it to be sent much further whilst remaining fresh. As a result of these combined socio-technical developments, the demand for milk “warm from the cow” did not merely disappear but was inverted. Far from signifying the comforting proximity of the animal, warmth became associated with bacterial growth, infant mortality and risk to health, and it was coldness that came to be the guarantor of freshness and purity.

In this transformed encounter, the “cowness” of milk, the tangible trace of the living animal, became something deeply problematic which had to be effaced. Milk was increasingly purified of its bovine corporeality, so that by the time it reached urban consumers it was no longer perceived and experienced as a vital substance but as a manufactured article, as a commodity. But this was by no means a smooth and straightforward shift from one socio-material formation to another. On the contrary, any analysis which pays attention to the recalcitrant materiality of milk has to acknowledge that its bovine animality was ‘excessive’ (Law, 2004), and like a liquid, fluid and shifting. Hence, whilst it could be crossed out, it could by no means be erased, and whilst it could be held in abeyance it could not be made to disappear. Rather, it persisted as an absent presence, perpetually threatening to ‘spill out’ into various disruptive and disordering flows.

Even under the new conditions then, milk could not be wholly purified of the vestiges of its animal “nature”. It remained invested with a certain “cowness”, a material-corporeal agency, which had to be constantly managed, policed and contained by an increasingly elaborate socio-technical apparatus. This created a tension
between the ordering processes of modernity and the disordering flows latent within milk. Thus milk still embodied and mediated a human-animal encounter, but this encounter now took on a new and more complex form of expression, through the very tensions and contradictions between conflicting modalities of movement. The following section will trace these tensions, with a focus upon two in particular: first, the tension between bovine rhythms and social flows, and second, the tension between rationalised and zoonotic flows, or in other words flows of disease transmissible between cows and humans.

**Ordering and disordered flows**

Turning then to bovine rhythms, it was a salient fact of dairy farming that milking times were relatively inflexible. Cows had to be milked twice daily at certain times, or perhaps three times daily with significant effort and manipulation, but there the possibilities ended. For generations farmers had experimented with different patterns of milking in an effort to make the task less arduous, but their efforts had always resulted in reduced quantities of milk. This was because the cow's endogenous milk production is tied to diurnal and circadian rhythms deeply entrenched in its species being by evolutionary time. Even with the development of refrigeration this was problematic, because it meant that milk had to be transported at certain times. This in turn, conflicted with the use of ordinary passenger trains for milk traffic, which was the standard practice until the early 1900s.

Very different mobilities were involved, each with its own spatio-temporal logic. On the one hand there was the flow of milk as a vital substance, conditioned by the bodily rhythms of the living animal and the organic properties of its milk. On the other hand there was the social flow of passenger trains, as determined by the
spatial organisation and temporal rhythms of modern urban life. These mobilities proved more or less incommensurable, and the resulting tension fuelled a long running conflict between farmers and railway companies over all matters bearing upon milk transportation. Eventually, there could be only one solution – dedicated milk trains were finally introduced and soon became standard practice throughout the industry.

More significant still was the tension emerging from flows of disease. During the years following the rinderpest the rural-urban milk traffic quickly became a vector for the transmission of various diseases, both between humans and between cows and humans. Most prevalent amongst these was bovine tuberculosis, as the soaring rates of TB in the cities were increasingly linked to the milk trade, a connection persistently made by town sanitary officials but fiercely contested by those whose livelihoods were bound up with milk. There was a protracted scientific controversy over the communicability or otherwise of bovine tuberculosis to humans, which wasn’t finally resolved until the early 1900s, at which point the argument for the pasteurization of milk began to gain the upper hand. In the meantime though, the human-animal encounter embodied in milk became one that was permeated by anxiety, ontological insecurity and risk (Nimmo, 2010). Thus the line traced by railway-transported milk, which was supposed to connect production and consumption, farm and city, animal and human, whilst simultaneously holding them carefully apart, suddenly became a transgressive trajectory; it became a line of corporeal connection in unintended ways. No surprise then that this period saw the growth of an elaborate scientific and disciplinary apparatus of milk testing, farm inspection and sanitation, in which sanitary officials and inspectors were increasingly entrusted with policing the flow of milk into the cities and ensuring
its “cleanliness” and “purity”.

This conjuncture too, can be understood in terms of conflicting mobilities or flows – at once material, social and ontological. Such flows inscribed spatial and cultural domains, as well as configuring relations of identity and difference. Thus the mass flow of milk from the country to the city was both a flow of matter, of organic material, of fats, proteins and lactose, and a flow of commodities, of economic value; but it was also a flow of bovine animality, of otherness; hence a flow of potential impurities, of ontological insecurity, risk and disease. These flows were equally intrinsic to milk, carried by milk and within milk, but they were in constant tension, and this tension had to be managed by an elaborate technico-political apparatus, dedicated to pursuing what were not merely public health measures but at the same time boundary-making and purifying practices, which attempted to render flows of milk ‘safe’ by managing their transgressive bovine animality. In this way milk became transformed, materially and ontologically, into a more purely social object, a product of modernity and its rational flows, and seemingly purified of the disruptive bovine mobilities invested within its very materiality.

This process, of disembedding milk from its natural, corporeal and animal flows and associations and re-embedding it within more rationalised social and economic flows, has many parallels with the modernisation of other substances and in other locations. One particularly illuminating parallel is with the nineteenth century construction of the urban water supply system for New York City. Matthew Gandy has shown how the development of modern New York was only made possible by a vast and complex feat of civil engineering in which ‘the landscape of upstate New York has been sculpted into a life-sustaining circulatory system through the interaction of the flow of water and the flow of money’ (2002:
This technological apparatus profoundly shaped both “nature” and “society”, giving rise to both a “metropolitan nature” and to modern “society” as an urban civic realm. In this arrangement the apparent autonomy of the city and the separation of urban society from nature was accomplished precisely through the careful embedding of the city within its bio-ecological environment in such a way that it could ‘feed’ off natural processes almost invisibly. With milk something not dissimilar took place.

Like water, milk was made to feed the growing cities of the late nineteenth century, and like water this was closely bound up with a complex reconfiguration of “nature” and “society”, in which the two domains were engendered as separate and autonomous precisely through the many ways in which they were intricately interconnected. Also, as with water, the re-engineering of flows of milk in such a way as to supply the urban population with this “vital” fluid also brought with it a serious risk of impurity, of pollution, and hence of disorder, of ‘matter out of place’ (Douglas, 1966). With milk however this risk of disorder was uniquely potent because, unlike water, milk does not lend itself to being perceived as something provided by “nature” or “the environment” as an overarching impersonal entity, but by specific nonhuman animals; and as an animal product, milk was both an ideal environment for the communication of diseases, and a constant reminder of the permeability of the human/animal boundary.

Milk was therefore doubly risky and a persistent source of anxiety. Materially it was a significant source of disease and contamination, and this augmented its ontological status as a substance which signified potentially problematic relations between humans and animals. That is why the newly emergent flows of milk into the cities, once engineered, had then to be purified; milk had to be made ‘clean’ and fit for urban consumption (Nimmo, 2010). This
involved extending various mechanisms of municipal authority ever deeper into the surrounding rural areas in order to construct an apparatus of testing and inspection no less elaborate than the civil engineering projects required to supply New York with clean water.

As with all the accomplishments of modernity however, such purification can never be made permanent, but has to be constantly and laboriously reproduced. For all its sanitisation and commercialisation, milk remained and remains irreducibly bovine, and thus will always be imbued with transgressive and disordering flows, albeit operating as potentialities which have to be perpetually suppressed. In this sense, the collective agency of cows, their existential testimony and capacity to “make a difference”, could be said to lie dormant within milk, frozen rather than erased. Like so many nonhuman agencies, it awaits the inevitable thawing which will one day herald the end of modernity.

Concluding reflections: movement and animal agency

One of the conceptual advantages of thinking of animals in terms of movement, indeed as movement, is that it provides a more concrete way of grappling with key ontological questions concerning animal being and agency. I would not want to suggest that animals are somehow reducible to movement. Indeed one of the problems of animal studies has been the tendency at times to want to impose a singular theoretical framework onto the incredibly multiple phenomena which are human-animal relations, very often in the name of a specific ethical framework. But by thinking of animals as modalities of movement, or mobilities, there is the potential to move away from the mere extension to animals of the humanist and anthropocentric conceptions of agency still typical of much of social science, and to move instead towards a more
collective, distributive and relational conception of animal agency. In this view, animal agency and animal being are much the same thing. Agency is no longer simply a matter of reflexive and intentional action, conceived in terms of a duality with some notion of “structure”, but is rather about the multiple and dispersed effects of a certain mode of being-in-the-world upon other elements in a heterogeneous network or assemblage; less about active behaviour, and more about relational existence. This is, in many ways, close to an actor-network view of agency.

The other key advantage of thinking about animals in terms of mobilities, however, or my preferred term flows, is that it also retains the possibility of a vitalist element. In other words, it avoids dissolving the living animal into an abstracted and somewhat formalist conception of relations, as though it were merely equivalent to any other element in the network, such as a technology or an inorganic object. This can sometimes be the problem with some variants of an actor-network approach; put it terms of Ingold’s work on lines, the relations imagined here can too often look like straight lines, like connections between points, rather than meandering traces of embodied and lived practices. By focussing upon vital flows, however, it becomes possible to grasp animal agency and animal being as dispersed and relational, whilst still retaining a sense of the animal as a living being with a distinct mode of existence, which is irreducible to the relations between elements in a network. In this way the vitality of the living animal survives and avoids the theoretical exorcism which might otherwise accompany any movement away from a view of agency as simply animal behaviour or action.

In the case discussed, for example, flows of milk are understood as mediating the collective agency and being of cows, so that the myriad differences made by the particular organic properties
of milk to the socio-material assemblages constitutive of the milk trade, are viewed as a corollary of the bovine nature of the milk, its emergence from and umbilical connection to a particular form of species life. Thus the marked potential of milk to disrupt and disorder rationalised modern networks of production, transporta-
tion and consumption, is seen as a mode of existence of the agency of cows, of their vital being. The world conjured up by this way of seeing is therefore not merely a world teeming with life, but with life expressed as modalities of movement.
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Ambiguous rats and ambivalent mice: crossing the great divides in scientific practice

Introduction
This chapter is concerned with exploring rodent-human relationships, particularly in the modern scientific research laboratory. I am interested in the ways in which mice and rats are involved in the expression of opposites, and the ways in which they equally express vagueness, uncertainty or mixing, or reconciliation of meanings; or, in other words, the ways in which they are expressive of polarities, ambiguities and ambivalences. Rats and mice occupy opposing reaches of human imaginations in Western society; as like us as they are in the terms of their sociality, their habits of domestic occupation and food consumption, and in that they serve as homologies for our minds and our genes in laboratory settings, they are also feared, demonised, and separated from us, as destroyers of human bodies and of material and technological worlds. Both animals occur simultaneously in western contexts as house pests and house pets; they are the filthy bearers of diseases harmful to people and yet, when they are located in the modern research laboratory, they occupy positions as weapons in the fight against human diseases.

Their capacity to occur simultaneously in more than one category of meaning, suggests that mice and rats exist not only at the polar reaches of our imaginations, but are also loci of slippage and indistinction between polar categories. Polarity, ambiguity and ambivalence set up a number of possibilities for rat/mouse-human relations generally. They also mark the relationships between sci-
entists and rodent research animals that occur within the confines of the research laboratory. Here they embody directly opposing positions and meanings, and present simultaneous and conflicting meanings, which are sometimes reconciled. This is an ethnographically based examination of some of the possibilities that arise for rodent-human relationships in the laboratory context.

The research participants in the study upon which this chapter is based included 31 scientists made up of immunologists, virologists and neuroscientists working with either rats or mice. In what follows, I examine the ways in which mice and rats occupied polar positions, as both “animals” as against humans in the lab, and as “inanimate equipment”, as against the animate status of humans therein. I also examine the ways in which rats and mice occupy ambiguous and ambivalent positions between the polar opposites of humanity and animality, and disposable laboratory equipment and animate beings capable of making relationships with people in the laboratory. Here, mice and rats were understood by scientists to have more than one meaning, and simultaneously represent opposing and conflicting characteristics and values. Special and mammalian qualities of rat and mouse research animals were drawn out by scientists in this study to indicate and describe both movements across animal-human and animate-inanimate divides, and situations in which research animals remained firmly on, or returned to, one side of a division.

My examination of polarity, ambiguity and ambivalence stands in contrast with recent examinations of rodent-human relationships in the context of the modern laboratory. Acampora, for example, in his recent book Corporation compassion: animal ethics and philosophy of the body (2006), insists that humans and animals occupy fixed, polar positions relative to each other. He calls for the radicalisation of such relations. In Acampora’s estimation,
the detached scientific practitioner operates from her position on the powerful human side of the Great Divide, while the animal suffers her pursuit of data in its position as wholly subjected to scientific inquiry. In his view:

The laboratory research setting dictates parameters of behavioural operation that desensitise the practitioner to the bodily spectacles enacted under his [sic] experimental surveillance. Indeed, the ‘culture’ of modern, positivist scientific practice [pivots on] detachment (2006:97-8).

The analytic, non-speci-al, mammalian unit and the detached enquiring scientist appear here in the classic Baconian configuration of the strict human-animal divide. It is under these conditions, of modern positivist science, that Bacon’s God scientists appear; in a Judeo-Christian heritage of human supremacy over nature, humanist God scientists regard the animal as both biological and genetic mirror for self-reflection, and the raw material for self-reproduction, in disease-free, improved form. God scientists appear as the fulfilment of Bacon’s humanist vision of Nature made wholly available to the claims and desires of instrumental reason. In Acampora’s assessment, God scientists inhabit the ontotheological domain that the union of science and technology has produced; as Heidegger insisted, under the banner of modernity, science itself is arrogated to the place of Plato’s Good and the Christian God. God scientists also represent the fulfilment of Bacon’s call to the mastery of nature through its ontological transformation. This is particularly evident in the production of transgenic animals, as God scientists here claim not only omniscience but ultimate creative power; as Bacon wrote, ‘On a given body to generate and superinduce a new nature, is the work and aim of human power’ (1999:148).

I use the language of kinship to examine the ambiguities, am-
bivalences and polarities I found in operation in the laboratory. As Latour (2004), Haraway (1997) and Franklin (2001) have each suggested, the strict (modernist) divide has been challenged by biotechnology. It can be useful to use the language of kinship to explore the ways in which modernist divisions between humans and animals have been destabilised by biotechnology and its practices. In the examination I make of laboratory-based human-animal relationships, I seek to examine the fruits of such destabilisation. Anthropologists have, at least to some extent, reconsidered the scope for the study of kinship in post-Schneiderian terms. While these revisitations, for the most part, make comparisons between humans and animals on the basis of familial relationships, I seek to do something slightly different when I make recourse to kinship. Specifically, I use it first to demonstrate the ways in which animals and humans are considered to be biologically and genetically related to one another, which effects a crossing of the human-animal divide in the laboratory, and second, to speak to a fleshy and indistinctive relatedness that rodent research animals and human scientists made with one another in their interactions in the laboratory space.

**Between human and animal**

I first apply the language of kinship (as, indeed, scientists themselves did) to examine the location of rats and mice in relation to the poles of humanity and animality. It is the case that rodent animals appear in the laboratory at the outset as necessarily ambiguously located between humans and animals; crossing the human-animal border is fundamental to those scientific enquiries concerned with deriving data from nonhuman animal models for application to the human body. For scientific research guided by this intention, nonhuman animal bodies must be sufficiently
similar to human bodies for the outcomes of experimentation to have application to human bodies. The required sameness of nonhuman animal bodies and human bodies is accomplished in and through the subsumption of the speci-al differences of, in this case, rodent research animals, and humans to a shared mammalian membership, based on the close biological and genetic relatedness of humans, rats and mice. These animals appear in the laboratory as human genekin and biokin. Mice, for instance, on the basis of their close biological and genetic relatedness to humans, are critical models for experimental investigation of human immune diseases without putting human individuals at risk. Immunological research, for instance, leverages mouse models for studies on diabetes, bone development, autoimmunity, infectious diseases, and transplantation tolerance. Using rodents as bio and genekin, scientists try to predict the answers they would obtain directly if they could perform the experiments on/in humans. Rodent models are, then, powerful research tools to in-vivo decipher [human] physiology¹.

In the laboratory, rodent ‘becoming’ of humans was deliberately accomplished in the purposeful recognition of mice and rats as commensurate with humans in biological and genetic terms. As one scientist, Paul, explained it to me:

Mice are much more like us than people [outside the lab] think they are. As mammals, as people are, of course, they have pretty much the same basic body plan, they get the same diseases, they suffer in similar ways to us. For instance, we use the same analgesics to relieve pain in mice that you

¹ The diminishment of human-animal difference is present whether or not ‘close’ mammalian relatives to humans are the animal research subjects; in the case of fruit flies, for instance, genetic similarity between these animals and humans builds the bridge across the human animal divide
Humans and animals are blurred in the establishment of pan-mammalian gene and bio collinearity in the lab, but the establishment of animals and humans as gene and biokin produces another division, between animate being and inanimate equipment.

Speci-al ratness and mouseness are subsumed under the generic position of mammalian membership and genetic and biological relatedness to diminish the human-animal division, and equally, to yield a hierarchy of bodies, wherein one mammalian embodiment is in the service of another. The subsumption of speci-ality, and the marking of de-valued mammalian being, is accomplished in and through the making of the analytic animal, in which all elements of speci-ality are removed from the way the animal is understood in the laboratory. Here, qualities of inanimateness are assigned to the analytic animal, effectively muting its ratness or mouseness and relocating it as an object/apparatus, a non-specific mammalian unit of investigation. Where the ‘naturalistic’ animal is the creature Birke (2003:207) describes as the animal that bites, the analytic animal is de-special-ised and persists as equipment. The location of rats and mice as mammalian analytic units of equipment is a consequence of their membership in the category ‘mammal’ that rats, mice and humans share. As much as mammalian membership is the bridge by which rodents and humans are connected (in their similar bodies, their equivalent DNA struc-

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2 These explanations pertain to unaltered mice, which are described as human homologues in the terms of their mammalian classification. Indeed, the similarities are not hard to come by; the number of human genes without a clear mouse counterpart, and vice versa, is only around 1%; essentially, there is a one-to-one correspondence between the genes of the two species. The diminishment of speci-al characteristics is even more pronounced in mice and rats which have been engrafted with human stem cells. These animals are routinely referred to as “humanised” animals.
tures, their gene similarity, and the ease with which they might be engrafted with human substance to yield humanised animals), mammalian membership is equally the ground upon which rodent difference from humans is hierarchically presented. Acampora (2006) has argued that the location of rats and mice as non-speci-al purely mammalian equipment in the laboratory indicates the firm maintenance of the human/animal divide. The location of the mouse or rat in the position of mammalian equipment occasions and entails the detachment of the scientist from the animal, which is itself understood not as ‘mouse’, but as mammalian bio-unit, gene-equipment.

Mammalian membership not only situates rat and mouse animals as human kin and as mammalian units of equipment; it also, and equally, qualifies them for entry into the laboratory’s sacrificial economy. In this laboratory context, as in others, “sacrifice” assumes particular meaning, as it is used specifically to reference an exchange economy of equally mammalian, but substantively unequal, human and nonhuman bodies – as Haraway notes the mammalian homology between the transgenic-breast-cancer-animal-model Oncomouse and people is based on ‘Oncomouse’s essence, which, in common with humans, is “to be mammal, a bearer by definition of mammary glands, and a site for the operation of a transplanted, human, tumour producing gene” (1997:89). This mammalian homology is the basis upon which the mouse must be sacrificed, in order ‘that I and my sisters [the human mammals in the equation] might live’ (Haraway, 2008:76). Calculations are possible on the basis of the animal reactivity to the procedures brought to bear on it by the God scientist; the amount of mouse bodies pained and rat lives lost yields good for humans; maybe the cure for cancer; perhaps advances in obesity and diabetes treatments. On the basis of such calculations are yielded sacrificial ani-
imals. This definition of sacrifice belongs with Foucault’s calculus of war – the relationship between my life and the death of the other (2004), which enables and justifies the sovereign, and in this case, the scientific, exercise of killing. Such a calculus is developed in line with the thanatophobia – the fear of death – that is fundamental, in Heiddegarian terms, to human existence (see Heidegger, 1962).

Rats and mice appeared in the laboratory under study as disposable mammalian equipment in the sacrificial economy, into which they were entered by recourse to legislatively and institutionally endorsed methods, including carbon dioxide poisoning and isoflurane poisoning. When her mice were scheduled for termination, Leisel, a virologist, said that it meant disposing of ‘research equipment’ that could no longer produce useful data for her study. As Leisel put it:

> these mice will be sacrificed so that I can find out how to address a problem that is devastating to human health – and definitely a lot of mice die, but it is worth it – imagine if we did no animal research. We would still be beset by polio, for instance, along with a whole raft of other diseases that impact human mammals. It’s actually very noble of the mice to give their lives for us.

In his examination of the location of meat animals in relationship to their human killers, Reinert (2007) has drawn attention to the ways in which humans and animals in such contexts are understood to be unrelated to one another. This unrelatedness, in his view, permits the quotidian routinisation of killing that is required in slaughterhouse and laboratory practice. Reinert argues that the banality of such frequently repeated actions of death in both these contexts, effectively turns ‘the humane act’ of violence, the termi-
nal act, into a socially invisible form of everyday violence, visible only to laboratory staff, which he describes as, ‘the exact antithesis – a reverse, or negative correlate – to the extraordinary socially [and publically] marked violence of the sacrifice’ (2007:np). Comparing the affinity – of personhood and other qualities – that is more usually present in classical human-animal relationships of sacrifice – Reinert takes relations of these transferences as:

[a] measure of the growing 'abyss of essence' that separates the human from the non-human, and across which the act of killing now takes place: an ontological gulf that reconstitutes the sacrificant, not as a killer but as a technician conducting routine manual labour, and transforms the victim into mere meat, mere equipment, stripped of agency, personhood and other qualities that it might have shared with a human sacrificant (2007:np).

Such a position locates laboratory animals firmly on the opposite side of an impenetrable divide from humans, who fail to recognise any grounds of commensurability with the animal. Drawing on classic (Hubertian) definitions of sacrifice, which establish a connection between the realms of the sacred and profane by means of a victim that is destroyed in the course of a ceremonial process, Reinert (2007) argues that (classical) sacrifice draws at least partially on an enduring affinity between animals and people that, while permitting the death of the animal victim, also recognises that the animal has the full measure of subjectivity that enables it to be “sacrificed”, rather than simply to be killed. Reinert also argues that the term “sacrifice” works metaphorically, to refer to situations where one thing is given up for another; for instance, ‘laboratory animals must die so that humans might live’ (2007:NP). The two meanings of sacrifice – one literal, one figurative – combine awkwardly to yield a sacrificial veneer born of the aggregate
condition, i.e., the thousands of deaths that together compose and bring about the sacrificial benefit for humans are routinised, mundane, banal and hidden. This yields the condition “anti-sacrifice”, but a veneer covers it, so that mice, as Leisel suggested, save us from the ravages of polio. In Leisel’s estimation, this calculus, this sacrificial economy is “in the black” in the terms of its yield for human mammals.

Despite the obvious problem in classical formulations for those of us who question the bases upon which human and animal divisions proceed, (that animals have to “come up” to the human category to be eligible for sacrifice at all), Lynch (1988) has argued that the termination of animals in laboratory contexts amounts to more than a sacrificial economy of human and nonhuman bodies and that scientific “versions” of sacrifice contain the key basic themes of sacrifice as they might be understood classically; these being (1) preparing a victim in such a way as to create and sustain an orientation to coordinates in an abstract space; (2) destroying the victim in order to establish a mediating link between visible and invisible realms; and (3) constituting the victim as a bearer of human attributes. It is by adherence to the three conditions of classical sacrifice that rats and mice transcend the concrete physical limitations to which they are subject, and through them that they disclose the onto-theological order of the mathematical. This disclosure occurs as rat and mouse flesh becomes data.

The process of euthanizing laboratory animals connotes the systematic consecration of the animal’s body, bringing about its transformation, into a bearer of transcendental human significances – into a fully analytic object (data) with generalised and fully realised significance for members of a particular research community. The first of the conditions of sacrifice is met when a rat or mouse victim is prepared in orientation with the analytical, in
both temporal and spatial terms. The rat must die on schedule, as opposed to dying outside of schedule, and its bodily extractions must comply with the spatial coordinates set out for it. The second, which recognises that sacrifice is a mediating act, is met in the moment of conversion of the naturalistic to the analytic animal. This occasions the organisation of the rat’s residues in accordance with an abstracted and purified set of theoretical relations in a scientific world of data sets and publications that exist beyond, or are invisible to the practical, everyday world of the laboratory. Lynch here makes an assumption that naturalistic animals inhabit the lab, and that they become analytic in their deaths; I have suggested that animals in the lab are analytic well prior to their arrival in the lab. I will return to this aspect shortly in order to argue that naturalistic animals also emerge at the point of sacrifice.

The third condition, and the one I am most interested in here, is met when the “analytic” animal becomes a subject of human identification because its anatomical, genetic, and physiological properties are mammalian, and therefore human. For Lynch, the rodent’s mammalian membership demonstrates that it is commensurate with its human killer. Lynch’s assessment of commensurability is one based firmly in the recognition that rats and mice are our biokin and genekin, and that the great divide between humans and animals is diminished, sufficient that we are commensurate, but his position is one that equally recognises the poles of the division between animate and inanimate being in the laboratory.

I have suggested so far that mammalian membership is a central element in both the erosion of the division between humans and animals in the laboratory, and in the erection of the division between animate being and inanimate status. It is the case, though, that speci-ality emerges as an equally key element in establishing the division between humans and animals. Speci-ality
emerged at two key moments of laboratory practice; at the moment of the animal’s death, and when animals were provided with enrichment, food and environmental stimuli that was particular to their species. While their bodily yields (data) might continue to be treated analytically – as Lynch suggests in his second condition of sacrifice, at the moment they are entered into the sacrificial economy – rats and mice are entered precisely as rats and mice. Alan, an immunologist with 20 years experience in the laboratory, used mouse animal models in his work. When I spoke with him, Alan’s mice had come to the end of their research lives. The data generated from their mouse bodies had been collected, effectively, across the human-animal divide, as it was taken for the purposes of applicability to humans, for whom the mice had stood in, in the laboratory; their bodies, in this sense, were our bodies. But now, their commensurability with humans was about to reveal its limits. Alan told me as he was about to dispense with his research mice by gassing them, ‘remember that they’re only mice. People kill mice in their houses every single day’. Alan’s invocation of the specific term ‘mouse’ here flicks a kind of ‘switch’ between high mammalian affinity/commensurability and a specific distancing/discarding, and re-establishes the division between humans and animals that operates in the laboratory with as much frequency as its erosion.

**Fleshy and indistinctive kinships**
Recognising only the polar locations in the lab, Acampora, in an invocation of Heideggerian language, claims that rodent animals in the lab are not only physically restrained but are also ontologically reduced to the status of ready to hand tools, objects for investigation and examination; in the event that a research animal presents itself as unsatisfactory for a particular scientific use, it might be
regarded in the terms of presence at hand, as faulty equipment (2006:98). Acampora’s claim is one that acknowledges Heidegger’s great emphasis on time, and his lesser emphasis on space – Acampora recognises that the possibility of “death as mine”, for instance, does not bring forward, in Heidegger’s analysis, the fleshy vulnerability that live bodies experience in each moment, which forces him to diminish interpretation of the dimension in which embodiment has purchase (i.e., space). Heidegger’s ontological framework provides few opportunities for the vitality of organic animate being to emerge for serious consideration. Normally, Acampora indicates that he would take Heidegger to task but, clearly for him the lab is one of the few places where Heidegger was right; herein, animate being fails to ever emerge.

I have argued that scientists in my study did regard animals as equipment, but this was not a fixed position of rodent research animals for scientific practitioners in the laboratory. Instead, rodent research animals were ambiguously positioned between research equipment and beings with which scientists could and did make relationships, founded on interspecial transivity. Just as they occupy polar positions, rat and mouse research animals very often occupy ambiguous positions in the laboratory, and that they often slip across the seemingly firm boundaries that separate apparently irreconcilable domains, including that between the detached God scientist and the prone animal. After Latour (1987), who used the two-headed Janus to introduce ostensibly distinctive and irreconcilable perspectives – Janus talks on the left side like a realist and one the right side like a relativist – I am interested both in how polar positions are manifest, and how the apparently polar positions that rodents and scientists occupy as animals and humans respectively are in some situations reconciled in the laboratory, to create the ambiguous or ambivalent location of the rodent...
research animal. I further suggest both polarity and ambiguity are each critical to the production of what my research participants called “good science”.

Brenda, a neuroscientist, conducted what she called “good science”, by deliberately creating close affectionate bonds with her six white rats. I asked Brenda about how her affection for her research rats sat with her use of them as analytic animals. She immediately reconciled their status as equipment and animals for which she had affection when she said:

The way a researcher interacts with animals could, and sometimes does, result in profound behavioural and physiological changes in the animal subject. Things like stress reduction, weight gain – paying attention to them, playing with them – this could be important in understanding how the impacts of some brain disorders could be addressed.

She told me: ‘you take it into account in your results – certainly, rats which were stressed out, say from not being familiar with me, could give a different result’. Even though Brenda had effectively worked these bonds into her findings so that the analytic rats that yielded data for her study did not stand at odds with the animals she gave affection to every day, this did not spare her from experiencing feelings of loss when she terminated her rats. Just as Darwin (1871) suggested, experiencing an animal’s affection in a research setting haunts the scientist when she or he is confronted by the typical requirements of laboratory work – to wound, to cause suffering, to kill.

Human entailment in the lives of research animals was also

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3 Such a comment speaks to Davis and Balfour’s (1992) claim about the inevitability of affections and bonds building up between research animals and scientists over periods of laboratory work, even with ‘unlikely’ animal candidates, such as octopi, chickens and squid.
considered by Merleau-Ponty, in his critical questioning of behaviourism, which demands that the scientist be detached from her subject of study. From his position, which privileged the simultaneous givenness of animality and humanity, Merleau-Ponty argued that the practicing of the ‘sciences of man’ requires the scientist to interpret,

as best he can the acts of [animal] others, reactivating from ambiguous signs an experience which is not his own, appropriating a structure (e.g., the a priori of the species, the sublinguistic schema...) of which he forms no distinct concept but which he puts together as an experienced pianist decipheres an unknown piece of music: without himself grasping the motives of each gesture or each operation, without being able to bring to the surface of consciousness all the sediment of knowledge which he is using at that moment (1964:93)

Where Merleau-Ponty suggested that in the course of scientific inquiry, scientists are unable to ‘bring to the surface of consciousness all the sediment of knowledge which he is using at that moment’ (1964:93), there are registers of connection that scientists engage in that do seek to form distinct concepts, grasp motives, and bring to the surface sediments of knowledge.

The basis for Brenda’s grief over her rats’ deaths began in the establishment of particular relations with them of an interspecial kind, in which a variety of kinship was established. During our visit to her rats while they were alive, Brenda told me, ‘the rats back themselves into the corners of the cage’. This made the rats’ tails unavailable to Brenda when she approached them using the proper grasp, which should be applied to the base of the rat’s tail, where it is strong and will not be injured. The rats, Brenda explained, knew this move, and responded to it. More than this, she
thought, the rats were ‘telling’ her something that she could understand in making themselves ungraspable – ‘I knew they were refusing me’, she said. Brenda very often shared moments like this with rats – this bunch, and others. She said:

> They really can communicate quite plainly about what they want, and they know what I want when I go for their tails, as lab protocol requires. The rats have not read the lab protocol; they just say ‘no’ to me. You might think that just means I have to insist, but it is difficult and potentially damaging to them to just grab them – instead, I have to persuade them, by negotiating with them. I might have to give them a treat, or pet them for a bit. It’s not just that I impose myself on them – there is a space for negotiation.

Brenda’s interpretation of her rats’ behaviour, and theirs of hers, speaks to the simultaneous giveness of animality and humanity that Merleau-Ponty described in the terms of ‘strange kinship’, his phrase to capture the sense in which the world is shared among and generally available to the species, despite their evident differences, in the fleshiness of their being. As Godway (1998) notes of Merleau-Ponty’s position:

> there is a kinship between the being of the earth and that of my body (Leib)... This kinship extends to others, who appear to me as other bodies, to animals whom I understand as variants of my embodiment (1998:50).

Merleau-Ponty (1968) argued that the “thickness” of flesh, which is constituted by and constituting of the world we each share, ensures our kin-like relations. Our differences in style (rat style, mouse style, human style) distinguish our different experiences. Flesh makes communication possible because it is reversible, in that we are all sensing and sensible – this enables intercorporeal
being and founds transivity between bodies, including between animal and human bodies. This kinship neither erases difference nor similarity, makes us neither identical nor separate; for Merleau-Ponty, animals and people are at once strangers and kin (see Oliver, 2007).

Brenda’s relations with her rats persisted in an indistinctive zone which required neither complete ratness nor complete humanness to operate; each being was strange to the other, yet their sameness emerged sufficient to offer up possible relationships that spanned the animal-human divide. Rats and people became indistinctive categories of being, and a kind of general contingency between species was recognised. This generality was sufficient to allow for an interspecial communication that proceeded without language (with the animals of Merleau-Ponty’s sublinguistic schema); it was enough to offer up the possibility of relatedness and relationship; enough to question the strict situation of rats and mice as biological research equipment. It went beyond or preceded ratness and humanness to offer a basal relationship between them; it was enough to be recognised as a kind of kinship that extended to flesh together rat and human bodies. Such a kinship is constituted and enacted in the thickness of interaction; as Haraway put it, ‘species of all kinds are consequent on a subject and object shaping dance of encounters’ (2008:4). Along with the dance of scientific encounter that produces specific rat research subjects and scientific enquirers was also a dance that produced indistinct partners, in which rat subjects and human scientists diminished as bounded categories of being. Here persisted a “we” that might trouble the

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4 While it is indubitably true that Merleau-Ponty was principally interested in animality, rather than animals per se, his somewhat lateral re-drawing of the profound differences between human and nonhuman life provide fruitful grounds for understanding some of the interrelationships between scientists and animals in the context of the laboratory, a context in which hierarchical binary distinctions appear to be strictly maintained.
boundary between humans and animals, especially in the laboratory. As Dillard-Wright (2009) notes, such a relationship might only seem unusual if we are prepared to accept the exceptionalist argument that human communications differ in kind and in practice from those of other animals.5

These openings are tantalisingly hinted at in Agamben’s *The Open* (2002). This might seem an unlikely source for me to turn to. Indeed, for Agamben ‘the Open’ is indubitably intended to be read as the reverse of *Dasein*. In *The Open* Agamben (almost certainly unintentionally) hints at the undoing of the divide when he suggests that the zone of indistinction of his original conception of bare life6 might be reconceptualised as a zone of possibility, within which the relation between humans and animals might be reworked. Calarco (2008) has observed that Agamben is either suggesting here that humans will become reconciled with their animal natures, and will no longer seek to divide zoe from bios, or he means to point us to a transmutation in the relations between human beings and animals. While the latter would certainly constitute a departure from Agamben’s usual line of thought, it is equally certain that it gives us fertile grounds to rethink humanimal relations, particularly in the terms of indistinct, interspecial kinship. For Agamben, the arrival of such a kinship will indicate the end of history and humanity, a point at which there will be no animal, no human, only the possibility of bare life and a kinship

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5 Dillard-Wright points here not to the flattening of speci-al difference, but acknowledges instead the underlying commonalities in animal communication, ‘that give rise to human culture’ in and through overlap, sufficient that comprehension can take place between the species. Communication seizes upon occasions for its enactment and happens at the edge of species. The social cannot be delimitied to this or that self-enclosed sphere but continually opens to the outside in an unfolding milieu of gestural interplay (2009:68).

6 Under Agamben’s original conceptualisation of bare life, as he describes it in his *Homo Sacer* (1998), a human being is given the status of the living dead – it is biologically living, but does not have human rights. Lacking these, it cannot be sacrificed, and is necroavailable (to the state), and can be killed without the charge of murder being brought.
of indistinction. Such a kinship is not based on the biological likeness of bodies, nor in generation, nor in descent, but rather in the persistence of ambiguous unspecificity, where, as Haraway might describe the ambiguous zone, no one gets to be Man. In such a zone of unspecificity, Brenda and rats might well be considered indistinct kin. Indistinction preceded ratness and Brenda’s humanness to offer a basal relationship between them wherein only the ambiguous bare life that exists prior to these identities being discursively and operationally made, persisted.

Despite her kinship with rats – perhaps a kinship of indistinction, perhaps a kinship of fleshy figuration – Brenda killed her rats and entered them into the sacrificial economy of the lab, where they were destined to go resultant of their biological and genetic kinship with us. But she entered them with unease, as she attended this other kinship – of figuration or of indistinction – with the rats. Brenda wept for her rats on the day they became her data, secretly – for good God scientists do not openly weep for equipment. As Darwin himself noted of the complexities of engaging with animals who could engage back, ‘everyone has heard of the dog suffering under vivisection, who licked the hand of the operator: this man, unless he had a heart of stone, must have felt remorse to the last hour of his life’ (Darwin, 1871:40); he added in his second edition of The Descent of Man, ‘unless the operator was fully justified by an increase in our knowledge’ (Darwin, 1874:70). But, at some indistinctive or fleshy point before, or beyond which, she was scientist and rats were her equipment, Brenda and the rats were some sort of interspecial kin.
Conclusion

The reckoning of rat-human kinship is not as radical a suggestion as it might at first appear. Perhaps it should not be totally unexpected that such an indistinctive, unspeci-al, “we”, comprised of intercommunicating rats and people should be found in the lab. After all, as Wolf-Meyer (2006) suggests, just this sort of contingency is recognised already in the realm of posthuman biopolitics, in which the human genome project is located; here, an understanding of being, not simply species-specific being, is sought. And it becomes a scientific mandate to arrive at understandings of being as such, rather than only understandings of human being. Such a mandate encourages contingency of species, and counters the over-determination of humanity. The recognition of the biological kinship between humans and rodents, along with the recognition of interspecial kinship, demonstrates that “multiples” of the relations between rodents and humans are played out in the lab; this makes it very difficult to locate the lab neatly in humanist terrain, where it has traditionally lain. This is not, nor should it be regarded as, “new”; indeed, as Haraway (2008) has reminded us, it was science which put homo sapiens firmly in the world of animals – Freud’s second of the three great wounds dealt to the narcissism of the self-centred human subject specifically picks out the sharply injurious Darwinian blade. As Haraway aptly notes, if any wound was to decentre and undermine Man’s surety in the world, then surely it would be this one, born in science. Darwin’s kinning of people and animals in evolutionary terms, his acknowledgement of their intertwinenment, speaks to their entailments in one another. In the ostensibly unlikely setting of the lab, there may well be openings to strange, indistinctive kinship, even as they operate in the shadow of the sacrificial economy.
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Rebekah Fox and Katie Walsh
Furry belongings: pets, migration and home

Introduction
Companion animals share our homes and as such constitute one of the closest and most common forms of human-animal interaction in modern western society with 47% of British households containing at least one pet (PFMA, 2010). Indeed for many pet owners their animal companions are intrinsic to their sense of “home” and belonging (Fox, 2006; Fudge, 2008; Podberscek et al., 2000) and pets are often regarded as kin or members of the family (Mason and Tipper; 2008; Power, 2008). In recent years there has been an explosion of work on human-animal relations within the social sciences (Haraway, 2003; 2008; Philo and Wilbert, 2000; Wolch and Emel, 1998). However, little attention has been paid to the mobility of animals (Laurier, et al., 2002; Philo 1995; Whatmore and Thorne, 1998).

Pets are enrolled in movements of various kinds on a national and international scale, including trade in endangered species, pedigree breeding, adoption and recent trends for holidaying with pets. However, in this chapter we explore pet movements in the context of international migration. Our focus is on British transnationalism, allowing us to contribute to recent literature documenting changing animal-human relations in this specific socio-cultural context (Fox, 2005; Fudge, 2008), while also revealing the spatial contingency of pet-keeping practices. We argue that a migration framework not only provides evidence of the significance of pets in human experiences of belonging (particularly through the notions of home and family), but also provides fresh insight
into animal agency and its limitations (as human belongings).

If pets are considered as kin or members of the family, decisions to migrate must consider their fate and welfare. However companion animals have been neglected in studies of human migration. Difficulties of transportation, cost, vaccination or quarantine may lead to animals being left behind, raising questions of their contested status as individuals/possessions. Where animals do accompany human migrants they often play a key role in the re-establishment of “home” and negotiation of complex new identities and belongings. Here we focus on British migrants to Dubai and the ways in which they negotiate issues of relocation with their pet animals.

**Case study: British migrants to Dubai**

By focusing on pet-keeping practices in relation to migration and home, in this chapter we seek to contribute to an emerging body of work on practices of British migration (e.g. Knowles and Harper, 2009; Leonard, 2010; Walsh, forthcoming). British migration largely goes unnoticed, yet one in every ten Britons lives abroad (Sriskandarajah and Drew, 2006). For the purposes of this chapter, we are defining British migrants as those living abroad for a year or longer, thereby including both emigration and repatriation flows, and capturing those whose intention is to relocate temporarily and end up staying longer, as well as those for whom the reverse is true. The Institute of Public Policy Research in Britain provide the only large-scale statistics on British migration and they estimate that at least 112 countries worldwide have a British population of more than 1,000 (Sriskandarajah and Drew, 2006). Around three quarters of all British migrants live in the 10 largest destination countries: Australia, Spain, the US and Canada, Ireland, New Zealand, South Africa, France, Germany, UAE and Switzerland. The UAE,
from where our case study of Dubai is drawn, is the 10th largest
destination country for British nationals, with 65,000 British resi-
dents (Finch, 2010). Dubai is a useful case study for our purposes
because it includes a diverse population of British migrants with
varying migration trajectories, biographies of residence and expe-
riences of mobility and settlement. While all lead migrants have to
have a work permit to remain living in Dubai, they are employed
in a range of occupational sectors. Some are part of a hyper-mobile
professional elite with frequent international relocations, while
for other individuals and families Dubai represents a first move or
a relatively permanent emigration motivated by lifestyle factors,
such as a better quality of life or climate. The differences in these
migratory processes are likely to influence not only the logistical
dimensions of migration (e.g. how frequent the move is) but also
migrant belonging, particularly in relation to “home”. Importantly,
however, what British migrants have in common is the relatively
voluntary nature of their mobility and settlement patterns.

In this chapter we organise the discussion of migration, pets
and home in three parts: firstly changing animal-human relations
and the international relocation of pets; secondly, “belongings” and
the migration of pets to Dubai; and, thirdly, looking at power rela-
tions in human-animal relationships through cases of pets aban-
doned or left behind.

First however, it is important to note the motivation for our
collaborative authorship and the methods we have used. This
chapter has emerged from the initial stages of what we hope will
prove a much longer collaboration. We met as MA students study-
ing cultural geography and went on to do PhDs at the same time in
*The cultural geographies of pet-keeping* (Fox 2005) and *British expa-
triate belonging in Dubai* (Walsh 2005). Originally conceptualised
jokingly, our response to this opportunity to bring together our
two seemingly separate foci, has resulted in both of us being able to look afresh at the shared concepts we deal with, particularly that of belonging as it relates to notions of agency, home, family, and domestic space. Both of our PhDs were ethnographic in nature, so this chapter is a departure from this methodology, instead drawing on discourse analysis of internet material, including websites, forums, and blogs. For this reason, we offer only tentative insights into the nature of animal mobilities in a specific migration context, remaining open to the multiplicity of pet-keeping practices on the move among and within different migrant groups with varying geographies of settlement.

Changing animal-human relations and the international relocation of pets

Pet-keeping has a long history, with evidence of dogs living alongside humans at the end of the last ice age 12,000 years ago (Budiansky, 1995). Pet-keeping in Britain became particularly popular during the Victorian era, when the idea of keeping animals merely for pleasure or companionship became widespread (Ritvo, 1987). However the late twentieth and early twenty-first centuries have seen rapid changes in attitudes towards pets and other animals. Nast (2006(a); 2006(b)) notes a profound shift in post-industrial contexts during the past 20 years, with a reconsideration of pets from a ‘species apart’ to ‘profoundly appropriate objects of human affection and love’ (Nast 2006(a): 894). In both academic and popular contexts, pets have become re-imagined as individuals and sentient beings, worthy of study and attention.

This shift in attitudes to pets has coincided with a massive commodification of the pet industry in a post-modern consumer society. Where pets were once given “animal” names such as “Rover” or “Tiger” and fed on human leftovers or the “vermin” that it
was their job to control, they are now often given “human” names and the pet food industry has exploded with all manner of luxury and specialist foods to cater to every individual taste. Pets can now be enrolled in therapy, doga (dog yoga), day nurseries, dancing competitions, dressed up in clothes or placed in specially made handbags by celebrity owners. Medical advances in animal science and explosion of pet insurance policies and “civilising” treatments for animals now mean that it is expected that “responsible” human companions have their pets vaccinated every year, treated for fleas and parasites every month and can be given kidney dialysis or chemotherapy when they become ill, or cloned to create a new pet when they die. ‘Pet love’ (Nast, 2006(a)) is now heavily tied to consumption patterns and further demonstrates the growing gap between rich and poor, providing not only love and companionship but also another expression of human identity and status.

As part of these transformations in human-animal relations, there have been several developments linked to people’s increasing mobility and their expectations of their pet’s mobility. Relaxation of quarantine laws and the introduction of the PETS travel scheme in 2001 now means that animals can travel freely between numerous countries using “pet passports”, though this is not without its difficulties and expenses. Particularly in the USA (but also other westernised societies) new companies have opened, offering transportation services for pets with specialised airlines such as Companion Air and Pet Jet and the opportunity for animals to travel in the cabin with owners, rather than in the cargo hold. As pets become more integrated into family life and as wealth and consumption patterns increase, supply and demand for pet travel related products has grown rapidly as animals become enrolled in transnational networks of mobility.

International movement of animals is governed by strict laws
relating to biosecurity and the control of zoonotic disease. Particularly in Britain where rabies is a major concern, prior to the introduction of the PETS travel scheme in 2001, all animals entering the country were subject to 6 months quarantine. The scheme initially applied to only to European countries, but has since been extended to various other countries worldwide including the United Arab Emirates. Under the scheme dogs, cats, and ferrets issued with a valid “pet passport” are exempt from quarantine regulations providing they meet certain criteria. These criteria are that:

- They are micro chipped
- They are fully vaccinated against rabies and other infections
- They have had a blood test after 30 days to confirm that they have a satisfactory level of protection against rabies
- They have valid documentation (pet passport and veterinary certificate)

As an additional protection against rabies, animals are not allowed to re-enter the UK less than six months after the date the successful blood test was taken. This is because the animal may have been infected with rabies prior to the injection and it can take up to six months to display any bodily signs of infection. As a “rabies-free” island, Britain is particularly stringent regarding such entry restrictions and any animal not meeting such criteria, or travelling from an unlisted country must continue to spend six months in quarantine. In the following section, we explore the impact of these shifting human-animal relationships in the context of Britons moving to Dubai from the UK.

1 See http://www.defra.gov.uk/wildlife-pets/pets/travel/pets/procedures/owners.htm
Migration to Dubai: belonging and the more-than-human family

In migration contexts, home becomes an explicitly dynamic process, ‘involving acts of imagining, creating, unmaking, changing, losing and moving ‘homes” (Al-Ali and Koser, 2002: 6). In response, researchers are beginning to recognise the continued significance of practices of home and attachment in migrant’s lives. For example, Ahmed et al. argue that:

Highlighting the laborious effort that goes into uprooting and regrounding homes […] allows us to challenge presumptions that movement involves freedom from grounds, or that grounded homes are not sites of change, relocation or uprooting. Being grounded is not necessarily about being fixed; being mobile is not necessarily about being detached (2003: 1).

Studies of British migration have suggested that domestic material culture plays an important role in this regrounding by providing a sense of continuity and connection in migrant homes (see for example Hatfield, 2010; Walsh, 2006; forthcoming), but have so far not discussed the significance of pets in migrant’s homes. British migrants are relatively privileged, especially in comparison with other migrant groups (Beaverstock 2002; Knowles and Harper 2009; Leonard 2010), and this is reflected in their sense of agency in the decision-making process of whether to relocate their companion animals to Dubai. We suggest that the financial and logistical efforts many Britons go to in order to fulfil a desire to relocate their pets to Dubai demonstrates how important these animals are in their everyday lives and home-making.

For many owners, pets are often regarded as kin or members of the family (Mason and Tipper, 2008; Power, 2008) and their animal companions are intrinsic to their sense of “home” and belong-
ing (Fox, 2006; Fudge, 2008). According to Fudge (2008) one of the key issues that emerges from the study of human companion-animal relationships is the role that pets play in conceptualisations of home and family:

For many of us, pets are simply among those beings we live with: they are animals that are kin. The inherent paradox here of a member of a different species also being perceived as a member of the family is in many ways unimportant to those who live with animals. Pet ownership is premised on the notion that it is possible to extend ones capacity for love beyond the limits of the species; that one can have a truly affectionate and meaningful relationship with a being that is not a human (Fudge 2008:13-4).

Indeed it has been suggested that pets are often loved because they are animals, appreciating them for not only their similarities but also their differences from humans (Fox, 2006). “Living together” with another species on a daily basis necessitates a certain intimacy and recognition of individuality in non-humans, challenging Cartesian notions of the human-animal divide (Irvine, 2001).

The large number of international companies offering pet relocation services for globally mobile workers points to the significance of pets in the lives of contemporary migrants and the number of people who desire to take their animals with them when they move. However, Tuan (1984) describes pet-keeping as a process of domination and affection, seeing it as yet another form of human domination over nature, masked with a human face. Since pets are literally both “belongings” and integral to our sense of “belonging” they can be shaped by human desires as companions, family or friends, but are also vulnerable where they do not conform to human expectations and have limited powers of decision-making within the relationship.
Pets entering Dubai must travel in the cargo hold, rather than together with their owners in the passenger cabin, with an approved transport company on an approved route. The importation of some “dangerous” breeds of dog, such as Pit Bulls, Neapolitan Mastiffs and their cross breeds, is banned. Such breeds have seen huge media panic following a series of attacks on humans and are found in large numbers in re-homing kennels in both Britain and abroad. To pass through immigration control, pets must have a valid import permit and Good Health Certificate. Documents have to be verified and the pet inspected; this process takes several hours. For all these reasons, many British migrants employ a pet relocation service. For example, Animal Land Pet Movers have a huge geographical scope and include Dubai as one destination country, providing detailed information sheets with the requirements for importing a pet into the UAE for their potential customers. For a fee they offer to assist owners with the entire process, determining “the most efficient plan of action” for organising vaccinations and microchip implants by veterinary clinics, organising the travel, meeting the animal in Cargo Village at Dubai International Airport, and guiding owners through the surrounding bureaucracy on arrival.

However, logistical issues are not the only cause of concern for some owners. The cost of transporting a cat or dog from the UK to Dubai ranges from £1-2000 depending on the size, container, and route. This can be identified as a factor for many Britons deciding whether to relocate their pets when they move. For example, on Petrelocation.com the following was posted: ‘Hi, I’m looking into bringing my 2 cats over to Dubai from the UK, but have heard about the extortionate charges. Can someone confirm how much it costs altogether? Thanks!’ (Elisa, 10 August 2007).

Ongoing care is also expensive and necessary: pets in the UAE
must be vaccinated against rabies once a year by the Dubai Municipality or at private veterinary clinics. They receive a red identification disc from Dubai Municipality and the pet must wear the disc on its collar at all times to avoid being picked up as a stray by the authorities. In addition to rabies, dog owners in Dubai are encouraged to vaccinate their pets against distemper, hepatitis, leptospirosis and parvovirus. Important additional vaccinations for cats include two types of cat flu as well as panleukopenia.

In addition, many owners have concerns over the animal’s welfare during a long flight where they will be placed alone in the cargo hold and may be subject to extremes of heat or cold. It is not recommended to sedate animals during transport for medical reasons and postings on relocation and expatriate forums often highlight this tension; for example, one posting on Petrelocation.com read:

I’m moving to UAE and want to know if there is any way to bring a pet (a cat) to UAE without having the pet come in as cargo? Our cat is very old and has other health problems, so I don’t want to put her through the stress of travelling by cargo. We’d be willing to travel to another country and bring her in by ship, car, etc... I’d appreciate your thoughts (Anonymous, 10 August 2007)

Similarly, other people look for a new home for their animals when they relocate, precisely because they are considering the needs of their animals, for example:

We have been approached by a family leaving the country and unfortunately on vet advice cannot take their [Great] Dane with them as he stresses out big time on a plane and nearly didn’t make it on the last flight into Dubai. Having said that he is in great health (when not near a plane :‐) (DubaiDanes, 5 September 2009)
Such comments reveal that moving with pets is not always about demonstrating love and vice versa; there is no simple causal relation between a migrant’s feelings towards their animals and their relocation. Rather, in these postings we see glimpses of the complex ethical decisions that pet owners make, in which feelings might be compromised as a result of their own positioning as labour within a global economy.

Similarly, owners considering or preparing for relocation frequently express concerns about their pets being able to settle in Dubai. On arrival, pets may be forced to live in kennels or catteries for some months while their owners live in temporary hotel accommodation. This is not only expensive for the owners, but can be very unsettling for animals. Another concern for owners is that Dubai’s legislation is influenced by Islamic principles and it is illegal to have a dog off-lead anywhere in the UAE, therefore pets experience reduced freedom to run around unless their owners are prepared to take them out into the desert on a daily basis for exercise, as this posting on Britishexpat.com explains:

The only thing we seem to lack here is the chance to walk the dogs in the parks and go for a run on the beach as dogs are not allowed in these places. Sometimes we take him in the car out to the desert areas and let him have a good run around and he is quite happy with that (Karenb2, 24 January 2004)

For cats whose owners live in high-rise residential areas, such as Dubai Marina, they may become confined to an apartment, since there is no possibility of putting in a cat flap and no gardens for them to move around in outside. The pet-human relationship is one of unequal power dynamics (Tuan, 1984) and here pets can be understood as vulnerable to constraints in their environment,
Britons relocating to Dubai are often particularly worried about whether pets will cope with the change in climate. Pet Habitat, a pet shop website gives the following advice:

Many dog breeds are just unsuitable for Dubai weather. Especially large breeds. Summer is extreme hot and “NO DOG BREED” can survive the summer in the backyard in a doggy house. Small/medium breeds of dogs are more suitable since they can live indoors and get sufficient exercise within your house in cool air-conditioned environment ... 9 months of the year, these large breed dogs will just not have a life and you will not be able to socialize with them as routinely as you can with a small breed dog who lives indoors (PetShopDubai.com, 16 April 2009).

The following posting comes from the site BritishExpats.com where a forum exists for discussing pets in the context of international mobility:

I may be moving to Dubai soon and I have a dog and a cat. I am not so worried about the cat; he just sleeps when it’s hot. I could not leave my dog behind!! I was wondering if anyone owns a dog that they bought with them to Dubai and how they cope with the heat. I have a Golden Retriever and am a little worried that the heat will stress him out. Any experiences would be very helpful (Wapyaly, 25 January 2004).

After several other site users posted messages about their own experiences of relocating pets, this user posted again, further revealing the emotional attachment in this human-animal relationship: ‘Thanks for your reassurances. It would break my heart to have to leave my pets behind’ (27 January 2004). What typically emerges from such forums is a dilemma that some owners experience be-
tween their love for their animals and the animals own needs. This posting illustrates this wider pattern:

I am moving from England to Dubai in a couple of months for work and am undecided what I should do with my two 2 year old neutered female cats. I adore them and would hate to have to re-home them but want to do the right thing too. If I took them with me, what sort of costs would be involved and how would they cope with the move and the change in climate? If I moved back to England in a couple of year’s time, what quarantine would they have to go through? (Sparkysa on yahooanswers.com, 2007)

The temporary nature of much movement for work raises serious implications for pet owners. Many Britons have careers where international mobility is expected of the worker and may feel they have little choice about whether or not to relocate. For those that do, they may have to change their pet-keeping practices. In the summer months, for example, British pet owners often walk their dogs before 5.30am to avoid the daytime temperatures of 40-50 degrees centigrade. One owner posted on Britishexpat.com

We have a golden retriever that we brought from the UK. He is now 18 months old ... We were worried how the heat would affect him. He does stay indoors in the air conditioning most of the time but likes to lie in the garden once the sun has gone down. In the heat of the summer we walk him early in the morning and in the evenings. It’s very humid and we don’t take him out for too long a walk at these times (Karenb2, 24 January 2004).

The summer climate also encourages non-working family members to spend three months in the UK over the school vacation, with the result that pets often have to go in kennels and catteries or are left with a domestic worker.
Pets left-behind: care, abandonment, and the power relations of animal-human relationships

In studying migration, most attention has been paid to the migrating communities themselves, rather than the communities “left behind”. While the disruption of familial relations by international migration has been discussed, scholars have tended to celebrate ongoing transnational care-giving practices, including gift-giving, communication by telephone, and intermittent visits, as evidence of a transnational social field or trans-localities (Baldassar et al., 2007). In fact, the dominance of transnationalism as a theoretical lens in migration studies owes much to the assumption that intimacy can adapt to these “stretched-out” social lives and that social relations remain as affective ties in such circumstances. Yet, King and Vullnetari’s (2006) study of the impact of adult emigration from Albania on dependent family members, reminds us of the difficulties of fulfilling the obligations associated with familial relationships. They coin the term “orphan pensioners” to describe the parents and older relatives of the migrants, arguing that these people form a group made vulnerable by the reconfiguration of intimate life in migration.

While intimacy between humans is often dominated by practices of disclosure in contemporary life, animal-human intimacy is to a greater extent based on tactile, embodied encounters (Fox, 2005). As one expat whom we spoke commented, ‘Pet’s can’t Skype’, so the consequences of human migration are different for human-animal relations. This has brought us to consider what happens when pets are left behind in the process of migration and how is this related to the power dynamics of animal-human relations. Questions are raised about the process of finding new homes, about the possibilities of maintaining connections, and of course the more extreme form of abandonment represented by
those animals left to stray. What do such examples tell us about the distinction made between pets and other family members (by some people in certain circumstances), a distinction that is not usually owned up to by British pet owners? It is impossible for migrants of any nationality to gain citizenship status in Dubai so, even for relatively privileged migrants like the British, residence is through a work or dependent’s visa. This means that residence cannot be thought of as “permanent” and any relocation may mean onwards relocation.

In Dubai, two organisations have been established, initially by British residents, to provide for the welfare of pet animals. K9 Friends was established in 1989 by a group of volunteers wishing to protect dogs in need across the United Arab Emirates. In 2000 the organisation founded its own kennel where stray dogs can be housed whilst undergoing veterinary treatment and waiting to be re-homed. Feline Friends is also a non-profit making organization, initially founded in September 1991 by Lesley King, a British Ex-patriate living in Abu Dhabi. Staffed by volunteers, many of them British migrants themselves, the organisation aims ‘to bring relief and care to the feral/stray, domestic, and abandoned feline population in the United Arab Emirates’. This includes encouraging adoption with regular events, such as “Adopt a Cat Day”, and an “Adoption Gallery” as a permanent feature of their website, with profiles of cats (and sometimes dogs too) who need a new home. In August 2010, K9 Friends had 76 different dogs available for adoption on their Facebook page and Feline Friends had 53 cats (including kittens and adults) in the adoption gallery on their website. Of course, some of these adverts did not relate to those abandoned due to onward relocation or repatriation, but to unplanned

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2 See (www.felinefriendsdubai.com)
3 See http://www.facebook.com/pages/K9-Friends-Dubai
reproduction or changing circumstances. Nonetheless, many of the adult cats (which make up about half the animals on the site at any one time, the rest being kittens) can be attributed to the on-going problem of animals being left behind by their owners when they leave Dubai. One example, is an adult cat that Feline Friends called “NoName”, who was rescued from the Greens Community residential district and appeared on the Adoption Gallery in May 2010 with the following description:

We have been looking after NoName in our home since mid-September as he had been attacked and was very badly injured. He is now fully recovered from his injuries and has been neutered, micro-chipped, de-wormed and had all necessary injections. We have known him in our internal garden area at the Greens for over 2 years and think he has recently been abandoned. He is friendly with other cats, loves human company, sleeping on your lap and will do anything for a piece of cheese...

The Greens Community is a suburb on the outskirts of Dubai which is strongly associated with the British community, since expatriates can buy property, but many instead rent apartments or villas. It is described on the website as providing ‘a way of life within a working and living secure community’ which encompasses landscaped gardens, stone streets and a relatively traffic free environment. The development covers 67 ‘lush’ hectares of residential, leisure, retail, and commercial properties, and prides itself on its ‘modern and beautiful surroundings with natural greenery being the key to the peace and tranquillity’. While not all residents are British, it is safe to speculate that at least some of the many animals found in such neighbourhoods are owned by Britons. However, the case of NoName being found abandoned in such a

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4 See http://www.greencommunity.ae/main/aboutus.aspx
neighbourhood, is not only illustrative of the many animals who experience this, but also demonstrates the wider social responsibility other British people feel towards animals evident in their actions to rescue such animals.

It is widely understood that animals may exert their own agency in relationships, for example through demonstrating their messy animal qualities which may disrupt the discipline and hygiene of human homes, but they are nonetheless vulnerable to the cruelty and desire of their owners. In Britain itself, this is evidenced by the huge numbers of animals given up to rescue charities every year, but in the context of British migration, we also find evidence of pets being abandoned when people relocate or repatriate.

The web forums used by British migrants in Dubai provide further traces of stories about these animals left-behind in migration. For example, the Dubai specific site of Expatwoman.com has a forum devoted to pets in which there are numerous postings from those trying to find a new home for their pets. Some are clearly last-minute, suggesting that finding a new home for the animal concerned is not being prioritised in the relocation, for example; ‘White Female Rabbit needs a home: Hi there, a friend of mine is leaving Dubai on wed [sic] the rabbit still needs to find a home, comes with a cage, thanks x’ (September 2009, Expatwoman.com)

A video report published by globalpost.com (Booker and Hundley, 2010) suggests that the abandonment of domestic animals was exaggerated by the recent global financial crisis. When expatriates lose their jobs in Dubai, they lose the right to residence immediately, but the paperwork necessary for their pet to leave the country may take up to six months to process. At the peak of the retrenchment of skilled workers from Dubai during this period, Feline Friends were receiving approximately 30 reports of cats
being found abandoned per day (Booker and Hundley, 2010). Such figures demonstrate the limits of the “more-than-human” family in the face of practical or financial difficulties and the vulnerability of pet’s position as human “belongings”.

Conclusion
In an increasingly mobile global society human migration is an important issue. Combined with changing attitudes to animals and relaxation of laws regarding the movement of pets in the early twenty-first century, the importance of animals in migrant’s conceptions of “home” is an under-researched area. Whilst much work has concentrated on domestic material culture as a means of re-grounding “belonging” (Hatfield, 2010; Walsh 2006; forthcoming) and the importance of human social and familial relationships in migration, little attention has been paid to the role of companion animals. “Living together” with another species on a daily basis necessitates a certain intimacy and recognition of non-human agency. Pets are often seen as kin or members of the family, therefore decisions to migrate must consider their fate and welfare.

Such decisions however, also highlight pet’s status as “belongings” (in both senses of the word) and the limits of animal agency within the relationship. In British law, animals are literally owned by their human companions and have little direct influence over migration decisions (although they may of course be an important factor in human considerations). Despite recent works in the field of human-animal studies that seek to highlight animal agency and transgressions (Fox, 2005; 2006; Haraway, 2003; 2008; Power, 2008) the pet-human relationship is one of unequal power dynamics (Tuan, 1984) and pets are vulnerable where human circumstances change. Whilst the majority of Britons consider their pets as members of the family (PFMA, 2010) the limits of this relation-
ship can be tested where pets fail to conform to human expectations (e.g. by displaying their messy “animal” qualities), where family circumstances change (e.g. the addition of a new child) or where expensive and difficult decisions regarding migration are faced, evidenced by the large numbers of animals abandoned or given up to rescue centres each year (both in Britain and Dubai).

Such debates are further complicated by uncertainty over the best interests of the animal. Despite increased possibilities for animal mobility mirroring those of their human companions, this is not necessarily an easy decision ethically or financially, as human desires to maintain the “more-than-human family” may be at odds with concerns over the animal’s welfare. Unlike other “belongings”, pets are living creatures and may be traumatised by a long and uncomfortable journey in the cargo hold, especially if they are old or infirm. They may also find it hard to adjust to unsuitable living conditions or climate changes in the destination country and face another traumatic return journey and readjustment if they owners choose to repatriate. This chapter aims to highlight some of these issues in the context of British migrants to Dubai (recognising that other migrants may have very different experiences) and calls for further research into the mobility of animals in transnational contexts, recognising their important role in human notions of belonging.
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David Redmalm
Why look at Tinkerbell? Notes regarding the Paris Hilton Syndrome

Introduction
In spite of its short legs, movement is crucial to understanding the Chihuahua. It is today one of the world’s most popular¹ and well-known breeds, and it has proliferated through networks of kennels, pet shops and puppy mills with an astounding efficiency. The Chihuahua’s widespread circulation would not be possible if it were not for its ability to move us. Its breed standard promotes a small body, big lustrous eyes and a relatively large head, and this apparently irresistible, babyish appearance ensures and facilitates its distribution. Thanks to its looks and its small size, the individual Chihuahua also enjoys certain liberties which other larger breeds are denied: it happens that Chihuahuas are let into areas where pets are forbidden, such as supermarkets and airports, and if you are lucky, you might be able to keep a Chihuahua in rental housing where animals are otherwise forbidden (see for example, O’Neil, 2008).

The Chihuahua is thus exceptionally mobile, not only because of its portable size, but also because of its ability to transgress the various boundaries of human society. Unfortunately, its portability and its popularity also facilitate illegal import/export of the little creature. The smuggling of Chihuahuas and other toy breeds is a huge problem in many countries, since the Chihuahua may bring with it an array of diseases across national borders (Lager-

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¹ The Chihuahua was ranked as the 12th most popular purebred dog in the US in 2009. In 1999, it was the seventh most commonly registered dog (American Kennel Club, 2009). There is reason to believe that the number of unrecorded cases is large since the dog is often bred and sold without being registered with the American Kennel Club.
The fact that many Chihuahuas suffer during transport also makes the question an urgent matter.

*The Paris Hilton Syndrome* is a term which has begun to appear during the last years. It is used to refer to the large number of abandoned Chihuahuas in the US.² Paris Hilton, heiress of the Hilton hotel chain, has recurrently been depicted in popular media carrying a Chihuahua — most often her favorite chihuahua Tinkerbell Hilton — to galas, premieres, and nightclubs. It is commonly stated that this creates an increased demand for dogs of the breed which, in turn, results in a breeding surplus. Paris is accused for using her dogs as accessories, and indeed, of accessorising them, thereby shaping Tinkerbell as an “accessory prosthesis”. Paris³ effect on the demand for Chihuahuas is also internationally renowned. In Sweden, for example, the widespread smuggling of toy dogs into the country is spoken of as *the Paris Hilton effect* (Lagercrantz, 2010). The Chihuahua has apparently become very popular, but the breed’s popularity now creates problems for its individual members. This chapter investigates the meaning of the contemporary Chihuahua. How has the dog become the centre of attention? What are the prerequisites for the commodification, the distribution, the exchange, and the attention given to the breed?

The Chihuahua is conspicuously contradictory — the breed is both exploited and embraced. To understand this paradox, we

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² See for example, Chavez, 2010; Hyde, 2010; La Ganga, 2009. There are several breed-specific dog shelters and sanctuaries in the US specializing in Chihuahuas, such as the *Chihuahua Rescue* in California, *Chihuahua and Small Dog Rescue, Inc.* in Colorado and Utah, and *Chihuahua Rescue USA* in Illinois, Indiana, Kentucky, Missouri, Ohio, New York and Tennessee. There is also a national organisation in the US devoted to rescue mistreated, unwanted and homeless Chihuahuas — *Chihuahua Rescue and Transport, Inc.*

³ From now on, Paris and Tinkerbell Hilton will be called by their first names in order to clearly keep them apart in the text. Another reason to do so is because they are called by their first names in the Simple Life TV-series — these are the names by which they are known. Therefore, I will also call Paris Hilton’s friend Nicole Richie by her first name after she has been introduced.
must be aware that knowledge is always most intensively produced around the anomalies which constantly emanate from our conceptualisation of the world. It is not our orderly thought systems or our meticulously defined categories that are socially productive; instead, knowledge is most effectively produced when those systems and categories fail to fill their duties. One example of this is Mary Douglas’ (1984) discussion of the pangolin (the scaly anteater) in the Lele society. It is an anomaly in relation to several dichotomies important to the Lele:

Its being contradicts all the most obvious animal categories. It is scaly like a fish, but it climbs trees. It is more like an egg-laying lizard than a mammal, yet it suckles its young. And most significant of all, unlike other small mammals its young are born singly. (Douglas, 1984: 169)

Because of its contested nature, the pangolin is given a special attention by the Lele. It is considered to be holy, and as a consequence it is included in their mythology and their rites. In a parallel vein, because of the Chihuahua’s two-sidedness and the attention given to the breed, there is reason to believe that the Chihuahua has become our pangolin. By looking at Paris’ Chihuahua Tinkerbell, as well as Chihuahuas in general – by taking these contradictive creatures in regard – it should be possible to detect the various paradoxes inherent to our culture. This is also the aim of this text, which is divided into three parts. First, I make some observations regarding the Simple Life series, starring Tinkerbell and her mistress. Second, I discuss Tinkerbell’s autobiography and the voice ascribed to her. Third, I look at a number of Chihuahua handbooks and the commodification of the breed. The text ends with a discussion regarding the modern cultural production of the Chihuahua, that is, the conditions under which the breed has become popular.
The Simple Life: ‘stilettos in cow shit’

The Simple Life⁴ is a so-called reality TV-show. The series is commonly referred to as the original source of the Paris Hilton Syndrome, as this is where Paris first occurred together with her Chihuahua Tinkerbell. The principal aim of the series is to let Paris and her best friend, Nicole Richie, interact with “common people” with “common jobs”. Paris and Nicole get to try a number of these occupations and live with some of the people they meet for a short time period. They also get to help out with the housekeeping at their hosts’ homes.

Throughout the Simple Life series, Paris and Nicole are displayed in a way that corresponds with the androcentric idea essential to the modern notion of the enlightened, rational, fully human subject, namely that women stand in close relationship with nature and that they are dominated by their drives and instincts to a larger extent than men (cf. Horkheimer and Adorno, 2002; see also Dunayer, 1995 for a discussion on animal metaphors in sexist language use). The two friends cannot manage the easiest of chores, and they react disproportionately to everything that happens, laughing frantically or screaming out loud with high-pitched voices. ‘They’re TOTALLY OUT-OF-CONTROL’ as it says on the cover of the DVD edition of the first season. Paris and Nicole are presented as the Freudian pleasure principle personified (cf. Freud 1961; Freud 1962). They are portrayed as governed by their drives alone; partly because they are depicted as extremely lazy and disloyal, and partly because they are presented as having a burning need to impose their sexuality on everyone they meet. Yet, even if Paris and Nicole are gendered in this conventional way, the nar-

⁴ This text is primarily referring to the first three seasons (2004; 2005; 2006). When a certain episode is referred to, the season is marked with an ‘S’ and the number of the episode with an ‘E’.
rative of the series emphasises that they do not know how to take care of a home or raise children. Also, they refuse to comply with rules set by their many supervisors and the fathers of their host families.

Therefore, throughout the Simple Life series, attempts are made to re-domesticate this ill-bred couple by placing them in families with a clear, patriarchal structure, with a strong father figure setting the rules. The speaker voice sums it up: ‘[T]hey are learning about a little thing called consequences’ (S1E5). Thus, the presentation of the women as less-than-human also plays on the adult/child dichotomy. Paris and Nicole are depicted as children in need of clear guidelines and reprimands, and their status as children is emphasised by the small, cheerfully coloured dresses they regularly wear. Paris and Nicole are also put to hard work – they clean out barns, clean fish, clean an outside lavatory, pluck chickens, castrate dogs, fry hamburgers, make sausages and so on; two themes are reoccurring – faeces (animal and human) and meat. One of the producers states in an interview, that the concept of the series is ‘stilettos in cow shit’ (Ryan, 2004). Thus, faeces come to symbolise the unpolished real life and accordingly, this filthy imagery makes a sharp contrast to the women’s usual lifestyle. The meat scenes, on the other hand, re-establish Paris’ and Nicole’s human status. As Carol J. Adams (2000, 2004) argues, the common understanding of meat eating is interwoven with the notion of enlightened civilization – when eating other animals and manifesting this behaviour, humans confirm their exceptionality. Following this logic, the scenes where Paris and Nicole are talked into eating meat, after hesitating and expressing repugnance, are made intelligible.

While Paris is disgusted by most animal encounters she readily kisses Tinkerbell on the mouth. Even though Paris may have a
bad reputation as a dog owner, she is described as very attached to the dog. Perhaps without considering the lifespan of a Chihuahua, she asserts that she would kill herself if anything happened to Tinkerbell (S3E1). As a result, the viewer soon learns that Paris and Tinkerbell are close allies, and one cannot help but perceive the similarities between them as striking; just as Paris and Nicole are at once presented as natural and synthetic, at once depicted as governed by their drives and unable to embrace their true femininity, Tinkerbell is presented in the same way – as simultaneously natural and synthetic. The Chihuahua’s extreme smallness can be perceived as a proof of the amazing things that can be achieved through breeding (i.e. human manipulation of nature). Tinkerbell’s artificial side is emphasised by the pink clothes, fake fur and shoes with glittery details in which she is dressed. Indeed, she has the same sense of fashion as her mistress. Yet, Tinkerbell is a living, breathing, individual being, a fact stressed by her mistress’ concern for the dog. Tinkerbell, this unnatural animal, forced to lead a simple life, is thus used as a satire of Paris and Nicole.

**Tinkerbell’s autobiography: ‘that’s a lot of pressure to be adorable’**

In Tinkerbell’s autobiography: *The Tinkerbell Hilton Diaries: My Life Tailing Paris Hilton* (Hilton, T., and Resin: 2004), which is written in first person singular, we get to know the dog behind the Gucci collar more closely. The words ‘FICTION/HUMOR’ are printed on the front cover with a rambling font, and the cover is also adorned by a picture of Tinkerbell’s face, and four identical depictions of Paris’ face are circling around her on a colourful psychedelically patterned background. The book cover is designed to make sure that we by no means should take the ridiculing of Paris and the Chihuahua hype seriously – it is not *really* the dog
who has written the book in case the reader would think otherwise. However, Paris did not write her “autobiography” by herself either. It is co-written by Merle Ginsberg, author of several celebrity biographies (Hilton, P. & Ginsberg, 2004). Both Paris’ and her pet’s biographies were published in 2004 by companies owned by Warner Books⁵, which as a consequence makes money on both the satire and the satirised.

When scrutinizing the phenomenon of verbal animals, Erica Fudge (2008) argues that animals are not only ascribed voices in order to create a comical effect; the practice can also be a way to emphasise a non-human character as an experiencing, sensuous, and intelligent subject, in contrast to the Cartesian animal-machine (cf. Descartes, 1988). In this way, the anthropomorphisation of an animal is not necessarily a one-sided ascription of an author’s intentions to a passive and mute animal. A crucial aspect of this kind of explorative anthropomorphism is that the fictional animal perspective does not have to be familiar to the reader, rather the opposite. As Fudge argues, an animal made verbal can make the reader more attentive to a way of seeing the world which initially may have seemed completely other to the reader.

While Paris is ascribed a voice in her autobiography to reinforce her image as a wealthy fashionista, the talking Tinkerbell makes the story short, in line with the toy dog prejudice. By the very fact that she is talking, she rejects the notion of the accessory pet, and the effect is strengthened by the critique Tinkerbell directs at Paris, and the challenge the dog poses to the common view of toy dogs. According to Tinkerbell’s written statement, she is not being physically abused or neglected by her mistress in any way. The Chihuahua is instead discontent because she is being dressed in stupid looking clothes, because she is forced to listen

⁵ Brown, Little and Simon and Schuster (see Fabrikant, 1989/2009).
to her mistress’ gibberish, and because she must go along on endless shopping sprees. These luxury problems are enough to lead Tinkerbell into suicidal thoughts: ‘I don’t know how much more of this I can take’ (Hilton, T., and Resin, 2004: 23); ‘I spent the rest of the morning trying to lick a power socket’ (p. 75). Nevertheless, she is persistently protesting against Paris by relieving herself in her mistress’ bags and on her clothes, and even on one of Paris’ friends. Again, the faecal matters are supposed to pull the famous heiress down to earth. This resistance is in some way also a cry for help – Tinkerbell is fully aware of the Paris Hilton Syndrome, and knows that Chihuahuas are commonly viewed as disposable:

First of all, toy dogs like myself have it rougher than you probably think. Folks pay a lot of lip service to care and love and how special we all are, but the fact is there’s a long waiting list for very wealthy potential owners all vying for a select few of us, so right from birth we’re raised and constantly groomed by our breeders to be the most profitable fashion accessory that we can be for their very exclusive clientele. If it turns out that you’re not cute enough, or cute in the wrong way, you get sent either to the pound or to “visit” some guy in Wyoming who sells novelty taxidermy [...]. That’s a lot of pressure to be adorable (Hilton, T. and Resin, 2004: 7).

This example of Tinkerbell’s sharp observational skill is in one way relieving; the account of the horrors of the heavy and exploitative breed practices is rather merciless. Still, most of the jokes are at Paris’ expense. Speaking dogs are quite rare, and this would have been a tremendous opportunity to bring out a unique, non-human account, challenging consumerism and sexism as well as

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6 According to Tinkerbell Hilton (Hilton, T. and Resin, 2004:8), she started the Chihuahua hype herself by creating rumors on the internet with the aim to be purchased and brought home by a wealthy owner.
the mistreatment of toy dogs. The canine protagonist should have been allowed to write about the relation between the objectification of Paris in advertisements and popular media, and the similar objectification of Chihuahuas into fashion accessories. As Carol J. Adams (2000; 2004) argues, consuming subjects must be able to avoid thinking of the object of consumption as another subject in order to enjoy the consumption of the commodity – this goes for meat eating as well as pornography – and here, we may also add the consumption of live canine accessories, even though Tinkerbell herself never makes the connection between the simultaneous objectification of dog and mistress.

Tinkerbell’s critique resonates with the general view of Paris, and in this way the Chihuahua becomes her mistress’ Achilles heel. Even if Paris’ life of luxury may seem unreachable and even surreal to some, dog keeping is something most people are acquainted with. When one is able to judge the way Paris treats her dog, she becomes a little bit more real, a little bit more human. In this way, Tinkerbell works as Paris’ moral prosthesis – while she may seem unreachable, we may reach out to her little dog and condemn the way it is being treated.

The Simple Life can be regarded as a critique of the debauchery of the upper class; Paris can behave any way she wants, she is still far wealthier than any of her host families and employers. She is untouchable, but rather than questioning the structures making her economical independence possible – a critical stance which would not be intelligible in a society based on a liberal market economy – the critique is focused around her pets. Even if the viewer may intuitively take a dislike to the excesses of Paris’ way of life, this aversion may be appropriately channelled in the shape of an animal welfare critique. Likewise, the challenge against the objectification of Tinkerbell obscures the derogatory presentation
of Paris – the commodification of Chihuahuas agitates both Tinkerbell and the press, while the objectification of Paris is overlooked. This also throws a light on the fact that Paris has been voted the world’s worst dog owner, while Tinkerbell has won an award for the best “pet personality” (MTV News staff report, 2005; ‘Paris Hilton accepting her Boomerang Pet Award,’ 2009). Toy dogs in designer collars make better headlines than class and gender issues.

**Canine consumption: ‘a living proof that you can buy love’**

In order to understand the constitution of this smallest of dog-breeds, I now turn to the discursive production of the Chihuahua in a number of Chihuahua handbooks. I am going to look at how the Chihuahua is presented as a desirable commodity in the books, which are all addressed to people who are thinking about getting a Chihuahua. To understand the Chihuahua’s place in society, one must understand the way the Chihuahua is turned into an object of desire, that is, a commodity.

According to Jean Baudrillard (1998; 2003), modern economy is based on the mass-production of objects, but every single object must be perceived as unique and authentic to become a desirable commodity. In turn, rather than goods with an intrinsic value, commodities should be understood as signs which we exchange incessantly and without ever being satisfied. It is thus the place of every commodity/sign in a network of signs that assigns it a meaning and a value.

A pet is a commodity since it is bought and sold, since there are fashion trends in breeds and species, since different charac-

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7 The Chihuahua handbooks I have included in this analysis are Coile, 2000; Coile, 2003; Hustace Walker, 2006; Gagne, 2005; O’Neil, 2008.
teristics, values, ideas and ideals are connected to different kinds of pets, and finally, since many species used as pets are mass-produced; but since each pet, in a series of pets, de facto is an individual being with its own needs and preferences, the pet logic plays very effectively on this tension between the mass-produced and the unique. There is reason for believing that Chihuahuas accentuate this paradox because of the heavy visual exploitation of the breed, and the simultaneous protests against that exploitation. A couple of Chihuahua handbooks play on this tension with an allusion to prostitution, saying that ‘the Chihuahua is a living proof that you can buy love’ (Coile, 2000:9; c.f. O’Neil 2008:9).

Throughout the handbooks, the Chihuahua dissolves several dichotomies that we commonly perceive as insoluble. The first dichotomy – that of the individual and the commodity – has already been pointed out. In the handbooks, it is continuously emphasised that every Chihuahua is an individual, with individual and circumstantial needs, thus making it impossible to use it in the same way as other fashion accessories. The many hardships that follow from owning a Chihuahua are pointed out by the books: you have to put a lot of effort into caring for your dog, giving it the proper training, and the right diet. Equally, both mundane and existential problems are discussed in the literature. For example, the literature emphasises that it is a painful experience to lose a loved Chihuahua (see e.g. Coile 2003), while a Chihuahua handbook author may take equal measure pointing to the fact that Chihuahuas need to urinate at short intervals (see e.g. Hustace Walker 2006:123). Even though it is emphasised that the Chihuahua, unlike a fashion accessory, needs to be taken care of, Chihuahuas are presented as small and cute in the pictures of the books – we get to see Chihuahuas in jeans pockets, Chihuahuas in flower arrangements, Chihuahuas in cute clothes and Chihuahuas in knitted baskets.
Also, as inspiration, we get to learn the names of the many celebrities who own, or have owned, Chihuahuas. In other words, the commodification of the Chihuahua is both disapproved of and encouraged in the literature.

Second, there is a tension between the *toy dog* label and the appreciation of the Chihuahua as a *real dog*. The Chihuahua is ‘a true toy breed: a breed created for the sole purpose of being companions to people’ (O’Neil 2008:14). It’s big eyes and its relatively big head gives it a babyish appearance – in fact, Chihuahuas are described as ‘perpetual babies’ (Coile 2000:152). Because of its small size, it can get badly hurt from falling household utensils when accompanying their owner in the kitchen for example. The dog is also vulnerable to several diseases common to small breeds. The Chihuahua’s petite physique is presented as a part of this problem: ‘perhaps some internal organs simply have met their lower limits of normal size and function’ (Coile 2003:11). The breed is characterized as ‘[t]he tiny dog with the giant heart’ (Coile 2000:vii) but in the light of these medical facts, the figurative expression becomes a cruel irony. Yi-Fu Tuan (1984) argues that a pet is best understood as a (often deficit) genetic innovation used by humans as a proof of their control over nature. The presentation of the Chihuahua as a toy breed with a hereditary taint strengthens Tuan’s argument – the dog is a fragile toy which needs meticulous maintenance. At the same time, the actual origin of the Chihuahua is unknown.

The Chihuahua is so small and fills no direct purposes, that it is hard to determine the original purpose of the breed. According to the most popular theory regarding the Chihuahua’s origin, it was bred by the Toltecs in South America for ritual purposes and food during the ninth-century AD, and then by the Aztecs. When the Spanish colonized the Mexican region, the Chihuahuas
were scattered and came to live and reproduce in the Mexican mountains, separated from human society. The Chihuahua was then re-domesticated about two or three hundred years ago, and in the beginning of the twentieth-century, the first Chihuahua was registered by the American Kennel Club. The fact that its history goes back to ancient times adds an aura of authenticity to the breed. The years of heavy natural selection in the Mexican mountains also confirms the Chihuahua’s image as a real dog. It is not some half-measure created by some mad geneticist or unscrupulous backyard breeder. Instead, the Chihuahua as we know it, is said to have originated from the processes mapped out by Charles Darwin. In other words, the Chihuahua is thus at once a toy dog and a real dog.

Third, this tension between toy dog/real dog is related to the nature/nurture discussion. Even if it is called a toy dog, the Chihuahua is explicitly presented as a “real” and “natural” dog with “real” needs. Still, it must be brought up, or nurtured, by a caring human to become mentally sane. For male dogs this may include neutering, both in order to change the behaviour of the dog (e.g. dominant behaviour, Coile 2000:39, and masturbation, Gagne 2005:20), and to prevent any unwanted pregnancies. Thus, on the one hand, the Chihuahua is a biological organism with a nature of its own, but on the other, human manipulation of the dog’s behaviour and reproductive organs is needed to make the Chihuahua into a real (family) dog, relating nurturing to neutering.

8 Cf. Judith Butler’s (1991, especially p. 21) discussion the concept of origin and its mechanisms. According to Butler, we tend to see the performance of the male and female sex as stemming from a definite but diffuse causal origin – the essence of the female and male sexes. Homophobic ideas then become possible by a relativisation of homosexuality, where homosexual acts are dismissed as copies of “original” heterosexual acts in conformity with the norm and the stipulated “essences” of the male and female sexes. By describing the Chihuahua as having a distant evolutionary origin, one makes the Chihuahua appear as natural with reference to an obscure, and thus unquestionable, causal source.
Conclusion

Studies of pets within the social sciences often emphasise that the relation between pet and owner must be understood as a real, personal and authentic relation, rather than an expression of humanity’s domination over nature (see for example, Adrian Franklin, 1999). But do animals really have an essence which we humans diffuse, exploit and hide between layers and layers of anthropocentric ideas? Is there such a thing as a “real” interspecies relation cleared of all cultural bias? With the picture of the contemporary Chihuahua painted above, together with the Simple Life imagery, I have argued that “Chihuahua” is not a strictly biological term that designates a group of organisms with a common gene pool. Instead, the name connotes with values, meanings, ideas, and practices of breeding and consumption. These values, meanings, ideas, and practices permeate the Chihuahua-human interaction – even the Chihuahua handbooks, written as a help for people dealing with actual, living Chihuahuas, play on a wider cultural framework. Both humans and Chihuahuas may certainly challenge the conceptualisation of the Chihuahua in various ways, but the discursive production of the Chihuahua is what we have to work with in doing so.

Thus, the status of the Chihuahua has only slightly changed since the “pre-modern” Toltec period, given that the Chihuahua is still much more than “just” a breed. And just as for the Toltecs and the Aztecs, the Chihuahua is today treated as an exploitable commodity; it is at once – or neither – a natural object and an artefact. The Toltecs and the Aztecs may have sacrificed the dog in magic rituals. However, according to one of the books, several crimes of ritualistic nature against individuals of the breed have been reported during the last years (Hustace Walker, 2006). To this, we may add the large number of Chihuahuas that must be killed due
to the breeding surplus, and that there, in spite of this, have been occurrences of caged Chihuahuas being used as ‘puppy-producing machines’ (Coile, 2000). Chihuahuas are thus both embraced and killed within the one and the same system of knowledge.

In accordance with Bruno Latour’s (1993) argument, the nature/culture divide, which can be said to permeate all of these dichotomies, continuously creates anomalies. This is because no phenomenon is strictly natural or cultural. As a way to handle the paradoxical world in which we live, we tend to regard things as belonging to either a natural or a cultural realm. Nevertheless, the world keeps reminding us that nothing is just natural or cultural, and the Chihuahua is one example of this.

One way of dealing with anomalies, if it is impossible to categorise them, ignore them or exterminate them physically, is to make them holy, in the same way as the pangolin is made holy by the Lele, we make Chihuahuas holy when we attach such a great importance to them, when we offer them a generous space in TV-shows and news articles, and when we publish book upon book about them. In these texts and images, Chihuahuas in general, Tinkerbell in particular, lend themselves to a therapeutic staging of a variety of binary oppositions. This also goes for Paris. In the presentations of toy dogs and blonde heiresses, they become able to help us transcend dichotomies such as culture/nature, human/animal, rational male subject/feminine irrational creature, authentic/synthetic, individual being/commodity, subject/object, and adult/child, if only for a moment. With the help of Tinkerbell, Paris and the Chihuahua breed, the internal tensions of our culture – which we usually call “modern” – can take acceptable expressions in the magic rituals, the myths and the chanting that we usually call popular media. Furthermore, the focus on cute animals lets us neglect problems concerning sexism and socio-eco-
nomical inequality. Instead focusing on the paradoxical character of the Chihuahua, as we have done in this chapter, the little dog becomes a key to discovering the many contradictions inherent to our modern culture. Through the deconstruction of the Chihuahua phenomenon, it has become apparent that the Chihuahua has never really been modern – that is, it has never belonged to just one side of the mentioned dichotomies, and neither have we.

Many aspects of the Chihuahua cannot be grasped with a static mind. But when we set our thinking in motion, suddenly, the Chihuahua’s movement is not just a matter of speed and length, which can be measured objectively. When we acknowledge that the movement of the Chihuahua is meaningful, we are able to notice the interspecies language expressed by the wave of a Chihuahua’s paw asking for a snack; the law of gravity, making a falling everyday object lethal; the Chihuahua’s heart rate which may or may not indicate a healthy heart; the faeces – the movements – by which the Chihuahua can communicate its disharmony; the way a Chihuahua newly rescued from a home of a compulsive hoarder (cf. Foley 2009), looking into the camera, can move us; the efficiency with which the breed is distributed on the global market and throughout criminal networks; the incredible distance in time that it has travelled, from the days of the Toltecs to the contemporary living room; the Chihuahua’s social mobility – any shelter dog can end up in the arms of a multimillionaire. A Chihuahua may be used as an accessory prosthesis, but a Chihuahua can also use her mistress as a prosthesis, enabling the dog’s movement in areas where animals are otherwise banned, and lending her a voice prosthesis when the dog needs to make herself understood.

In all this, Chihuahuas in general, and Tinkerbell in particular, matter. They matter to us because their movements matter to us. A Chihuahua may communicate with us with a wag of the tail,
a lifted paw, by running around, jumping, or simply by relieving itself on a rug. Baudrillard (1994) has argued that non-human animals threaten our human identity since no matter what we do to them, they remain silent. I am of another opinion. Chihuahuas are not mute beings, but take an active part in the discursive production, in creating meaning together with other creatures. If a Chihuahua writing her own memoirs is not proof enough, then I do not know what is. Nevertheless, we continue to maintain an order where dogs, as well as animals in general, lack any juridical rights and remain completely under our control as our property. Despite their efforts in communicating with us, we refuse to listen.
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Anna Rabinowicz and Amanda Huffingham
Animal locomotion: taking steps toward bio-inspired prosthetic and robotic design

Introduction

Introducing bio-inspired design
Creatures are specialised to do certain wondrous things, based upon their needs for survival. In general, the less we understand about the ways in which these phenomena work, the more magical they appear. Scientists explore the underlying reasons behind nature’s solutions; engineers and designers investigate ways in which to translate these findings into tangible solutions. It is no longer acceptable to assume that human-generated technological advancements and pure engineering are most effective at producing the optimal outcome without consideration of biological inspiration (Allen, 2010: 163). In fact, according to Peter Forbes, author of The gecko’s foot, bioinspiration: engineering from nature, some engineers and scientists believe that biologically-inspired design has the potential to be the blueprint for future technology (2005: 159).

Determining ways in which to translate aspects of natural innovation into human-created products and systems facilitates new innovations in this field through various methodologies that can be categorised as biomimetics or bio-inspiration. Biomimetics is defined as mimicking nature in some way, in order to develop solutions to a problem. In contrast, bio-inspiration, the future of this field, is defined as using inspiration from nature as a basis for developing engineering solutions to a problem (Allen, 2010: 172).

An example of using bio-inspiration to inform the creation of
a production method (and philosophy) is bottom-up manufacturing. Often referred to as self-assembly, bottom-up manufacturing is inspired by the way in which DNA forms; this involves building one molecule upon another to create a larger structure (Forbes, 2005: 138-40). It is a philosophy of additive creation of products, a process and approach that eliminates superfluous waste. This is in direct opposition to the approach of reductive manufacturing, which takes a block of material and removes from it what is necessary in order to create a final part, creating waste and using unnecessary energy. Learning from the way that nature efficiently and elegantly creates, can teach engineers a great deal about how to design and build in a humane and intelligent fashion. Another example of this is a manufacturing process focused on thinking backwards, also known as “downstream to upstream thinking,” which focuses on an appropriately reversed order of decisions and actions (Hawken et al., 1999: 122).

Implications for sustainability

Increasing sustainability is implicit in the efforts of bio-inspired design. Products created under the auspices of this philosophy are based upon the most successful attributes and processes of the natural world. As such, according to Janine Benyus of the Biomimicry Institute, such products follow the lessons of nature: they use only the energy they need, recycle everything, reward cooperation, bank on diversity, and demand local expertise (1997:7). Benyus’ theories link product development to larger social issues, and help to ground the experience of using these products within the context of our society, and its environmental needs.

The notion that nature is the ultimate waste-free system is posited by Philip Reed, Assistant Professor at Old Dominion University in Norfolk, Virginia:
Nature is not wasteful, and cleverly chooses the path of least resistance to solve very complex problems. Many of these problems, like the way information is stored and transmitted, are not fully understood, but researchers are looking at nature to guide them toward a more replicable model (Reed, 2004: 26).

Reed’s statements address fundamental environmental concerns, as well as issues of societal consumption.

This kind of depiction of nature draws on particular ideas about the contested definition of what is considered “natural”. According to futurist conceptual designer and illustrator Syd Mead, lines between machine and naturally created have eroded, as their product shares a similar methodology:

The fashionable ideology that “artificial” lack the inherent goodness of “natural” is an appealing, but hopelessly simplistic notion of the intellectually chic. Artifice is the result of a deliberate intent to make. Nature also “makes” things, using a set of basic building blocks common throughout the universe...What we call natural is simply the result of whatever set of rules nature has followed in fashioning our observable reality (Mead, 1992: 15 cited in Wikipedia).

Mead also argues that the nanotechnologies employed in molecular engineering are blurring the lines between once-opposite concepts and attributes, including “machine” and “organism”, “natural” and “unnatural”, and “God-given” and “man-made” (Mead, 1992: 15 cited in Wikipedia). According to this line of reasoning, people are becoming blended versions of human and machine. Consequently, prosthetics of all persuasions (whether actual prosthetic limbs, or simply technological assistants like computers) are increasingly integral to human nature and therefore, natural.
Donna Haraway’s cyborg, a body composed of biological and mechanical components, continues this commentary on the ways in which biotechnology is increasingly affecting the composition of our bodies. She suggests a hazier gradient of identity by refuting the perception of body and machine as separate entities. Haraway suggests similar border dissolution between other conventional opposites as nature/culture, and control/helplessness. In this scenario, the body does not need to wear a manufactured prosthetic; each of us is naturally a cyborg because of the seamless integration between us and technology (Haraway, 1991: 173).

Responsible product development, whether considered “natural” or “unnatural,” requires reflection upon shrinking natural resources, and diminishing energy sources. Practitioners in the field have the ability, and, some might argue, obligation, to select the most sustainable attributes in nature, in order to create products for humans that best reflect those intelligent practices. As eloquently stated by Christopher Alexander et al., in their book, A pattern language:

> When you build a thing you cannot merely build it in isolation, but must repair the world around it, and within it, so that the whole world at the one place becomes more coherent, and more whole; and the thing which you make takes its place in the web of nature, as you make it (Alexander et al., 1977: xiii cited in Hawken, et al., 1999: 124).

This statement reflects the philosophy of a cognitive design approach that takes the surrounding world into careful consideration, providing the necessary context within which individualised product development can occur.

In keeping with this cooperative spirit, it is only fitting that for those in this field, borders between disciplines have eroded in
an appropriately “organic” fashion. The process of creating such biologically-inspired designs necessitates the cooperation of practitioners from such disciplines as biology, chemistry, mechanical and electrical engineering, product design, and computer science. These researchers serve as translators, attempting to understand the principles that underlie the efficacy of each natural adaptation or system.

There is a possibility that questions might be raised about the morality of humans utilising knowledge gleaned from the examination of animals or natural systems. One response to that is the recent landmark ruling in United States federal court, which invalidated patents on genes associated with breast cancer. The judge’s ruling indicated that the genes inside humans’ (and, by association, animals’ bodies) are not patentable, and it is not possible to “own” them exclusively. According to Chris Hansen (as reported in the New York Times), a staff lawyer with the American Civil Liberties Union (ACLU), counsel for the plaintiffs in the suit, limiting access to biology as an inspirational tool is a dangerous precedent and limits potentially beneficial scientific inquiry and research:

The human genome, like the structure of blood, air or water, was discovered, not created. There is an endless amount of information on genes that begs for further discovery, and gene patents put up unacceptable barriers to the free exchange of ideas (Schwartz and Pollack, 2010: B1).

This case ruling indicates that, at least in the United States, genes and biological compositions of humans and animals do not belong to anyone. As such, they are available for use in scientific research of the sort that takes place during the development of biologically-inspired designs.

There are many significant ways in which approaching design
through the lens of biology has altered the goals of human development. Some of the most significant include learning from cooperative natural systems and phenomena in order to create responsive materials, products, and systems. We posit that the general aims of development in this area focus on creating products which are: (1) more energy efficient; (2) use less material; (3) less toxic; and (4) better adapted to sustaining life on earth.

Methods

From bio-mimicry to bio-inspiration

The original version of design inspired by nature was that of mimicry; for example, the wings of a butterfly were thought to be beautiful, so Victorian quilters created patterns for fabric with a butterfly motif (Gordon, 2009). While an advantage of mimicry is that there is a (nearly) guaranteed working mechanism because the human construction attempts to exactly match the natural mechanism, (Allen, 2010: 164) the complexities of the issues that surround product development (consumption, resources, materials, etc.) now require more comprehensive approaches toward utilising biological inspiration.

In this paradigm shift toward bio-inspiration, natural structures provides clues about what might be useful in a mechanism, but room is left for unique human interpretation and improvement of that mechanism, as well as adaptation of the mechanism to address human needs. This suggests that engineers and designers can pick and choose biological attributes in order to create composite products imbued with the most successful parts of multiple natural phenomena. According to Robert Cohen, Professor of Chemical Engineering at the Massachusetts Institute of Technology (in an interview with National Geographic magazine), ‘Looking at
pretty structures in nature is not sufficient. What I want to know is, “Can we actually transform these structures into an embodiment with true utility in the real world?” (Mueller, 2008).

Like Cohen, Robert Full, renowned etymologist, believes that researchers should borrow the best parts of many different organisms and technologies to create successful hybrid solutions. Dedicated to the creation of robots based on animal attributes, he advocates distributing control of such robots to “smart parts,” such as their precisely programmed mechanical feet, legs and bodies (Full, 2005). An example of a manifestation of this kind of inspiration is Full’s Ariel robot, developed in his lab at the University of California, Berkeley, which is based upon the locomotion of crabs. Through self-adaptive software, this amphibious robot has the extraordinary ability to flip when buffeted by waves, and reorient in an upside down position (Menzel and D’Aluisio, 2000: 86).

Methodologies of bio-inspired development
Research and Development methodology in the bio-inspired design field, appears to follow three different pathways. The first route occurs when researchers and designers are initially inspired by a natural phenomenon, and then develop a useful human application for it. The second happens when a human problem drives investigation of existing successful solutions in the natural world. And the third takes place when humans create an invention only to find that it already exists in nature; this usually occurs when technological advances suddenly illuminate natural phenomena.

In its early stages, the first pathway usually involves a team of researchers, who investigate a natural phenomenon in order to determine the reasons behind its function or behavior. In later developmental stages, engineers utilise the results of these studies to create mechanical models that simulate the natural attri-
bute in question. Product designers then translate the scientific and mechanical findings into products inspired by nature, which address fundamental human needs. This pathway proposes functions “guaranteed to work” because they have performed in nature before. However, the disadvantages are that the outcome is not often a result of novel thinking about what the human adaptation of such a function could be (Allen, 2010: 164).

An early example of this discovery route in practice is illustrated by the design of chain-saw cutters. While chain-saw cutters were patented in 1858, it was not until 1949 that they became galvanized by biology. Joseph Cox, inspired by the motion of beetle larvae biting off wood with their mandibles, devised a chain with cutters that mimicked this beetle action. The chain-saw cutters work so well that the mechanism is still used today (Vogel, 1998: 267).

The second conduit is often initiated by product designers or engineers. This pathway is sparked by awareness of a human problem. Designers then research ways in which something in nature – animal, plant, or mineral – is already addressing these challenges. After investigation of existing scientific and mechanical research, they apply these elements or innovations to a human-created solution. Examples of theories based upon this developmental framework include BioTRIZ (meaning the biologically-applied theory of inventive problem solving)\(^1\). The ultimate goal of BioTRIZ is to compare functions being delivered in engineering and biology to derive an optimal, objective solution. This matrix-based process involves beginning with an engineering problem. The project objective is then defined in terms of the biological thesis of the function, the antithesis of the function, and the synthesis of the function. According to Genrich Altshuller, engineer and research-

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1 TRIZ is an acronym for the Russian “Teoriya Resheniya Izobretatelskikh Zadatch” (Armand, 2003)
er from Uzbekistan who invented TRIZ, this matrix results in an unbiased assessment of the best solution that can be applied to the problem (Allen, 2010: 166-69).

A secondary theory also based upon this framework, developed by researchers at The Georgia Institute of Technology (Georgia Tech), is entitled “Analogical Reasoning.” This approach begins by reframing an engineering problem. Engineers then determine the functionality needed, and solve the problem with the assistance of biological analogies. In essence, they determine what (or who) in nature possesses analogous function, and then apply the best natural examples to the engineering problem.

An example of an application of “Analogical Reasoning” is Georgia Tech’s Invisiboard project. The goal of Invisiboard was to create a surfboard that made the surfer and board invisible, in order to prevent shark attack. The engineering problem was reframed as: ‘How do organisms camouflage in water to prevent detection by predators?’ (Goel, et al., 2009: 3) Researchers selected the Ponyfish (*Leiognathus equulus*) and the Brittlestar (*Ophiothrix fragilis*) for their exemplary abilities to camouflage themselves. The Ponyfish hides itself in two novel ways, both by producing light and dispersing light, and the Brittlestar has inspirational photoreceptive abilities (the means to harness ambient light). Engineers then brainstormed ways to translate these bio-inspirations into mechanical solutions that produce light, ultimately developing a silhouette-less surfboard.

More often than not, the third discovery route (when humans invent something, only to find that nature has invented it first) is spurred on by technological advances; natural phenomena are only “discovered” when the technology to decipher them comes into existence (Forbes, 2005: 19). An example of this is the phenomena of echolocation in bats and sonar location in whales and dolphins;
before the invention of the ultrasound, the intricacies of these animals’ sound-based location mechanisms were not well understood by humans (Forbes, 2005: 11-2).

Understanding the principles of sound-based mechanisms has fuelled the path of invention of such devices as the Ultra Cane, which enables the visually impaired to ambulate independently. Developed by researchers at Sound Foresight Ltd. in the United Kingdom, the design of this cane is based upon the principles of bat echolocation, which enables bats to find their way in total darkness. A mechanism in the handle of the cane sends out sound waves to locate objects in front of it. The handle then vibrates, letting users know when an obstruction is about to present itself, thereby helping them to avoid it.

Analysis of methodologies
The first approach described (in which natural phenomena inspire human solutions) best embodies the original developmental approach in this field. Somewhat antiquated in approach, it is still the method most commonly used in academic circles. This approach is shifting, as modern methods gravitate toward broader applications and methods of solving human problems, as evidenced by the second process described, that of human problem solving leading to biological inspirations. This pathway promises innovative development by beginning with a fundamental human issue, systematically analysing multiple analogous biological functions, and then choosing the best routes, or examples, to combine into a novel “roadmap”.

An advantage of this secondary approach is that researchers in fields other than biology can potentially define which areas of biology are likely to yield information relevant to the problem, while providing an objective approach to understanding biological
functions (Allen, 2010: 165-9). Espoused by leading researchers in the field such as Robert Full of the PolyPEDAL Lab at University of California, Berkeley, Robert Cohen of Chemical Engineering at The Massachusetts Institute of Technology (MIT), and Joanna Aizenberg of the Wyss Institute of Harvard, this approach holds a great deal of promise in moving the field into the future.

This third approach (concurrent human and animal innovation) illustrates ways in which new technology leads to the illumination of existing natural innovations. It begs the question of “which came first,” and of “ownership.” Referring to the ruling in the landmark gene patent case mentioned earlier, one could argue that genetic sequences (and their associated biological manifestations) are owned by neither humans nor animals. But thought processes that recombine, reconfigure, or recontextualise such elemental aspects of our biological makeup, resulting in the creation of objects or new processes (and, therefore, new knowledge), could be argued to belong to their inventor. It is a complex and nuanced discussion, without clear answers.

**Results**

*Animal motion and behaviour address human needs*

Traditional biomimicry focuses on singular mechanical or aesthetic inspirations. A new concentration in this field is focusing on finding the best solutions to human problems via broader biologically-inspired influences. There is, therefore, a new school of thought centred on motion-based and behavioural inspirations for product development. This proposition involves systematising and hierarchically ordering natural functions, based on locomotion and novel behaviours.

There are many different interpretations and ways of charac-
ting the research and outputs of locomotive and behaviourally-inspired design. In examining the tangible manifestation of research in this area, we propose the following breakdown to classify the ways in which these burgeoning areas of focus are developing: Cruise Control: Animal Speed as Inspiration, and Extreme Resilience: Animal Adaptability as Inspiration. Researchers influenced by high velocity and agility of animals have had good initial success in developing technologies that address real human needs.

Prosthetic design efforts, which result from these kinds of exploration, often centre on enabling individuals, physically and emotionally. Research and development work in this area is built upon the assumption that the physical ability of amputees to operate a prosthetic is reduced by their disability. This has led to the development of energy-efficient prosthetics that require less energy input from their wearer.

Cruise control: animal speed as inspiration
The primary focus in this area is on analysing energy-efficient or unusually speedy animals, in order to determine the adaptations that have resulted in their extraordinary abilities. These scientific findings then translate into the development of prosthetics and products that assist and empower the disabled.

One example of this is a running prosthetic used by Paralympians, based up on the mechanics of the cheetah, the world’s speediest land mammal. After becoming an amputee following a water-skiing accident in 1976, and experiencing the heartache of wearing clumsy prosthetics, athlete Van Phillips of Flex Foot, Inc. developed the Flex-Sprint III based on cheetah locomotion. This particular prosthetic is used for running only, due to the differing biomechanics of running and walking. It merges the advantage of the shape of the cheetah’s hind limbs (cheetahs have no heels)
with the natural response of a human leg and foot when they sense an applied load. The resulting prosthetic is in the shape of a curve, and is designed to return up to 90% of the compressed energy that is otherwise lost in the down step of a sprinter. The prosthetic is made of a carbon-fiber composite known for its lightweight strength, originally developed for NASA (McMullen, 1998: 39).

Our research in this area involves studying the locomotion of kangaroos. Unusually energy-efficient animals, they can cruise for hours, not altering their frequency and “magically” expending less energy the faster they go. These findings can be applied in the future to the development of prosthetics based on kangaroo locomotion which enable amputees to efficiently store energy (Rabinowicz, et al., 1999).

Expanding on this kind of investigation, the Biomechatronics group at MIT, headed by Hugh Herr, is analysing energy efficient animals through a computational model of animal mechanics. This model simulates the biomechanics of six animals, of various sizes, in order to analyse their energetics. Each animal’s motion is modelled, and their sizes are compared and mapped against speeds appropriate for each individual animal. The model allows researchers to determine an animal’s metabolic costs (the amounts of energy consumed), limb control and stability. The outcome of such experiments of the scaling effects in mammalian quadrupedal running, allows researchers to predict important features of runners of different sizes. In the future, this framework could be used to test quantitative hypotheses that relate to energy consumption, control of appendages, and balance (Herr et al., 2002: 959). In turn, this could lead to the development of artificial limbs for humans that optimise those characteristics.

Bio-hybrid limbs, i.e., prosthetic limbs composed of biological tissues and non-biological materials (Aaron, et al., 2009), utilise
such scientific findings to create appendages for people with disabilities that rehabilitate and extend human function; the Biomechatronics lab at MIT is currently focusing on their development. Combining features of muscles, skeletal architecture and the neurological system (Metz, 2005), bio-hybrid limbs are intended to function just like a human limb. As they are wired directly to the individual’s central nervous system, these limbs allow amputees to regain neurological function; when wearers have the impulse to move their prosthetic limb, they simply think about doing it, and it moves accordingly. In order to create a connection between the prosthetic and the body, these limbs rely upon tissue scaffolding, which allows prostheses to grow into the body.

An example of this type of prosthetic project is a current collaboration between Brown, MIT, and the Virginia Medical Centre. This project exemplifies how biologically inspired design erodes disciplinary borders by bringing together professions from fields as diverse as tissue engineering, orthopaedics, neurotechnology, and prosthetic design. Sponsored by the Department of Veterans Affairs, the goal of this $7.2 million dollar project is the creation of bio-hybrid limbs for patients who undergo traumatic amputation (Metz, 2005).

Today, the prosthetic that functions most like a bio-hybrid limb on the market is the C-leg, a project by Otto Bock Healthcare for the U.S. Army. Inspired by the biomechanical locomotion of a human knee and its corresponding neural stimulation, the C-leg is a micro-chip-controlled artificial knee joint with a microprocessor. This leg is intelligent; it senses the user’s movement, and predicts action, allowing motion to change in real time (Berry, 2006: 103-6). According to Herr (as interwieved in a short film by David Troug and John Dalton), Bio-hybrid devices such as these are ideal because the optimal design solution may not simply
be either a synthetic or a biological device, but a combination of the two (Truog and Dalton, 2004). This type of advancement allows users to view prostheses as a part of their body, as opposed to a tool. The C-leg seems a direct manifestation of Haraway’s theories; bio-hybrid limbs do indeed result in the creation of true cyborgs, who are both human and machine (Haraway, 1991: 150).

**Extreme resilience: animal adaptability as inspiration**

This classification includes research and design activities focused on creating responsive robots, based on natural phenomena and animal locomotion. Initial stages of development involve the study of animals that can traverse and adapt to uneven terrain. This leads to the creation of robots with excellent stability and adaptability. These robots work like an animal but are human-controlled; this kind of work continues to blur the line between humans and technology.

An example of a responsive robot of this sort is the six-legged terrestrial robot named Boadicea, developed at the MIT Insect Lab in coordination with the Poly-PEDAL lab at U.C. Berkeley. Engineers built Boadicea based on the stability and agility of the cockroach. Boadicea shares some of the most promising characteristics of the cockroach; just like the insect, its stance is sprawled (imagine a standing tripod), making it hard to flip it over. The robot’s legs overlap when running, as do those of the cockroach, which causes it to be extremely agile. This overlap lengthens both the animal and robot’s stride, and increases its speed (Binnard, 1995).

Another robotic project inspired by a resilient animal is that of the Stickybot. Developed at Stanford University, the Stickybot is a wall-climbing robot based upon the properties of the gecko. Engineers at Stanford examined research results from labs at multiple Universities that investigated the incredible wall-climbing abilities
of geckos. They found that scientists attributed this ability to multiple factors: the gecko’s tiny adhesive foot hairs (setae) – millions fit on the size of a dime (a coin about 20mm in diameter) – and Van der Waals attractive forces between the setae and the climbing surface (Autumn, 2006: 126-8). Just like the gecko itself, the Stickybot “magically”, and easily, climbs vertical and even the underside of horizontal surfaces, without the use of adhesive (Corcoran, 2006: 104-106).

**Challenges**

Some of the most extensive challenges in this field are found in the development of bio-hybrid limbs. For example, osseointegration, affixing such prosthetic devices directly to bone, is extremely risky because of the potential for contamination and infection. There is always a chance of infection when mechanical devices are implanted into the human body; these risks increase with bio-hybrid limbs, as they have multiple interfaces. One end of the prosthetic affixes to the patient’s bone; the other extends from the bone through the skin. Therefore, there is one interface between the prosthetic and the bone, and another between the skin and the prosthetic, each of which increases vulnerability (Aaron, et al., 2009).

Tissue engineering efforts today are especially focused on the skin-prostheses interface and creating osseointegrated transcutaneous (through the skin) implants, for promoting growth or the adhesion of skin to the prosthetic surface. Tissue engineers thus become crucial members of the development team; they must ensure that the surface of the prosthetic device adheres well to soft human tissue (the skin), resulting in a tight seal. Overcoming these kinds of challenges will ensure the future bio-hybrid research; goals include optimising neural-prosthetic integration and
Discussion

The ethics of bio-inspired design: cyborgs, robots and athletes

Bionic and prosthetic development raises ethical concerns about designers’ role in imbuing humans with characteristics that stretch beyond their natural abilities. Some prosthetic legs, based on animal locomotion, are indeed designed to take human function to a level unattainable by those possessing all of their limbs. The field of prosthetics benefits from advances in robotics; bio-hybrid limbs were translated from human-like limbs developed for robots (Allen, 2010: 59). But attaching such electromechanical devices to human bodies raises moral questions of how much manipulation of original biology and biological function is appropriate. In turn, when discussing robots with characteristics similar to animals, questions arise about the degree of integration of animal and machine, and associated ethical implications; these electromechanical constructions feel “alive.”

In response to questions of where to draw boundaries between prosthetics and living creatures, some theorists advocate for complete human and prosthetic integration. In his book, Natural born cyborgs: minds, technology and the future of human intelligence, Andy Clark quotes. Bernard Wolfe, science fiction writer, who provides an interesting interpretation, stating that ‘the human skin is an artificial boundary: the world wanders into it, and the self wanders out of it, traffic is two way and constant’ (Wolfe, 1952: 135 cited in Clark, 2003: 13). Wolfe’s perspective is one of porosity; he suggests an acceptance that integration of human and machine is on a sliding scale. Andy Clark’s work on cyborgs posits the same;
he states that we are natural-born cyborgs who already rely on prostheses externally, so relying upon them internally is not any different (Levy, 2003). And finally, Syd Mead argues that human beings create artifice, just as nature creates artifice (Mead, 1992: 15 cited in Wikipedia), so any boundary between the two is artificial.

In contrast, one ethical argument against human/prosthetic integration, in light of cyborg theory, is that humans can not totally merge with prosthetics because prosthetics cannot fully replace human capacities. For example, in his critique of Clark’s text, ethical theorist Neil Levy scrutinises Clark’s conjecture that a human implanted with access to reference books could fully understand the definition of a word. Levy states that defining a word is a human-based skill that can be enhanced, but not replicated, by prosthetics (2003).

Pragmatically, athletic decisions are also challenging our ethical system, as the human body changes today not just because of evolution, but because of technology. Because of these advances, there are now grey areas regarding who is deemed qualified to play sports. Sports officials are raising questions about whether prosthetic-wearing athletes are qualified to compete against able-bodied athletes. Officials fear a potential prosthetic advantage, which potentially makes amputees taller, stronger, and faster than they would have been with all original limbs intact.

ESPN, an American cable television network dedicated to broadcasting sports-related programming, suggests this judgment be made collaboratively by athletes, scientists, and people with disabilities, rather than determined by chance. In fact Eric Adelson, writer for ESPN, suggests:

One example: We know the maximum energy return of the human ankle, so that measurement could be the limit for the spring of a prosthetic ankle.
That type of consideration is much fairer than simply locking out an entire group of athletes (2008).

In the 1996 Paralympics, amputee Brian Frasure ran the 100 meters in under 13 seconds (the current world record is 9.84 seconds), wearing the running prosthetic Flex-Sprint III (McMullen, 1998: 39). It is at the absolute height of glorious irony that those once thought to possess a deficit are now feared to have an improper edge, because of technological advances in bio-inspired design. Ultimately, design inspired by biology will continue learn from nature in order to improve and sustain the human experience; advances in prosthetics and robotics are simply the first step.
References
Perdita Phillips
The case of the lengthening legs: cane toads in northern Australia

Introduction

Figure 1: Photo taken on Kimberley Toad Buster reconnaissance and Toadbust on Amanbidgi (Old Kildurk Station in the Northern Territory) 13 December 2008. The head is in the bottom right corner. Note darker cane toad carcase in front of the back legs where the belly would be (Kimberley Toad Busters, 2008).

I bring to you a question without an answer: what to do about cane toads? Pictured here are the remains of a goanna and a cane toad. Cane toads were originally introduced into Queensland in 1935 in an attempt to control beetles in sugar cane. Since then they have expanded north and westward, increasing markedly in velocity in the last ten years, reportedly reaching Western Australia on 9 May 2009. All over the northern half of Australia as the first toads reach a community what follows is a wave of death, as predators
such as snakes, goannas, freshwater crocodiles and even quolls are killed from a single encounter with the toxic *Bufo marinus*. From about 2005, the imminent arrival of cane toads generated considerable local interest in the Kimberley of Western Australia and multiple pictures like these have circulated in local papers, on the Internet and in the local and national conservation movements for the last six years. What follows here is a commentary on how the cane toad world has intersected the worlds of science and popular culture raising issues surrounding difference, death, power and activism.

**Feral paths**

![World map with cane toad distribution](image)

**Figure 2**: World map with cane toad distribution in grey (original) and black (human induced) (Adapted from Solis et al., 2008).

The original home of Australian cane toads can be traced back to somewhere in South America (possibly French Guyana). Cane toads were taken to Puerto Rico (probably in the 1920s), then from that island to Hawaii (1932) and from Hawaii 101 toads were then brought to Australia and released to control beetle grubs eating sugar cane in Queensland at Cairns, Gordonvale, Innisfail, In-
gham, Ayr, Mackay and Bundaberg. Initial releases were in 1935 with more released in 1937.

My initial interest in cane toads stems from fieldwork in a practice-based visual arts PhD in the East Kimberley (2003-2006). During my fieldwork community groups were organising themselves for action against the toads. The 2005 Community Cane Toad Forum (19-20 March) was one such event, bringing together scientists and local community members. What struck me most was the great gulf between the earnestness and energy of locals (uniting diverse economic and social groups in the East Kimberley) and the rational and (even) gloomy attitudes of the biologists and ecologists. “Toad musters” have subsequently been held every year since 2006. Why would such energy remain in a community against such unlikely odds of stopping or slowing the advance of cane toads?

1 There were two broad positions adopted by scientists: the “standard scientist” response was one of caution “not getting our hopes up too high” or waiting for data before proceeding. The second was by the “environmentalist scientists,” who were much more active in their position, arguing for actionable programmes, and increased funding, implying that something could be done in the future. At times some scientists held both these conflicting positions at the same time.
Cane toad velocities

Figure 3: Frames from GIF animation of cane toad distribution (see http://www.perditaphillips.com/index.php?option=com_content&view=article&id=406:the-case-of-the-lengthening-legs&catid=25:writings-by&Itemid=45 for animation)
The spread of cane toads has been mapped by a number of government bodies and frog biologists. The gif animation shows an amalgam of four different sources (Froggydarb, 2006; National Land & Water Resources Audit and Invasive Animals Cooperative Research Centre, 2008; Stop the Cane Toad Foundation (Inc), No Date; Threatened Species Scientific Committee, 2005). Despite the apparent inconsistencies in the data\(^2\), it is obvious that there has been significant expansion of the cane toad range confirming that they are first-rate invasive animals. Urban et al. (2008) have gone further to point out the significant increase in the speed of the cane toad movement as a whole (see also B. L. Phillips, et al., 2006). Figure 5 shows modelled data of the increasing rate of travel based on historical accounts and supported by field observations with individual toad radio tracking. Cane toads reached the western half of Australia’s Northern Territory in 2006, 21 years faster than the earlier scientific forecast of Freeland and Martin (1985).

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\(^2\) There appear to be differences that relate to the density of the observations, whether the measurement is of presence and absence or of the abundance of cane toads, whether systematic or anecdotal information has been used and whether isolated occurrences or blanket distribution is assumed in a region as they are colonised.
How was this increase in speed possible? There are a number of potential explanations for this multiplication in cane toad velocity. In the north of their range, hotter weather and abundant water bodies during the wet season could be contributing factors, as could road networks and environmental heterogeneity. Reproduction rates could be higher due to climatic factors, which may also assist the individual animal’s energy balance, particularly when advancing on warm humid nights. Although Urban et al. also note that the opposite might be occurring:

unfavourable environmental conditions might also lead to increased disper-
sal by promoting the fitness advantages of locating new and unexploited habitat patches (e.g., breeding pools) or scarce food resources in a meagre environment (2008: 144-5)

At smaller scales, cane toads have been fitted with radio trackers attached to tiny waistbands to find out exactly what path they took through landscapes (Brown et al., 2006; B. L. Phillips et al., 2007). The invasion-front toads moved hundreds of metres every night, often along roads and cattle pads. One radio tracked toad moved 21.8 km over a month; the fastest rate of movement for any frog species (B. L. Phillips, et al., 2007). Significantly, invasion front toads have been found to have longer legs and these are the major factor in increasing cane toad velocities (B. L. Phillips et al., 2006). Measurements going back 60 years show that relative leg length on the front has increased when compared to earlier colonised areas. Those in the very vanguard of the invasion had hind legs that were, on average, 45% of their body length. After one year, the average leg length at the same site had dropped to about 40%, as the front moved on and shorter-legged toads caught up. Comparing Queensland (longer colonisation) and Northern Territory toads (shorter colonisation), Alford et al. (2009) discovered behavioural differences between the two sites. Toads in the Northern Territory were more likely to be active on all (and not just some) climatically suitable (warm and humid) nights. Hence the bodies and behaviours of cane toads themselves are being altered by the environmental pressures and selection processes of invasion. Therefore, they are successful invaders, at least partly, because they exhibit phenotypic lability (flexibility) in response

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3 Cattle pads are the tracks that cattle habitually make to and from watering points. Non-European animals do not have hard hooves and do not make such prominent features.

4 A finding that received coverage in the popular science press (e.g. Anonymous, 2006; Roach, 2006)
to a new environment (B. L. Phillips, 2005).

Both of these physiological and behavioural traits are evidence that populations can change and adapt over relatively short time periods – evidence of rapid evolution in action in human timescales (and over a mere 50 cane toad generations) – where the traits are passed on to successive generations until they become common (B. L. Phillips et al., 2006). However, longer legs (and faster speeds) are not without costs; frontline toads are susceptible to severe spinal arthritis (Brown et al., 2007; Shilton, Brown, Benedict, and Shine, 2008).

The tidal wave

There are many examples of cane toads in popular culture, some positive but many negative. In a 2004 national online survey (ABC Wildwatch2 survey 18 September to 22 October), when asked whether something should be done about cane toads in Kakadu National Park (cane toads had reached the southern boundary in 2001), 90% of respondents favoured some sort of lethal control and 63% said to use any way possible to get rid of the entire population. Many Western Australians we interviewed expressed revulsion and horror when talking about toads because of strong negative cultural associations with the warty (diseased) skin and poison glands5. These visceral and emotional reactions are produced despite most people never having encountered a live toad attesting to the power of cultural representations and currencies.

The cane toad is seen as monstrous and toxic. It is poisonous in all stages of its life cycle. Most animals that eat a toad die rapidly from heart failure and domestic dogs have died just from mouthing them. Its fecundity (averaging 5-10,000 eggs per clutch)

5 No doubt some of these associations are connected with the toad’s European connection to witchcraft, transgression of boundaries and drug-taking (Duerr, 1985).
is seen as being unnatural and frightening. Reaching densities of 2000 toads per hectare in newly-colonised areas (Invasive Animals Cooperative Research Centre, undated), it is not surprising that the crisis of toads has been referred to popularly as a “plague”, akin to a “tidal wave” moving through an ecological community.

Indeed the initial invasion front biomass of toads can be shocking. At Ruby Billabong on the Daly River, Australian Geographic associate editor Ken Eastwood writes:

> Burdekin ducks wander around the far shore and an azure kingfisher patiently watches the water nearby. Glancing down at the mud, I think the bank is moving. I look closer and see millions of tiny frogs on the hop. Picking one up, I have a sudden, sickening realisation these are not frogs: it’s a plague of cane toads.
When we began planning this expedition, cane toads were still a future threat to the area. Now the introduced, poisonous pests are causing catastrophic damage.

Locals say snake numbers have dropped off since the cane toads arrived. Sean [Dr Sean Doody] says many goannas just vanish. “We had four years of numbers that were pretty similar every year and then – crash” (Eastwood, 2005: 70)

There is clear evidence of population crashes of goannas, snakes (B. L. Phillips et al., 2003; Smith and Phillips, 2006) and freshwater crocodiles (Letnic et al., 2008) and local extinctions of northern quolls (Oakwood, 2003) at the invasion front, but less clear evidence of competitive effects or other indirect effects (Shine, 2010). Anticipation of these effects led to the formation of the Stop the Toad Foundation and Kimberley Toadbusters with an aggressive language of ‘campaigns’ and ‘plans of attacks’, ‘frontlines’ and ‘choke points’ at the 2005 Community Cane Toad Forum and on the main conservation websites up until the present day.6

Accompanying these military metaphors were exclusion strategies; large-scale barrier fencing was proposed, trialled, and abandoned as impractical.7 Although explicit connections are indeed lacking, one can speculate on the rhetorical language used against asylum seekers trying to reach Australia as a parallel strategy to differentiate and demonise the Other. Certainly the equation of

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7 Although the idea of building fences around individual gardens still has local currency.
8 One exception (in considerably bad taste): the Litchfield (Northern Territory) Local Council website notes that ‘A cane toad detention centre is located at the entrance to Freds Pass Reserve on Bees Creek Road, Freds Pass for live toad disposal.’ (Litchfield Council, no date).
alien species with racism and human migration issues has been made by others – hating exotic animals as a form of bioxenophobia. Franklin links aspects of conservation with nationalism into what he terms the ‘eco-nationalism’ (2005). Warren (2007) summarises the evidence for its critique and a corresponding defence of invasion biology: is it a question of equating the alien species to a human colonial invader having power over others, or is trying to control or eradicate cane toads the equivalent of protecting oppressed and threatened (read native) groups within a community from the processes of global cultural (read ecological) homogenisation?

The idea of barricading off the wilderness, building fences and barriers, and keeping things out links to the still popularly held idea of “wildernesses being empty of people”, common in settler cultures such as Australia. It also links to very local manifestations issues of belonging – as the East Kimberley residents reconcile their own presence and environmental effects within this model. For many at the 2005 Community Cane Toad Forum it was a question of “threatening” the “unique” Kimberley lifestyle (see P. Phillips, 2007).
Very few people in Western Australia have touched a cane toad. They are often reacting to an abstract object of fear – albeit based on scientific evidence of effects (including the recent Northern Territory experience) via its propagation in the media, but also from a more basal fear of the unknown. My impression was that part of this “threat” felt by locals at the Forum was beyond language: amorphous and visceral. Cane toad stigmatisation on a small scale can be linked to a wider culture of fear theorised by writers such as Bauman (2006) or Füredi (2002). These invisible fears of something unknown and something in the future,
were palpable at the 2005 Forum with the great gulf between the “standard scientist” response and the local environmentalists (see footnote 1). These fears are mobilised in the subsequent lobbying for government funding of “cane toad busting” and “musters”; the community groups effectively engaging with the State’s conservation decision-making processes.

Figure 8: Goanna poisoned by a cane toad it tried to eat. Photograph by Michelle Franklin (from www.canetoadsinoz.com, Shine, undated)
As diurnal animals\(^9\) however, it is not surprising that cane toads are more visible to humans. And despite the observed effects, does being an extremely rapid event—being readily observable, and viscerally intense – overplay their importance in ecosystems? Are they dominating our thoughts about the tropical savannah ecosystems? Are other important community actants and processes of change in ecosystems being ignored? Does focus on cane toads

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\(^9\) The metamorphs are active during the day – most Australian amphibians and mammals are nocturnal.
overwhelm consideration of the invisible processes of change in tropical savannah ecosystems such as grazing, erosion and changes in fire patterns (slower than the eye can see – see D. Lewis, 2002)? Having a clear enemy to hate can produce a landscape of unambiguous moral boundaries.

Figure 10: Help us fight an alien invasion: protecting WA from cane toads (Department of Conservation and Land Management, 2006(a)).
The feral reversal

Delving further into the influence of cane toads on our understanding of the world brings us to the notion of the feral. The term feral animal (referring to invasive species generally) is common in Australian scientific literature. The concept of the feral also has wider currency in Australian society. Of note is the number of reversals of negative associations in subcultures as difference is attributed to an alternate position. For example, “a feral” can characterise a person

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10 For example, the Invasive Animals Cooperative Research Centre produces an email newsletter, the Feral Flyer and publishes its research and an extensive bibliography at www.feral.org.au.
who chains themselves to trees in logging protests, or a description of a powerful V8 utility car driven by young men in the country who definitely do not hold the same values about trees.

Instone discusses the way that the dingo, often counted as feral with a bounty on its head (but now considered by some endangered due to interbreeding with wild dogs) can be seen as a trickster capable of breaking down fixed boundaries. It refocuses ‘attention on the transformative power of the encounter between humans and non-human’ (Instone, 2004: 137). Whilst much more stigmatised, the cane toad too can be seen as capable of breaking down the binaries of exotic-native and nature-culture. The feral inversion also reminds us that it’s not the cane toad’s fault it is in Australia11.

**Squeamishly pleased**

Strong feelings can be generated for cane toads especially when they have been resident areas for some time and become like faithful and dependable friends when they feed from the pet food bowl every night at the back stairs. The cane toad was recognised as a National Trust Icon of Queensland in 2006. The lovers of cane toads also featured in the well-known documentary *Cane toads: An unnatural history* (directed by Mark Lewis, 1987). The more recent animation *Cane-toad: What happened to Baz?* (Clayton & Silke, 2002) is narrated by Daz (a beer-drinking-dog-bowl-inhabiting feral larrikin) imagining the graphic and gruesome fates of Baz – who has taken to travelling across Australia – pummelled, flattened, mowed and stuffed and turned into a souvenir. This is not a film for the haemophobic. The concentration on methods of expiration is not accidental and represent how are cane toads are repressed within a relation of unequal power between humans

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11 It was imported to eradicate pests and then turned into one.
and nonhumans. But further, there is a current of black humour running through both of these films. Why do cane toads attract this off-beat humour? Undoubtedly there is an element particular to Australian humour that manages to permeate many facets of daily life and even quite solemn occasions. Moreover the prevalence of the grotesque in Australian film has been noted by von Kurnatowski (2005) with its off-beat plots, weird marginalised characters, self-deprecating humour and playful deviancy. Much of this comes back to the use of ambivalent, or unresolved, irony. This short film is not subtle in its satirical stereotypes and the way it revels in its anthropomorphism. However by heightened exaggeration and degradation, it destabilises what might have been a simple case of humour-by-human-superiority. This pushes the boundaries of acceptable taste and morality so that we are unable to resolve the incongruities presented to us, and are unable to push away the predicament that is presented.

This polyvalent “irresolution” leaves us unable to forget our role as human vectors for cane toad explorations. It affirms that “cane toads-r-us”: settler culture is the bringer of great change to top-end ecosystems in Australia and thus the ugly anthropomorphism of Daz and Baz is in some part justified. Humour’s great power is that it is invariably the vector of unpalatable truths, which we all would prefer not to confront in ourselves; it is ever invested with the sharp sting of truth.

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12 “‘One of the things that may be most distinctive about Australian society is that we have so few rules governing when and where you can indulge in laughter,’” she says. “‘We are very permissive about laughter. You can laugh and joke anywhere. You can probably get away with laughing in church... Many societies do not do this’” says Dr Jessica Milner Davis in an interview with journalist Sean Brady (2007: 1).

13 In an almost Bakhtinian carnivalesque.

14 We are the natural alien of Evernden (1985).
In both these films cane toads have had a particularly inferior animal welfare status. Part of the dilemma of cane toad “control” has therefore been the issue of humane killing as toadbusters and toad musterers weigh up the life of cane toads against that of other animals. Regulated systems of euthanasia have been developed and put into place\textsuperscript{15}. This humane codification of the final playing out of power-over toads acts to defuse the emotional (and emotive) intensity of death.

\textsuperscript{15} Commercial bodies have developed and marketed methods of control: ‘Pestat Pty Ltd, has developed a fast-acting and humane spray that anaesthetises toads so that death occurs while the animal is unconscious - HopStop®’ (Invasive Animals Cooperative Research Centre, undated: 1).
The third example of cane toads in popular culture is contained in a series of books by children’s author Morris Gleitzman. Written for roughly a ten-year-old boy audience, the main character in these novels is the cane toad Limpy. In *Toad Heaven* the characters are travelling in search of better habitat. Limpy and his band are off to find a national park, where all animals can live in peace, safe from the cruel treatment of humans: ‘a place where cane toads won’t be blown up with bike pumps or bashed over the head with folding chairs’ (2001: 18).

Gleitzman makes specific reference to other feral animals also searching for safety as they move westward across Australia, but Limpy explains to them how national parks are only paradise for a

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very few. First a donkey describes a national park as being ‘A place where all living things can be safe and protected forever’. Then:

“We thought the same as you about national parks,’ Limpy continued, looking sadly at the animals. ‘But I’m afraid it’s not true. Not all living things are safe and protected there. Only the lucky few that are allowed in.’

The animals broke into angry murmuring.

‘Bull,’ said a camel. ‘You’ve got that wrong.’

‘That’d be discrimination,’ said a fox.

‘That’s against the law these days,’ said a mouse (2001: 166-8).

Here Gleitzman has used the voices of the feral animals to obliquely refer to issues of tolerance in Australian society17. Other themes in the novel discuss how “fitting in” includes both eating and being eaten; the gulf between natives and exotics; and the reversal of conservation values when you are on the wrong side of a divide.

Cultural intermediaries
Thus through these three examples of cultural intermediaries, cane toads challenge human dominated spaces of knowing. In Toad Heaven the search for a utopian future is a counterpart for the desire by many well-meaning conservationist humans to go back to a past before ferals that was implicit in the national park (and wilderness) ideals of the latter half of the twentieth century and up until today (Whatmore, 2002). In the case of cane toads, it can be seen that environmental movements are to a degree complicit in a culture of fear by emphasising disaster narratives (in this case, the fall from an Edenic past, before European settlement)18.

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18 See the controversial The death of environmentalism (Shellenberger and Nordhaus, 2004; 2007) or even Thrift (2005).
Figure 14: Mutual death of python and cane toad in the act of the python strangling its prey. Photograph by Matt Grey from the website http://www.nt.gov.au/nreta/wildlife/animals/feral/canetoad.html (“Feral animals of the Northern Territory: cane toad - Rhinella marina”).

Figure 15: Northern Territory chiropractor Paul Sharpe stands in front of his prototype cane toad fence (with Gordon Wyre (Department of Environment and Conservation) and the late Malcolm Douglas (well known crocodile park proprietor) behind him), photographed at the Kununurra 2005 Community Cane Toad Forum, Kununurra, March 2005 (photographed by the author).
Why are cane toads so successful?

To return to the issue of what characterises a successful invading species, for ecologists, a rule of thumb (see Williamson, 1996) is that only 10% of introduced species become established and of them only 10% of such numbers spread\(^{19}\). Cane toads are adaptable. As discussed above, they are able to exploit multiple niches, have high reproduction rates and behavioural and phenotypic lability. The success of velocities of colonisation depends upon methods of movement: the ability to hop or to take advantage of human vectors such as roads – toads are sometimes found hitchhiking in freight and on vehicles.

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**Figure 16:** Death Adder killed by a cane toad. Photograph by Greg Brown (from www.canetoadsinoz.com, Shine, undated)

When cane toads reached the (invisible) line of the Western Australian border (reported in the local paper as being on 9 May 2009), the imaginal fear was transformed into the reality of exces-

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\(^{19}\) Although Jeschke and Strayer (2005) report much higher percentages of 50% in each step for fish, mammals and birds reaching North America and Europe.
sive bodies felt and trodden upon and the corpses of dead predators that are smelt, counted, and photographed (see Figures 16 and 17). Cane toads have impacted upon actual (real) places outside of the general channels of human discourse. As a highly successful and adaptable species this leads us directly to the very difficult question: how do we weigh up their rights as well as the rights of other members of ecological communities? They challenge us by not giving us easy solutions for something that might look clear-cut; having to take into account the perspectives of both animal welfare and environmental concern.

Figure 17: Bags of toads collected on the 2006 cane toad muster (photograph Paul Bradley).

Adaptation
It is clear by now that the wants and needs of the local Kimberley community and the biologists, ecologists and environmental managers involved are situated within broader deliberations about the position of humans in the natural world, nature, and naturalness.
Warren takes the stance that “Native” and “alien” are not ecological absolutes but relative, almost metaphorical terms drawn by analogy with human communities’ (2007: 437) arguing that invasive species should be measured by the severity of the impact, which is essentially what is already done in the decision making process of species management. Head and Muir (2004) also separate out the nativeness/alienness axis from the invasive behaviour of the species in question. Warren comes from a constructivist position and responds by analogising the behaviour of the species with a human moral code:

Such an approach would straightforwardly echo the pattern in many human societies in which racial discrimination is illegal, but bad behaviour is subject to a range of sanctions, including (sometimes) the death penalty. A species exhibiting “bad behaviour” – defined according to context, priorities and values – deserves to be controlled or perhaps removed, whatever its history as an immigrant or a local (2007: 442).

Whilst it is interesting to see a new moral geography developing (albeit one with a much greater sense of fluidity), it is too simplistic to rely merely on arguments for postmodern hybridity. Such attitudes do not do justice to the human locals living in the Kimberley. I am concerned that one moral position (of human superiority) is just being replaced by another morally based argument and therefore, I would wish to give Kimberley people more of a possibility for action. At the forum in 2005 there were a number of negative references to the “Queensland Disease”: a nothing-can-be-done fatalism, since cane toads had not been subject to much interest or any control for the first 70 years of their existence in Australia. On the other hand, using negative terms such as “cata-

20 ‘the presumed belonging of a species in ecological or social space’ (Head and Muir, 2004: 199)
“catastrophic” and “irreversible” makes the implementation of actions more challenging when it makes people feel disempowered and helpless. It is remarkable that the local energy is still appreciable five years down the track when there has been no real slowing of cane toad advances. One wonders what can be done now and in the future to nurture and nudge the course of these energies.

A way to reconsider the question of cane toads is to think not solely at the level of individual rights, pain and death, but at the level of ecosystems. I have already mentioned the effects of cane toad invasion including removal of predators (and this would have subsequent effects on other animals in a food web), animals potentially made rare or extinct (such as the northern quoll) and the concentration of biomass (affecting ecosystem processes and affecting the feel and texture of a place). More generally recent ecological thinking has concentrated on disequilibrium ecology and the effects of complexity on ecosystem processes.

Figure 18: A dead freshwater crocodile (Crocodylus johnstoni, lower left) at the Baines River, Northern Territory, after eating a cane toad (photo by Craig Mills). The picture-still waters reflecting the pinkish cliffs in the dawn light (National Land and Water Resources Audit and Invasive Animals Cooperative Research Centre, 2008: 52)
The lengthening of cane toad legs has also been accompanied by predator learning and physiological changes to certain predator species. Saltwater crocodiles, file snakes and some birds species such as ibis do not die from cane toad poisoning, probably because they co-evolved with toads elsewhere – and are either immune to the poison or able to pick out the less harmful parts of the flesh. Planigales (Webb et al., 2008) have learnt to avoid cane toads and crows turn them over and eat their bellies; some snake species are evolving bigger bodies and smaller heads (B. L. Phillips & Shine, 2004; B. L. Phillips & Shine, 2006a, 2006b), however, sublethal effects may still affect animal survival (Llewelyn et al., 2009). We can see here that the quickening of cane toad velocities has effects throughout ecosystems. This leaves us then with the question: can cane toads be envisaged anew, as part of resilient ecosystems or are the changes too great? Will ecosystems at longer time scales (tens of years after the tidal wave) move closer to what they were, or will some new state occur? Given the level of emotional investment by humans, will ecosystems feel fundamentally different, or should we be changing the way that we see our role in ecosystems?

In more recent scientific research Invasive Species Predictive Schemes have become more complicated utilising greater computer power to take into account more variables and the effect of rapid evolutionary changes in invaders and recipient communities (B. L. Phillips, et al., 2008). Still, if models of prediction have be-

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21 Although responses are dependent upon the existing genetic potential of species and individuals.
22 In 2007 Jane Mulcock and I, as part of the Thinking Skin research project, spent considerable time trying to locate and negotiate access to a live toad in Perth that we could touch. This proved quite difficult as access by humans to toads (and toads to the world) is strictly controlled at the Perth Zoo and at various universities. However we did finally touch the skin of a cane toad and found that it was dry and sandpapery and not cold and slimy like their stereotypical depiction suggests.
come more sophisticated, the system itself is continually revealed as being more complicated. A range of control methods (such as investigating toad toxins, parasite control agents, genetic manipulation using “daughterless” technology, and the use of pheromones to increase trapping success) that might be more effective are still under development.

With case histories from the Mimosaceae, Robbins argues the ‘rate and acceleration of species invasion is directly linked to the networking of the invading species with allied species, land managers, and bureaucracies’ (2004: 152) and we have seen here a similar complex system around cane toads. As we recognise that the human and nonhuman worlds are entwined, how do we convey this more complicated condition to the Kimberley human residents without losing people, without being too negative?

Figure 19: A toad in the hand: The University of Western Australia toads are kept for biology classes. This toad is a yellowish green-khaki colour (photographed by the author).
In Gleitzman’s *Toad Heaven* the toad community learns that the old familiar pond is the best place to belong to and by way of narrative resolution, cane toads are seen to have value and purpose as ecological citizens when it is found that they like to eat fire ants, an even more ferocious invader. Whilst this is a neat (and morally comforting) resolution for a children’s novel, perhaps we need a more “dark ecology” that is both more pragmatic and more hopeful but neither falsely optimistic nor overly apocalyptic (Morton, 2009).

Leslie Head has highlighted the way that climate change science has challenged the mitigation/adaptation binary leading to more emphasis on the latter: ‘the complexity of climate change debates, and the intractability of the geopolitical issues entwined with them, can tend to enhance simple metaphors’ (Head, 2010: 240). She cites examples of new ecological investigations that as well as taking in social and cultural histories, are favouring more modest, heterogeneous solutions. In the case of cane toads one can hypothesise that such nuanced re-examinations of adaptation can locate ‘vernacular capacities as well as vulnerabilities’ (Head, 2010: 240).

**Conclusion**

In the writing of this essay I have included three structural approaches. One is to look more deeply into the ecological knowledge about the cane toad to broaden one way of understanding cane toads. This is not to be caught up in ecology as an “only truth” but reasoning that a more critical examination of it leads to critical understandings of animal (and human) selves. The second is to make connections in the humanities and social sciences to the metaphors and complex assemblages that connect outwards from

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23 The solutions were worked through by the mobility-challenged Lumpy, whose tendency to hop in circles when under pressure is the result of a near fatal flattening on the highway.
cane toads. Thirdly (and as a visual artist) I have included pictures re-presenting real deaths by and of cane toads, to ensure that any consideration of arguments does not lose touch of the material nature of events.

Over 70 years a rich network of associations, as monster, plague bringer, scientific subject, pet and folk anti-hero has developed around cane toads. This essay has explored how we might resolve the place of cane toads as “feral” in a future ecology, given the considerable impact they have on the animals around them, and given their imbrication into a fabric of fear of invasion and change. Can they be envisaged anew as part of resilient ecosystems? Returning to Figure 1 we can see now that there are many aspects interwoven into its apprehension. The actants include not only the goanna and the cane toad, but also the ecosystem surrounding it, the conservationist taking the picture, and us as writer, readers, and observers. The relations surrounding cane toads have been gathered together to show that it is not a simple issue of rights or arguments but is complicated by diverse contexts. And one reason why the question of cane toads remains “unanswered” is because the sources and effects of these matters of concern remain in motion.

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Peta Tait
Animal performers in action and sensory perception

When Mabel Stark claims to have an inherited ability called ‘animal sense’, she denotes the animal physicality of humans (1940: 25). But this ‘animal sense’ is actually describing a way of knowing about others. Stark’s statement that she ‘can sense the mood of each of my cats as he enters the work arena’ (1940: 21) attributes animals with emotional moods that can be known. While admittedly this claim also aligns with a widespread belief that animals encounter the world through their senses, Stark is valuing understanding achieved through the senses. In aligning herself with her big cat performers, Stark highlights how bodily experience is often omitted from human descriptions of engagement in the world. This contains an implicit challenge to how humans value cognition over sensory perception and feelings, including emotional feeling (Tait, forthcoming). Stark’s statement that she senses emotional moods in the immediacy of a performance situation, however, does not address whether this attunement is inherent or coached.

Contrary to what was believed with the advent of the animal-free new circus movement after the 1970s, animal acts have not disappeared and the significance of their cultural invention and construction needs to be more widely understood. I have been undertaking research on big cat and elephant performances that has turned into two projects: one on the nineteenth-century and one on the twentieth-century circus. Trained wild animal acts developed during the 1890s through the enterprise of the Hagenbeck’s (Rothfels, 2002) and Bostock’s businesses and changed the equestrian-
based circus completely. Elephants, lions, tigers and leopards came
to dominate animal performances in the circus during the twentieth century, evoking fascination and awe, fear and excitement. In
the circus, big cats roared, snarled and leapt on cue, and elephants
learned to dance dressed in skirts, pose on one leg, and embrace
each other with their trunks in a simulation of “cute and cuddly”. Live wild animal performance was received through and perceived as the seeing of animals in action and, to a lesser extent, on hearing them and also often smelling them; it engaged the sensory capacity of bodies. This discussion expands earlier work about the sensory, visceral reception of aerial performance in circus through human body to human body engagement (Tait, 2005: 141-52). It explores some ideas of a human sensory body’s responses to an animal body—it remains speculative as to what extent these might be reciprocated responses. The larger discussion of animal body phenomenology in circus is informed by analysis of the human senses in performance (Baines and Lepecki, 2007), as well as spectatorial feeling responses to human and animal performance (Ridout, 2006), and draws on the somatic phenomenological approach of Ralph Acampora (2006). It is implied in this paper that other animals embody a wildness of human sensory experience and its free-roaming movement.

During the research, I viewed a number of big cat and elephant performances. With films in particular, I experienced dispersed, edgy, tingling feelings under my skin and in the stomach area while watching. Often I looked away as a squeamish visceral aversion overruled my cognitive interest—I confess that special effects in television drama autopsies make me look away. This unease influences my discussion of animal performance and a larger point here is that the unfolding bodily reactions of spectators are significant for the reception of animal performance.
Training seeing/feeling

Stark performed with tiger performers whom she instructed verbally. By 1917 Stark had an act with 12 tigers including Rajah, trained by Louis Roth, whom she wrestled after he appeared to attack her on cue. Stark trained a second tiger with whom she wrestled, and was billed as the only woman who ‘breaks, works, and trains’ tigers (Stark, 1940: 18). Later her act had as many as 16 tigers. Tigers are very large-bodied animals, which would have made this small-bodied, woman trainer seem smaller by comparison. A commentator writes of Stark’s movement as, ‘[a]ssured, commanding, she moves with a rhythmic and swinging grace that makes one prick up the ears and listen vainly for military music’ (Osman, 1936: 8). Her movement was precise and pronounced and the gestures flowed together.

Stark was said to have developed her own training and performance method. ‘While she is in the cage she is constantly moving in short, rapid strides that take her up to and around the beasts she is handling’ (New York Times, 1922). She moved faster than her contemporaries with something constantly happening, and there were no stationary poses. Stark trained with verbal praise rather than food rewards. She carried the stick, whip and revolver with blanks in performance, but stated that, ‘By the tone of my voice I can make them cringe with fear or purr with pleasure’ (1940: 14). ‘Tigers can talk if there is a trained ear to understand their language [...] a cry which is plaintively penetrating’ may be a sign of hunger; a purr for pleasure, a hiss for anger or exasperation, and a warning growl (1940: 23–4). Stark used a soft wooden pole to divert the tiger claws and teeth from attacking her feet when they tried to unbalance her.

Wild animal acts in the circus use an individual animal’s capacity for performance which evokes the larger underlying question as
to whether animals perform for their own kind. The most famous twentieth-century big cat trainer, Clyde Beatty, says of thousands of big cats in his act, 'I teach them to perform' (1965: 14). Animals who learnt prescribed movements and presented them in front of audiences conform to a definition of performance that denotes the doing of action for spectators. But big cat trainers constructed emotional dramas of confrontation or submission between human presenters and big cats, and could do so because animals complied emotionally.

Stark like other trainers, admitted to watching animal performers carefully for small visible changes like a tensed tail or listening for audible signs that might indicate an animal is about to behave in an unexpected way. They watched for small changes in the animal body that indicated unrehearsed, and therefore rebellious, movement. For example, Beatty looked for 'a stiffened tail that had been relaxed the moment before, a just barely discernible twisting of the mouth or an angry look that vanishes as fast as it developed' (1965: 189). Trainers studied animal performer bodies and their movement during rehearsal and performance.

Physical behaviour that circumvented the trained regime was subsequently explained as wayward changes in an animal’s mood or affect. There is an underlying premise that a change in behaviour is preceded by an emotional change in a cause and effect sequence—an animal develops an intention to react because of a mood change. Consequently a trainer’s effort to interpret an animal’s emotions and/or mood is widely evident in descriptions of performance and has become part of circus training rhetoric. At the same time, this mood often has no discernible single cause to a trainer. While Stark and others claimed convincingly that an animal performer’s intention could be deduced and predicted through visible signs, it seems more questionable when they then
attributed emotional feelings (affect) and mood to this intention. While this process implies that subjective feelings can be conveyed to others, Stark and other trainers were involved in a process of visible body to body exchanges; that is watching other animal bodies carefully.

Trainer Charly Baumann explains ‘I sense how the trainer's movements cued the six lions to perform their tricks’ (1975: 50). He confirms that he watches closely and that the animal performers watched the body of the trainer – both within the pattern of instinctual responses to spatial proximity and within the repetitive process of instruction. Human–animal watching was a two-way process. As Baumann implies, animals would undertake their routine by themselves and some might often take their cues from other animal performers.

Most trainers explain how they become accustomed to working in performance and/or rehearsal with a heightened attention to the animals' smallest movement and some claim sensory convergence. Alex Kerr asserted that he “felt” rather than saw an animal moving by giving complete attention to his animal performers, and expressed concern about losing this capacity when he had been away from the big cats for an extended time (1957: 32, 79). Kerr was indicating that his attunement had been acquired and honed in the time spent in close proximity to animal performers. He claimed that he could only actually see the animal directly in front of him and therefore monitored the other animals with his whole body, in an alertness comparable to his Mediterranean maritime experience during World War II (1957: 70). Kerr’s claim, that he could bodily feel animal movement before seeing it, exceeds a conventional idea of the function of sight and the other senses.

Clearly a trainer like Kerr was training his or her sensory capacity while working with the animal performers and, it would
seem, enhancing it. To maintain control, trainers reacted quickly to an animal’s demeanour and repeatedly stipulated the importance of rapid thinking and fast foot-work. This outlines a process of rapid movement.

Trainers working in close proximity to big cats engaged in an additional process of attributing human social meanings to bodily movement and observable behaviour, and framing these within language about emotions. Thus an interpretation of emotional feelings coincided with visible bodily signs. This chapter is not discounting emotional feelings as bodily felt sensations that potentially become perceptible to others; that felt responses can be sensed by others. Rather it is explaining how such claims become part of the performance context and prefigure human–animal relations in circus. Circus acts suggest how ways of knowing arise through sensory reception and that responses can potentially become discernible to other species as it exposes how such ways of knowing were deployed in the control of nonhuman animals.

The sensory responses of animal performers within human hierarchical arrangement were monitored to prevent problems for practical reasons. Perhaps claims that animal performers sense fear in others should not be discounted. The sensory realm needs to be understood as an embodied one that is potentially reciprocal. In making a trainer more aware of his or her bodily responses, these big cat and elephant acts could be ‘animalizing humans’ (Chaudhuri, 2007: 14). Moreover giving careful attention to subtle body movements might be considered to value other ways of encountering the physical world and bring humans and animals closer. It might also diminish species body separateness.

The sensory responses of humans and animals converged in a trained act, where each species was being conditioned by the other. In the training of animal bodies for circus performance, the
trainer’s sensory responses were trained alongside those of the animal to be attuned to animal bodies.

**Spectator seeing/feeling**

Spectators watched a lion or tiger performer, or a group, undertake a series of highly prescribed physical movements. They saw human and animal bodies in a performance of interaction but circus animals promoted as wild and dangerous were perceived through human cognitive and emotional experiences. A lasting assumption behind an act’s presentation of physical action is that spectators will be surprised and delighted by what animals have learnt; that is, how animals have been taught to move.

Circus presents displays of bodies working with apparatus in largely nonverbal acts with music. Human and animal bodies in the traditional circus, delivered and deliver, precise and heightened movement and motion, which is the result of highly trained repetitive action and physical conditioning. Circus presented and continues to present physical bodies in action; it was and is a display of action and motion.

As wild animal performances became widely promoted, popular entertainment in the twentieth-century, public attention was informed by ideas of danger and anticipated the risks of working in close proximity to animal performers. Serious attacks were usually reported in the newspapers and an audience was influenced by a cultural milieu surrounding the animal acts inclusive of the marketing, other publicity and even circus trainer memoirs. Yet the viewing of animal performances was assumed to be safe because of the training (and arena cage). The chance possibility of an attack on a trainer or another animal haunted big cat performances and off stage, there was always a faint possibility of an escape that would put spectators at risk. Circus promotion both downplayed
actual risks and at the same time delivered a heightened idea of danger.

Positioned at some distance, spectators would probably not see the small physical changes in an animal performer that the trainers watched for. The extent to which spectators even recognised the complicated training process behind the act, depended on prior knowledge. In approaching the analysis of animals in performance in the twenty-first century through Paul Bouissac’s semiotic analysis of circus, Michael Peterson calls for an awareness of the role that ‘knowledge of the existence of such training plays in the perceptions of the spectator’ (2007: 35). He writes of how this might be used to either construct a set of animal rights in order to condemn, or alternatively, unravel the construction of patterns of ‘social relations between humans and animals’ (2007: 34). The latter may be pertinent to an analysis of circus acts. The extent of knowledge about training will vary considerably between spectators, as do the beliefs about its efficacy and acceptability. A long-standing convention that an animal act will arouse excitement and thrills, wonder, and sometimes fear, relies on ideas (or misconceptions) brought to performance from a pre-existing wider context; spectators also bring emotional expectations with them.

A human trainer in the arena appeared to be outnumbered by the performer animals as the physical arrangement of animal bodies behind barriers in a circus spectacle reiterates species boundaries in mimicry of a zoological gaze (Desmond, 1999). Jane Desmond writes specifically of bodies, venues and processes outside cognitive formulations of ‘identification with these animals, with which we imagine their senses to be, and with what we imagine to be their sense of perception of our shared environment’ (1999: 166–7). The physical space and the ‘bodies on display’ create a graduated range of contrasts with human bodies (Desmond,
It is through this contrast, that humans structure their viewing and uphold the animal–human species boundary. Animal movement and behaviour expresses “animality” and the nomination of species differences since:

[t]igers act like tigers and, conversely, actions by tigers are tigerly. The evidence of the body determines the species division, and the actions we see are perceived as species-identified behaviour—unless, of course, the actions are perceived as reproducing human behaviour (Desmond, 1999: 174).

In her explanation of how bodies in action make species differences visible, Desmond is writing from a spectator’s perspective, that is, about the reception of performance.

A circus spectator, however, usually watched an animal body undertake physical movement and actions under the instruction of the trainer. This remained a show of and about, human–animal relations. The big cat and elephant circus performance was rehearsed to an extreme so that a trainer knew exactly where he or she would be physically placed in relation to the animals at any point during the act. A spectator’s engagement with animal bodies was shaped by the trainer, mediating all bodily action in the live performance. A trainer became a surrogate human presence. Spectators saw animals and humans performing together without necessarily seeing the full extent of human control through training or animal instinctual reactions. Instead they brought aspects of wildness in the cultural imaginary to viewing.

If movement contravenes how the body’s appearance delineates the boundaries between species and animal performers were anthropomorphised in the act, then human performers were accordingly ‘zoomorphized’, to use Acampora’s term (2006: 85). A big cat and elephant performance in circus could be considered a
manifestation of ‘human-made replicas of nature’ that contributed to a ‘vast and self-serving misrecognition of animals by humans’ (Chaudhuri, 2007: 13). The circus arena act humanised an animal with its prescriptive trained movement while showing visibly different bodies. Hence an animal performed strangeness.

In the illusion of performance, in which the actions of big cats appear to collapse generic species differences to meet human expectations of imitative behaviour, the particularities of body shape remain apparent. The oddness of human-like action done by an animal could, conversely, heighten awareness of a distinctive animal body. The performance of humanness exists in a continuum with performed animalness, but is manifest through a sensory objectification of animal bodies.

How did, and does, a spectator see animal bodies in the live circus? What transpires through sensory bodily engagement? In renouncing the longstanding cultural opposition of animal and human, and by arguing for animals, Derrida (2004) rejects the all-pervasive cultural tendency to anthropomorphism. Humans should see animals as they present themselves to be seen, rather than framed as cultural metaphors. This requires seeing distinctive body difference and separateness. If as Merleau-Ponty (1996) argues, humans are attuned to seeing the action of human bodies, then our senses might be attuned in particular to watching humans. A nonhuman animal’s own repertoire of movement may not seem particularly watchable. This infers that animal bodies must do human actions to be theatrical and circus, and adds an additional humanising layer with the costumes, props and music.

An assumption of separateness itself has become contestable as simplistic, and it is Neil Evernden who outlines how this might more aptly be explained as arising within a relational field (Acamporra, 2006: 45). Circus appears to suspend the species identity di-
vide as it presents physical strangeness. The circus form presents muscular human bodies in extreme acrobatic action with and on apparatus, while animal performance emulates the human act at times the animal body might appear to function like apparatus. In suggesting ideas of ‘recalcitrance in animal performance’, Peterson writes ‘but meaning cannot tame what is wild about the signifier’ (2007: 35, note 3). It might be added that the wildness of the senses defies regulation through cognitive ordering to make meaning from experience.

In performance, animals can be seen, heard and smelt. A spectator sees the strangeness of animal performer movements while at the same time seeing, hearing and smelling other bodies. A sensory reaching-out to other bodies is complicated by the pre-existing sensory pattern that an individual spectator brings to viewing. This makes sensory reception difficult to unravel.

Nonetheless a circus spectator might almost simultaneously feel his or her body tense in response to the bodily alertness of a trainer and the animal performers. Speculation about bodily encounters in circus spectatorship might expand ideas of sensory reception in social worlds. Spectators might become alert to distinctive bodily presence in ways that mimic how animal performers are on constant alert. In performance and spectatorship, the visceral responses of animal bodies produce sensory excess.

While a notion of excess arises from theoretical approaches to interpreting body based performance and the performativity of the senses (Banes and Lepecki 2007), it is also acknowledged in studies on the psychology of perception. Questions about how perception is ordered became crucial to the cognitive interpretation of sensory experience (e.g. Gibson, 1966), and also for its application to film studies (which is a domain that can be related to ideas of action and motion in live circus performance). Ed Tan writes that
‘Hochberg and Brooks provided perceptual psychologists with an outlook on higher mental processes sheltering perception from a flood of uninterpretable visual data’ (2007: 569). In this approach, the perceived visual field might overwhelm unless it is ordered. In arguing that there is an embodied dimension to the perception of circus, which exists outside such ordering processes, the way that the senses engage with this surrounding field continues (whether it is cognitively recognised or not), thereby bodily perception produces excess (a reversal of this proposition makes it possible to empathise with other animals in human spaces).

Perhaps because Western thought offers a somewhat limited recognition of sensory engagement, there is cultural reticence about the implications of an expanded sensory engagement in the world and what animal intelligence might encompass. Moreover it is necessary to challenge an assumption that all species bodies feel and engage with the world in the same patterns regardless of whether sight predominates in the hierarchy of the senses. Broad ideas of body to body phenomenology do, nonetheless, offer ways of explaining human sensory orientation to bodies in action including animal bodies (see below). This might also then explain the appeal of circus animal acts.

Sensory engagement with circus performance invites responses from spectators that are also physical and visceral. This process involves a sensory body responding to a performing body in an engagement that additionally communicates cultural ideas. Accordingly, the social idea of a performer is perceived with other modes of perception so that, for example, a body is also recognised as gendered as it is perceived through the senses. In the same way a human spectator responds sensorily and viscerally to an animal performer body while naming and bringing other learnt knowledge to mind. The cognitive understanding of identity, including
species identity, is caught up in the species specific sensory nexus.

The social context surrounding circus acts in twenty-first century Western culture means that a spectator will invariably know that animals have minimal autonomy even during the performance, although any potential suffering remains unseen. An implicit understanding that humans exercise power over other species—the politics of species control— informs viewing as it potentially infiltrates the sensory reception of performance. Yet trained performance persists. Those opposed to wild animal performance (in particular) in the twenty-first century are confronted by entrenched pockets of support for its continuation. Given this resistance to the promotion of rational ideas championing quality of life and freedom, an approach to human–animal relations might need to also encompass knowledge of sensory reception and how it might cut across cognitive understanding of the material order. The earlier questions about a spectator’s sensory perception could be expanded; can sensory reception be separated from culture and its values?

In considering how spectators bring their personal and social backgrounds to the watching of performing human bodies and their motion, it is possible to speculate that this body phenomenology implies an accumulation of prior sensorial, visceral experiences (Tait, 2005: 141–52). These intersect with the perception of the cultural identity of bodies and might involve a bodily conditioning that underpins support for inappropriate treatments.

Although embodied gender and race differences potentially challenge a notional seamlessness in Merleau-Ponty’s (1996) ideas of motility and body-schemata in which a body is constantly moving outwards to flesh the world, it is possible to envisage as interventions in an individual’s established patterning by human bodies that confronts same-species bodies and disrupt their regularised
patterns. If the stimulation of bodily responses, including unpleasant ones, might encourage and increase attraction to performance, there are wider implications for assumptions about what motivates human behaviour. Animal acts in circus may also appeal to spectators because they disrupt the sensory body-to-body phenomenology between human bodies.

I contend that because the bodily sensations arising from seeing and hearing body-based performances induce viscerality, this can be equated with bodily sensations of liveliness, and aliveness, and that these in part, explain the appeal of physical performances. The risk is that discomforting visceral sensations have the converse impact and actually encourage some spectators to seek out experiences. Visceral responses to wild animals in popular entertainment raise larger issues in the consideration of ethics and activism; if sensory experiences attract spectators they may also encourage activism against big cat performance.
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Animals have long been used in art as screens on which to project all kinds of things. Such depictions of animals are based on the idea of a hierarchy of living creatures, with superior human subjects forcing inferior animals, into their representations as passive objects rather than as active beings. In light of the decay of the exclusively anthropocentric worldview, this categorical distinction is quickly eroding. In this chapter, I shall discuss the production of motion pictures (in the literal sense of the word) shot by animal “cameramen” in order to simulate the animals’ own points of view.

Such animal road movies combine features of the traditional American road movie as well as of the European voyage film. They draw on the excitement of the mode of animal mobility and sensibility as well as on the encounter with an (animal) outsider who not only offers a projection screen for human values but also stages a kind of becoming other, of becoming animal.

The idea of animal-cams is not new; animal cameras are common place in science, the entertainment sector and in business¹. David Letterman first fitted out the Golden Retriever, Travis, with a camera in 1981 so that he transmitted live footage into the studio (Later Letterman introduced a monkey-cam). The first prototype for the so-called Crittercam capturing video, sound, and other information from marine animals was developed 1987. Today the

¹ In the UK you can buy a product called DogCam: a helmet camera system for recording your own sport activities. It is promised that with these films people will grasp exactly the experiences of a skiing, racing or skydiving person.
National Geographic Channel shows a Crittercam program just like any other documentary on TV.

In Germany there exist several private catcam websites where cat owners can watch live what their pets are doing in their private lives indoors or outdoors. Mr. Lee’s catcam is the most popular and even includes do-it-yourself directions for building your own catcam.

In the fine arts there have been quite a few attempts in the last 20 years to explore the way an animal views the world by fitting animals with helmet cameras and simply setting them loose. Such experiments make reference to Edward Muybridge’s early chronophotography of horses (and other animals) that were developed to shed light on the particularities of specific motion sequences. Those photos were also triggered by the animals themselves. The main difference between these early scientific experiments and recent artistic approaches to animal locomotion is that one is not confronted with frozen pictures of animal movements viewed from outside, but rather with motion pictures that claim to collect what the moving animal themselves “actually see” from “their own perspective”. Rather than trapping the physiology of a given species, the purpose of the contemporary artworks seems to be the capturing of the psychology of a specific non-human individual by allowing the viewer to “see through its eyes”.

One can ask (like Donna Haraway regarding Crittercam videos) if these filming individuals are ‘just objects for the data-gathering subjects called people or rather symmetrical actors with a human like similarity’ (Haraway, 2007: 262). I would argue they are not intentional, like a first-person cameraman, but they are not pure objects either. When looking at animal filmmakers and considering that animal to be the author of a work of art, the definitions of both authorship and art are challenged. By attribut-
ing quasi-human qualities like authorship to an animal, camera-carrying animals in a way also become human. They are accorded a degree of autonomy and subjectivity as partners or agents. Thus the works I will discuss also challenge the dominant idea of “creativity” and “art” as the result of individual inspiration, human genius, and intention. They can be read as an attempt to unmask the illusory character of notions of artistic genius. The notion of becoming human is connected with the affirmation or empowerment of the animal-other, the establishment of animal agency, and might create an emancipatory potential with respect to reforming the relationship between animals and humans.

Roaming Venice

Canadian Jana Sterbak worked with her own Jack Russell terrier, Stanley, to produce two different installations using footage Stanley shot wearing a small video camera. The first, was originally designed for the Venice Biennial 2003 and is called Waiting for High Water; the second one From Here to There has, in fact, also been shown at the Biennial.

For Waiting for High Water, Stanley wore three, lightweight medical cameras as he moved around in his world, filming from thirty-five centimetres above the ground the high water season in Venice, Italy. As a hunting dog, Stanley possesses qualities quite different from those of a human. These qualities are accordingly reflected in the film. Stanley was constantly on the move amidst the well-known tourist sights of Venice, responding to olfactory stimuli a human would not even have registered; the rhythm of

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2 The Venice Biennale with its International Art Exhibition has been one of the most important and avant-garde venues for contemporary art. For over 100 years now each country presents itself in a national pavilion in the Giardini of Venice. In 2003 Jana Sterbak was chosen to be the only representative of her country and to show her installation in the Canadian pavilion as a one woman show. For details see Damisch, 2006.
his movements determined by his sense of smell.

In the first frame of the film, we see a group of tourists bending down to look at the dog. This reminds us that in art, as well as in life, animals are often treated as mere things that are seen but, do not themselves, see. In the last pictures we see the hand of Sterbak’s assistant coming down and turning the camera off – as if he is switching off a machine. The footage is framed by more conventional ways of perceiving animals. But in between there is something different taking place.

On three video projectors Sterbak then showed the wobbly footage shot from Stanley’s perspective. The installation is a closed system so that the viewer can only enter and leave through one door, in a darkened room, with no daylight. The whole setting is hard to grasp at first sight, and completely involves the viewer physically, as he or she moves around in the system, and becomes a part of it. One is suppose to lose his or her external point of view, and to gain a more internal point of view. As Jana Sterbak states, the idea was for the dog to determine the point of view, and for the artist, and the viewer, to be guided by a ‘way of seeing that is not our own’ (von Drathen, 2003: 258). Nonetheless, Sterbak selected and edited the material – cutting it down from more than one hundred hours to twelve minutes. The terrier moves through natural and social spaces, constructs these spaces and fills them with his presence. Sterbak aims at reorienting the very way one sees: the camerawork might give a brief insight in the inner life of the dog by simulating visual or auditory perceptions that he might experience. The “becoming animal” that Sterbaks aims for is, of course, only the human viewer’s imagination of what the dog is seeing. Nevertheless, the artist tries to put up her installation according to Daisie Radner’s claim for hetereophenomenology:
The question, What is the animal like?’ has to be answered in light of the animal’s own physiology and behavior. The key to making progress via Innenwelt heterophenomenology is to recognize that animal experiences are not just pale imitations of our own (Radner, 1994: 403).

So the simultaneous showing of the three films next to each other is suppose to mimic the wider field of vision of the dog. Also the reduced colour scale alludes to the physiological vision of a dog.

The sound track consists of a mind-blowing, fast, harpsichord composition, that disorients the viewer even further, and might give a pale echo of the overwhelming multisensory impressions of Stanley’s journey through the smelly streets of Venice, which are not reflectable within the framework of a video. The harpsichord as an addition of an element from the canon of Western high culture served to ensure that, despite everything, visitors to the exhibition could hardly stray from their entirely human perspective. One could argue that what takes place here is not the animalisation of the viewer, but rather the anthropomorphism of the animal. We never see the world through the eyes of an animal but only through our own. Still, the very attempt to adopt the point of view of an animal, does contain an emancipatory energy, because it means accepting that the animal has a point of view. The avoidance of predictable aesthetic, editing, or filming, patterns puts the viewer in a reception situation that never leads to a fixed interpretation. Stanley becomes the seeing-eye dog guiding the viewer to a point where he or she can at least imagine possible alternative realities.
“Dogcumentaries”

The same is true for the dogs in Nobuhira Narumi’s artworks. The Japanese artist affixes tiny custom-built cameras to dogs in order to provide access to the perspective of animals. His ongoing dog-cam project is part of a larger series of video and installation works. They are based on video stills in which the artist walks dogs through different cultural spaces with a micro-camera-system attached to the dog’s head.

The work can be read in the tradition of the Land Art movement of the 1960s, when artists like Richard Long and Hamish Fulton proclaimed walking as art form. The main difference is the interaction and the communication that takes place in Narumi’s work whereas the lone wanderers of the early land art movement tried to reclaim their own personal connection to the land and attempted to flee the urban space.

Narumi’s so-called dog-cam machine consists of two separate camera devices in a specially constructed headset: a black and white micro-video camera triggered on and off by movement and rest and a digital stills camera, operated when the dog nods its head.

In a sequence filmed in Japan, the viewer watches the spoiled dog of a homosexual couple walking through the red light district in Tokyo with all its sex-shop windows. There the dog encounters the plastic toy dogs of a street vendor. These cinematic encounters question the relationship of human beings to nature by recalling

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3 For more information and images of Narumi’s work see www.nobuhiranarumi.com.
4 The nodding of the dog’s head can either be due to a rather relaxed neck that is rhythmically moving up and down while the dog is randomly straying around or it can be caused by an abrupt lowering of the head to focus on a point of attention. For the human viewer the nodding interrupts the continuous flow of images in an opaque way and leaves the impression of an either entirely arbitrarily or botched cutting technique or of an bizarre narrative that stays incomprehensible for the unenlightened.
our ‘tendency towards animism and anthropomorphism’ (Moulinet, 1997).

In a clip from New Cross London, Narumi’s camera accompanies the dog of a homeless person through the urban wasteland. The dog is obviously looking for food between broken glass and garbage. In the UK, many poor people keep dogs because the government pays subsidies for them so that they are considered a means of income even if the dog itself stays hungry.

Narumi investigates, in black and white pictures, with no sound, and almost no editing, the human world through a dog’s point of view. In a kind of three minute “geopsychical journey” he maps the social space of the dog-owner-pair and reflects on the mutual dependency of dogs and humans.

The resulting jerky footage on video H-8, with its deep and wide focus, captures the animal’s movement and his or her relationship to the environment. At dog’s eye level the viewer of the films discovers the streets of New York, Tokyo, Hong Kong, London, and New Zealand, watching silent narratives of different urban spaces.

A historical reference could be Walter Benjamin’s description of the flaneur. Benjamin writes that this type of city wanderer would love to exchange all his cultural background and all the information he has assembled about specific historical sites for ‘the scent of a randomly chosen street dog’ (Benjamin. 1984: 271).

The viewer is supposedly looking at the world through canine eyes, whilst physically using his or her own human gaze. Thus there is a collision and an interplay of two different fields of vision.

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5 Narumi in an online interview with the author (February 2009).
This reflects the phenomenon of the symbiotic companion-species relationship between humans and dogs, and the importance of the other to define oneself (Haraway, 2003). The videos initiated by Narumi and filmed by shepherds, strays, companions, or guard dogs portray the lifestyle and the attitudes of their human companions. And really, the footage reveals more about the human being than about the animal.

Often, the viewer must know the information behind the scenes to fully grasp the message of Narumi’s films. This is especially true for “scent view”, where the dog of a rich owner is first taken on a trip in the car. Then he encounters other dogs in cages ready to be euthanized, because their Hong Kong owners left them behind when they moved overseas or before returning to China in response to the political slogan “Uniting the Nation”. In a statement concerning this film, Narumi anticipates the same fate for the camera-carrying dog. The microcosm of the owner-dog relationship mirrors the macrocosm of global political movements. As Narumi states, dogs have now in fact become our best cultural guides (See Moulinet, 1997).

Animals just lend him their eyes to see the human environment more clearly. Even though the human recipient sees the images with utterly human eyes and their human background, Narumi’s co-authors become seeing-eye dogs, allowing perceptions of human society that we would not have had without them. The dog defines the path and leads the artist according to his or her interests. So the films are entirely different from any image construction via random procedures (as some critiques have suggested), because the dogs do possess agency: they make decisions and fulfil actions according to their social roles and individual interests and desires. Most importantly they move towards spaces of interest. And those surely differ from human likes and dislikes. The un-
steady pictures take us very close to the objects the dogs observe, constructing a direct relation between garbage, other dog's bums, or sites where other dogs left their scent marks. In combination with the quick edits these things – usually considered disgusting by human beings – almost cause nausea. The dispassionate documentary style makes us aware of the fact that dogs have their own inner worlds and thereby limits the claim to absoluteness of the anthropocentric gaze.

Narumi uses dogs, probably the most cooperative animal in the world, to create his artworks; they have no choice whether to participate in his entirely human enterprise. But nevertheless they make choices and demonstrate their agency by simply acting and reacting to their environment through movement and rest. Obviously, there is no real, personal, benefit for the dogs involved, but they might function as ambassadors for all the other animals whose (inner) lives are often considered dull or worthless. Watching Narumi’s videos the viewer might question Martin Heidegger’s famous statement that ‘the animal is poor in world’ (Heidegger, 1996: 177). By allowing the thought that also animals “have a world”, animal road movies might also challenge classical conceptions of humanist subjectivity.

**Video voices of wild animals**

My last example is American video artist Sam Easterson who has been collecting footage from the perspective of animals since 1998. He equipped individuals from different species with his self-designed, lightweight, helmet-mounted cameras. He works with a whole range of wild as well as domestic animals: birds, mammals, reptiles, and insects. Easterson usually uses animals that are indigenous to a specific habitat to document a particular landscape from a “native” point of view. He strapped, for example,
a tarantula, a scorpion, an armadillo, a coyote, a buffalo, a wolf, a frog, and an alligator with cameras to capture their experiences of the desert, the prairie, and the swamp.

Easterson attempts to create the most comprehensive library of animal point of views; an archive that gives a “first animal perspective” to every animal in the country. Wanting to study the animals’ habitats, he found a way of enabling the viewer to learn about animals’ lives in remote areas, their interaction with mates, other species, encounters with rough landscape and the like, without human interference. He lets the animals themselves document their environment and their daily living in order to give the animals a “video voice” — and he does so from a conservationist point of view.7 The artist thus adopts an advocate’s attitude, but unlike an advocate, he does not speak for the animals. Easterson himself does not interpret the images. He does not offer a narrative, neither does he edit the films nor add music to the soundtrack8. The audio track simply records the natural growls, snorts, burps, or just the rhythm of breathing. The films sometimes even evoke other senses when we, for example, hear the intense sniffing of a

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7 It is interesting that there are very few critical comments of Easterson’s (ab)use of wild animals who face major stress in the process of being captured and being involuntarily equipped with the cameras. Possibly the audience easily accepts such manipulations because similar handling of wild animals is performed by conservationists for example in order to track and protect endangered species on a daily basis.

8 Nevertheless, Easterson sometimes presents the videos in large installations that put an ironic twist on his romantic notion of nature. The gallery displays deconstruct the low-budget appearance of the videos by displaying a ridiculous amount of high-tech equipment utilized for his films. Taxidermic animals are shown with the cameras, batteries, and other technological devices attached to their bodies; warning signs are installed asking the public to stay behind the yellow line. With these additions to his unedited films, Easterson critiques a common human attitude towards nature: In order to feel comfortable people tend to control wildlife and nature by fencing it in or even killing it. (See Feaster. 2001). Even though most of us feel the need to get close to nature and to learn something about it, we prefer watching wild animals in zoos or in natural history museums or at a safe distance in wildlife programs on TV. In any case, we stay passive spectators and will never come close to real interactions with animals or their habitat.
wolf, or see the rotating ears of an armadillo. The clips show extreme close-up shots of the land. Because of the forward-pointing motion of the wobbly footage, the viewer has the chance to identify with the animal, as if adopting the persona of a videogame avatar. The virtual immersion in the movement of an individual of another species, gives the impression of being operated by remote control. The viewer no longer has the power over the eye-body-coordination; the animal takes them on a journey that sometimes almost induces motion sickness. One of the intended effects is that recipients are made physically aware of the animals' vulnerability in their bodily encounter with the environment. It is especially the case with the tiny animals who are so close to the earth and, apparently, so much more involved in their ecosystem. Through their movement, one gets a sense for the disastrous consequences for the individual when its environment is altered or destroyed. Being somehow put in the position of an animal, one might become more concerned about their well-being and perhaps feel empathy with them.

One of the scenes in Where the Buffalo Roam plays a key role in Easterson's work; it puts the self-consciousness of both animal and humans at stake. It is a sequence where we can see from the point of view of a buffalo as he is drinking from a pond. The reflection on the water freezes the self-portrait of the animal and gives the human viewer an almost shocking insight into the self-awareness of the animal; by looking at the buffalo's face, as if we are looking at ourselves in a mirror, we somehow become animal ourselves. The animal addresses us silently, as he is ruptured twice by the camera lens and the surface of the water. In none of the other films we are face to face with the animal; none of the other films show an intersecting gaze. This very touching scene reminds the viewer not only of the gap between nature and culture but also
of the connectedness of all living beings. Indeed, the artist hopes to increase the viewer's sensibility to endangered specific habitats, the destruction or damaging of which would make an impact on the animals that live there. He trusts that his work ‘will help expand the public’s capacity to understand the natural environment – in empathetic terms’ (Easterson, 2006). He considers his videos as a means of protecting and preserving endangered animals and their habitat: ‘If you are able to see from the perspective of these animals’ (Easterson, 2006) he says (and one might add ‘If you are able to run with the wolves’), ‘you’re far less likely to harm them or their habitats’ (Thompson, 2005: 54). In Easterson’s road movies, it is not, like in an orthodox road movie, the first animal protagonist who changes during the course of the story; instead it is the human recipient who is supposed to become the character of an education novel. To be on the road with the eyes of “the other” (that is always part of the self) he or she is expected to develop to a more environmentally aware (and therefore become a more mature?) person.

Who leads the movie?

In films that are made with the help of animal filmmakers the question “who leads the movie?” is not easily answered. Whereas the films themselves look like they are not edited at all, the hand of the artist is very visible in the way the films are presented: in large-scale installations with multiple screenings, the inclusion or exclusion of natural or artificial soundtracks. Furthermore, the humans are the ones who develop the concept, provide the theoretical and material framework, and force animals to cooperate. The inherent violence in these acts, which is especially obvious in Easterson’s handling of wild animals (in spite of his conservationist intentions), is hard to overlook.
Also, none of the works, truly embraces the essential differentness of the involved animals, since they all disregard the specific experiential world of the animals, for most of whom, visual stimuli do not have the same significance as they do for humans. The affections we experience remain our own, for it is impossible to really see with the eyes of an animal or to completely bypass the limitations of human physiology. Even though the primacy of one species over another may be questioned in theory, in practice the primacy of vision over scent, sound, taste, touch, and movement still remains.\textsuperscript{9}

Also the recipients stay passive spectators and do not even come close to real interactions or encounters with the animals involved. So the films are also – probably unwillingly – parodies of our access to the natural world and the technological apparatus through which we tend to engage with and represent nature. On the other hand they can be read as ironic commentaries on the genre of the road movie where the heroes return home wiser for their experiences. Like in any classic on-the-road-plot the viewer is taken on a voyage and has the impression of having moved around in space like an armadillo or like a dog. In reality of course, the viewer has stayed at home and not moved at all.

On the other hand one should not dismiss the liberating potential the works may contain: all three approaches elicit empathy, they all try to involve the viewer physically, they all understand filming as a performative act, and moving, or straying, as a way of knowing. While watching the films the viewer becomes animal insofar as that he or she adopts a horizontal bodily structure and a horizontal gaze and thus abandons the upright position that has

\textsuperscript{9} There are of course many species for whom vision is the primary sense, like for example most birds and insects. As far as dogs are concerned scent seems to be far more important, though. Human animals, on the other hand, claim to be the “visual animal” and historically disregard especially scent and touch.
long been exclusively reserved for human nature. It is especially
in the irregular and abrupt movement of the camera, in combina-
tion with the unfamiliar perspective. This may lead to a complete
disorientation and alienation of the human viewer, who is taken
on a wild ride he or she cannot control. The films are not neutral
records of the world but rather observational documentaries of
individuals constructing their space by movement. Whereas in
more conventional representations animals are often treated as
objects to be looked at, in this work the animals get to decide
what is worth looking at. With the camera being attached to their
bodies the animals transfer their own physiology to film; its jiggle
suggests their pulse and heartbeat. By providing an impression of
how animals interpret and invent their environment, roaming the
world, viewers are asked to imagine possible non-human realities,
alternative states of mind, and formerly unknown bodily engage-
ments with the world. The visual immersion in the actual loco-
motion of the animal might also become an exercise in emotion.
The display of an animals’ difference might train one’s ability to
attribute mental states to others and to understand that others
have desires, knowledge, and intentions that are different from
one’s own. The implicit acceptance that an animals’ experience
is of equal value may accelerate the growth of empathy with that
animal. Thus by displaying apparent motions, artists like Sterbak,
Narumi, and Easterson (together with their animal co-authors)
provoke a change in position of the human viewer towards the af-
firmation and empowerment of the animal-other and thereby the
establishment of animal agency. By involving autonomously mov-
ing animal subjects, rather than forcing motionless animals into
pictures with fixed metaphorical or symbolical meaning, these
artists develop new methods to encounter animal agents in a more
attentive and respectful way.
Animal road movies are not about being on the road as an expression of a modern lifestyle and not so much about the individual’s difficulties to find a place in the world, but there are some similarities nevertheless. The protagonists of American road movies are often outlaws who are denied basic rights in society. They are often figures of the other, screens on which to project desires, and who claim their freedom and independence – mostly in vain. Thus animal road movies end like many traditional road movies; the journey continues endlessly.
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Appendix 1: Websites with video samples

www.janasterbak.com
www.nationalgeographic.com/crittercam/
www.sameasterson.com
Lesley Instone and Kathy Mee
Companion Acts and companion species: boundary transgressions and the place of dogs in urban public space

Introduction
The place of dogs in public urban space is fiercely contested in Australia. On the one hand, dog owners are demanding increased access to parks and other public spaces such as outdoor cafés, while on the other, non-dog owners resist such moves and call for even stricter regulation of pet dogs in urban space. Australia has one of the highest rates of pet ownership in the world. 63% of the 7.5 million households in Australia own pets (PetNet, 2006), and over 40% of households own a dog (Miller and Howell, 2008: 527). In the state of New South Wales there are 17 dogs per 100 people (NSW Department of Local Government, 2008/9). Yet Australia has some of the strictest regulations regarding dogs in public space, especially compared to European countries. This is an intriguing paradox. The NSW legislation regulating dogs and other companion animals is the Companion Animals Act 1998 (CAA). The CAA was the most debated piece of legislation in the history of the state legislature (Cohen, 1998; Hawkes, 1999; Miller and Howell, 2008). It took three and a half years to develop the Act due to the intensity of public debate, which necessitated extensive community consultation and over 10,000 submissions were received. When the draft bill eventually got to parliament there was again, extended debate with over 90 amendments proposed (Borthwick, 2009; Hawkes, 1999).
The CAA resulted from significant changes in the role of pets in society, particularly the emergence of dogs as a companion species (Haraway, 2003) and concerns about how dog behaviour in public space should be regulated and monitored by humans. As Haraway (2008: 17) notes humans and dogs, as companion species, are entangled in new ‘patterns of relationality’ and new modes of pet-love which are forging emerging spatialities of contested interspecies communication. The CAA also responds to growing pet ownership, urban consolidation, changing work, social and leisure lifestyles (Clough, 2008; Franklin, 2006; Nast, 2006). With dogs now a largely urban phenomenon in Australia the CAA institutes a spatial “solution” to significant concerns about dog behaviour in public space, particularly around issues of dog faeces and dog aggression towards humans, by creating a range of constrained and prohibited spaces for dogs. The recourse to spatial containment means that in Australia there is a rigid and limited notion of the “proper” space of the dog. In European countries, dogs are accepted in a wider range of locations, for example in cafés, in pubs, on public transport, and in a wide range of outdoor environments. In Australia sanctioned spaces for dogs are much more limited and regulations are in place requiring dogs in public spaces to be on a leash at all times, except for some designated off-leash zones. In many cities dogs are banned from access to some parks, outside café and bar areas, children’s playgrounds and around barbeque facilities, as well as all inside spaces where food is served or sold.

To compensate for restrictions on the movement and freedom of dogs in urban public space, the CAA requires the provision of at least one off-leash space in each local government area. The CAA therefore necessitates the development of local government management plans, such Newcastle’s Companion Animal Management Plan, 2004. In this plan the council “classifies” three types
of public spaces for dogs. These are:

- Prohibited areas such as all ocean beaches, and more recently, cafés
- Leash-free areas where dogs are permitted to exercise off-leash
- The balance of public areas where dogs are only permitted on the leash.

‘Dog parks’ – public spaces that allow dogs to be off-leash – are a recognition of the importance of the need for urban dogs to run and play in public space (King et al., 2009; Miller and Howell, 2008). They have become a widely accepted mode of urban animal management and are increasingly becoming institutionalised in Australian cities. Increasing dog ownership and changing pet relations have put pressure on local government authorities to provide off-leash options for dog owners, and urban citizens in Australia have been active in lobbying to increase available spaces for dogs, and in publicising the availability of off-leash spaces through media articles and web sites (see for example Dogs NSW, n.d.; PetNet, n.d.). It is not surprising therefore, that off-leash areas are highly contested, and a key site in disputation and negotiations over human-dog relations in the contemporary city. In this paper we explore dog parks as boundary objects; objects which negotiate the limits of dogs as a companion species in public urban space. In particular, it examines the tangled relations and enactments of spaces of human-dog relations in a medium sized Australian city, Newcastle, NSW.
Companion species and urban space: approaches and methods

Donna Haraway’s notion of ‘companion species’ breaks down the ontological separation of humans and animals, subject and object. As Haraway argues:

There are no preconstituted subjects and objects, and no single sources, unitary actors, or final ends. In Judith Butler’s terms, there are only “contingent foundations”; bodies that matter are the result. A bestiary of agencies, kinds of relatings and scores of time trump the imaginings of even the most baroque cosmologists. For me, that is what companion species signifies (2003:6).

Adopting this stance challenges humanist conceits about the park as a space (just) for people. Querying human priority raises the question of how human-dog coexistence in public urban open space might be achieved and how human-dog relations may ‘matter to the worlds we might yet live in’ (Haraway, 2003: 3).

As companion species, dogs and humans are entangled in various ways and in many settings, and perform together as an agential unit. Laurier et al. (2006), for example, note the mutuality that characterises humans and dogs walking on and off the leash in parks. Sociologist Mike Michaels reminds us that this is a technologically mediated relation with his notion of the “hudogledog” – human-doglead-dog – an amusing term for what he terms a co(a)gent, in this case one bound by proximity (Michaels, 2000). In the off-leash area, however, other technologies of urban public space as well as the leash, such as roads, signage, park design, park furniture and the like, also participate in shaping, and being shaped by, the conjoint action of humans and dogs.
Williams suggests that the dog as a ‘collaborative agent of transformation in its negotiation of shared space’ can also be thought of as boundary-creature, displaying a strange mixture of the admirable and despicable (2007: 102). John Berger (2001), too, sees the dog as a ‘natural frontier expert’ (in Williams, 2007: 93), a boundary-creature, for exploring the ontological categories of human and animal, that oscillates between the twin practices of hyperseparation and incorporation (Plumwood, 1993). As a boundary creature, the place of the dog is both included and excluded, a contradiction that is expressed in the intense contestation over the access of dogs in public urban space in Australia (see for example, Sydney Morning Herald, 2008). The park too, is an in-between space straddling the twin poles of nature and culture, wild and civilised (Holmes et al., 2008). The park as a “wild” space of natural impulses, calls forth the need of policing; lest we (and our dogs) slip into our “animal natures”. As “cultured” space of urban civility, the park has long been as a space for enforcing ideas of national citizenship and the boundaries of belonging and proper behaviour. In the nineteenth-century, for example, efforts were made to enforce demure middle class behaviour, and there were strictures against all manner of activities, including lying on the grass, which were considered “unproper” for park space (Holmes et al., 2008). In the contemporary period, policing the park extends beyond the human as the boundaries of acceptable behaviour for companion species are encoded in the CAA and its disciplinary apparatus.

In this paper we take up the question of boundaries in relation to how humans and dogs collectively perform transspecies space in urban park settings, focusing particularly on the boundaries, and boundary practices of off-leash areas in urban parks. Haraway advocates that we search out borderlands, boundaries, boundary breakdowns and border creatures as generative, noninnocent sites.
of engagement for teasing out the ‘surprises and ironies’ at the heart of the categories that we choose to make (1991: 199). Boundaries are consequential and have effects (Haraway, 1991; Power, 2009); they articulate in the performances of what humans and dogs can do in public space and play a role in how human-dog-park relations are co-constituted in specific places and times. As David Turnbull (1998) reminds us, boundaries move in relation to performance. Boundaries and boundary practices are always risky and unfinished, always provisional and in danger of breakdown, and are thus excellent sites for teasing out the complex practices of human-dog relations in public urban space.

In 2009 the authors researched the off-leash areas in the Newcastle council area, seeking out the boundary-making practices and technologies of human-dog encounters in everyday park spaces. We visited the parks with and without our dogs, undertaking observations for more than a year. In some cases visits were largely a part of the everyday practices of our households, which visit dog parks at least 4-5 times per week. But we also toured all the off-leash areas of Newcastle, paying particular attention to everyday activities and uses of the dog parks. We took photographs, walked around the park, observed signs, made notes, conversed and examined the specific geographies of the parks. We also undertook documentary research, gathering brochures, visiting websites, tracking legislation and examining council documents. Our analysis sought to understand the human—dog—off-leash-area as mutually constituted, and to appreciate how agency is distributed among many actors – human and nonhuman. We endeavour here to provide a fine-grain description of the small and everyday practices, objects and actors that enact off-leash areas as a specific expression of human-dog relations and spatiality.
Dog parks in Newcastle
The park is a key site for dog-initiated human social interaction (Jackson, 2005), and, as neutral territory, it is also an important setting for the socialisation of dogs (Kobelt et al., 2003; Miller and Howell, 2008). Demands for greater access to park space is increasing as Australian urban lifestyles and working hours become intensified (Kobelt et al., 2003). Dog owners value off-leash exercise (Williams et al., 2009) and pressure is building for local councils to provide greater access of dogs to parks, address town planning practices, and redesign parks to meet the needs for dogs' off-leash activities (Harlock Jackson, 1998; Kobelt et al., 2003). Despite this, little research has been undertaken on the needs of human-dog walkers in urban open space (Miller and Howell 2008) or on the ways in which access to and design of urban park space influences human-dog relations. The provision of off-leash areas in parks creates a new urban spatiality of human-dog relations that this paper addresses.

Here we focus on the off-leash areas within the Newcastle Local Government Area. Newcastle has a population of just over 140,000 (141,752) humans and 27,639 microchipped dogs (NCC, 2006). Walking or walking the dog, is the most common recreational activity undertaken by Newcastle residents. Forty percent of the population surveyed in 2005 by Newcastle City Council had walked a dog in the past 6 months (NCC, 2005: 92). There are 17 off-leash areas in Newcastle, or about 1 off-leash area for every 1,625 registered dogs. Off-leash areas exist in relation to other public spaces, and in this paper we focus on the off-leash spaces in order to draw attention to the ways in which urban spatiality contributes to the specific performances of human-dog relations.

The off-leash areas are positioned in most parts of Newcastle
council area, including a few on the urban fringe, but there are a higher concentration in the inner and older parts of urban Newcastle and few in southern Newcastle. Parks in Newcastle range from very small suburban parks of just 0.6 hectare to quite large areas of nearly 14 hectares. The off-leash area is a varying, generally small, portion of this space. Off-leash parks include areas with harbour beach access and there are several along rivers, or concretised channels, and/or railway lines. Many of the off-leash areas appeared to us, to be on land not required for other human uses, either within the suburb or within the park. They often appeared to be marginal spaces, “off to the side” of the desirable parts of the park, with few trees or other features. Some areas bordered on very busy roads and others abutted more unkempt areas of parks. One thing that the off-leash areas have in common is that they are not fenced. The unfenced nature of off-leash areas drew our attention to the boundaries of the park and how they are regulated and enacted from a human and dog perspective.
Technologies of bounding and binding humans, dogs and park space

Figure 1: Newcastle City Council notice designating off-leash areas (Photo Kathy Mee & Lesley Instone)
The most notable feature that marks a space as off-leash is a grey sign erected by the city council that designates the area as off-
leash, displays a map of its boundaries, and outlines the regulations and penalties that adhere to the space (Figures 1 and 2). These signs can be understood as performing the boundaries of the park. As a boundary object the sign negotiates the accepted delineation between human space and human-dog space. It also links humans-dogs to the regulatory framework that defines the space of the park (or this part of it) as a legally sanctioned off-leash area. Regulatory technologies (physical and social) carry obligations on the human and dogs who use the space and are both explicitly and implicitly conveyed by the signs. As more-than-human actors in the performance of the park the signs are generative of a set of practices. For example the human-dog passes the sign on entering the off-leash area and the human and dog are released from the confines of the leash. The “hudogledog” transforms to a “huoladog” – a human—off-leash-area—dog, signalling a different movement, spatiality and relationality between human, dog and urban space. The dog as a ‘natural frontier expert’ draws humans into a liminal space that is more than mere incorporation of the dog into park space (Berger, 2001, in Williams, 2007). In this sense the park becomes a contact zone constituted by the co-presence of humans and dogs, a space of two-way, but asymmetric, communication in which any idea of clearly bounded spaces and categories is thrown into question (Haraway, 2008).

The signs communicate to humans the spatial boundaries of the park (Figure 1) and set up the rules of proper behaviour in the off-leash area, not just marking physical boundaries but also the boundaries of acceptable behaviour. Humans and dogs together have to do the work of not just interpreting and enacting the off-leash boundaries, but have to enact suitably “proper” behaviour. The signs also reiterate the narratives of the dog as a potential problem in public space, by pointing to the need for human agency
in removing dog faeces and preventing dog aggression. Positioning the dog as a problem and in need of control is central to much Urban Animal Management practices and engenders managerialist and control responses such as containment and legal sanction (Miller and Howell, 2008). But more importantly, the signs signal to the human-dog the expectation of proper conduct and self-regulation. They help establish the boundaries of what “responsible pet ownership” means, and again establish the park as an important site of urban civility-in-the-making. In effect, it is the repeated performances of humans-dogs that daily make the material and social boundaries that constitute the dog park.

The back of the signs are important too (Figure 2). They carry the message:

YOU ARE NOW LEAVING THE LEASH FREE AREA
PLEASE PUT YOU DOG ON A LEASH.

They signal a transformation point where leashing is required – the point of change from “huoladog” to the figure of the “hudo-gledog” (Michaels, 2000). Leashing is a significant action of compliance, performing the responsible dog owner and reassembling the requirements of domestication and control. The back of the signs also remind humans that the off-leash area is constrained. Laurier et al. note the importance of leashes, paths and orientations (2006: 20) in dog-walking practice and they note the complex sets of movements on the part of dog and human in order to achieve the transformation from off-leash to on-leash. The dog’s skill and competency as well as the owners’ is crucial to enacting the invisible boundary between the spatialities and competencies of walking together or walking alone (Laurier et al., 2006: 17). The back of the sign delineates between the (small) off-leash human-dog space
and the rest of the human space of the suburb/park. We, and other
dog walkers we have observed, also think that what the signs fail
to say is as important as what they display. In particular the signs
only address the humans-dogs and not other park users.

The boundary effect of the off-leash area signage, in a wider
sense, is to reinscribe the place of animals as not congruent with
human space, at least in public. Yet the unfenced nature of the off
leash areas means that boundaries are constantly crossed, inten-
tionally and unintentionally, by both humans and dogs (for exam-
ple, see Figure 2). Boundaries always leak, and the liminal space of
inside-outside invites transgression as humans and dogs challenge
the limits of the “practiced geographies of acceptability”, the signs
attempt to secure.

**Enacting the dog-park**

Bringing these observations together, we can see that the regula-
tory designation of an off-leash area does not make a “dog park”
in the sense of a dog-park as a lived space of human-dog interac-
tion. Rather the dog park is created through the repeated actions
of humans-dogs that bring the dog park into being. The off-leash
area provides a space of encounter that differentiates it from sur-
rounding park and urban areas, generating specific entanglements
of human, dog and space.

While the grey signs, policies and regulations mark the bound-
daries of an off-leash area they do not specify the limits of the dog
park and its practices. The everyday actions of dogs and humans
create dog park space in specific locations and times. As Laurier
et al. note dog walking is a living accomplishment of owner and
dog methodically displaying intent and producing social objects’
(2006: 2). In this case, these actions produce the unique spaces of
the dog park. Concomitantly, the varying material spaces of the
park provide very different conditions of possibility for dogs and humans in off-leash areas, which lead to the varied makings and remakings of dog parks in different parts of Newcastle. The materialities and geographies of the parks matter in shaping the possibilities for human-dog experience. The empty and largely featureless parks, devoid of water bowls and other amenities, reflect the reluctant way in which dogs are permitted in public space in Australia. Humans-dogs are reminded daily that their place in the urban order is as second class citizens, and reliant on the repetition of the performance of a “good” well trained dog, and a responsible dog owner. No wonder Haraway quipped that ‘[b]eing a pet seems to be a very demanding job for a dog’ (2003: 38), and, equally for owners, the skills self-control and well-trained behaviour have to be regularly enacted in order to maintain access to public urban space in the face of hostility and complaints. In contrast, we could imagine a dog park as a different sort of contact zone (Haraway, 2008) where positive engagement between humans and dogs is facilitated by qualified trainers, replacing the current approach of punitive compliance (Miller and Howell, 2008).

While the citational practices (Butler, 1993) of humans-dogs in the park bring the off-leash area alive as a dog park, there are other more-than-human actors shaping the park, what might happen there, and how humans-dogs might move about. For instance debris – the material remnants of other activities in the park – impact on human-animal relations in the dog park in ways that exceed the signage. During our visits to dog parks we recorded a range of debris and other remnants of human activity. These include, among other things, dog faeces, but also droppings from other creatures, condoms (which as Robert Drewe (1999) notes in his reflections of walking his dog Ella in Centennial Park, Sydney can be particularly attractive to some dogs), car wrecks, wide-
spread vandalism of signs, car-tyre tracks from night-time joy-rides, packaging and food waste. As Laurier et al. note:

various things lying on the path, and in the way, might be analysed by walkers as obstacles to be gotten around, discarded food the dogs would like (and the owner not) or sticks to be collected for play (2006: 9).

In our observations, this debris activates interest, or is perceived as food by the dog, but may create unease for dog owners. Unease for the dog owner is connected to potential threats to the safety of the dog caused by the waste – by the dog becoming uncontrolled due to the lure of the waste – and by the transgression of the space signalled by these debris. These things activate certain behaviours in the dog and the owner. For dog-owners they may engender feelings of umbrage at the transgression of “their” space, heightened vigilance, actions of control and disciplining the dog, as well as a sense of unease about other humans and their lack of respect for dog park space. The ways in which the signs and legislation construct the human-dog in the off-leash area as a “problem” to be managed makes invisible other problems in the management of the space such as the behaviours of littering humans. The range of actors – humans, litter, and other debris – constitute the dog park as a complex space of happy activity for the dog and the human, but also a potential site of unease and discomfort. Unaccompanied dogs and unaccompanied humans may also engender a sense of anxiety. These visitors, and their material remnants, can make off-leash areas unusable at times as a dog park space. The boundary signs with which we started our analysis of dog parks do not make demands on humans apart from their interactions with dogs, which is problematic in the creation of dog park space. The heterogeneous practices of a range of legitimate and transgressive
users, make the boundaries of the dog park more porous than the entry and exit signs would indicate. These porous boundaries of the park unsettle it as a fixed and reliable space. Each day the off-leash area is brought into being by these practices. As one dog walker commented to us: ‘You never know what the park is going to be like when you enter it each morning’.

Figure 3: Sign in laneway leading to off leash area (Photo Kathy Mee & Lesley Instone)

Dog parks do not exist in isolation but are linked into the park and the neighbourhood of which they are part through the routes of dog-walkers going to and leaving the off-leash area. Not only do dogs and humans make a passage through surrounding streets on the journey to the dog park, but the regulatory technologies of the park can leak across boundaries to appear in unlikely locations. For example, a home-made sign warning dog owners of retribution (Figure 3) was placed in a laneway which is a walking path to a dog
park. It remained there for nearly five weeks in 2009, indicating that the interaction between the “legitimate” off-leash space of the dog park and the surrounding streets may not always be seamless. The coming and going of the sign signifies the unsettled nature of the off-leash space, and the ways in which these spaces are provisional, processual, and constantly in the process of becoming in relation to wider urban space. It also demonstrates that active public contestation about aspects of dog behaviour in public space spills into areas outside the dog park, perhaps particularly into neighbouring streets.

Conclusion
To conclude we turn to the questions of “What does the dog park do?” and “How do the different geographies shape the possibilities of the space and the nature of human-dog relations within and beyond the dog park?” In a broader sense we can understand the dog, human-dog and off-leash area as boundary objects – both in themselves and as concepts – shared objects in the negotiation of the place of dogs in contemporary urban space.

Boundary objects are objects which are both plastic enough to adapt to local needs and the constraints of the several parties employing them, yet robust enough to maintain a common identity across sites. They are weakly structured in common use, and become strongly structured in individual site use. These objects may be abstract or concrete. They have different meanings in different social worlds but their structure is common enough to more than one world to make them recognisable, a means of translation (Star and Griesemer, 1989: 393).

Within the park, the dog, as a “natural frontier expert” (Berger, 2001, in Williams, 2007), acts as a boundary object to help constitute spaces of conversation and interaction between humans who
might otherwise never communicate. The shared space of dog-walking and park-play creates possibilities for sociality, not just between dogs. The park also acts as a boundary object between the regulatory apparatus of the state and local council on one hand and dog-owners on the other. Here the park (and especially its retinue of signs) participates in the boundary-policing roles of containing the human-dog spatially and behaviourally, limiting when and where humans-dogs can be in public and limiting the acceptable modes of interaction between them outside the home. Finally, the human-dog and off-leash area can be understood more as a boundary-transgressing object that challenges the humanist constitution of the city and the bounded place of animals within it. This boundary object reveals the dynamic and active negotiation between the many communities who all recognise the off-leash area as somehow “human-dog space” but practice this in quite different ways. What is at stake in this space are the contestations, practices and codifications of human-dog relations outside the home.

Williams suggests that ‘representations of dogs have often been used to figure cultural change and negotiate the borderlands in-between’ (2007: 93), and in Australia, we can perhaps understand the intensity of disputation over dogs in public space as signalling broader cultural issues regarding the place and space of dogs (and other animals) in contemporary life. As pet relations change new demands are placed on the dog to perform as a good citizen and family member in public spaces. The creation of dog parks signals an important new development in pet relations; they are key spaces where the meanings and practices of domestication are partly generated. By observing the everyday practices in these spaces we recognise that domestication, human and animal, is never settled, but is actively made and remade in different times and spaces.
Contestations over the space of the dog, and the place of the dog are ultimately about negotiating the boundaries of human-dog relations. These negotiations and renegotiations of what it means to be a human-dog in public space occur everyday in off-leash areas. The dog park makes visible the uneasy settlement of the human-dog relation in contemporary Australian cities, while at the same time, dog parks are spaces in which shared knowledges and practices can be developed and performed.
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Within animal studies it is common place to talk of animals exercising agency. This is partly a reaction to the denial of agency to non-human animals that has, until recently, dominated Western social and political thought and, in this sense, the attribution of agency to animals has political and symbolic significance. Laboratory rats, for instance, have been seen as actively ‘resisting’ being handled (Dennis, 2010) while Tamworth pigs exercise agency by escaping from the lorry taking them to the slaughterhouse (Morgan and Cole, forthcoming). In these examples agency seems to be understood simply as the capacity to act, but the idea of agency has also been more widely applied to the non-human in the work of Latour (1986), Law (2009), Barad (2003) and others where its meaning varies; indeed a major difficulty in using the concept of agency is that its meaning is imprecise and ‘open to debate and disagreement’ (Bekoff and Pierce, 2010:143). Moreover there are different understandings of agency developed within different disciplines. For instance, Bekoff and Pierce argue that agency is ‘a philosophical concept that means the capacity to act freely’ (143), that moral agency is the ability to choose ‘to act one way rather than another in response to a moral dilemma’ (144), and that animals can act as moral agents ‘within the limited contexts of their own communities’ (144). So a wolf can act as a moral agent in the context of a ‘community of wolves’ but its predatory behaviour towards its prey is ‘amoral’ (145). These different understandings of
agency are particularly evident in an inter-disciplinary field such as animal studies and, we suggest, lead to the concept losing its analytical power. In this chapter we begin to develop a sociological concept of agency, focussing on the question of whether and under what circumstances animals might be regarded as social actors with agency and what the implications of this might be for human/non-humananimal relations. We look first at how agency is commonly understood and the difficulties arising from this understanding.

Developing a sociological concept of agency
The term agency is often used to indicate a capacity for action which is conventionally defined as the ability to choose between options and to act on the choices made. Agency in this sense is often regarded as a causal power invested in singular entities (such as individual animals), and thus a universal property of sentient beings. This is the sense in which Irvine, in her study of animal shelters and the connections established between human and non-humananimals, identifies dogs as ‘agentic beings’: they share with human animals the four core elements of selfhood, namely ‘agency, coherence, affectivity and self-history’ (Irvine, 2004:6), with agency defined as ‘the capacity for self-willed action’ (p.128).

There are, however, two difficulties associated with notions of agency which view it as a property of sentient beings. Firstly, the claim that the property of sentience confers agency inhibits efforts to examine how agency is structured, and how options are shaped by – and potentially realised through – social relations. This is especially significant in accounting for, and giving full recognition to, the impact of human social and cultural relations upon non-human animals. Secondly, defining agency as the general ca-
Capacity for action creates the prospect for an inflation of meaning, characteristic of, for example, Actor Network Theory (and after) (Law and Hassard, 1999), whereby agency may be attributed to any object temporarily constituted by the ‘emergent web of materially heterogeneous relations’ (Stones and Moog, 2009:71). Agency is then inflated both conceptually (to include generally a capacity for action) and extensively (so that anything that has an effect is an actor – or actant – from fishermen [sic] to scallops (see Callon, 1986; see also Barad, 2003))\(^1\). Defining agency as the relationally generated capacity for social action, which is the approach we explore here, radically resists this project, since discovering how things turn out (which is what ANT or material semiotics does) is a task inseparable from discovering why they turn out that way and in this time (i.e. developing a historically grounded explanation of human-animal relations).

Following the work of Archer, we want to explore an understanding of human and other animal relations that rests upon an altogether different notion of agency and which also allows us to develop an understanding of how human and non-human animals are connected. A key aspect of Archer’s use of the term ‘agency’ is that it is ‘always and only employed in the plural’ (Archer, 2000:261), because agents are collectivities sharing the same life chances. As collectivities, agents are contrasted to “actors”, who are always singular. It follows from Archer’s definition of agency as a property of collectives sharing similar life chances that everyone is necessarily an agent since everyone occupies a position in

\(^1\) ANT develops a novel view of these terms according to which the term actant is used to refer to anything with the possibility of effecting an outcome, that is has the potential to be an actor and exercise agency. However, this potential may or may not be realised depending upon what network of associations prevails or becomes stabilised. In Latour’s 1993 study, the Aramis metro system was an actant which almost became an actor able to exercise agency. As the project eventually foundered, Aramis remained an actant. The term is unnecessary in the view of agency proposed in this chapter.
society’s distribution of scarce resources. Moreover, this position is involuntary – we are born into a certain place at a certain moment – and, because these distributions predate our arrival, they do not require our consent or complicity. Yet through our placing in these distributions we share the advantages or disadvantages attached to them (being propertyless in a capitalist society for instance, or female in a patriarchal one). It is through our historically specific and contingent locations in society’s distribution of resources that we become inexorably enmeshed with the structural and cultural relations of society. Finally, there are necessary and internal relations between the collectivity and the life chances shared by those who comprise it: the powerless are such precisely and necessarily because of their relations to the powerful.

If “agency” is understood in this relational, collective sense, then it seems clear that non-human animals are agents. Whether they form part of a companion species or not, non-human animals are profoundly affected by their locations within a distribution of resources that is deeply anthropocentric, where their habitats and ecologies are subject to human interests and depredation, where their lives are subordinated to the carnivorous needs and desires of humans and where the material and ecological conditions for their survival are frequently disregarded by the pursuit of human commercial advantage. Undoubtedly, they are enmeshed within social and cultural relations, although the degree varies between species. While we may want to draw distinctions between various species, there can be little doubt that animals as a collective agent are placed in a highly disadvantaged location within a human-centred distribution of resources. This is the core of Singer’s (1995) arguments for animal liberation; his insistence that a concern for animal liberation has little to do with one’s personal feelings toward animals reflects the view argued here that at the level of agency,
non-human animals are economically and ideologically entirely subordinate to humans.

The form of involuntaristic placing into common life chances, a placing that is indifferent to the wishes or interests of the neonate, Archer terms Primary Agency (the capitals are hers). It is Primary in the sense that it is, *for the individuals so placed*, pre-social. You are always born into already existing social relations but, as Archer puts it, ‘society enters through the maternity ward door’ (Archer, 2003) or, we might add, the whelping pen. It is thus entirely proper to speak of non-human animals as agents. The matter becomes more complicated, however, when we consider the implications of viewing agency in this way.

If agents are only ever plural, actors are only ever singular. It is the individual who reflects upon their involuntary and embodied situated-ness and who is compelled to respond to it, possibly in much the same way as the laboratory rat or the Tamworth pig. This response to one’s placement in stratified distributions determining life chances need not be self-conscious or explicit; it is a response to the experience of these distributions at the level of everyday life, to the experience of being able to obtain this thing but not that. However, when people do reflect upon their situation more explicitly, one possible outcome is a recognition of what one shares in common with those in similar situations to oneself. This, in turn, may lead to collective action in order to change the distribution of resources to one more favourable to those who are disadvantaged by the current distribution (and this will almost certainly involve at some point a politics of recognition, a revaluing of the characteristics of those who now see themselves as sharing a common situation, or a situation whose chief characteristics are commonly derived). Archer describes this development as the move from Primary Agency to Corporate Agency. Agency is
still only plural, but corporate agents (such as the women’s movement, the environmental movement, the Civil Rights movement in the US) acquire a further emergent property (which may not, of course, be realised) as a result of their conscious and deliberate recognition of the source of their common life chances, namely their enhanced political influence.

_Pace_ George Orwell, the move from primary to corporate agency is _not_ possible for non-human animals. The recognition of shared life chances, an assessment of their possible causes, and judgements about possible political remedies requires the mobilisation of political, cultural and linguistic resources rather than individual “resistance”. Non-human animals are not able to accomplish any of these things although some of them may engage in complex “dominance processes” involving the whole group (de Waal, [1982] 2007). This may make the case for animal liberation, as Singer (1995) argues, more rather than less compelling, but nevertheless it means refining our revised sociological sense of agency when applying it to non-human animals.

Although non-human animals do not possess the reflexive resources necessary for the development of corporate agency, and therefore cannot have significant influence on the political order which sustains an unequal distribution of resources, it remains the case that they share many aspects of sociality with human animals. There is overwhelming evidence that many non-human animals are sociable – they live and hunt or forage in groups, for example – and exhibit recognisable social relational patterns of behaviour: they recognise hierarchies and social dominance, rear infants, and engage in struggles over resources (see Balcombe 2010). Many of these behaviours they share with human animals. In fact, the forms of sociality amongst human and non-human animals are perhaps best viewed as a continuum, extending from those ani-
animals for which sociality is either meaningless or barely sustained (amoeba for instance), through to those with extensive sociality, such as dogs, horses and higher primates. There is also evidence that many animals have a sense of self (Irvine, 2004), they are, in some senses, moral agents (Bekoff and Pierce, 2010) and, like humans, they are embodied and subject to ‘various organic processes’ (Moog, 2009:163). This embodiment, however, is not reflexive and this is another reason why non-human animals cannot exercise corporate agency.

Reflexive embodiment – the recognition of oneself as both subject and object – as both “being” and “having” a body – is a personal property whose emergence depends on both the capacity for syntactical language and an embodied self with sensory faculties capable of practical consciousness of its environment. The latter is something human animals share with non-human animals, although the sensory faculties themselves vary enormously between species; the former, though, seems to be uniquely human. It requires a developed sense of self, and recognition of the particularity of one’s own experience and of its distinct and bounded nature. Such a sense of self is acquired – very young human children, in common with many non-human animals, do not have it – and emerges only within a symbolic, primarily linguistic environment. But as Irvine argues, ‘human selfhood is different in degree rather than kind from that of animals’ (Irvine, 2004:176 – our emphasis) and, as we discuss below, human language is a particular form of communication which does not preclude other systems of communication, some of which may be shared between species.

Language, itself a cultural emergent property of embodied practical engagement with the material world, makes possible, especially with the advent of writing, a limitless growth of further cultural emergent properties – representational and abstract art,
music, literature and so on. Language sets human animals on a qualitatively different evolutionary course to the rest of animal kind, not least because language enables the generalisation of reflexive embodiment through reflexive projects such as novels, drama, music and other forms of artistic expression. One important consequence of this symbol-laden nature of human social life is that the struggles over resources – of wealth, status or other forms of power – are for human societies political: that is who gets what, when and how, requires the manipulation and mobilisation of symbolic resources and representations. Non-human animals may struggle over who gets what, when and how, but their efforts to do so take a different form (see for e.g. de Waal, 2007).

Thus far we have argued that non-human animals, because of the importance of reflexive embodiment, are able to exercise Primary Agency but not Corporate Agency – they cannot organise collectively to resist the anthropomorphic relations of power and domination within which they are enmeshed. They can, however, act individually to avoid particular effects of these relations, as in the lab rat or the Tamworth pigs referred to earlier.

Agency as we have defined it is, therefore, always relational (it is the interactions between groups and collectivities in the process of which both are re-defined and re-grouped) and always plural. Clearly this entails that agency is not synonymous with actor: agency shapes the settings from which the social actor emerges by distributing role arrays or positions, and the interests associated with them, and by conditioning who gets to occupy which roles. Actors, in the approach elaborated here, are role incumbents (although, importantly, that is far from all they are) and temporally speaking, we are agents before we are actors although we are simultaneously both.

Roles and positions are a key source not only of social iden-
tity, but also, through the opportunities they offer for creatively filling and modifying them, of personal identity. However, personal identities derive ‘from the pattern of our concerns together with how we believe that we can live it out’ (Archer, 2003:27) and this ability to order our concerns, to consider judgements and make decisions on the basis of them, derives from the particular mode of reflexivity ‘towards self, society and the relationship between them’ which Archer has termed ‘the internal conversation’ (Archer, 2003). This conversation entails the subject deliberating ‘upon some item [which]…pertains or relates to itself’ and, in the words of Archer, ‘is the mental activity which, in private, leads to self-knowledge: about what to do, what to think and what to say’ (2003:26).

There are two points about the “internal conversation” that are relevant to the present discussion. Firstly, whereas agency and actor are, respectively, structurally and culturally derived, the internal conversation, or the mode of reflexivity that generates it, rests on a strong notion of self. This is a materialist, embodied and emergent selfhood, whose realisation ‘comes about through the necessary relations between embodied practice and the non-discursive environment’ (Archer, 2000:123). As animals, we are committed to continuous practical activity in a material world, where subsistence is dependent upon the working relationship between us and things. This emphasis on the primacy of practice includes the temporal priority of practice over language, which, as “practical consciousness”, to use Marx’s phrase, is itself a cultural emergent property, a capacity of human beings as animals that is practical and realised through embodied practice. This is why ‘Self-knowledge is an accomplishment not a discovery. It is a relational property, emergent from our reflexive trafficking with the world, which is much broader than society’ (Archer, 2003:104).
The role array available to non-human animals is necessarily more limited. Since roles are inescapably relational, they require social interaction to be meaningful. A persuasive case has been made by Irvine that dogs, at least, have ‘elements of a core self that becomes present to us through interaction with them’ (2004:3). Thus animals, like people, are born with a capacity for core selfhood, a capacity that is pre-verbal and so not dependent on language for its realisation. Emphasising that subjectivity can only be known indirectly in the course of interaction, Irvine insists that animals participate in the creation of human social identities through many of the same processes that humans use. We argue similarly that animals exercise agency by virtue of the social relations within which they are located, and that this is a sociological conceptualisation of agency which incorporates animals as well as humans (cf Irvine, 2004) and enables an exploration of the interplay between them. In this sense the actions both of lab rats and Tamworth pigs, to pursue these examples, are conditioned by their Primary Agency.

**Communicating across the species barrier**

Although animals may not be able to exercise Corporate Agency due to their lack of language (as we have defined it here) and hence “reflexive embodiment”, this does not mean that there is no possibility of communication between human and non-human animals. Much has been made of the difference between humans and other animals because of language and we agree that the combinatorial power of human language marks human beings off from other species; indeed language is part of the ‘mode of life’ which is ‘peculiar’ to human beings and ‘the outcome of its unique evolutionary history’ (Benton, 2009:230). At the same time, however, and contra some who argue that language is constitutive of a sense of self,
we argue that animals as well as humans have a sense of self (Irvine, 2004:175-6); what is more, they have sophisticated systems of communication, some of which are shared across the species barrier (Grandin and Johnson, 2006). A major system of communication based on embodiment and “body language” is something that connects humans and other animals rather than separating them.

Here we discuss the difference language makes before exploring modes of communication that connect humans and other animals and how such modes might be understood sociologically.

There have been many attempts to demonstrate that animals have language. Indeed a recent BBC television programme featured a collie who, it was claimed, understood the referent of 340 different words (Horizon, 2010). Remarkable though this is, it cannot be said to constitute language. This is because human languages are distinct from other kinds of communicative systems in that they are constituted grammatically². The combinatorial characteristics of grammar are what gives human languages the properties of relationality and recursivity which enable the generation of more complex messages than in any other communicative system. Non-grammatical communication facilitates only direct, linear messages (“this sound represents danger”); Washoe, the chimp who

² It is important to distinguish between two different senses of the term ‘grammar’: the use of grammars to police language (the Lynn Truss (2007) model of grammar) and grammar as an inherent property of linguistic systems (Chomsky’s meaning (2006). The former has been a feature of language use ever since people realised that their social interests could be advanced by insisting on the legitimacy of a particular codification of language use. Grammar as an inherent property of language is an entirely different matter. The key characteristic of grammar is not recursivity, important though this is, but the intra-systemic combination that it makes possible. A formulation such as ‘If not now, when?’ is possible precisely because grammar allows this sort of intra-linguistic relation in which all the terms are themselves linguistic, that is, they are expressions of relational concepts and they do not have empirical referents. It is not a possibility available to the communication systems available to other animals. We may want to call all these systems languages, but we would then still have to find some way of designating the distinctiveness of the human variant.
famously learned sign language and is cited by Hearne (2007) as an example of primate language use, cannot communicate “I want the sort of cake I had yesterday, but with some new ingredients, and, maybe not now but later”, and neither can the collie, despite her grasp of the relation between words and objects.

The nature of human/non-human interaction is, we would argue, qualitatively different from human interaction because of the exclusively human property of language (a particular form of communication). Some writers contest this, but they do so by reducing language to communication and by significantly underestimating (even overlooking) the syntactical nature of human language and the world of theoretical systems, propositions, ideas and problems - what Popper termed the ‘World Three of the products of human consciousness’ (Popper, 1972:76) – that syntactical language makes possible. Hearne, for example, argues that because we cannot talk ‘art or politics with chimps it does not follow that what they do isn’t language’ (Hearne, 2007: 35), but this is precisely what does follow. Talk of art and politics presumes knowledge distinct from the individual interlocutors or, to use Popper’s terms, it requires knowledge without a knower and knowledge without a knowing subject. This is the content of libraries, web-sites, books and texts, and it rests on syntactical language. More particularly, it rests on the core feature of language, namely grammar. There is no question that animals communicate, nor that they can even, to use Hearne’s example, learn sign language and use it to convey wants, but without syntax such communication cannot move beyond basic indexicality (“Washoe wants cake”).

Bickerton (1996) draws the helpful distinction between proto-language – comprising basic symbolic tools, like alarm cries for example, with a very small number of units mainly used iconically – and human language. Many animals, such as higher primates, may
have proto-language but only human beings have language. The distinguishing feature of language is syntax, ‘the Rubicon’, as Bickerton puts it, ‘between thought as we know it and more primitive ways of thought’ (Bickerton, 1996:65). In human languages, grammatical elements, which do not correspond to any extra-linguistic phenomenon, make possible the expression of relationships and possibilities beyond what lexical items can express. This language capacity makes possible thinking which is not tied to the present time or space and a crucial difference in brain organization, namely the uncoupling of immediate action from representations of reality – and, most significantly, the capacity to have awareness of one’s own consciousness. The development of language not only facilitated distinctive kinds of cognition in the human species, but also made possible self-consciousness and “off-line” thinking, thinking which is not tied to the present time or location (Sealey and Carter, 2004; see also Gaita, 2004).

This is not to discount the possibility of some continuity between the communicative behaviour exhibited by human and non-human animals, but it is to recognise that once emergent, language leads to a qualitative difference in reflexive repertoires for the human species:

Language is simply the result of a number of tweaks and twiddles, each of which may be quite minor, but which in the aggregate and through interaction yield what appears to be a radically new behaviour (Elman, 1999:24-5).

Language, then, is emergent; the capacity to process grammar, as Chomsky suggests, may be hard-wired, but the products generated by grammatical language are not reducible to individuals. As Bickerton observes ‘human thinking possesses capacities wholly outside the range of non-human thinking; it changes the world,
while the latter does not even change the individual’ (1996:112-3).

None of this is to argue that human beings are entitled to depredate other species, but it is to point out that the erasure of human/non-human distinctions (in terms of agency) cannot be accomplished readily if appropriate attention is given to the distinctive properties of the human language faculty. A sociological approach to human/non-human animal relations rests on this distinctiveness of the human species.

**Conclusion**

In this chapter we have argued that, despite the relative inattention of sociologists to human/non-human animal relations, the application of a sociological notion of agency to these relations can be very suggestive. In particular, using a sociological notion of agency derived from the work of Archer, we have argued that non-human animals are agents in the specific sociological sense of their involuntaristic placement within structured social relations, and that the agency of animals is therefore a consequence of their deep implication in relations with humans. Such a position entails a rejection of the view that animals and humans are irrevocably distinct and separate or that the society of one is premised upon the expulsion of the other. The view of agency offered here restores the continuity between the human and the nonhuman, between the social and the natural, between the human world and the animal world; it also requires that we rethink our distinctions between the natural and the social, the human and the non-human and between politics, science, nature and culture. Relations with non-human animals are possible not only because there is meaningful communication between humans and other species; not merely as a result of proximity (we have to share the same planet); but, above all, because animals are social agents. The agency of rats
and pigs is shaped by the web of social relations within which they are enmeshed and which renders them relatively powerless. This agency does not enable a transformation of an anthropocentric system. For this to happen, what would be required is human Corporate Agency - of the kind that brought about the banning of bullfighting in Cataluna, for example. Bulls are in the bull ring precisely because of the conditions of their Primary Agency as non-human animals in an anthropocentric social world, but abolishing bull fighting as a cultural practice requires forms of Corporate Agency whose aim is to bring this about. This distinction has important political as well as theoretical implications.
References


Fredrik Karlsson
Care-ethics and the moving animal: the roles of love and sympathy in encountering the animal being

Introduction
Looking at animals is a highly normative activity (Berger, 1980). The moving animal may be perceived as a number of geometrical figures and angles changing their quantifiable properties. Shortening lines and tightening angles could be increasing muscle-tensions. The purring cat stepping upon the keyboard as I write this could, with the proper mind-set, be described mathematically. Cartesian would say that would be an exhaustive description. Others would rather say mathematization is, at best, a possible, but insufficient approach. The cat may also be described as curious, attention-seeking, provoking, or submissively cringing, depending on circumstances, although Cartesian would claim such acknowledgement of a feline inner life to be arbitrary and prejudiced. Still more offensive to Cartesian would be claims of moral acknowledgement; the cat would then also move with dignity, or perhaps as a dignified being. This paper discusses the care-ethical approach to make this latter ambitious ascription possible.

I will talk of animals as characteristically moving beings. The definition at hand is not only the original definition of animals, but also a suitable way to talk of animals if you wish not to only rely on modern science to resolve all practical issues about animals. Animals move, we do not have to have laboratories or hypothetico-deductive reasoning to know that. I find the definition suitable not because I am particularly disappointed at science, but because
my starting point is the problem of perceiving animals morally. Science recommends observing animals, while moral perception of animals calls for another gaze (Marvin, 2005). The scientific paradigm has been argued to promote a mathematisation of the world (see for example Foucault, 1973; Husserl, 2008). The perception of the surroundings is affected, disenchanting sensations into merely geometrical representations. While such disenchantment or mathematisation is not necessarily misguided in all kinds of practices, discourses on moral issues are hampered by such an outlook (Cf. Hume, 1998). Hence, the avoidance of definitions of animals stemming from observing them.

Care-ethics and the encounter with the animal as another being

Care-ethics is a strand of contemporary, ethical thinking that is obviously and practically intertwined with moral perception. The purpose of this paper is to identify and make distinct the notion of sympathy and the notion of love, both important to morally acknowledge animals, emerging within the care-ethical approach to animal ethics. I demonstrate conceptual ambivalence that has consequences for the stance towards sentience, and thus certain animals.

Care-ethics uses the direct encounter with another being as the basic, moral event. An asymmetry between the encounter and the encountered is also assumed, as is the view that the asymmetry implies an increased responsibility on account of the more powerful part. Care-ethical thinkers also, and more characteristically, suggest that the proper attitude towards the encountered is caring (Donovan, 1990; Noddings, 1986). Also, there is an obvious streak of feminism within many (but not all) strands of care-ethics. Carol Gilligan’s results suggest a stronger tendency among
women than men to associate morals with context and narrative are used to suggest that care-ethics is apt to express otherwise subjugated, feminine views (Donovan, 1990; Gilligan, 1982).

The activity of looking at an animal, searching the percepts for aspects that would be morally relevant without being acknowledged by the scientific paradigm, is highly relevant within the care-ethical framework, as opposed to various forms of Kantian ethics or utilitarian rationales. Indeed, Josephine Donovan, a major contributor to the reconstruction of care-ethics and its application to the animal issue, claims an analogy of ideas between the care-ethical approach, and Max Horkheimer and Theodor Adorno’s claim of an association between the alleged mathematisation of the world and the subjugation of women and nature. Aspects of percepts that cannot be explained by science are dismissed as subjective, and ignored. This is argued to promote a male, and reduced, outlook on women as well as animals. Science becomes a tool of domination, which also rallies ethical rationales as Kantianism and utilitarianism (Adorno and Horkheimer, 1997; Donovan, 1990).

Emotions are often claimed to be essential for moral perception both within and outside the care-ethical framework (Blum, 1991; Nussbaum, 2003). Emotions have also been derogatorily associated with femininity, and periodically dismissed within psychology research as purely subjective and thus irrelevant or impossible to know anything about (Nussbaum, 2003). The care-ethical feminist concerns and the concern of re-enchanting personal encounters with moral aspects are thus both related to the issue of moral perception, the common issue being to restore the relevance of moral aspects of perception.

Donovan suggests that sympathy is the proper moral attitude towards animals (1996). This may also be understood as to say that
moral aspects of perceiving animals may be gained and acknowledged by sympathy. Donovan discusses the concept of sympathy in detail, and uses it in a sense common to sympathy theorists. Sympathy is an emotional act of imagination that attempts to understand how another being feels, while also insisting on the difference between the perspective of the perceiver and that of the perceived. The process is claimed to carry epistemological significance. The moral knowledge gained by actively using sympathy is considered to logically precede other moral phenomena, for example, justice, and even be the foundation of morals per se. The object of sympathy is suggested to be someone that can feel and make those feelings known to others—a sentient being who can communicate its needs and wishes (Donovan, 1996; 2006; Mercer, 1972).

Donovan closely follows the emotivist-phenomenologist tradition of moral ideas. The step to the animal issue is not far, as the moral relevance of sentience is inherent in this school of thought. Care for sentient beings obviously includes care for certain animals. Sympathy thus implies a motivation to meet the needs and wishes of the animal. The sympathetic person is argued to be especially sensitive to the suffering of the animal (1996). Donovan associates sympathy with the notion of “attentive love” that Simone Weil and Iris Murdoch have elaborated upon (Murdoch, 2001; Weil, 1972). To act on the suffering of an animal by meeting its needs and wishes is claimed to be the same as to attend lovingly to those needs and wishes (Donovan, 1996). There is nothing terminologically flawed in this latter claim. The term “love” has notoriously many meanings. The moral stance Donovan prescribes may be called love, and it definitely relates to salient attention. The association between this particular notion of sympathy and Weil’s notion of attentive love, however, blurs both notions.
The object of Donovan’s prescribed kind of sympathy is a sentient being, and especially any frustration of its needs and wishes. The object of Weil’s advocated kind of attentive love is the existence of the perceived being. The difference is important because there is a difference in prescription of which aspect of the animal that should be perceived and conceived as morally basic. This also results in distinct notions of which beings to consider proper moral objects. Donovan’s notion of sympathy neatly fits the sentientist paradigm within animal ethics, while Weil’s notion of love, applied on the animal issue, would not as readily do so.

Donovan does not found her notion of sympathy solely on Hume’s writings. A short comparison between Hume’s notion of sympathy and Weil’s notion of love, however, assists in discerning some of the similarities and differences between the schools of thoughts that Donovan combines. Hume’s and Weil’s crisply clear anthropocentrism may, considering the accumulated arguments for the arbitrariness of such limitation, be regarded as limitations of their sphere of intellectual concern, rather than valid limitations of the scope of moral objects. I will consider their thoughts to be as useable for the general animal issue as for human beings specifically.

It is possible, and I would say recommendable, that the care-ethical approach includes both strands of thought, but not at the cost of blurring the difference between sympathy and love. Hume elaborates extensively about sympathy as morally basic, suggesting that moral emotion precedes moral cognition (1998). Weil may be understood to instead speak about love as morally basic (1972).

**Sympathy: acknowledging the animal’s suffering**

Hume uses the term sympathy as a collective term for approbations of situations, characters and habits, that are regarded as use-
ful or agreeable, the latter properties being conceived as inherently valuable (1998). Sympathy is argued to have the ability to identify the moral quality of the whole of a situation as it appears when all relevant facts are known (160). In contrast, reason – a cognitive ability he often exemplifies in mathematical terms – is argued to rather have the function of collecting, considering and weighing facts of a situation (157-8). Only moral sensitivities, unified under the heading “sympathy”, let moral agents grasp the moral quality of situations as wholes.

Donovan’s (1996) notion of sympathy does not significantly divert from the Humean notion with the exception of the object of sympathy. First, and obviously, Donovan’s object of sympathy is an animal. Secondly, dwelling on the object of sympathy as sentient, she also underlines the aspect of pain and suffering as especially relevant. Hume’s approach has a narrower outlook than this as the only object of sympathy he concerns himself with is the human being. On the other hand, he conceives the sympathy towards human beings as bringing a broader spectrum of states to attention than merely pain and suffering. I admit that the difference may be much due to the selection of examples used by the authors respectively, rather than an intended difference on part of Donovan. Still, it should be noted that the strong inclination towards sentience as morally significant narrows the scope of salient aspects of the object of Donovan’s notion of sympathy. At least, this is the impression given by the strong focus on sentience. The animal needs and wishes seem, if framed by Donovan’s thoughts, to primarily be a function of sentience.

**Love: acknowledging the animal’s existence**

Turning to Weil, her notion of love is similar to sympathy in respect to love being claimed to be a basic moral emotion to ac-
knowledge morally salient qualities. She says among human beings, only the existence of those we love is fully recognised’, and then ‘[b]elief in the existence of other human beings as such is love’, and later ‘[t]he mind, is not forced to believe in the existence of anything […]. That is why the only organ of contact with existence is acceptance, love’ (1972: 56-7). The object of attentive love is, according to Weil, existence. It may, but does not have to be useful and agreeable, suffering or avoidance of suffering, or even a sentient being.

Weil’s ideas have their roots in Platonism and Judeo-Christian mysticism. Love between people is thus conceived as ultimately directing itself towards God, which is also the source of all love. ‘Creatures’, as Weil calls us, are merely intermediaries of love. God loves itself, and we are loved as exterior parts of the self-referential loop of love (1972).

The spiritual terminology was not adopted by later interpreters of her ideas (Donovan, 1996; Murdoch, 2001), but the view of love as relating to objective states was retained. Iris Murdoch uses a notion of beauty as objective, to attempt a secular reformulation of Weil’s notion of love. Beauty rests in the surroundings and has the capability to draw our attention out of ourselves, resist our re-interpretations and simultaneously make us love (meaning saliently perceive) others (Murdoch, 2001). The human perceiver is, again, viewed as a mediator in a loop of attentive love, but beauty has claimed the place of God. Attentive love is not intrinsically part of the subject, the perceiver. The loving gaze is rather a consequence of humility before the surrounding circumstances.

When, therefore, Weil says that ‘[l]ove of God is pure when joy and suffering inspire an equal degree of gratitude’ (Weil, 1972: 55), she includes attentive love towards ‘creatures’ as well. Attentive
love may include suffering as part of its object, but primarily to acknowledge its existence as much as to acknowledge the existence of joy or other aspects of existence.

**Sympathy and love compared**

The notion of attentive love could be described as conservative and fundamentally humble, while the notion of sympathy, as it used by Hume and Donovan, is simultaneously melioristic and therapeutic. The former notion suggests that people should let the environment flood the self, while the latter notion suggests the contrary. The perceiver with attentive love accepts existence as it is. The sympathetic one appreciates happiness and is willing to alter the world to increase happiness. Attentive love does not make one sort out certain kinds of situations or beings as morally better than others. Instead, and more basically, it gives the moral agent the ability to turn towards any situation, any being (disregarding Weil’s anthropocentrism), and see its existence as such.

It is possible to infer another difference between sympathy and attentive love. Attentive love is not added after all the facts have been collected. This is associated with attentive love not moralising in the sense of immediately sorting out “better” from “worse”. That attentive love means a fundamental acceptance of existence means that love makes it possible to see salient facts at all. Love is prior to facts, prior to observing, while Humean sympathy rather works in parallel with observing. Before even observing or in any way perceiving particular circumstances, including the suffering of a particular animal, there must be an acceptance of the salience of existence, which is attentive love.

That attentive love is a fundamental acceptance of existence, not the identification of better situations or beings, does not mean that this love is morally neutral. Weil asserts that the mere sense
of reality is joy (Weil, 1972)¹. Existence is good, as long as it is ide-
ally perceived. Existence is, basically, appreciated as it is. The lov-
ing gaze towards existence is, thus, also an insight about the basic,
inherent value of existence as such. The sentientist paradigm, i.e.
the collection of ideas which results in the conclusion that only
sentient beings have moral worth, is thus challenged by introduc-
ing the notion of attentive love to the animal issue. Sympathy, hav-
ing a sentient being as its object, is rather supporting sentientism.
More specifically, three differences in the emotions’ relation to
sentientism can be identified.

Firstly, considering attentive love, it becomes obvious that the
proper point of argument is not about including someone, but
about excluding someone. This stems from the acceptance of ex-
istence as basically and inherently valuable. Arguments of inclu-
sion rest on the assumption that nothing is valuable to start with,
or that it is reasonable to assume that it would be so. The person
with the loving gaze sees that the assumption is not only arbitrary
– which is obvious to anyone once the assumption is clarified – but
plainly false. Sufficiently strong arguments must be provided be-
fore excluding beings from the scope of moral objects. It might be
so that it is rhetorically wise to start arguing out of the perspective
of the scientific worldview, where everything is valueless to start
with, but it is not morally correct because it assumes a non-moral
world. Considering that even those who oppose inherent value
of animals agree that people have moral status, and thus assumes
a moral world for some, there is nothing radical, albeit not very
common, in promoting the insight that all existence has inherent

¹ Perhaps it should be pointed out that claiming joy in sensing reality does not contradict
the claim that the gratitude towards perceived joy should be levelled with the gratitude
towards perceived suffering. The latter claim is about an ideal attitude towards the per-
ceived, the first claim is about an acquired state of the perceiver when achieving ideal
perception.
value. Rather, it unifies the worldview instead of pretending that it would be sensible to start with the assumption that the ontology of human existence would be radically separated from the rest of the world. The notion of attentive love suggests that such ontological bifurcation must also be especially argued for, not assumed.

Secondly, the notion of attentive love suggests that sentience will no more be morally relevant as a limitation of the scope of moral objects. Instead, sentience is a fact that affects how certain beings should be treated, when good treatment is sought. To accept the existence of animals as inherently valuable means to also accept sentient animals’ special needs or preferences. It does not, however, mean not to saliently accept the existence of non-sentient beings, neither the existence of things. Sentience calls for special goods; it is not a theoretical limitation of the moral scope.

Thirdly, sentience and the implied special needs (as the need to avoid suffering) would not have the central place in animal ethics as it has today. It would, though, perhaps have a central place for sentient animals. On the larger scale, special needs or preferences stemming from sentience are just another factor to be weighed against the special needs or preferences of other aspects of existence. Suffering would be salient, but not of absolute or sole significance.

The notion of this kind of love cannot, thus, be applied to the animal issue without redefining the meaning of “animal ethics”. Animal ethics would be an area for discussing the meaning of the good life of animals, where discussions about the moral status of specifically animals are conceived as part of a more general ontological and cosmological discourse. Sentientism would be as outdated as anthropocentrism is today.

Still another difference between the consequences of applying attentive love and applying sympathy in relation to animals relates
to paternalism. A paternalist act is to provide someone with a good without being concerned about the voluntarity of such provision (Gert and Culver, 1979). Often, paternalism is understood to be a coercive intervention, violating autonomy in order to prevent self-inflicted harm (Feinberg, 1971; Mill, 1859). At other times, paternalism is also viewed to include non-coercive acts that provide goods where the provision of goods could also be performed by the receiver of the goods (Fotion, 1979). The latter understanding of paternalism, as opposed to the former, does not make paternalism inherently wrong. Any of the understandings of paternalism suggest, however, that paternalism can be problematic.

Weil says that the worst consequence of being destroyed by others, is that we cannot destroy ourselves (Weil, 1972). Following Weil, self-destruction means spiritual development. Furthermore, this passage of Weil’s thoughts points towards a deep-seated resistance towards paternalism. The existences of others must be seen with love, and not meddled with.

The suffering and death of others must be accepted, if such events are inherent parts of their existence. Animals suffer – that is what sentience sometimes entails; animals die – otherwise they would not be called vulnerable. Furthermore, the fact that animals are inherently moving beings results in more, rather than less, suffering and death. A perfectly still animal could be kept alive and healthy, in a pen for example, but as soon as the animal is let free in a suitable ecosystem, it is also at higher risk of suffering and even dying.

According to the notion of attentive love, animal suffering and death are not evils or lack of goods as long as they come about because of the animal’s existence. Accepting the definition of animals as inherently moving beings, an animal’s existence means unrestricted movements. It is conceivable that paternalism may
be allowed within this rationale if it aims to assist the fulfillment of inherent aspects of the existence of the perceived beings. A life in a pen would not, no matter how healthy or free from pain and suffering it is, be such a case.

According to the notion of sympathy discussed here, it would be allowable to restrict the movements of the animal if it would counteract suffering. Paternalism is thus more closely associated with this kind of sympathy. To improve and guarantee good health and to provide pleasure means the avoidance of suffering and may grounds for paternalist acts. To prescribe the movements of the animal in order to avoid suffering, for example restricting them by pens or leashes, or prescribe human intervention, for example by injecting antibiotics, is paternalist, and even coercively paternalist.

The differences in relation to paternalism imply differences in conduct towards animals. The sympathy approach objects to any practice which results in suffering of sentient beings. The attentive-love approach objects to any practice which results in coercive acts against the kind of existences of the perceived beings.

The sympathy approach may, under certain circumstances (although such circumstances are unlikely to arise), allow, for example, farm animals to be viewed as merely parts in a mechanized dairy industry, as long as such a practice would not make the animals suffer (cf. Garner, 2003). In contrast, the attentive-love approach would instead invite objections to the attempted mechanisation of non-mechanical existences. If the attempts to breed blind hens in order to decrease pecking would succeed, such genetic adaptation of hens to an industrial role would still not be viewed as a valid argument to persevere with the mechanisation of animals. The efficiency of veterinary medicine would never be accepted to justify such mechanisation.

Admittedly, existence is a slippery, vague property when not
associated to particular objects. Attentive love slips away as soon as sensations of particular objects are put in priority – asking which particularities exist instead of acknowledging that particularities exist becomes problematic. To lovingly perceive existence, tuning away from sensations of particulars, is to perceive a space of value in which particulars are organized. Weil uses the term “void” to describe either God or Truth, or both. Existence is a function of either of those circumstances, and thus not a proper void itself. Fortunately, this makes it possible to perceive existence, as opposed to God or Truth. Still, what we then perceive is both extensive and vague to the extent that it may seem a void for the usually cluttered human perspective. The animal is perceived, in this sense, as a space of inherent value of movement, conceptually and practically far from being a particular object of friendship or romantic love.

**Conclusion**

Sympathy, especially when its object is a sentient being, and attentive love are, thus, distinct notions, which on application results in distinct theoretical and practical stances. Both emotions cannot, consistently, be conceived as basic within the same rationale. Posing sympathy as basic would completely exclude the possibility to also use the notion of attentive love. If the basic moral object is a sentient being, it cannot also be existence in general. If, instead, attentive love is conceived as basic, then sympathy may be a valid moral emotion. Sentience however, would not be the defining property of moral objects. Therefore, both strands of care-ethics are possible, but each model of care-ethics that claim logical consistence should be clear on which is the most basic moral emotion. Donovan's outline of the approach, is ambivalent about the nature of the basic moral emotion. It is, actually, more ambivalent than I
have been able to show within the limits of this paper.

In the above comparison, I have also provided some arguments in support of the attentive-love approach. Attentive love, in its acceptance that existence is there, is ontologically more basic than sympathy or any other moral emotion that acknowledges a mere instance of existence. This should reflect into moral issues as well. Animals should be treated according to a full view of their existences – an existence in movement – rather than merely their potentialities to acquire certain kinds of sentient states, like pain or suffering.

Also, the notion of attentive love more readily turns the table, asking why should we conceive including animals as a valid issue at all? It promotes a view of animals as prima facie included, and demands arguments for each exception of this rule. Furthermore, it gives a more clear resistance against paternalising animals, which affects the stance towards practices involving animals.

The benefit of sympathy and attentive love alike is, nevertheless, that they strongly emphasise the need for another perception of animals, if they are ever to be viewed morally. Loving attention towards the world may allow instances of mathematising perception, if it serves existence well. Sympathy relies on facts in order to function. Neither of the moral emotions thus necessarily excludes a role for science and observation, but both still assume that science is not enough. To observe is merely a part, perhaps even a minor part, in perceiving animals properly.
References
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The encounters between animals and humans are not static. They are practiced, dynamic and ongoing. Therefore direction, velocity and the way that different power relations converge to enable or prevent movement is fundamental to the understandings of humanimal encounters. Indeed we may consider animals as movements – that we expect them to move and to move in particular ways. A cat stalks in a feline manner, a pig trots, falcons dive, and whales breech. Scaling these movements beyond the individual we get shoals, flocks and herds, which circle, migrate and define territories. Thus to comprehend the animal question is to comprehend the primacy of movement. This book therefore brings together a variety of work from a range of disciplines to begin to address the complex and diverse ways that speed, direction and velocity shape humanimal interaction.