

## Chapter 7

### Paradoxical pedagogies and humanist double-binds

Matei Candea

#### Introduction: dissecting subjects

It's lunchtime at the Kalahari Meerkat Project, a typically dry and dusty South African day in October 2011. A handful of volunteer researchers – all of them European biology graduates in their early 20s – are sitting on the porch of the main farmhouse out of which the project is run, out of the relentless sun. Some have made themselves sandwiches, others are eating the leftovers from yesterday's dinner. They have all come back from three or four hours' worth of following meerkats through surrounding scrubland. Suddenly, Simon, the project manager, comes out of the house carrying a large crate. The crate becomes a makeshift table, on which Simon arranges a strange mix of objects: a jar of formaldehyde, a scalpel, a test tube full of water, and an old plastic pot of South African cream cheese, now full of disinfectant. The volunteers begin to gather round and others come out of the house. A whisper runs through the gathering crowd: 'dissection?'. And sure enough, Simon dons an elaborate plastic mask and pulls out of a canvas bag the limp corpse of Lily, formerly the dominant female of the meerkat group called Toyota.

Lily had been 'euthanized' that morning, as she was showing external signs of tuberculosis. The aim of the dissection was partly to ascertain through internal examination the full extent of the infection's spread. But the aim of doing the dissection in public was partly educational - to show the volunteers, for whom meerkats almost always came whole and alive, what a meerkat was made of.

As Lily is laid on the operating table, belly up, the volunteers crowd in, some still holding their plates of food. The crowd is eager, bustling, and yet one hears occasional exclamations of sadness ('Aww!', 'poor Lily'). As Simon cuts into Lily's chest, we all crane in simultaneously, then simultaneously giggle ruefully at this herd behaviour. Simon cuts out a piece of lung, a piece of liver, and floats them in the test tube, to check how advanced Lily's TB had been.

Later on I ask Ally and Sue, two volunteers who had been at the project for around six months, what they made of the dissection.

Ally: "I wanted to see it [...]. But at the same time I was thinking if that was one of my favourite meerkats, I don't know if I'd be able to watch that. I never knew that meerkat, [...] I only saw her twice in my life. I was thinking, watching the dissection, if that [was] one of the ones I know, you know, know really well, I think I .. I would feel bad about that I guess"

Sue: "I don't think I would. I *liked* Lily and I didn't feel any particular way when they were chopping her up... I guess there's only a few probably that I'd be upset about, to watch a dissection."

Ally: "I guess at the end of the day we all are scientists, and that's probably what drew people here, I guess, maybe? And that science part of [you] is like 'ooh, dissection!'"

Sue: "... but that's just part of you..."

Ally: "and then the part of you that's more personal and emotional or whatever might be like, 'oh, I knew that meerkat!'"

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Non-human animals have long played a key role in debates over the distinctiveness of humans as individual subjects. One humanist tradition turns on the distinctiveness of humans as self-interpreting, intersubjective animals. Accounts in this vein are populated by intentional subjects with purposes and a meaningful lifeworld (cf. Crist 1999). One can roughly trace this – internally diverse – tradition from Weber (1978), through Schutz (1967) or Geertz (1973), and into the variety of what Mattingly (2012) terms ‘first-person’ perspectives in the anthropology of ethics. This tradition is humanist (or as critics might put it, human exceptionalist), in that it takes humans to be of exceptional epistemological relevance - if not in a cosmic sense, then at least to ‘us’ as other humans, since ‘the “we” in question, the “we” who raise this question and discuss with others who we hope will listen and reply, are indeed human beings’ (Williams 2016, 138).

This chapter examines two Western knowledge practices in which animals are invoked in ways which challenge the above tradition of thought and render human distinctiveness problematic. The first, introduced in my opening vignette, is behavioural biology, which teaches that the behaviour of all living things can be seen – and, scientifically speaking, can only properly be seen – from the outside, as an objective and distributed property of bodies in environments. This behavioral outlook stands as the classic historical challenger to the humanistic tradition outlined above (Sahlins 1976; Ardener 1989). As historian of science Eileen Crist has noted, one can trace those two conceptual paths at least as far back as Descartes’ concern to distinguish properly human, intentional *action* from mechanically caused *behaviour* of the kind Descartes imagined humans shared with other animals (Crist 1999)<sup>1</sup>. The second knowledge practice I will be examining, namely post-humanist ‘animal studies’ (e.g. Haraway 2003), is built on an equally profound, yet profoundly different challenge to notions of distinctively human individual subjecthood.

In focusing on these two knowledge practices, this chapter responds to Caroline Humphrey’s call for a renewed attention to the individual subject in anthropology (Humphrey 2008). Humphrey’s piece opens with a conceptual critique of the contemporary erasure of individual subjects in social theory – the erasure, in effect, of the first-person perspective briefly outlined above. Amongst the many reasons why anthropologists nevertheless need a concept of the individual subject, Humphrey argues, is the fact that we are empirically engaged in encountering and speaking to individual people, many of whom are themselves explicitly concerned with “singular subjects and their deeds” (Humphrey 2008, 358). To render this ethnographic experience in a theoretical language from which individual subjects are elided, Humphrey points out, is to traduce one’s informants twice over.

Taking up this challenge, the present piece asks what it would mean to ‘take seriously’ as individual subjects people whose own conceptual investments are not in this first-person view. This is a subtly different question to the one which is raised by the applicability of Humphrey’s approach to people who have been classically described *by anthropologists* in terms which eschew individuality. By drawing on cognitive studies which argue for the universality of individual subjectivity amongst humans, Humphrey can suggest that those anthropological descriptions are in an important sense wrong, or at least partial (Humphrey 2008, 369). But applying her approach to western schools of thought which explicitly set out to challenge individual subjectivity presents a different kind of hard case.

Seen as theories or academic schools, both behavioural biology and ‘animal studies’ problematize the distinctiveness of the human individual subject. And yet, asking about the individual subjects

who pursue these disciplines foregrounds the fact that, as academic disciplines pursued by humans through the distinctive medium of written language, both behavioural biology and animal studies are necessarily procedurally wedded to a particular kind of human exceptionalism. They are still, after all, knowledge practices forwarded by humans and addressed at other humans who, it is hoped will listen and reply (Williams 2016). This would seem to put these practices in a performative contradiction.

In this particular case, then, the alternative seems to be between leaving behind, either Humphrey's commitment to seeking out individual subjects as units of analysis, or her commitment to 'taking seriously' the perspectives of our informants. This chapter seeks a way out of this dilemma through an attention to pedagogy. I will argue that what seem like performative contradictions in both behavioural biology and in animal studies could instead be seen as a particular kind of pedagogical device. Drawing on Gregory Bateson's theories of learning (Bateson 1972), I will characterize this device as a type of pedagogical double-bind. The figure of the pedagogical double-bind gives an insight into how individual subjects might be constituted as such precisely through learning to think outwith the figure of the individual human subject.

## I. Behavioural Biology is a humanism

*"Sociobiology is fundamentally a scientific humanism" (Haraway 1991, 74)*

I have written elsewhere about the ways in which volunteers at the Kalahari Meerkat Project describe themselves as double persons who are able to encounter meerkats as both objects and subjects – the kind of conceptual ability described in my initial vignette (see for instance Canda 2013b). Drawing on Humphrey's provocation to think beyond static accounts of cultural notions of the person, this section asks how this type of 'double-think' (Alcayna-Stevens 2009; Alcayna-Stevens 2012) might be *learnt* in the process of becoming a fieldworker in behavioural biology. To ask this is to recognise that KMP volunteers are not simply actors with a particular skillset, but also scientists-in-the-making, learning through a mixture of formal training and 'legitimate peripheral participation' (Lave and Wenger 1991) as data collectors contributing in a modest and circumscribed way to a larger research project. I have described aspects of this training elsewhere (e.g. Canda 2010). In this chapter I will focus specifically on the text of manuals and methodology handbooks aimed at budding behavioural biologists<sup>2</sup>.

I have two conceptual sources of inspiration here. One is Eileen Crist's analysis of changing scientific ways of writing about animals, from classic naturalism (animals narrated as perspectival subjects in a lifeworld), through mechanistic ethology (animals as behaving machines) and into the sociobiological turn of the 1970s (animals as gene-driven maximisers) (Crist 1999). We will find these different 'images of animals' represented in the account below. However, Crist's picture of successive paradigms in historical sequence, is partly an artefact of her focus on the published descriptive and analytical works of naturalists and behavioural scientists. When one looks, by contrast, at the practice of contemporary behavioural ecologists, and at the training manuals in which this practice is described and dramatized, it becomes clear that the various traditions Crist outlines retain their power of persuasion and are combined in complex ways, as we saw in my initial vignette. The action/behaviour distinction is maintained, but behavioural ecologists learn to see both, and to value simultaneously 'images of animals' which, in Crist's account are conceptually opposed.

My second source of inspiration comes from Haraway's discussion of the odd interplay of humanism and anti-humanism in contemporary behavioural ecology's predecessor, sociobiology (Haraway 1991, 71–80). Haraway noted that the reductionism of sociobiology and its tendency to

objectify behaviour might seem to be inherently opposed to the key tenets of humanism – as indeed its humanist critics, such as Marshall Sahlins (Sahlins 1976), vehemently alleged. Yet this reduction, Haraway notes, is itself in the service of a classically humanist narrative of scientific knowledge as self-mastery through the mastery of nature. However, while Haraway, like Crist, approaches this phenomenon in terms of the coherence and contradictions of a settled discourse, I will try in this section to ask how such seeming contradictions might form part of a pedagogical practice.

*i. Learning to see animal behaviour*

In an evocative passage at the outset of her methodology manual for field ethologists, *Observing Animal Behaviour*, Marian Stamp Dawkins sets up an imaginary vignette of behavioural observation:

“Imagine it is a bright sunny day and that you are sitting on the wall of a harbour with your back leaning against a warm stone wall, idly watching some gulls poking around in the sandy mud below you. The sun glances off the sea in the distance and even the mud, left wet and glistening by the ebbing tide, has a beauty of its own. The warmth of the wall against your body and the sun on your face are soporific and you are almost half asleep when you are suddenly jolted out of your reverie by the most extraordinary sight. The gull nearest to you is paddling its feet rapidly up and down as if it were running furiously on the spot. As you watch, you realise that this high speed pummelling takes it ever so slightly backwards and that every few seconds it pauses, pecks the mud and apparently finds something to eat. What on earth can it be doing? And it is not just one gull. Several others are taking up the same peculiar behaviour and there are splashy noises made by pairs of vibrating webbed feet all round you. Why? What makes them do it? What do they get out of it? Why haven’t you seen this behaviour before? Is there something special about this day or this state of the tide? Are they following each other’s example? Does it really help them to find food? If so, how?

Your idle reverie is now shattered.” (Dawkins 2007, 1)

This passage provides the mise-en-scene of a move from just watching animals doing things, to *observing behaviour*. What Dawkins dramatises is a pedagogy of learning to see the living world, and animal behaviour in particular, in a specific way - not simply as a beautiful or compelling show, but rather as something lively but also unknown, strangely unfamiliar, something that naturally gives rise to questions. This particular ability to notice strangeness, to find something that needs to be explained below the surface of the seemingly banal or obvious, marks an important technique of the ‘nascent-observer’<sup>3</sup> self in field-based behavioural ecology. One might describe it as a kind of defamiliarisation - the ability to notice behaviour as behaviour, namely as action seen from the outside. Note that of the many questions which Dawkins evokes, one is notably absent: what does the animal think it is doing? The question of the animal’s subjective perspective on the situation is emphatically not raised here.

Philip Lehner’s (1996) extensive *Handbook of ethological methods* quotes a passage from Niko Tinbergen, one of the founders of ethology, describing a similar kind of defamiliarisation:

“There are a multitude of very slight movements, most, if not all, of them characteristic of a special state of the bird. The student of behavior is to a high degree dependent on his ability to see and interpret such movements. In the beginning, he will notice them unconsciously. For instance, he will know very well on a particular occasion that a certain gull is alarmed, without realising exactly that he knows it. Upon more conscious analysis of his own perception (an important element in behaviour study), he will notice that the alarmed gull has a long neck. Still later, he will see another sign, the flattening of the whole plumage, which makes the bird look thinner. Upon still closer study, he will see that the eye of the alarmed bird has a very special

expression, due to the fact that it opens its eyes extremely wide.” (Tinbergen 1960, 7; quoted in Lehner 1996, 114)

Lehner quotes the passage in the context of a discussion of how an observer should go about decomposing behaviour into its component parts (a point I return to below), zooming in and out of different scales of analysis. But the passage itself also dramatizes a shift from subjectivity to objectivity. Tinbergen is describing in detail the analysis and decomposition of an initial perception or intuition about what a gull is feeling, into its elements - each of which is a simple, clear, objective property that can be built back up into a definition of a ‘state’. The passage demonstrates, by dramatising it, that such a decomposition is possible.

Showing that what Crist (ibid.) terms the ‘mechanomorphism’ of classical ethology is alive and well, Martin and Bateson, authors of one of the most popular and multiply re-edited manuals for field behavioural scientists, *Measuring Behaviour* (2007) give the following morality tale:

“For example, a woodlouse will move briskly when it is in a dry environment, and sluggishly or not at all when in a humid environment. The animal appears to seek out damp places in a purposeful manner but its response can be explained in terms that are no more complicated than those of an electric heater controlled by a thermostat.” (2007, 19)

## *ii. Learning to see the observer’s behaviour*

The examples above all seek to evoke, to communicate to the novice, a different way of seeing activity – as behaviour. This can take the form of an awakening from the idle reverie of life to notice that an animal’s action is in fact mysterious (Dawkins), a careful examination of one’s unconscious intuitions about an animal’s motivation (Tinbergen) or a direct challenge to these intuitive assumptions (Martin and Bateson). In all of these cases, the ‘nascent-observer’ is simultaneously being asked to observe herself; “to be conscious” as Benedict once put it “of the eyes through which one looks.” (Benedict 2005, 22).

If the call to reflexivity is of course widely shared – with anthropology for instance – the form this reflexivity takes here is distinctive. In all cases the key element is a problematisation of the type of immediate intersubjective interpretation of action as inherently meaningful. The observer is asked to step back from this initial intersubjective encounter and to subject it to objective scrutiny: both a scrutiny of the behaviour of the animal and a scrutiny of the observer’s own behaviour.

There is an interesting uncertainty about that initial intersubjective insight and its relationship to the objective perspective on behaviour which the manuals seek to inculcate. Thus in Tinbergen’s account, the insight that the gull is alarmed is a valid and correct starting-point for a more rigorous analysis. Here, intuitive sensibility, the ability for ‘gestalt’ perception of the animal as a whole, and the purposiveness and meaning of its behaviour, is the starting point for the work of decomposition and objectification.

In Martin and Bateson’s example, on the other hand, the insight that the woodlouse is purposefully seeking damp places proves to be incorrect. Yet Martin and Bateson do allow a place for intuitive perception of the animal as a subject: “It you *never* think of an animal as though it were a human you are liable to miss much of the richness and complexity of its behaviour.” (2007, 19). However, this is explicitly a “mental aid” (ibid.) for generating ideas and hypotheses. Such imaginative generation of hypotheses should be balanced by “the full rigour of analytical thought when testing them.” (ibid.). This warning is further underwritten by a reminder that

“Attributing human sensations, emotions and intentions to an animal so that you can do more imaginative science does not mean that, when your efforts are crowned with success, you have proved that it feels and thinks like a human. The distinction between the heuristic value of such projection and its truth value needs to be explicit” (ibid.)

In sum, *pace* Crist, the focus in these manuals on decomposing and objectifying behaviour does not entirely erase an earlier type of virtuous observer, that of the attentive, perceptive naturalist, who can skilfully peek into the animal's lifeworld. But this naturalistic eye, the eye which can see meaning in animals' actions, is recast as epistemically tricky and problematic. It might be outright wrong, or provide an unconscious insight, or stand as a productive as if. It might point to useful clues, or be right about something but for the wrong reasons, or not quite in the right way.

In these manuals (as in my ethnographic experience of behavioural ecologists more broadly) suspicion of human intuitions about non-human action is in other words, not unmixed with admiration. This is consistent with the usual way in which such insights about animal intention are explained by behavioural biologists, namely as themselves 'natural'. Those insights are frequently attributed, not to some intersubjective feat of interspecies interpretation, but, precisely to 'anthropomorphism' – understood as a natural, evolved heuristic for detecting patterns in the surrounding world by applying an 'intentional stance' (Dennett 1987). It is thus unsurprising to behavioural ecologists that such insights might be both powerful and flawed. Crucially, though, this means that the very facility for human interpretation of animal actions is itself recast as natural evolved 'behaviour'.

### *iii. Towards interobjectivity*

Objectification works both ways. If a woodlouse is like an electric heater, then Martin and Bateson state, with similarly flat finality: "Observers can be regarded as instruments for measuring behaviour in much the same way that say, a thermometer is used to measure temperature." (Martin and Bateson 2007, 74). They then move on to a discussion of within- and between-observer reliability and calibration.

Dawkins, in the above-mentioned manual, takes this move of self-objectification even further. Starting from the thorny problem of how one might identify units of behaviour in order to treat that elusive phenomenon quantitatively, Dawkins notes a two-fold regularity (2007, 73–74). The first regularity inheres in the animals' own activity: of all the physiologically possible combinations of animals' movements, a 'restricted subset' of patterns nevertheless emerges (animals chew before swallowing, build the foundations of their nests before they build the sides, etc.). The second regularity lies with the observers themselves: it is "the computer in the head" (their own brain) (ibid. 74). This 'computer' is good at pattern-matching, just as – and indeed, presumably evolutionarily *because* – animal behaviours in general are patterned. This natural cognitive ability of each human, in turn explains the possibility of inter-observer reliability when different humans observe the same pattern of animal behaviour: 'You know exactly what I mean by 'pecking' or 'flying' because your brain will have picked out these common and highly distinctive behaviour patterns itself' (Dawkins 2007, 74). This is a striking recasting of the old problem of intersubjective meaning-making as an instance of simple interobjective 'calibration'.

In sum, it is not just the animal's activity which is cast here as behaviour, but the human observer's own activity in observing, both in its problematic or uncertain form (anthropomorphism) and in its perfected form (the objectively well-calibrated agreement between independent observers).

### *iv. A humanist pedagogy*

In one sense, then, these manuals are establishing a symmetry between animal and human observer, a levelling that turns on the de-subjectification of both: both observer and observed behave predictably and regularly, their activity can ultimately be traced back to physiological

mechanisms. Inter-observer agreement can be defined as a calibration between two humans as observing machines, on the same level as the articulation between the animal as behaving machine, and the human as observing machine. What we seem to have here is a flatly interobjective (Candea 2013a) set-up.

But this set-up is trumped in its very description. In all of these examples, the exposition itself relies on the possibility of intersubjective understanding between author and reader. Dawkins is not simply calibrating with readers, she is *teaching* us (about calibration, amongst other things)

It is no coincidence that these dry injunctions are all simultaneously narratives of awakening, of heightened awareness, of self-overcoming, of epistemic virtue. Observers may well be enjoined to doubt intersubjective understanding and to see animals' actions – and indeed their own – as decomposable patterns of behaviour. But the project has all the marks of what anthropologists of ethics call subject-formation: observers are enjoined to examine and work on themselves, in order to develop a particular set of epistemic virtues. The above account of scientific pedagogy sits neatly within the long line of historical, anthropological and sociological observations about the importance of ethics, self-formation and epistemic virtue to scientific practices (Weber 1998; Merton 1973; Shapin and Schaffer 1985; Rabinow 1996; Daston and Galison 2007; Shapin 2008). The thought that scientific disciplines are taught, practiced and inhabited in part as ethical worlds is by now relatively mundane. What is perhaps more interesting is the particular dynamic I have been describing in the case of behavioural biology, in which it is precisely by decomposing the animal and the observer as intentional actors, by translating this action into behaviour, that the observer is enjoined to become more fully self-aware, a reflective agent<sup>4</sup>.

The nascent-observer's idle reverie is shattered. The basic dynamic of the self-formation dramatized by these manuals recalls Foucault's comments on the reality of reflective thought:

It is what allows one to step back from this way of acting or reacting, to present it to oneself as an object of thought and to question it as to its meaning, its conditions and its goals. Thought is freedom in relation to what one does, the motion by which one detaches oneself from it, establishes it as an object, and reflects on it as a problem. (Foucault 1997, p. 117, cited in Laidlaw 2014, 102)

Nascent-observers in behavioural biology are indeed enjoined to 'step[] back from acting or reacting', twice over. From the acting and reacting of the animal under observation, and from their own acting and reacting as observing animal. Animal behaviour (as opposed to intentional action, cf. Crist 1999) is the object that is rendered visible in this move. But for the human observer, his or her own behaviour simultaneously becomes ethical substance for conscious self-formation. The objectification is thus double but asymmetrical: the activity of both animals (the observer and the observed) become objects *for* reflection; but additionally, the human is also awakened as a (more fully) reflexive subject.

This doubling up of the observing subject is most clearly exemplified in the virulent critiques of anthropomorphism by authors such as Kennedy:

"There is an inescapable ambiguity and inner conflict in the attitude of students of animal behavior to anthropomorphism. Their nurture and presumably their nature prescribe it; their science proscribes it. If the study of animal behavior is to mature as a science, the process of liberation from the delusions of anthropomorphism must go on." (Kennedy 1992, 5)

The notion that anthropomorphism is both 'presumably natural' *and* 'wrong' leaves animal behaviour scientists enjoined to reflect upon their own nature and limitations and take themselves as an object of action and self-improvement.

In sum, the pedagogical framework of these manuals (and of the learning of behavioural biology more broadly) requires a certain ability to reflect and intentionally direct your actions. This

pedagogical context re-establishes the very asymmetry between humans and animals which the letter of the text seemed to have briefly challenged (cf. Haraway 1991). To state the obvious, it would make strictly speaking no sense for Dawkins to direct her pedagogical discourse to the gull as object of observation. Not only because gulls do not learn from methodology textbooks. But also because the practice ultimately establishes a disjuncture as well as a symmetry between the observer and the observed: the pedagogy of making observers is one of awakening, of drawing people out of the flow of life, teaching them to see in a different way. The same dynamic is evident in the Martin and Bateson piece: describing an observer as an instrument, an object requiring calibration, is still a description *to* a subject capable of understanding (and not merely calibrating to) such a description.

Haraway is thus clearly right in concluding that the ‘finished product’ of behavioural biology is a scientific humanism. But examining the pedagogy of behavioural biology means taking seriously that something is learnt and people – individual human subjects – are transformed on the way there. We thus find, where we might not have expected it, the figure of the individual subject, encouraged to emerge or coalesce (pedagogically) in the very attempt to challenge its distinctiveness (conceptually).

## II. Learning through double binds

This being said, thinking in terms of pedagogy does not yet get us off the hook of a performative contradiction between the behaviourist message of the teaching and its humanist medium. If one were bent on avoiding any self-contradiction here, one might seek to find in these manuals (or deduce or devise from them) a higher-order theory of interobjective learning in which readers are learning machines and writers are teaching machines, for instance<sup>5</sup>. However there is no explicit mention of any such theory in these manuals, nor is there much explicit reflection on their own pedagogy in such terms amongst the behavioural biologists I have worked with. Rather, when talking about teaching novices and their own learning experiences, they tend to revert to implicitly intersubjective accounts of human interaction, communication and knowledge. Within the context it sets out – learning to see behaviour – behavioural ecology may well problematize human exceptionalism. But the context of this context is one of straightforwardly humanist intersubjective learning. We thus do seem to find the behavioural ecologists stuck in a performative contradiction.

This talk of ‘context of contexts’, however, brings to mind a theory of learning which might cast a different light on the matter. This turns on the notion of the ‘double bind’, first articulated by Gregory Bateson (1972, 201–27). A double bind situation characterises the experience of being faced with two contradictory injunctions, on different logical levels. For instance, a parent might tell a child ‘do not do this otherwise I will punish you’, while simultaneously the context, tone or explicit statements convey a secondary injunction such as ‘do not question my love of which the primary prohibition is an example’ (or I will punish you) (Bateson 1972, 206–7). The notion of double-bind is premised on Bateson’s systems-theory account of learning as an activity that happens within a structured context, which in turn has a meta-context, and so on (1972, 245). Typically, for Bateson, a human or animal develops sure-fire behavioural and communicative habits for operating within any given context (1972, 276), but is faced with a double bind when it encounters a requirement in one context that is contradicted by a requirement in a meta-context: “The organism is then faced with the dilemma of either being wrong in the primary context or of being right for the wrong reasons or in the wrong way. This is the so-called double bind.” (Bateson 1972, 245).

While noting that double binds frequently occur in everyday interactions, Bateson in his earlier work was particularly interested in the hypothesis that the incidence of intense, repeated childhood exposure to double binds might lead to the development of schizophrenia. Schizophrenia, Bateson suggested, was in effect a pathology of communication, born of the impossible and tragic requirement to obey mutually contradictory injunctions. This could also involve an inability to

properly discriminate contexts, making the sufferer ‘paranoid’ in the sense of being unable to understand contextual cues as to the nature of a communicational event. These – now mostly abandoned – theories were striking in their day for their attempt to situate ‘mental illness’ within pathologies of communication (Halpern 2012).

But Bateson’s double binds were not necessarily either tragic or insurmountable. In later articles, Bateson expanded the notion of double bind to characterize the learning process behind a much wider range of patterns, most of which are not commonly considered pathological, which he terms ‘transcontextual syndromes’ (Bateson 1972, 272), including humour, art, and poetry. All of these require a certain ability to play with context, to ‘think outside the box’. Bateson, whose interests took him seamlessly from humans to animals, describes as his paradigm case the training regime of a porpoise designed to teach it to improvise new tricks. In a set of sessions in an exhibition tank, the trainer first teaches the porpoise to associate a particular behaviour (lifting its head out of the water) with a reward. Once the porpoise does this reliably, in a subsequent training session, the trainer stops rewarding the porpoise for lifting its head out of the water. The porpoise, seeming distressed, repeatedly performs its trick without reward. Eventually it accidentally splashes water with its tail, and the trainer rewards this new ‘trick’. In the next session, the porpoise again tries its two tricks without any reward and becomes distressed, until eventually once again performing, seemingly by chance, a new piece of conspicuous behaviour, which is rewarded by the trainer. This experiment is repeated until suddenly, in the 15<sup>th</sup> session, the porpoise spontaneously and excitedly performs a panoply of new behaviours upon entering the exhibition tank, some of them never before recorded for that species. For Bateson, this indicates that the porpoise has broken through into an understanding of the ‘context of contexts’: it has learnt that what is required is not a particular behaviour, but the improvisation of new behaviours. Bateson concludes his account of the porpoise in the following way:

This story illustrates, I believe, two aspects of the genesis of a transcontextual syndrome: First, that *severe pain and maladjustment* can be induced by putting a mammal in the wrong regarding its rules of making sense of an important *relationship* with another mammal. And second, that if this pathology can be warded off or resisted, the total experience may promote *creativity*. (Bateson 1972, 282)

Underlying the flat description, Bateson’s account actually engages a hefty philosophical problem, as Orit Halpern points out in an excellent reading of this piece (Halpern 2012): how can interactions based on behaviourist assumptions (stimulus-response and operant conditioning) be leveraged not only to train, or to create repetition in a subject, but actually to produce something new, an ability for improvisation, and also a form of meta-contextual understanding? The answer lies in the figure of the double-bind, which places the organism before an impossible choice – as long as it remains stuck within its behavioural routines. The risk of breaking out of these is great (“schizophrenia” looms, including for the many porpoises who failed this test – cf. Halpern 2012), but there are great rewards if that risk is averted: creativity, meta-contextual understanding, and even a perhaps a ‘singular personality’ (cf. Humphrey 2008, 357) which moves beyond the generality of the species. Out of the behavioural automaton emerges a creative subject.

Halpern (2012) reads the above theory alongside Bateson’s own engagement with ethnographic defamiliarisation as an anthropologist. But the parallel with the training of behavioural ecologists as described above is thought-provoking also. Here too, mammals are being put in the wrong regarding their rules of making sense of a relationship with others. Where they thought they might recognise intention, nascent-observers are shown that they might be systematically wrong. Recasting the language of the manuals in light of Bateson’s discussion, one might say that they put things roughly in the following way: in the primary context of everyday life, anthropomorphism about other

animals makes sense – indeed it is a natural ‘prescription’. But training as a behavioural biologist means recognising that this context can be contradicted by a secondary encompassing context, in which activity is seen as behaviour. The observer who ‘unconsciously perceives’ the subjective world of an animal is thus in a double bind: her nature compels him to do so, but her science proscribes it. She might be ‘right’ to see the animal as scared or purposive or more generally human-like – but if so she will be right for the wrong reasons: because of an inbuilt tendency to anthropomorphise, or because of an as-yet-unexamined set of micro-observations of physical changes in the animal. The context of behavioural ecology (action should be seen as behaviour) puts this initial intuitive context of naturalist ‘direct perception’ (Milton 2005) in the wrong.

To this first move is then added a second. In turn, the meta-context of pedagogical practice puts this secondary context (the account of action as behaviour) in the wrong: it is insofar as learners are humans, intentional actors, and so forth, that they can learn to see action as behaviour. Here again, a context of contexts contradicts what is asserted in the context it encompasses. Nascent-observers are enjoined both to see and not to see animals as beings with a lifeworld. They are enjoined both to see and not to see themselves as behavioural devices for observation.

If one were seeking, as I suggested at the beginning of this section, a meta-theory of learning which might make the behavioural ecology manuals self-consistent, one might perhaps find it in Bateson’s double-bind theory. Here is a theory which, without breaking with the initial terms of behaviourism itself, enables it nevertheless to produce, out of itself, the possibility for something like a subjective awakening. To work this out consistently and in principle, however, would take some philosophical elbow grease<sup>6</sup>.

My aim here is more modest. I simply want to suggest, as a hypothesis, that in this particular case double-binds, encountered repeatedly through the reading of manuals and the teaching of behavioural biology in other contexts, formal and informal, might lead to the production of the particular sort of ‘double-think’ with which I began. Here are practitioners who can see animals as both objects and subjects, and who come to see themselves, in the process as both scientists and ‘persons’. Described as a passive state, this double-think might be dismissed as a kind of pathology. But if one sees it as an active ability, this doubleness is profoundly generative: it enables new hypotheses, a constant interplay of intimate understanding and detached defamiliarisation. Doublethink in this sense, lies at the roots of what Martin and Bateson call ‘more imaginative science’.

### III. A post-humanist double bind

*“And if, as I said, we seem very ready to profess [“speciesism”], the critic will say that this shows how shamelessly prejudiced we are, or that we can profess it because, very significantly, there is no one we have to justify it to, except a few reformers who are fellow human beings. That is certainly significant.” (Williams 2016, 141)*

I have suggested above that double binds inherent in the pedagogical practice of behavioural biology might shape the learned ability to ‘doublethink’ about individual subjects, both humans and non-human, illustrated in my opening vignette. In this final section, I will more briefly attempt to sketch a similar argument for a very different field of endeavour: the recent academic ‘interdiscipline’ of animal studies. The above argument about behavioural biology is based in part on my own experience as an anthropologist turning to the ethnographic study of this field. Like novices in the field, I had to piece together, partly through experience and partly through reading, the disciplinary logics described above. But at the same time, in my capacity as an anthropologist who had previously worked on different issues, I also had to get to grips with a different field, that of animal studies. While I initially conceptualised this as a ‘theoretical’ framework and resource for thinking of

the former context – and have indeed been using it copiously in this way above – this section takes a different tack. After all, animal studies is a field of academic and practical endeavour, just like behavioural ecology – it too has its key texts and modes of pedagogy, it too articulates, more or less explicitly, a certain version of the ideal practitioner. Animal studies therefore invites the same type of ethnographic scrutiny that I have bestowed in the previous sections on behavioural ecology.

To begin with, we can note that Humphrey's diagnostic of the contemporary dissolution of the individual subject is only partly true of the field of animal studies. Indeed reviewing the past two decades' 'animal turn' in anthropology and cognate disciplines with Humphrey's bracing critique in mind, one is struck by a core ambivalence that runs through this literature.

On the one hand, the recent rise of an interest in animals in a range of social sciences and humanities has been profoundly informed by feminist and poststructuralist critiques of the humanist subject and by diverse relational ontologies. The notion that 'humanist' and 'anthropocentric' approaches are a) equivalent and b) need to be resisted and challenged is relatively unquestioned in much of this literature (e.g. Lorimer 2010). One also frequently encounters in various forms the thought that "entities with fully secured boundaries called possessive individuals (imagined as human or animal) are the wrong units for considering what is going on" (Haraway 2008, 70); rather readers are urged to pay attention to affective entanglements, fleshly interwoven mutual becomings, ecological emergences, crowds of 'intra-actants', and so forth.

On the other hand, unlike the broader relational ontologies of various kinds on which much of this literature draws, which can by all accounts dissolve the individual subject while breathing an analytical and ethical sigh of relief, work focusing on non-human animals is also frequently traversed by a concern with the recognition of the latter as individual persons (see Knight 2005 for a particularly vivid and explicit call along those lines). While rarely in uncritical alliance with the political project of those animal ethicists who wish to extend legal personhood, say, to non-human animals, the question of "the recognition of the individuality and particularity of the animal interactant" (ibid. 2) is often raised in this literature. This commitment coexists somewhat uncomfortably with the above-mentioned commitment to the relational dissolution of the individual (human) into an ecology of affects and effects.

No one has explored this tension in a more sophisticated way than the author who is also the key exemplar and *maître-à-penser* of this literature, Donna Haraway. In a footnote to her now famous critique of Deleuze and Guattari's 'becoming animal', Haraway notes for instance:

I'd rather own up to the fraught tangle of relatings called "individuals" in idiomatic English, whose sticky threads are knotted in prolific spaces and times with other assemblages, some recognizable as (human and nonhuman) individuals or persons and some very much not. Individuals actually matter, and they are not the only kind of assemblage in play, even in themselves. If one is "accused" of "uncritical humanism" or its animal equivalent every time he or she worries about the suffering or capabilities of actual living beings, then I feel myself in the coercive presence of the One True Faith, post-modern or not, and run for all I am worth." (Haraway 2008, 314)

The individual (animal) subject as double bind lies at the very heart of Haraway's *When Species Meet*. Haraway makes a passionate plea for the recognition of individual animal subjects such as her dog Cayenne (Haraway 2008, 96–97) while simultaneously eschewing the language of individual personhood in which such recognitions are often framed, for a language of relational emergence, and 'becoming together' which leaves the purported individuality of the 'intra-actants' always off-kilter.

Readers of Haraway's work are compelled to attend to the fact that individual animals matter, not merely in a conceptual sense but in an urgently ethical one too<sup>7</sup> – but they are simultaneously

asked to see that this individuality is not what they would normally understand by individuality. They are asked both to see and not to see animals as individual subjects.

Simultaneously, and again as in the case of behavioural ecology, the double bind also bears on the figure of the reader herself. As a literature which is in the main hostile to human exceptionalism and yet conveys this message from humans exclusively to humans through the eminently human-exceptionalist medium of academic writing, animal studies finds itself entangled in a similar double bind to the one I have described above for behavioural biology. This is nowhere clearer or sharper than in Haraway's discussion of suffering and ethical responsibility in laboratory practice, which deserve quoting at some length:

“It is important that the “shared conditions of work” in an experimental lab make us understand that entities with fully secured boundaries called possessive individuals (imagined as human or animal) are the wrong units for considering what is going on. That means not that a particular animal does not matter but that mattering is always inside connections that demand and enable response, not bare calculation or ranking. Response, of course, grows with the capacity to respond, that is, responsibility. [...] That means that human beings are not uniquely obligated to and gifted with responsibility; animals as workers in labs, animals in all their worlds, are response-able in the same sense as people are; that is, responsibility is a relationship crafted in intra-action through which entities, subjects and objects, come into being. People and animals in labs are both subjects and objects to each other in ongoing intra-action. If this structure of material-semiotic relating breaks down or is not permitted to be born, then nothing but objectification and oppression remains.” (Haraway 2008, 70–71)<sup>8</sup>

Reading this passage from the perspective of a novice in the field of ‘animal studies’, seeking to learn how one might think with and about nonhuman animals, we have here all the components of a classic double bind. First, we have an authoritative voice setting out requirements, which come with high stakes: failure to get this right leads to oppression and objectification. Then we have two injunctions on different logical levels, which directly contradict each other. The primary injunction in this passage is to reject a humanist frame that would radically set apart humans and nonhumans, and make the former responsible for the latter: do not arrogantly claim for yourself, as a human, the right to be responsible for animals! This injunction runs directly counter to the sort of position taken up for instance by humanists such as Williams, according to whom “the only question for us is how those animals should be treated” (Williams 2016, 148).

For Haraway, by contrast, responsibility is a relational emergence in which animals too must be active participants. And yet, as in the behavioural ecology case, the meta-context of this injunction – a book written by a human scholar for human readers, and not after all, intended for laboratory rats – provides the directly contradictory secondary injunction: you the human reader are primarily responsible for obeying the first injunction. It is precisely *because* you are a human reader who is not, after all ‘response-able’ in quite the same sense as a laboratory rat (for instance, you read books such as this and feel concern at the suggestion that you might be complicit in oppression and objectification), that you are called upon to submit to the first injunction, which requires you to disregard those exceptionalist considerations which might put you in charge. The structure of the double bind here is the same as that described above for field manuals, in which the observer is simultaneously being told they should see themselves as an object and in the process being addressed as a subject capable of recognising this fact. In sum, the reader is “faced with the dilemma of either being wrong in the primary context or of being right for the wrong reasons or in the wrong way.” (Bateson 1972, 245).

#### IV. Confusions and gifts

*It seems that both those whose life is enriched by transcontextual gifts and those who are impoverished by transcontextual confusions are alike in one respect: for them there is always or often a "double take." A falling leaf, the greeting of a friend, or a "primrose by the river's brim" is not "just that and nothing more." (Bateson 1972, 277)*

A critic aiming to unpick Haraway's arguments might simply see in the above an accusation of performative contradiction. But, in line with what I have argued above, I suggest we might see this instead as a step in a pedagogical practice. Haraway's book is not, of course, a methodology manual. But it does aim – in the way many if not most academic works of this kind do – to educate, challenge and shape the way readers encounter the world.

I have a particular analogy in mind here. Pierre Hadot (2003, 93–105; Hadot 1995) wrote that few of the philosophical texts of Greek and Roman antiquity are best read as accounts of formal 'systems'. The modern philosophical genre of the systematic treatise progressively crowded out the variety of literary genres in which philosophy was written in antiquity, including discourses, letters, consolations, diatribes, or *hupomnemata* – writings for oneself – such as those of Marcus Aurelius. Reading that variety of writings as fragmentary accounts of systems is an anachronism, which often makes them seem incoherent or self-contradictory. Such texts, Hadot argues, should be read instead as teachings, pedagogical addresses which aim to change readers (and archetypally, listeners) way of living. From this perspective different sorts of coherences can emerge<sup>9</sup>.

Hadot notes that one might take this view of more recent philosophical works too. Wittgenstein's *Philosophical Investigations* (1973), for instance, might similarly be read from the perspective of 'spiritual exercises' (Hadot 2003, 103; Hadot 2004). The prompt works also, I think, for academic work in the exhortative and politically engaged tradition in which Haraway writes. Our reading of it changes if we seek in it less the exposition of a 'system' and more an attempt to shape, form and transform a reader through a set of reflections<sup>10</sup>.

To say this is not, as critics might fear, to give a general license for self-contradiction or incoherence to any text that claims to have a political or exhortative purpose. Hadot's insight simply enables us to ask, on a case by case basis, whether what might on a first reading look like a contradiction or paradox might in fact have some pedagogical effect. Could there be something formative about being faced, as a novice, with the contradictions above?

Like the behavioural ecologist, I would argue, Haraway's reader, if he is prepared to encounter the book as a formative experience, may learn from it to see double in various ways that challenge or disturb the taken-for-granted contextual frames of subject and object and human and non-human: to care about animals as individual persons, while challenging the underpinnings of individual personhood; to recognize himself as a subject who must take responsibility for his ethical relation to non-humans, while refusing the fundamental grounds upon which such subjective responsible selfhood might be grounded.

Bateson notes that transcontextual syndromes can take the form of 'impoverish[ing] confusions', as for instance in an inability correctly to contextualise one's own and others' messages, or one might add, the 'learned helplessness' induced in animals by particular kinds of contradictory conditioning. But they can also be 'enrich[ing] gifts', as in the ability to play or create by seeing beyond the given context. Bateson doesn't tell us, however, how one might 'ward off or resist' the pathological effects of double binds, in order to encourage creativity and play instead. Is it moral luck, something about the set-up of the double-bind, or something else again? Or might the difference between 'schizophrenia' and 'creativity' be partly in the eye of the beholder (cf. Halpern 2012)?

Certainly, proponents of behavioural ecology and of animal studies may well see

impoverishment in each other's disciplines: some of the latter may want to argue, with Crist, that a behavioural view effectively extinguishes animal subjectivity, that the split subjectivities with which I began the piece are an impoverishment, or with Haraway, that a paternalistic humanism is the horizon of the behavioural ecologist's techniques of the self. Conversely, humanists of various persuasions might see in Haraway's attempts to address herself (to whom?) beyond the human 'we' only a sort of philosophical muddle (cf. Williams 2016).

To envisage these knowledge practices as pedagogies on the other hand, would instead mean asking where they might permit creativity – something new to emerge out of and beyond the habitual. In this view, in its paradoxical treatment of animal individuals, behavioural ecology partakes of the broader endeavour in scientific education to 'break with common notions' (Bachelard 1934; cf. Candea 2013b), teaching its practitioners to see beyond or otherwise than the people around them. Animal studies, and Haraway's work in particular, partake in a broader commitment to instilling an ethics of disquiet: the "permanent refusal of innocence and self-satisfaction with one's reasons and the invitation to speculate, imagine, feel, build something better." (Haraway 2008, 92). Which flavour of invitation one prefers to take up – or whether one could somehow take up both – remains a decision for individual subjects.

## **Conclusion: On paradoxical pedagogy**

Humphrey's exploration of how we might reassemble individual subjects starts from the sense that the classic anthropological game of identifying different cultural conceptions of the person is not enough. Such accounts, Humphrey notes, have little to say about specific moments of innovation and improvisation. Rather, her aim is "to think about how a singular human being might put him or herself together as a distinctive subject by adding to, or subtracting from, the possibilities given by culture as it has been up to that point, through the very process of taking action." (Humphrey 2008, 358). These are moments in which, as Humphrey points out, customary cultural accounts of the person are, precisely, "thrown into disarray" (ibid.).

Humphrey's argument is informed by the sense that the figure of the individual subject has been or is being lost in anthropology. In this context, it is urgent to re-conceptualise it and to do so is to stem the tide of an emergent orthodoxy. However, many of the proponents of the schools she critiques, those who have worked precisely to dissolve the individual human subject, felt themselves to be in an analogous situation. Many of them too felt or feel that they are working at counter-current to an orthodoxy. From that perspective the individual human subject is too omnipresent, too taken for granted – it crowds out other possibilities. To engage in a pedagogy which aims to problematize or even dissolve the distinctiveness of the human subject is, precisely, to throw a customary cultural account of the person into disarray. Thus, paradoxically perhaps, this paper has argued that some instances of what Humphrey critiques, might themselves be read as examples of what she seeks to highlight: a way of "adding to, or subtracting from, the possibilities given by culture as it has been up to that point, through the very process of taking action" (ibid.).

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## NOTES

<sup>1</sup> As Crist deftly shows through her history of the discursive transformations of behavioural biology, the ‘behaviour’ pole of that initial distinction can keep its shape through multiple reconfigurations. Behaviour could be, as in the work of the mid-century ethologists (or indeed in that of their experimental psychologist counterparts), a mechanically caused activity reducible to physiology. It could be, simultaneously, as in the sociobiological vision, the mysterious enactment of genetic purposes and a genetic ‘calculus’ beyond the individual’s ken. This strange malleability of ‘behaviour’ is explained if we understand its essentially negative nature: it is in effect just a placeholder for action viewed from the outside, action we do not ‘understand’ from a first-person perspective – either because we cannot or because we choose not to (Crist 1999). Behaviour is, in other words, the name of action seen ‘from the outside’. Conversely, action is behaviour in a first-person view. Only subjects, in this sense, act. Everything else ‘behaves’.

<sup>2</sup> On its own this piece is therefore strictly speaking a study of pedagogical intentions, rather than pedagogical process itself. It is however to be read alongside my accounts of training elsewhere (Candea 2010), and also accounts of pedagogical outcomes such as the one in my opening vignette.

<sup>3</sup> I am grateful to Barbara Bodenhorn for this felicitous formulation.

<sup>4</sup> There are parallels here with the dynamic described by Jo Cook in her study of Buddhism mindfulness meditation, in which decomposing one’s own activity is a means of becoming more self-aware (Cook 2010).

<sup>5</sup> I am grateful to Martin Holbraad for this suggestion.

<sup>6</sup> It would take us along a path Halpern (2012) has begun to outline, from Bateson’s systems-theory, via bio-philosophies such as those of Gilles Deleuze and Felix Guattari (Deleuze and Guattari 1988; cf. Buchanan 2008), and towards contemporary post-humanism, with its concern for productive self-contradictions and the seamless emergence of subjectivity from the material world.

<sup>7</sup> E.g.: “The statistics for animals killed worldwide by people for use in almost every aspect of human lives are truly staggering (easily obtainable—check the Internet), and the growth of that killing in the last century is, literally, unthinkable, if not uncountable. [...] Not to take all this killing seriously is not to be a serious person in the world. *How* to take it seriously is far from obvious.” (Haraway 2008:335)

<sup>8</sup> A critical reader might object that Haraway is erecting a straw man in the shape of ‘possessive individualism’. The phrase is certainly a shortcut. After all, defenders of animal rights have not in the main sought to justify animal individuality on the grounds of animals’ rights to own property! Not all versions of individuals as ‘entites with secured boundaries’ take us back to Locke (I am grateful to James Laidlaw for this observation).

<sup>9</sup> As Hadot demonstrated, for instance, in a landmark reading of Marcus Aurelius’ *Meditations* (1992).

<sup>10</sup> *Between the Species* lends itself particularly well to this reading given its diverse literary style, mixing ethnography, reflexive memoir, and indeed email correspondence.