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Assembling value(s)

What a focus on the distributed agency of assemblages can contribute to the study of value

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Assembling value(s): What a focus on the distributed agency of assemblages can contribute to the study of value

Aurora Fredriksen

Abstract. This paper explores the question of what a focus on the distributed agency of assemblages (*agencements*) can contribute to the study of value(s) and valuation processes. A starting point here is the claim that processes of valuation and the production or performance of value(s) are not reducible to human agency or exclusively human social relations, but instead depend on dense entanglements of distributed agency within assemblages involving humans as well as nonhuman actors – entities that can do things, affect others and produce effects through their implication in heterogeneous assemblages. Calculative devices are one such nonhuman actor that many of the LCSV case studies are exploring in detail, but there are others, including the various objects of our studies themselves. This leads to the question, following from Jane Bennett (2010), of what difference would it make to the study of value if the objects of our various projects – carbon, land, nonhuman species, antiretroviral meds – are not taken only as resources, commodities, or services, but 'also and more radically' as actors? The paper argues that such a focus on the material 'agency' of things entangled in assemblages is a fruitful site for thinking through what Callon (1998) calls 'overflows', that is, those things that are framed out of initial value calculations only to force their way back in as 'counterperformativities' unsettling the orders of initial valuation projects. Similarly, a focus on material specificity lends itself to identifying what Tsing (2012) calls the 'nonscalable' elements of those orders of value that have been made 'scalable' through the precarious work of obscuring or framing out difference and specificity with similarly unsettling potential. It is suggested that identifying the overflows, counterperformative entities and nonscalable elements in the LCSV case studies can open up potential spaces for productive interventions into systems of valuation that rely on, perpetuate or exacerbate unjust social relations and the destruction of nonhuman nature.

Keywords. Values, valuation, assemblages, vital materialities, scalability, overflows, counterperformativities

Introduction

Increasingly, things that have been previously placed outside the domain of economic concerns – people, ecologies, atmospheres – are being brought into economic framings and, accordingly, assigned prices or costs (Bracking et al. 2014). The emergence of economic values in new areas of human practice is a common thread running through each of the various case studies under consideration at the Leverhulme Centre for the Study of Value (hereafter the LCSV case studies), which can be roughly divided into cases where economic metrics like cost-benefit analyses are being introduced to decision-making processes in the governance of social welfare (development and humanitarian work, including justifications for 'allowable death'), and those where whole new markets for the exchange of environmental goods are being developed (greenhouse gas emissions, biodiversity, water and land titles in Africa). In all of these cases new economic and particularly market logics "act to replace or obscure non-pecuniary prior value with values in terms of price … or costs" (Bracking et al. 2014, 10). Along with considering the consequences of and alternatives to this process, a critical part of many of our investigations is uncovering just *how* this movement of people, places and things into the economic domain is being achieved.

There are, of course, diverse theoretical precedents to this type of research into value including the performative economics literature (see Callon 1998; MacKenzie, Muniesa, and Siu 2007), as well as the political economy, political ecology and Foucauldian literatures on the progressive neoliberalisation of life and nature (e.g., D. Harvey 1996; Büscher et al. 2012; Anderson and Adey 2012). While the latter group is notable here for its contribution to uncovering the depoliticisation of moves to express value in economic terms, this paper builds primarily from the former body of literature, attending the question of how things come to be enacted as economic with particular attention to the role of nonhumans in this process.[1] More specifically, I consider here how we might better understand new and emerging processes of valuation and the production or performance of value(s) if we start from the premise that these processes and practices are not reducible to exclusively human agency or human social relations, but instead depend on dense entanglements of distributed agency within assemblages involving humans as well as nonhumans such as other organisms, materials, texts, technologies and so on. Calculative devices – mathematical equations, scoring systems, indicators and so on – are perhaps the most obvious nonhumans involved in the performance of value and have, accordingly, received much attention in the field of valuation studies, particularly from the performative economics literature (e.g., Callon 1998; MacKenzie, Muniesa, and Siu 2007; Çalışkan and Callon 2010). But there are other nonhuman entities within

[1] It should also be noted that these literatures are by no means mutually exclusive, with much crossover and interplay between the broad groupings listed here.

valuation assemblages that come to matter for what values are enacted when and for how long, including the various objects of valuation themselves. This leads to the question, following from Jane Bennett (2010: viii), of what difference would it make to the study of value if the objects of new and emerging economic valuations – carbon, land, nonhuman species, development projects and so on – are not taken only as resources, commodities, or services, but 'also and more radically' as actors? Put another way, how do the variously recalcitrant, mutable or 'vibrant' materialities of the various objects of study become enrolled in or resist the calculative technologies and performative framings through which value is enacted as price or cost? Inversely, one might also ask how the logic of economic valuation manages to continue advancing and stabilizing in new frontiers, given such lively or 'vibrant' capacities for enactment and agency?

I think through these questions in terms of the dynamics of assemblages (*agencements*), and particularly in terms of the dynamic interplay between, on the one hand, the tendency of assemblages towards territorialisation, striation and scaling and, on the other, towards deterritorialisation, lines of flight and descaling (Legg 2011, 131). I elaborate on what is meant by these terms more fully below, but for now these twinned movements can be expressed in more general terms as the interplay between tendencies towards ordering and commensurability and those towards disordering and incommensurability. Thus, with the various LCSV case studies in mind, I consider processes of valuation in relation first to the techniques of neoliberal market orderings of human and nonhuman life and the environment and, second, in relation to the ways in which life escapes, or overflows, these ordering techniques.

The paper is organised into four main sections. The first provides an overview of the concept of assemblage and clarifies the usage here of the two tendencies of assemblage identified above in relation to valuation practices. The second section traces the tendency of assemblages towards ordering and commensurability in the context of economization and marketization processes. The role of calculative devices in achieving and stabilising economic values, and thereby markets, is given particular attention. The third section turns to the tendency of assemblages towards disordering and incommensurability, considering how things excluded from market assemblages – 'overflows' – may ultimately act to destabilise markets, having counterperformative effects. The fourth section explores the issue of power in the valuation assemblages, looking at how some modes of valuing come to be normalised over others and how this results in some registers of value taking precedence over others and some lives and things being valued at the expense of the devaluation of others. Finally, a brief concluding section reflects on what the thoughts expressed in this paper imply for the study of value and valuation going forward.

1. Valuation through assemblages

In the study of value and valuation processes, the case for thinking about valuation in terms of distributed agency has been well established, perhaps most prominently by Michel Callon (e.g. Callon 1998; Callon 2007; Çalışkan and Callon 2010) in his call for attending to the socio-technical *agencements* (STAs) through which markets are formed. The word '*agencement*', generally translated as 'assemblage' in Anglophone social theory and philosophy, indicates a coming together of things "which are simultaneously human and nonhuman, social and technical, textual and material—from which action springs" (MacKenzie, Muniesa, and Siu 2007, 14–15). This last clause is critical for the current discussion as it underlines the point that this coming together of diverse things is not simply one mode through which agency is possible, but that it is "a necessary and prior condition for any action to occur" (Braun 2008, 671; see also Dewsbury 2011). Thus in the concept of *agencement* the individual, purposeful human actor is not only displaced as the sole possessor of agency, but no action is possible without the coming together of a diverse arrangement of people, things, texts, technologies and so on. The agency of people and things, in other words, is necessarily relational.

The concept of *agencement* – or assemblage, as I will hereafter use – therefore, rests on an ontology of relationality. As John Law explains, in such a relational ontology "all entities achieve their form as a consequence of the relations in which they are located" (Law 1999: 4). Accordingly, value is always the outcome of the particular relations of a given assemblage. At the same time, these particular, emplaced relations can become stabilized, repetitive and therefore appear to be the inevitable result of external social or economic 'structures' (Law 1994). But, as Hinchliffe et al (2007, 260–261) remind, "such stabilities are themselves achievements which require all manner of human and nonhuman actions" and, as such, orderings are not imposed by universal laws or abstract forces external to the relations through which they are enacted. Instead, orderings arise from the relational arrangements both contained within and excluded from particular assemblages.

The relational materiality of STAs (and indeed of assemblages more broadly) underlies the key claim from this literature that economics (and therefore economic valuation systems) are performative: Economics and economists do not describe a pre-existing reality – 'The Economy' – but instead participate in its making through their implication in the formatting of the relations between elements within assemblages (Callon 1998; MacKenzie 2003; MacKenzie et al. 2007; Mitchell 2008). In other words, the field of economics does not simply observe and describe the economy, but rather (and sometimes through the act of description[2]) "performs, shapes and formats the economy"

[2] As Haraway (e.g. 1997) and others have persuasively argued, the act of description can never be entirely neutral, as the person doing the description is necessarily a situated social actor such that there can never be a neutral 'view from nowhere' in such descriptions. In presenting description as a neutral reflection of reality, then, descriptive economics can also become implicated in shaping economic realities.

(Callon, Michel 1998, 2; Fourcade 2011, see also MacKenzie 2006). Thinking about value in terms of assemblages, then, requires a focus on actual, situated practices and relations. In the field of economics, situated practices and relations such as the development and implementation of economic theories, methods of accounting and so on perform value in terms of cost or price. However, there are other sets of practices that perform value in other, non-economic terms, for example the situated ethical or moral practices of care and responsibility that might lead to assigning an intrinsic value to the natural world and humanitarian and development work.

In this attention to situated practice, assemblage-thinking recalls the Pragmatist tradition of studying value, notably expressed in the works of John Dewey (e.g. 1923; 1939), who argued that value cannot be understood as a thing unto itself but instead can only be observed as a quality assigned to things. As he explained, "[v]alues in the plural, or value in the singular, is merely a convenient abbreviation for an object, event, situation, *res*, possessing the quality. Calling the thing a value is like calling the ball struck in baseball a hit or a foul" (Dewey, 1923: 617, cited in Muniesa 2012: 25). That is, if something has a value (regardless of the register of that value – e.g. pecuniary or non-pecuniary) it is only because it is actively being valued. In other words, value can only be discerned through attention to the action of *valuing*. The shift in attention to the act or practice of valuing as well as the source of this valuation, in turn, brings us to another key aspect of assemblages: their ongoing dynamism.

Assemblages and inventive life

In addition to a relational ontology identified above, the concept of assemblage also draws on an ontology of immanence, whereby things and their character are never fixed, but always in the process of becoming (see Deleuze 1988; Deleuze and Guattari 1987; Massey 2005; Bennett 2010; Braun 2008 for a longer discussion of the philosophical underpinnings of an ontology of immanence). This focus on immanence sets assemblages apart from other relational ontologies, such as actor-network theory (ANT). Although the imagery of an actor-network also depends on the heterogeneous, relational entanglements of humans and non-humans (and, indeed, may allow for immanence), the focus in this work has tended to be on the achievement of certain effects through the stabilisation of these relations. By contrast, assemblage-thinking emphasises the uncertain trajectories and shifting relations involved in the coming together of things, as well as attention to what is excluded or simply left out of these relations. Moreover, a focus on immanence draws attention also to the liveliness of each element of an assemblage, rather than only the agential effects of things once they are already assembled. As Tim Ingold writes with regards to Bruno Latour's (2004) ANT vision of a renewed political ecology,

> Latour's nonhumans, however, are resolutely inanimate. What draws them together are not trails of movement or growth, or of perception and response, but mutual, interactive effects in a network of effects that comprises the overall field of action. This is why Latour's political

> ecology fails as *ecology* … Latour's is an ecology bereft of energy and materials. He has nothing to say about them. (Ingold 2012, 436–7).

In place of a focus on the achievement of effects, Ingold calls for a focus on "the co-responsive movement of occurrent things along their manifold lines of becoming" (Ingold 2012, 347; see also, Ingold 2011). In its concern with the achievement of stabilised effects, ANT fails to attend to the dynamism of what Bruce Braun (2008) calls 'inventive life'.

Ingold is not alone in this call for more attention to the immanence of being and the related need to attend to the lively capacities of things. A recognition of the ongoing vitality of material things as they constantly act and interact with persons, nonhuman lives, and other things in dynamic assemblages, for example, is also central to Jane Bennett's well known work on 'vital materialism' (e.g., 2010) as well as Sarah Whatmore's 'hybrid geographies' (2002), among others. Typical of these 'non-dualist' approaches (Castree 2003) is the position that things that are typically understood to be *not* alive are shown to be "possessed of different capacities by virtue of their entanglements with other beings and things" (*ibid.*: 207). As Bennett argues, all manner of things have the capacity to affect and be affected, to act as "forces with trajectories, propensities, or tendencies of their own" (Bennett 2010, viii). These capacities, just as those of human actors, are enabled (or constrained) by a thing's position within the relational arrangements of a heterogeneous assemblage.

The lively capacities of the various objects of the LCSV case studies have been highlighted to varying degrees in the literature. This is perhaps most apparent for the living entities of our research: that the affective dimensions of human lives – that is, "the aleatory dynamics of lived experience" (Anderson 2012, 28) – tend to escape biopolitical regimes and techniques for governing them rather than being totally subsumed by them is something Foucault was careful to note in his early writing on biopolitics (e.g., Foucault 1978; see also Anderson 2012). Similarly, the irreducible complexity of living ecosystems, and thus their resistance to representation and management, has not only been noted by various social theorists (Braun 2008; Hinchliffe 2008; Lorimer 2012), but also by many natural scientists interested in modes of thought such as complexity and uncertainty theories and non-equilibrium ecology (see De Landa 2009 for an overview). These works all suggest that the trajectories of life, both human and nonhuman, are not wholly knowable in advance and thus often resist forms of representation – like values expressed as costs or prices – that rely on achieving repetition and equivalence within assemblages. Yet even the supposedly inanimate objects of our case studies – carbon, water, land, infrastructure projects – have been shown to have lively capacities that create effects in the world. Take, for example, Karen Bakker's discussion of water as an 'uncooperative commodity' (e.g., Bakker 2003; Bakker and Bridge 2006), and Penny Harvey and Hannah Knox's work on the 'enchantments' of infrastructure (P. Harvey and Knox 2012; P. Harvey and Knox 2011; P. Harvey 2010). Here, the ways these supposedly

inanimate things interact with the world around them are shown to have unpredictable, surprising effects, not least in the social, economic and political realms. As such they also push at the limits of orderings and representations that rely on repetition and equivalence.

There is, of course, a danger in focusing on the immanence and vital materiality of things that one might lose sight of how things also come to sometimes possess a great deal of order. Despite the lively capacities noted above, it is apparent that pecuniary orderings consistent with late capitalist market logics are progressively being imposed on the objects of our case studies such that diverse people, places and materials are being enacted as abstract, commensurable 'valued entities' that are represented in terms of cost or price. Greenhouse gases, animals and plants, particular ecosystems, water, land, development projects and people, are increasingly being represented and circulated as interchangeable units such as carbon credits, species credits, biodiversity offsets, water allowances, land titles, development impact scores and 'quality-adjusted life years', all of which are represented in terms of standardised pecuniary values (Bracking et al. 2014). Echoing Law (1994), Bracking et al note that, even if we accept that agency is enacted through dynamic assemblages, the form and future outcomes of which are necessarily indeterminate, it is still the case that "some 'laws' in markets and accumulation more generally, might appear to participants as immovable and unchangeable" (Bracking et al. 2014, 12). Thus, as Braun points out, it is not enough to simply demonstrate the vitality of matter and the immanence of life, one must also attend to the question of how, given such vitality and immanence, any organisation occurs at all (2008, 675). Again we are returned to the question of how orderings come to persist, which returns us to the two tendencies of assemblage noted in the introduction.

Although there is a tendency in some versions of assemblage thinking to focus only on the tendency of assemblages towards emergence, multiplicity and indeterminacy, this incessant becoming is only part of the story (Anderson and McFarlane 2011, 124). Assemblages may also tend towards stabilisation, normalisation and repetition (Dewsbury 2011). In their foundational conceptualisation of the dynamics of assemblage, for example, Deleuze and Guattari (1987) identify a twinned movement of lines of becoming: on the one hand there are lines of articulation, involving the coming together of heterogeneous things in an encounter by which territorialisation (as material, metaphorical, virtual, etc.) occurs; on the other there are lines of flight through which things are dispersed and the territories established through encounters dissolved, or deterritorialised. Not all assemblages will exhibit equal tendencies towards articulation/territorialisation and flight/deterritorialisation. The particular way in which different assemblages come to be configured, moreover, may set up or constrain different capacities and possibilities for future action (e.g., Callon 2007, 320).

Here it is useful to consider Manuel De Landa's (2009) figuring of assemblages as 'possibility spaces': relational spaces ordered by different topological rules that set the

conditions for what forms and actions are possible. These conditions are not determined in advance, nor are they inevitable or immovable once in place. In contrast to essentialised notions of space with set properties,

> the capacities of an assemblage are not given, that is, they are merely possible when not exercised. But the set of possible capacities of an assemblage is not amorphous, however open-ended it may be, since different assemblages exhibit different sets of capacities. (De Landa 2009, 29)

Through this line of reasoning, the assemblages that constitute the new markets and market logics in the LCSV case studies can be said to set the possibility spaces of valuation in terms of economic capacities for calculating value as price. The mechanics of this are the subject of the following section.

2. Techniques of valuation: marketization

As noted above, the performative economics approach to studying value and valuation has made a well-established case for thinking about valuation in terms of distributed agency and particular forms of expertise (i.e., economic expertise). Within the broader field of economization processes, markets are formed through more specific processes of 'marketization'. While economization processes involve the general framing of certain things and processes as economic, marketization is a specific version of this process through which markets – and all of the physical and ideational infrastructure they require – are performed. Critically, marketization involves defining and valuing entities to be exchanged (Çalışkan and Callon 2010). In the process of this defining and valuing, a divide is enacted and reproduced between "the 'things' to be valued and the 'agencies' capable of valuing them" (*ibid*: 5). As all entities are understood here to have certain capacities depending on their relational entanglement with other entities, those that are to be valued for exchange in this divide must first have their agencies 'pacified', such that they can be transferred as property (*ibid*.). On the other side of this enacted divide are those entities with the capacity for calculating the value of that which is pacified (*ibid*).[3] Which entities are pacified and which are enacted as capable of pacifying is a matter of the unequal distribution of power within market STAs, as explored in section four below. For now, I want to reinforce the point made above that assemblages, including the STAs through which markets are enacted, may be formatted in certain ways to constrain some

[3] While humans are more likely to be on the side of those entities with the capacity for calculating value and nonhumans on the side of that which is pacified, this is by no means necessarily so. Indeed, the depoliticised appearance of many markets is often achieved through the shifting of calculative capacities away from human agents to certain calculative devices, the latter of which are assumed to be objective and therefore politically neutral (for one discussion of this fallacy, see Sassen 2008 on 'cultures of interpretation' in finance). Inversely, humans are often the subject of pacification, not only in the extreme cases of historical and current slavery, but also when they are understood as 'labour' in labour markets and, as explored in several of the LCSV case studies, as when different groups of humans are accounted for in terms of variable costs in the international aid and humanitarian systems.

of the capabilities they contain. Again, assemblages can be both lively, unpredictable sites of transformation *and* sites of stabilised, ordered relations.

In the case of markets, the stabilisation and reproduction of relations ordered according to certain economic logics is performed by entities that successfully assert their ability to calculate values and thereby define other, pacified, entities. Thus when it comes to market encounters, Çalişkan and Callon write that

> markets involve a series of multiple encounters and overlapping processes of calculations. Contingencies certainly play a part, as do the initiatives taken by agencies and the unpredictable movements of goods which overflow and follow unexpected trajectories. Yet encounters are not produced haphazardly. Like goods and agencies, they are also framed and formatted by a series of devices (2010: 14).

Chief among the various devices at play in processes of marketization are calculative ones. Calculative devices – mathematical equations, scoring systems, indicators and so on – play a central role in the creation of new markets and the application of market logics to 'non-market' fields of activity: they effectively pacify things by formatting them into equivalent units for exchange – by making them scalable.

Scalability, as described by Anna Tsing (2012), is the ability of something – a business model, a development scheme – to expand without transformation of the elements involved, or of the relationship between these elements. To achieve scalability, then, differences and heterogeneity between sites must be smoothed over, obscured or successfully excluded (*ibid.*): things must be made to *appear* equivalent, which is not to say that in scalable arrangements things necessarily *are* equivalent. Indeed, nonscalable elements are almost always at play underneath the surface of the apparently scalable. The Fordist model of production and development schemes grounded in Modernization Theory are both classic example of scalability, however the scalability of each is ideal rather than absolute, smoothing over the many nonscalable elements of place, politics and resistance at work wherever they have been scaled out. Inversely, scalability is often at work in apparently nonscalable arrangements. Thus even in the contemporary, flexible markets being developed in new domains of economic valuation, scalability is necessarily at play through the process of valuation. Assemblages become scalable when their striation of space becomes stable and repetitive. Markets, both historical and contemporary, achieve scalability through the use of calculative devices to striate diverse spaces (including the spaces of individual bodies and things) into commensurable units of valued entities.

In the various case studies being undertaken at LCSV, attention to processes of economization and marketization highlights the diverse socio-material practices and arrangements involved in defining and valuing entities in terms of prices and costs. In each of the case studies, calculative devices play a central role in translating lively, emplaced entities (actual people, places and things) into abstract, commensurable 'valued entities' able to assume scalable economic values (Bracking et al 2014, p10). To give just

two examples, through complex and somewhat convoluted calculations, different greenhouse gas pollutants are represented in carbon equivalents, that is as tradable carbon credits in carbon markets (MacKenzie 2009), and specific ecosystems calculated as tradable habitat units for biodiversity offsetting schemes (Robertson 2012; Sullivan 2013a; Sullivan 2013b).

Just as there is a danger of over-emphasising the dynamic, emergent tendencies of assemblages, however, there is also a danger of over-emphasising stability and repetition in market STAs. In order to achieve scalable economic values, many things – unique aspects of particular ecosystems, the social and political contexts of development projects, individual human subjectivities – must be excluded from the calculative and discursive frame. But, as the following section explores, just because these qualities are not accounted for in marketization and economization processes does not mean that they go away or cease to exist. As noted above, nonscalable elements persist even within scalable systems.

3. Overflowing markets and measures: on the nonscalability of living assemblages

While STAs enact certain calculative agencies capable of producing scalable effects and formatting relations according to market logics, in order to do so certain things need to be emphasized within the frame of markets and others left out of this frame (for more on the structuring significance of framing in this context, see Sullivan and Hannis 2014). As Hinchliffe et al contend, STAs striate spaces and format the relations they enact such that "certain things gain in significance and other things can drop out of the frame of reference" (Hinchliffe et al 2007: 272). In conventional economics, those entities which are left out of market calculations are referred to as externalities. The economic imagination of externalities is one that revolves around the categories of costs and benefits: if something is left out of a market it is either a cost or a benefit to some party outside that market. In recognition that many of the things framed out of markets cannot be readily understood as either costs or benefits – indeed, by virtue of their being left out of the frame many have not yet been subject to the processes of economization by which they would be framed as such – Callon deploys a new term: 'overflows' (e.g. 2007). Those things that drop out of the frame of reference, or are purposefully left out of the frame (as is often the case, *cf.* Igoe 2014, forthcoming), have not been pacified and therefore maintain their prior capacities to affect others and produce effects in the world. As such, overflows can become sites of lively agencies that, on occasion, can destabilise the very markets they were framed out of to begin with, having 'counterperformative' effects (MacKenzie 2006).

One source of this counterperformativity is that overflows are often nonscalable: they cannot be expanded without transformation or adjusting of elements and/or the relations

between them (Tsing 2012). (Indeed this is often why they are framed out of the picture to begin with.) Another, sometimes related, source of counterperformativity is that overflows may be emergent, their arrival not predicted or predictable in advance. Take, for example, the irreducible complexity of ecosystems. Complex ecologies and even individual species will not be the same from place to place, making them nonscalable. Moreover, even in one particular place, emergent events or patterns mean that an ecosystem will also not be the same from time to time. Even at the level of individual species, Braun writes, following Hinchliffe (2008), that the differences between individual members of the same species across places and times "immediately presents a problem for conservation measures like tradable sites programs, since they assume the unity of a species, and cannot accommodate the emergent qualities and specific geographies of organic life" (Braun 2008, 672). Organic life in its vast complexity and variation, in other words, often overflows attempts to frame it into neat, interchangeable units.

Yet biodiversity offsetting schemes must achieve scalability if they are to succeed: to do this, then, they necessarily frame out the irreducible complexity of specific ecosystems and differences between individuals of the same species: these qualities are overflows from biodiversity offsetting markets. Sullivan's research on offsetting schemes explores the consequences of these overflows in the case of one species: the barbastelle bat, *Barbastella barbastellus*. As Sullivan (2013b) explains, biodiversity offsets as currently proposed in the UK may not only involve offsetting the destruction of ecosystems in space (i.e., by supporting the creation of 'equivalent' habitat spaces in other locations to the one being destroyed), they may also be offset over time (i.e., by restoring a habitat being destroyed in the present at some predetermined point in the future). In the proposed construction of a new power plant discussed by Sullivan, the degradation of the habitat where a population of the barbastelle bat currently lives is proposed to be offset by the restoration of the same habitat at a future date. But, as Sullivan notes, "[i]t is difficult to know what the bats should do during the time lag between habitat impacts and on-site habitat creation" (Sullivan 2013b, 90). Even for offsets that are space rather than time based, it is doubtful whether the current bat population on the site slated for development will find its equivalent in the offsetting space (*ibid*).

In such a scenario, biodiversity offsets perform a 'zero-net-loss' in conservation value at the level of planning permissions and industry PR campaigns. At the same time, the act of this offsetting works to devalue the actual bats that will be displaced and possibly face death in the interval between habitat destruction and habitat 'restoration'. As Sullivan demonstrates, through the performance of market values (prices) for nature, the interests of businesses and conservation are both nominally satisfied "even as local biodiversity is lost, as is access to this biodiversity and other landscape qualities that are valued by local people" (Sullivan 2013: 94; drawing on Seagle 2012). Prior or alternate ways of valuing unique species and habitats are obscured by successful performance of market values. The complexity of organic life and the diversity of different places and individual animals

and plants are all nonscalable and thus all framed out of the market (which requires that these be framed as scalable and therefore exchangeable over space and time) and thus become overflows.

Thus, as noted above, the problem for many marketization processes (and for the stability of the heterogeneous STAs through which such processes proceed) is that overflows do not simply go away just because they have been left out of the accounting. Speculatively, one can imagine a future scenario where these overflows destabilise the biodiversity offsetting market: for example if it were to become clear that the future restored habitat or other habitats supported as spatial offsets do not support barstabelle bat populations and this bat species ceases to inhabit the UK it could raise a clear challenge to the narrative of zero-net-loss used to justify biodiversity offsetting.

Despite the potentialities of overflows eventually becoming destabilising, however, new markets and market logics at the frontiers of valuation appear to be gaining, not losing, momentum. Rather than destabilising biodiversity offsetting markets as imagined above, a local extinction of barstabelle bats may simply come to pass without any effect on the market that allowed it to be so; the worth of the bats having been calculated at the point of granting the offset and, having been 'paid' for accordingly by the determined offset, is settled and the ultimate fate of the bats no longer a matter of concern for the biodiversity offsetting market. The indefinite nature of species and ecological relationships is almost completely absent from high level policy debates on biodiversity offsetting, which focus again on honing the technical equations for establishing the commensurability of habitats. Increasingly dramatic evidence of anthropogenic climate change in the form of dramatic weather related catastrophes (e.g., storms, floods, droughts and so on) and consensus that not enough is being done to slow its progress has yet to destabilise carbon markets (albeit that they are currently characterised by low prices, turnover and liquidity). Similarly, criticisms of DfID's Value for Money agenda have not led to it being discarded but rather to calls for improved measurement technologies. The ability of valuation assemblages to resist or absorb any counterperformative effects from the overflows they create suggests a certain robustness. One explanation for this is the unequal power relations within and between various assemblages.

4. Distributed agency does not mean equally distributed power

If the objects of LCSV case studies have such lively capacities for overflowing the frames of marketization, why is it that the latter not only seem to persist, but are seemingly ever advancing? Why is it that the representation of value in economic or market terms "supports some stakeholders' interests, while obscuring and abjecting those of others" (Bracking et al. 2014, 4)? To answer this, it is necessary to attend to the matter of power. Although agency is distributed through heterogeneous assemblages, power is not

distributed equally within or between assemblages (Bennett 2010). The mere existence of an economic theory, model, or calculative device does not mean it will have performative effects (Fourcade 2011). Some calculative devices are more successful than others, often as a result of their enrolment in powerful STAs. An STA with more advanced calculative capacities and/or strong institutional involvement will have more power to define value/s than one with relatively poor calculative capacities or weak institutional involvement. Thus inequalities in markets result, as Çalişkan and Callon put it, from "the unequal power of calculating agencies that loop back to reinforce themselves. Due to these asymmetries, the most powerful agencies are able to impose their valuations on others and consequently to impact strongly on the distribution of value" (2010: 13).

Similarly, the affective dimensions of life and the lively capacities of nonhuman entities do not mean these will automatically create resistance or result in a world of constant flux. As Anderson (2012) reminds us, affective life may, in many instances, escape attempts to exert biopower over it, thereby existing as an 'outside' (or an overflow, to stick with the language of performative economics), but also may, in other instances, be the specific target for biopolitical techniques or even a condition for the emergence of biopolitical regimes. Rather than simply ignoring overflows, new calculative technologies are constantly being developed to try to manage them (Callon 2007).

This is evident in our LCSV cases as the logic of markets is pushed ever further into the frontiers of valuation, framing aspects of human life and the nonhuman world not previously subject to market values in terms of price and costs. Those aspects of the people, places and things to be assigned economic values that resist such representation (for example because they are nonscalable in nature) are framed out of calculations, becoming overflows. In some instances these overflows may threaten the stability of economic valuation systems, as when it becomes obvious that a particular species will suffer from offsetting or the impacts of a development project will include clear harms *and,* as a consequence, sufficient resistance is generated to challenge the valuation systems producing these effects. In such instances overflows can become counterperformative. But in such cases the STAs producing economic values also tend to respond iteratively. The economic values they had previously produced do not simply dissolve in the face of resistance, but instead are adapted or else new, more effective calculative technologies developed to (re)legitimise these values and thereby manage overflows more effectively and evade their potentially counterperformative effects.

As for affect being a condition for the emergence of biopolitical regimes, Anderson offers the example of collective affect or 'affective atmospheres' such as state-phobia that, at an extreme and as entangled with collective feelings of white entitlement, economic precarity and "affective-ideational feelings of freedom", gave rise to the US 'Tea Party' movement (Anderson 2012, 37). Less dramatically, we see in some of the LCSV case studies examples of such collective affects as arise from perceived economic insecurity or threats to wealth preservation giving rise to demands that government

demonstrate 'value for money' in development and humanitarian aid; of collective fear contributing to the stigmatisation of people living with HIV and the subsequent marginalization of their care; of collective anxieties and feelings of loss contributing to demands that environmental degradation – whether through greenhouse gas emissions or more immediate forms of environmental destruction through development projects – be accounted for in economic decisions. These collective affects are entangled with economic discourses that hold that if things are not assigned economic values then there is no way to prevent their degradation. If they don't have economic value, these discourses hold, they are worthless (see Sullivan 2014).

Affective life and the vital capacities of nonhuman materials – as both target and condition for the bio/politics of market valuation – thus become entangled in neoliberal market STAs that frame them in terms of cost and price. This is so whether they are enrolled in these STAs as pacified commodities for exchange in markets, as indicators to be circulated amongst policy-makers, some mix of the two, or even if they are excluded from the STA as a market 'externality' – a cost for some other party outside the market being constructed to bear. Power undoubtedly plays an important role in these framings, but it is not as simple as the power of some vague and universal external force. Rather, power is likely to take subtly different, specific forms co-produced through the distributed agency of the diverse assemblages and act in different ways in our different cases.[4]

Conclusion

The deployment of economic valuation in new domains such as those under consideration in the LCSV case studies is often justified as a better way of making social and environmental care 'count'. But as Bracking et al point out, once such economic valuations are applied in these areas, then "paradoxically and against the avowed intent of those calculating, the valued entities which emerge, although more quantitatively defined, often then appear to lose their earlier intrinsic value, emerging more disposable than ever" (Bracking et al 2014, 2). Unlike specific animals and plants, ecosystems, sources of air pollution, parcels of land, development projects and people, valued entities like carbon credits, species credits, biodiversity offsets, water allowances, land titles, development impact scores and 'quality-adjusted life years' are interchangeable things and as such one

[4] Large-scale phenomena that are sometimes framed as 'social structures' or 'social forces' such as socio-economic class or Capitalism are also taken here to be effects of assemblages – albeit ones that are much larger than those that constitute markets. Thus, in this view things can be, and often are, outside of a given assemblage, but would still be considered to be part of some other (possibly totally separate, possibly overlapping) relational assemblage through which certain things get ordered.

can be swapped for another without moral or ethical concern that something might be lost through the exchange.

Identifying the overflows, counterperformative entities and nonscalable elements in our case studies can open up potential spaces for productive interventions, for reforming systems of valuation that rely on, perpetuate or exacerbate unjust social relations and human destruction of nonhuman nature. Indeed the research agenda of making the overflows and non-scalable elements in our case studies visible may help to augment, catalyse and empower certain desired counterperformativities.

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