Entangled Discussions: Talking with Ian Hodder About His Book *Entangled*

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Through a series of fortuitous events, Ian Hodder agreed to visit the Institut für Vorderasiatische Archäologie (Institute of Western Asian Archaeology), Freie Universität Berlin in early December 2013 to discuss his recent book, *Entangled: An Archaeology of the Relationships between Humans and Things*. A group of interested students and scholars assembled for this occasion. As organizers of this event, we are pleased to acknowledge the sponsorship of the Excellence Cluster Topoi and the Institut für Vorderasiastische Archäologie, both of the Freie Universität Berlin, and Forum Kritische Archäologie. Above all we wish to express our thanks to Ian Hodder for his willingness to engage over the course of a long afternoon with our comments and questions.

The discussion took place in two successive meetings. We first met without the author, trying to stake out some of the important themes of the book that we wished to explore in more detail. The second meeting a week later, this time with Ian Hodder, was devoted to commenting on and questioning specific elements of the theoretical arguments presented in the book. We felt that the discussions helped us to understand the positive sides of his theory of entanglement but that they also highlighted a number of problems. In this commentary we summarize our thoughts on the positions laid out in *Entangled* in light of our various readings and these two sets of discussions. As will become clear the turns taken in this discussion as well as some of the arguments reflect German archaeological discourse and its specific cultural and historical background.

A very brief summary

Entangled was published in 2012. It sets out to turn our typically anthropocentric view of the world on its head and examine the relationship between people and material things from the point of view of things. Hodder identifies four key sets of relations – things depending on humans (T-H), humans depending on things (H-T), things depending on other things (T-T), and humans depending on other humans (H-H) – which he discusses in terms of the entanglements they produce. Crucially, he envisions entanglements as involving all of these relationships and as occurring both synchronically and diachronically. Although three of these four sets of relations involve humans as distinct from things, he also considers humans to be to some extent things.

In this commentary we explore seven main themes that derive from our readings and discussions of the book. These are 1) the concept of entanglement and its use in archaeology, 2) multitemporality and the diachronic dimension of entanglement, 3) disentanglement, 4) the notion of care in connection with things, 5) relations among people, 6) the politics of entanglement, and 7) issues of universality with respect to entanglement.

Entanglement as a way to enlarge our perspectives on the past

One of the overriding positive elements of Hodder's presentation of the concept of entanglement is the way it encourages us to extend and expand our perspectives on the past, as seen through the lens of archaeological research. Instead of constructing arguments analytically and typologically, a focus on entanglements challenges us to think in an associative fashion similar to the approach of a symmetrical archaeology (e.g. Shanks 2007; Witmore 2007; Olsen 2012). The approach works against tendencies to focus on single categories of artifacts; instead, we find ourselves engaged in different ways of arranging things in relation to each other. Tracing entanglements means making our way through a strongly heterogeneous world and following links and chains in a fashion that is rhizomatic[1] rather than linear or dendritic.

These multidirectional and multifaceted explorations have important consequences for the strict disciplining of academic boundaries that is characteristic for continental Europe. Rather than upholding the traditional units, we might read Entangled as a manifesto to "tear down this wall!" A simple example: through the insistence on the material qualities of things, we find ourselves turning to archaeometry both for analytical help and as a source that can enrich archaeological discussions but without succumbing to archaeometry's epistemological restrictions. A question we did not explore in our discussions was what happens when we take seriously the call to step regularly and decidedly across academic boundaries. What might the results be of such new forms of knowledge production and dissemination? How would they differ across the global world of academics, given the varied ways of carving up archaeological knowledge production in, for example, the United States and Germany?

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[1] See Gilles Deleuze and Félix Guattari's well-known introduction to *Thousand Plateaus* (1987).

Diachronic entanglement and matters of multitemporality

When we examine the entanglement of things and people synchronically, we come quickly to a recognition of the complexity of the links that connect them. In addition, strands of entanglement are built on preconditions that must be identified, and entanglements often produce diverging sets of consequences. Entanglements are always in flux, whether today, in the past or in the future. Therefore, exploring the threads of an entanglement brings us immediately to the importance of diachrony. Relationships over long periods of time, together with those between multiple categories, can and should be thematized.

In his opening remarks Hodder noted the connection between the domestication of cattle in the Neolithic in western Asia and global warming spurred by today's industrial-scale farming and the methane gases thereby produced. This is, of course, a process that will affect us well into the foreseeable future. Another unintended longue durée consequence of cattle domestication can also be mentioned: in his *Barbed Wire: A Political History* (2002) Olivier Razac observes that barbed wire was first used in 19th century North America to fence off private property in order to protect cattle from wild animals. This same barbed wire was then used in World War I trench warfare where it viciously entangled soldiers; its later electrified version compartmentalized people in Nazi concentration camps. Such diachronic entanglements have been highlighted in some historical writing and in science studies but rarely in archaeology.[2] Here Hodder's approach challenges us to explore previously uncharted territories in archaeology.

One of the corollaries of Hodder's notion of entanglement is that connections between things, people, and people and things are productive of change, bringing about different kinds of consequences. The notion that actions produce unintended consequences is not a new one; it plays a central role in the scholarship of Anthony Giddens who considers them to be the main source for the contingent nature of history (Giddens 1979). But in Hodder's approach

the emphasis is on a diachronic and especially on a long-term perspective that goes far beyond the temporal dimensions envisioned by Giddens. Although his view in *Entangled* opens new realms for examination, he simultaneously narrows the range of unintended consequences by contending that they always lead in the direction of greater entanglement: we are inevitably "digging ourselves into a hole" (p. 104) even as, and perhaps especially when, we make efforts to alleviate the problems brought about by entanglement. Despite his claims to the contrary, we consider this stance to be reductionist, as it insists that historical change has a particular direction, even if the specific forms of change may vary.

This specification of a rather strict directionality makes Hodder's diachronic understanding of entanglement tend toward determinism. While he claims that his approach is not teleological, it seems to depend on the level at which one examines entanglement. Specific kinds of entanglement may be unpredictable, but at a more general level the assertion is that there has been and will continue to be increasing entanglement. Thus, on a specific level his theory may not be teleological, but on a general or world history scale it is. This is a remarkable return to a way of thinking that minimizes historical contingency and is much closer to social evolutionary ideas than Hodder's other writings since the early 1980s. We are alleged to have become increasingly complex throughout history, although how that growing complexity has manifested itself may be more or less variable and is in the end judged negatively.

Many of us might agree that from the perspective of the broad sweep of human history people have become more and more entangled in a material world they have created. However, by making this into a central argument of his theory of entanglement, Hodder risks writing human history from the perspective of those who are considered in the public sphere as the "most successful", because they have been able to impose their specific materiality on their contemporaries as well as on things that endure, something that may be termed "political taphonomy" (Bernbeck 2005). Alternative directions that might have been chosen for some period of time but that did not last over the long term would potentially be written out of history if we follow Hodder's approach, because they do not fit the progression of growing entanglement that leads us to where we find ourselves today.

A final element of diachronic entanglement that seems to us of particular relevance is connected to Hodder's remark that entanglement forces us to

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2   An excellent example for a culture history that exposes entanglements (without use of the term) is Wolfgang Schivelbusch's *The Railway Journey: The Industrialization of Time and Space in the 19th Century*. A host of "things" such as new types of literature and "new" diseases including trauma resulted from the practice of travelling by train. For an archaeologically informed study in this vein see Michael Schiffer, Tamara C. Butts, and Kimberly K. Grimm (1994) *Taking Charge: The Electric Automobile in America*.

think of relationships that have neither beginning nor end. One can therefore enter and exit a piece of research at any point, as there is no validity in searching for origins or for some sort of final collapse. This point is not a new one (e.g. Conkey with Williams 1991), but it has remained underexplored in archaeological (and historical) research. A lingering question is whether there is a logic to where one begins or ends in examining a temporal slice of entanglement, or perhaps more importantly, what difference does the choice of temporal limits make to the results of a piece of research? Is it really the case that any point is as suitable as any other at which to begin, or is there something special about, for example, the Neolithic as a time when entanglements underwent a major change, with the consequence that the speed of further entanglement processes was faster than ever before?

Is disentanglement possible?

A striking element of Ian Hodder's presentation of his book and his motivations for writing it was what he himself described as his pessimism with respect to the potentials of disentanglement. Put simply, he argues that disentanglement is not possible: any attempt in that direction results in being caught in other, even more entangled kinds of nets. We take a different position, contending that the problem resides in Hodder's tendency to see entanglement as an all-or-nothing status rather than a process that proceeds in degrees that can be enhanced or reduced, sped up or slowed down. It may also help to specify the context(s) in which disentanglement may occur: we suggest that it is more likely to do so in the realms of depencies of humans on things, rather than in "inter-thing relations" (T-T) or the dependence of things on humans.

We also see Hodder's credo regarding the irreversibility of entanglement (called "directionality" in his book [pp. 169-171]) and path dependence as falling prey to the capitalist dogma of growth. Whether in material production, the educational sector, scientific "output", or at the individual level of a CV, growth has become such an unquestioned and unquestionable background to our reality that entanglement is also enveloped by it. But on the historical plane of H-T relations, aren't the many asceticisms of Eastern religions, the millenarian movements at the time of Jesus, or the decroissance and altermondialist ideas of people like Jacques Ellul (1954) a sign of such reversibilities? Hodder intimates that, in the long term,

their effect does not count as much as the historical junctures through which entanglement processes are accelerated, of which the Neolithic revolution is the one with which he is most concerned. We imagine a comparative study of entanglement in, for example, an Old Babylonian city in Mesopotamia such as Ur, the Inka center of Cuzco, and the medieval town of Cairo. Can we find an increase in entanglements in the various human-thing matrices of dependences? We doubt it, but it would mean a rigorous quantified analysis, an endeavor that seems impossible because of the heterogeneity of entanglements as well as their diachronic dimension, as Hodder himself admits (p. 108). A methodological point not raised in our discussions but noted by some of the participants afterwards is the question of where one begins a "tanglegram", and, perhaps more importantly, how tanglegrams can be compared. This would be of particular relevance if we wished to examine the question of whether and how there are changes in the relative weight accorded to different kinds of dependencies between people and things or amongst people or things. Can, in fact, the degree of entangledness at different moments or over specific trajectories be measured?

If anything, we would think that a world history conceptualized under the notion of entanglement is characterized by a stage-like movement, perhaps similar to "punctuated equilibria" (Gould and Eldridge 1977) in biological evolution. The modern age, with its horrendous onslaught of material products and their continuous growth in numbers and kinds, certainly gives the impression of rapidly increasing entanglement, indeed that it speeds up at a yearly if not monthly rate. But this may be a historically specific and even aberrant case. What if we turn to archaeological methods: has there ever been a systematic comparison of densities of object categories ("things") through time and space? The productivity of terra sigillata in La Graufesenque in southern France was certainly way beyond that of later medieval production output, for example. Despite our own situations in which we are drowning in things, we claim that the world can still be steered in different directions. The increasing interest in the commons (Hardt and Negri 2009), involving sharing rather than possessing things, is only one potential way out of the impasse of entrapment in a world of things.

Positionality or the place from which one examines entanglements also plays an important role that is insufficiently addressed in the book. What happens when entanglements are observed from an internal

vs. an external perspective? Hodder's perspective on entangled worlds is a decidedly external, rational one. But must we not assume that there was also an awareness in the past of entanglement and a desire on the part of some to disentangle? Overall, what are the potential responses to the awareness of being entangled? Must disentanglement be envisioned as something that happens only by force of necessity – for example, in contexts of "collapse" (Yoffee and Cowgill 1988; McAnany and Yoffee 2009) – or can it occur as a matter of choice? We suggest by way of a few examples that partial disentanglement can indeed take place and may be the product of intentional choices on the parts of actors.

In a recent discussion of settlement and demography in the Ur III period (c. 2100-2000 BCE) in the city-state of Umma in southern Mesopotamia, Robert McC. Adams argues that there was a steady stream of people who freed themselves, at least partially, from the demands of the state by leaving cities (Adams 2008). In doing so, they chose to pursue a more mobile lifestyle or one that was located on the edges of the densely settled belt of irrigation. In other words, these were people who disentangled themselves from a particular kind of settled life and many of the demands it placed upon them. If we silence them, one reason is our own preference for writing history from the perspective of material heritage producers similar to ourselves. And in doing so we seem conveniently to forget that such groups leave fewer traces than those who actively pursue human - thing entanglements.

Another example are the Anishnabeg of Upper Michigan who were employed in the 1920s-1930s by the Bay de Noquet Lumber Company. They attempted to avoid becoming entrapped in capitalist relations that would have forced them to purchase food from a company-owned store. Instead they engaged heavily in canning and hunting in order to provide for themselves in ways that sidestepped the use of money (http://www.fs.usda.gov/detail/hiawatha/learning/history-culture/?cid=stelprdb5106493).

Yet another example is the small Late Neolithic site of Tol-e Bashi in the Zagros mountains of southern Iran. Here, the minimal quantities of durable objects have been interpreted as a refusal to become caught in a life surrounded and channeled by things (Pollock and Bernbeck 2010: 283-287). Things often have a temporal surplus; they easily survive a human lifetime. People not only display an attitude of concern and care for things - they may often experience the world of things as a threat. Hodder considers the persistence and durability of things (e.g. Figure 9.8, p. 194), but he evaluates them as a largely positive element: they provide stability for "transient and uncertain lives" (p. 5). He uses a logic that corresponds to Siegmund Freud's widely cited story of his grandson who symbolically replaced his mother with a spool while she was absent (Freud 1998). But might the scarcity of material objects not imply an intention toward disentanglement (or avoidance of entanglement), rather than a status of being less "civilized" or less complex? Would John Chapman's (2000) fragmentation theory not also fit such a general scenario of durability as a threatening temporal surplus?

A rather different view was also raised during our discussions: could historical changes in entanglement be a kind of zero-sum game in which variability lies in the extent to which different kinds of human-thing relations are entangled? In one specific example it was argued that the complexity of the entanglement embodied in human-human relationships is much greater in hunter-gather than in capitalist societies where relationships involving things are the primary locus of complex entanglements. While we do not necessarily propose that the sum of entanglements is the same in all cultural contexts, in all times and places, the point is that a hunter-gatherer world in the Upper Paleolithic of Eurasia may have been as entangled as that of Stanford, California today. Whereas the former may have been characterized by complex entanglements between people, non-material forces, animals and a few things that were based on an entirely different ontology than ours, in the latter entanglements are denser and more complex only in the realms that imply things.

This argument can be linked to a more complex issue. Hodder depicts his matrix of relations as being so fundamental that as relations they remain independent of each other. But what if this independence is not taken as given? Might it not be that different historical instances exhibit situation-specific "relations of relations"? So when human interrelations predominate over those that connect people to things, then human-thing relations will be conceptualized against a background of those between humans. On the other hand, when things take center stage, relations between people can metamorphose into relations patterned after those involving things. This is exactly György Lukács' (1971 [1923]) reification thesis: the contention that in modern societies things have had such an enormous impact that social relations have taken on the character of human-thing relations. Lukács insisted on a difference in the

material world that is at the core of Marx's writings, and which curiously disappears entirely in *Entangled*: that between the use value and the exchange value of things. Hodder's book as well as much of the materiality literature in general seems to assume the dominance of the use value of objects, from prehistory to postmodern times, as if we did not live in a world that is saturated with exchange values and associated ways of thinking (e.g. Sohn-Rethel 1985).

Nowadays we see the growing entanglements involving things as a part of the way in which people are increasingly disciplined and thereby entrapped in situations in which the variety of relations among humans is comparatively small, largely as a result of the fact that they are dominated by commodification. In the long term, one could even insert Norbert Elias's arguments about the process of civilization into such a history (Elias 1977).

André Gorz (1989) has offered a possible way out. He argues that an important step away from commodified relations (the dominant form that determines intersubjective relations in contemporary societies) is, to take a simple example, to avoid taking a taxi and instead hitchhiking or at least agreeing on mutual, non-monetary exchanges in which anyone driving a car from point A to point B takes whomever wishes to travel in the same direction, in a kind of delayed-return system. The idea can, of course, be extended to fit a wide range of other contexts such as community gardens in which people work together, harvesting what they can use as well as expanding and cementing social ties. This arrangement offers a largely non-commodified alternative to having one's own garden and hiring a service to take care of it.

Such changes would, however, also impinge on time and an issue best termed "temporal justice". According to Hodder, things all have their own temporal rhythms to which people have to adapt (pp. 84-85). Therefore, the more things we arrange around ourselves, the less we master our own time. We become slaves of "altertemporality", a form of temporality that is objectified in material things. The loss of "time sovereignty" (Münkler 2007) plays a major role in present conditions of entanglement and imparts a historically highly specific character to it. Time sovereignty, and an emerging notion of temporal injustice, was likely of much less import before modernity, despite dependency on a yearly cycle organized around climate and weather.

In *Entangled* Hodder uses two notions, entanglement and entrapment, to describe the conditions that keep people and things in a situation of mutual dependency. In the discussion he explained that he uses them interchangeably, although entrapment appears in several places in his book as the more negative alternative. We think that he misses an important potential of his concept by making little or no distinction between these terms. Whereas we are convinced, based on some of the examples given above, that it is possible to observe and to take part in disentangling, understood as processes that occur by different degrees and kinds, entrapment can be understood as a state in which entanglement can no longer be reversed without a more or less complete collapse. Thus, at Çatalhöyük things – from decorated houses to beautifully shaped stone knives and multifarious figurines – entrapped people, whereas in the aforementioned Tol-e Bashi such effects were prevented by a world of material scarcity, so that people dominated rather than succumbed to a specific level of material entanglement.

Ultimately, we argue on epistemological grounds that a theory of entanglement that sees no possibility for disentanglement, other than the collapse of an existing system, turns into a self-fulfilling prophecy.

Caring for things

An important element of Hodder's ideas about entanglement is the notion that people are drawn into the care of and for things. This concept of care encourages us as archaeologists to think in new ways about the objects we excavate and study, to focus on efforts at maintenance and repair and not just on their original production or use. At the same time this perspective assumes that people always and everywhere attempt to maximally extend the temporality of things, trying to care for them so that they do not disintegrate, break or become otherwise useless. The universality of this postulate seems to us to be misplaced.

In drawing attention to the much more difficult issue of disinterest and disregard for the survival of things, one might think about the common practice of depositing hoards in Bronze Age central Europe. In these cases things were removed from the realm of care and concern by turning them into offerings (cf. Hansen et al. 2012; Hansen et al. in press). The argument that the large quantities of luxury goods deposited in the Royal Tombs at Ur involved the public "disposal" of major amounts of wealth on the part of public households (Pollock 2007) could also

be understood as a way to remove some of the oppressiveness of material wealth by burying it with the dead. In some cases, grave goods are not supposed to "live" on after the death of their owners. Another example is the abandonment and deliberate burning of houses or whole settlements, as has been argued for Neolithic structures in southeastern Europe (Tringham 2005) and the Burnt Village in Sabi Abyad (Verhoeven 2000). These are acts that may serve to deliberately separate people from things they took care of.

Care for single items is archaeologically attested, for example in the multiple mending holes in pottery from the Iranian Late Neolithic sites of Chagha Sefid and Ali Kosh. We can identify more or less care used in production processes, for example in the making of a stone relief, the writing of a cuneiform tablet, etc. Once produced, things also require care – but perhaps do not get it. A simple drive through parts of the United States reveals a large number of slowly decaying houses, garages, and other buildings, a neglect of structures that is astonishing to the eye of a visiting European. Abandonment cultures and production processes are clearly related. What characterizes the threshold at which an item is discarded? And what is the relation between specific production processes as more or less skilled labor (artistic, handicraft, industrialized) and the willingness to dispose of things? Do we not live in a world of garbage heaps and landfills more than in one characterized by care for things?

Hodder only briefly points out the possibilities of elaborating distinctions between the production of longevity by caring for things and another kind of temporal production, that of brevity. Things may require care, without getting it: the German word "entsorgen" – to "dis-care" – meaning to throw away, appropriately expresses an intrasubjective positioning towards a thing and an external practice, denoting neither simple carelessness nor socially sanctioned mechanisms for removing things but rather a fundamental and conscious shift in attitude away from care. Recognizing these tensions encourages the investigation of distinct chrono-spatially anchored practices of care and dis-caring, rather than seeing care as quasi-universal. At the same time we must be attentive to the diachronic dimensions of these examples: a glance at a hyper-consumerist society, such as the contemporary United States reveals that the rapid discard of objects may be directly related to the desire to acquire new things, itself an essential element of advanced capitalism which only thrives by promoting constant growth accompanied by waste

and (more or less planned) obsolescence (Reuß and Dannoritzer 2013).

A further concern is whether one can use a single concept to encompass care for things and care for people. In the realm of intersubjective relations, Axel Honneth distinguishes between *Anerkennung*, recognition or acknowledgment as a process that occurs between people, and *Kennen*, to know, involving objectification and complete reification of the other (Honneth 2005). People may attempt to dissolve these boundaries by ritually animating things, as is the case in the mouth-opening rituals practiced in both Mesopotamia and Egypt to bring statues to life (Walker and Dick 2001). Here, one sees a kind of *Auskennensvergessenheit*, or deliberate forgetting of skilled production knowledge, in that through ritual one was encouraged to forget the human practices that are at the origin of animated things (Bernbeck 2009).

The neglect of human relationships

Many of us who took part in the discussion remain decidedly anthropocentric, in contrast to Hodder's avowed aim to take a thing-centered perspective on the world ("This book aims to look at the relationships between humans and things from the point of view of things" [p. 10]). There are numerous reasons why we insist on the importance of people and of "human-human" dependency relationships, not to the neglect but also not to the privileging of relationships with and between things.

The first of these is that in a thing-centered perspective on the world, people can be easily marginalized. When people are objectified by placing things at center stage, or at least on the same level, it is all too easy to end up treating (other) people as lesser than members of one's own group.

We argue that only by dissolving the human-thing boundary is it possible to dehumanize and objectify people. Critique of the subject - object divide, the mantra of current anthropology and archaeology, meets its political counterpart in early 20th century writings on critical theory: instead of elevating things to a level equal to people, the concern was then - and we claim that it should be today as well - to fight against the objectification of people. The obfuscation of the boundaries between people and things, initially advanced in Appadurai's (1986) introduction to *The Social Life of Things* where he declares

that people and things both can turn into commodities and exit such a status, opens the philosophical door not only to the recognition of animal rights, but also to the legitimization of slavery, the annihilation of whole groups of people, and the glorification of war. Ideas about a world history are always themselves situated in historically specific discourses. In a German intellectual environment, any preoccupation with the past has to take into consideration the fundamental historical and cultural rupture of the "Third Reich". This rupture includes the impossibility of any adequate historical representation of the Holocaust (Lang 2000) and stands in the way or at least leads to hesitations in considering non-anthropocentric conceptualizations of world history. And so it should. Theoretical considerations must be historically situated, and the German context may well be fundamentally different in this regard from a U.S. (or other anglophone) academic and intellectual environment.

Second, we are of the opinion that Hodder's discussion of entanglement works on the basis of a normative or generic image of being human, although he explicitly denied this in our discussion. By generic or normative human we refer to the elision of gender, age, (dis)abilities, etc. that results in Tringham's critique of a past peopled by "faceless blobs" (Tringham 1991). If we wish to write histories of entanglement, we must insist on the specificity of the people whose social and material worlds became, in different ways, entangled and how those entanglements differed at one time and place for different kinds of people. Many of the concrete examples used in *Entangled* are chosen so as to minimize the roles played by relationships among people; rather, they often tend to consider single individuals and their material environment, most poignantly in the examples of the author and his boat or piano. Interactions between one person and one thing are situations and practices in which means and ends coincide: the act of playing music does not gesture to anything beyond itself. However, over the long term such practices are not central to Hodder's ideas, as for example in his diachronic account of the growth of entanglement or the sequence of changes documented at Çatalhöyük. Interestingly, this statement of position in *Entangled* seems to be quite different from his own positioning a decade or so ago, when he wrote, "There is too little emphasis on subjectivity and self as constructed by individual agents" (Hodder 2000: 25).

Let's formulate Hodder's argument the other way around and contend that behind every dependency of humans on things as well as things on humans there lies an intersubjective relation. One engages in environmental activism to try to slow climate change because of concern about the world to be left to one's grandchildren and their children. Things are always a means for intersubjective relations, except when it is a question of a single person and her/his wellbeing (as in the example of playing music) or when one becomes so mired in a concern for things (in the above example, the environment) that one loses sight of why one is engaged. The latter could be understood as a sort of forgetting of intersubjective relationships, along the lines of Honneth's *Anerkennensvergessenheit* that results in an overemphasis on people's relations to their material world. Nonetheless this does not amount to the disappearance of dependencies between people or of their centrality; rather, one might draw here on Hodder's own notion of "hidden entanglement".

A third issue is how we should understand the important concepts of dependence and dependency in the case of relationships between people. We contend that these are qualitatively different when inter-human relations are involved than in either "H-T" or "T-H" connections. As already discussed, the notion of Anerkennung, or recognition, is the condition of possibility for dependence in human-to-human relationships. However, this is not the case when it comes to things: if they stand in a relation of recognition with us, we have turned into the fetishists that symmetrical archaeology wants us to be. Dependency, described as "reliance on things [that] can become compulsive, even addictive" (p. 18), is thought by some of us not to be qualitatively different whether it is a matter of a dependency on things or on humans. Others claim that dependency of humans on other humans is a quintessential necessity for the mutuality that turns us into (human) subjects in the first place.

Finally, as already noted, Hodder's examples often revolve around individual people and things. If, however, one begins with a collective, one more easily arrives at the idea that people can indeed make changes in the world, including in the direction of disentanglement. Here we think of the hippie movement of the late 1960s, which included a strong anti-consumerist element, a "back-to-the-roots" effort to disentangle; or the founding of the Green Party in Germany at the beginning of the 1980s, which laid the essential groundwork for changing to more renewable sources of energy and today to efforts to substitute small, local energy providers for large, centralized monopolies; or the above-mentioned urban gardening, which allows people to disentangle

themselves to a modest degree from industrial agriculture. Such efforts may seem ridiculously minor. However, changes in entanglement by necessity start somewhere on the margins.

The politics of entanglement

A significant point of concern for at least some of those participating in the discussion was Hodder's lack of an explicitly political position on the subject matter at hand. One of the principal problems is that he thereby takes a position, albeit perhaps an unwanted one.

To a significant extent, Hodder's book is inspired by a concern with global warming and late capitalist technology. As such, it has inevitably a political stance. However, the retreat to the position of an external observer of a world history with apocalyptic tendencies implies an attempt at de-politicization. What is more, his pessimistic attitude toward the (im)possibilities of disentanglement disavows any attempt to construct a utopian future, however unrealizable that may seem under present conditions.

According to Hodder, such a utopia would include the recognition that we indeed become more and more entangled even as we attempt to disentangle. Yet this should provoke us to rethink the ways in which we try to extricate ourselves from webs of dependency. Although developing new technologies may seem like a possible way out and one that is regularly touted as a solution, they do not resolve the problem either. Instead, they may entangle us still further.

An alternative approach might start from the fact that entanglements exist at different scales and are due to specific perspectives. Over the past few years we have been accustomed to hearing about banks that are "too big to fail", energy giants that are too big to decentralize, and the size of the automobile industry that is too large to allow it to change to the production of ecologically more responsible cars. In each case we are confronted with the large-scale of phenomena that ostensibly prevent change. We contend as a counterpoint that reduction of the scale of entanglement is one main issue, rather than disentanglement per se. New movements such as Gezi Park in Istanbul or "Stuttgart 21", the protest against a huge project involving the construction of a train station in southern Germany, work against the scales of entanglements and a whole network of humans and

things - but not against a museum or train travel per se.

Once again, we see here a problem that derives from the focus on human-thing/thing-human relationships. It brings with it a privileging of technological change rather than an equal focus on the human-human dimensions. The forces of entanglement may not have the degree of time depth that Hodder wishes to see in them; rather, entanglement without any way of return apart from complete collapse – what we would refer to as entrapment – may be a product of capitalism. It is capitalism that has been able to turn intersubjective relationships into forms characteristic of relationships with things. This line of thinking implies that the irreversibility and universality of (high degrees of) entanglement is in fact a quite recent product. It is exactly the reification (*Verdinglichung*) resulting from capitalism that leads Hodder to give relations among humans such short shrift.

His pessimism with regard to the (im)possibility of disentanglement has a fatalistic side to it, one that carries with it a conservative, things-cannot-be-changed-so-why-try message. This is even more striking in the long term, as it results in a picture of Spenglerian decline and reminds us of the figure of Walter Benjamin's Angelus Novus in the reverse, as recently described by Giorgio Agamben (2009): Hodder's archaeologists walk into the past backwards, not knowing and seeing that past, but rather perceiving the wreckage of the future.

Günther Anders, one of the most outspoken philosophers of technology of the 20th century, is in some respects a precursor of Hodder's pessimism. Anders describes in great detail the discrepancy between human abilities to produce all kinds of machines of destruction and our inabilities to imagine these potentials. Instead, humans feel a need to become as perfect as their creations but remain "antiquated" – for Anders, a terrible danger for the entirety of humanity (Anders 1956). Anders took practical consequences from his philosophical reflections. He resisted the university apparatus, was one of the first post-WW II activists in anti-nuclear campaigns, and later wrote a controversial "call to arms" against an increasingly violent technologized world (Anders 1987).

Here it is relevant to mention the notion of the Anthropocene, a new geological age in which humans have so severely impacted the world that the background for global processes are human creations, rather than the other way around (Crutzen and

Stoermer 2000). How can one bring a thing-centered perspective on the world together with one in which human agency has come to occupy such a central place that people have replaced geological processes at center stage? In answer to this question, Hodder argued that the Anthropocene can be seen as a quintessential entanglement, in which even the globe needs to be managed and cared for. However, this confronts us with the aporia of decentered subjects in an anthropocentric world. Somehow people remain at the core, yet at the same time the theoretical rug is pulled out from under humanity: people are responsible for the state of the world, yet this responsibility can no longer be shouldered. This seems to us both epistemologically and politically problematic.

A theory with claims to universalism leaves little space for future research

In response to the question of whether he sees his theory of entanglement as one with global applicability, Hodder's answer was a definitive and, to us, astonishing "yes". But here we must ask ourselves, what then is left to research, and why? After all, the results are seemingly already known, and all we can do is fill in some illustrative details. Following this reasoning, we would be back in a situation similar to the heyday of neoevolutionary archaeology, where the direction of change was clear to all and the primary work of archaeologists was to identify when the next stage was reached as well as the precise steps involved in reaching it. To take a more concrete example, what happens if we accept the idea that all late Neolithic societies in Western Asia were on a path toward entanglement? Do we learn anything from our study of them? Shouldn't we rather consider the possibility of different kinds of entanglements in different places or even different directions, not all of which involved a growth in the degree of entanglement?

In addition, the global ambitions of Hodder's theoretical outlook is too eclectic in its derivation. Can elements of human behavioral ecology really be used alongside those of metaphor, mimesis and Latourian actor-network theory? At least some of us see a need to begin with a coherent ontology from which to build a convincing argument and theoretical position.

Overall, an engagement with positionality is missing. Hodder takes a neutral, outsider perspective, apparently without reflections on the consequences.

Is this a return to a kind of positivism, in which the scientist can survey the world objectively? In adopting this viewpoint the effects of one's own entanglements are not taken into consideration. What happens when someone with a quite different position and her/his own entanglements describes the world? In the introduction to *The Phenomenology of Spirit*, Georg Hegel claims that a valid theory needs to be applicable to itself: in this regard, how is entanglement decisive for its own recognition?

As the above comments show, the participants found much to engage with in *Entangled*. Although many of us are in disagreement with parts of the argument, we found the discussion with Ian Hodder enormously fruitful and continue to learn from the efforts to position ourselves with respect to the new challenges he has set out for us.

Participants in the discussion

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Dis-entangling Entanglement: A Response to my Critics

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I very much enjoyed my recent visit to the Institut für Vorderasiatische Archäologie in the Freie Universität Berlin, and am very grateful for the time and thought that had gone into preparing for my visit. The resulting discussion was very productive and in-depth, and I found the written commentary very helpful in thinking through my ideas about entanglement and in developing them further. In answering the discussion points fully I would end up writing another book! I do not feel I can do justice to all the points raised in this relatively brief response. Rather I would like to react to some of the issues selectively, and to make some general points that deal with broad groups of comments, for example those that deal in some way with directionality and the possibility for dis-entanglement.

Directionality

In their commentary the authors state that "many of us might agree that from the perspective of the broad sweep of human history people have become more and more entangled in a material world they have created". This statement summarizes succinctly and effectively one of the main arguments of *Entangled*. And yet the authors spend the largest part of their commentary arguing the opposite, preferring to focus on contextual diversity and the human potential to disentangle. Regarding the notion that entanglements seem to have increased over the long term, the authors say "we consider this stance to be reductionist, as it insists that historical change has a particular direction". Why do archaeologists so quickly retreat from, even hide from, their own evidence for long-term change? Why do archaeologists retreat from their own observation that in the "broad sweep of human history people have become more and more entangled in a material world they have created"? We are all aware of the dangers of social evolutionism. But is it not irresponsible to draw attention away from the one conclusion that archaeologists can readily agree on and provide evidence for, especially when the direction of that broad sweep of increasing entanglement is leading us as a species into difficulties?

I have spent most of my career arguing for contextual variation and for the potential of human agency to transform. I have always argued that long-term history is best understood in terms of small-scale change and the manipulation of small things such as pots, calabashes, houses, and ash from the fire. And I still argue that agency has transformative potential. The commentators suggest that my position in

entangled differs from the earlier focus on individual agency. That is not the way I see it at all. I still believe in the centrality of agency to social theory, but have shifted my attention to the effects and conditions of agency. If we are to focus on how individual agents transform their social worlds in the making or using of a tool, or in the negotiation of space or pot design, we also need to understand how those tools or built environments are themselves not isolated as things. Around each thing there are filaments, often largely invisible, that spread outwards to other things. These threads of connection are themselves entangled in each other. And these entanglements have effects in the world that then channel or constrain agency. I have tried to avoid reverting to some form of environmental determinism in understanding this wider frame of action, and to avoid a determinism based in the forces or relations of production. Instead I argue for a heterogeneous entanglement that frames and makes possible forms of agency that can transform and create change.

The argument that entanglements have increased overall is at first solely an empirical statement. And it seems that the commentators mostly agree on the empirical evidence that we have as a species become more entangled. The question of why entanglement has relentlessly increased is a different matter. I do not feel at all certain that I have given the right answer. For the moment, it seems to me possible to argue for a certain logic of increasing entanglement that focuses on the instability and multi-temporality of things and their relations. Things and their interactions are unruly because things tend to fall apart, die out, transform so that they cannot be relied upon. Of course on the day to day we manage to stabilize things, often with a lot of work. But the stone wall is gradually eroding at its base and will one day collapse, the coal will one day run out, as will North Sea gas. Over time bacteria become resistant to antibiotics, and climate is slowly changing as the result of impact over millennia. All these complex interactions and temporalities mean that humans are forever seeking new solutions. These solutions nearly always involve using new materials, new technologies, new restrictions and regulations, new forms of representation. They are additive. Sometimes, the things that are added may be simpler, replacing more complex forms. As I will agree below, it is certainly possible to achieve dis-entanglement. But in most cases most of the time, something new is added – and since all things are embedded in a web of filaments, new strands are added to entanglements. On the whole it makes most sense to fix things as they are in an additive process. This is what I have discussed as

path dependency. It becomes very difficult, costly in economic, social and cultural terms, to disentangle things and go back to the beginning. At some point humans become so invested in particular entanglements that going back can no longer be a preferred option. So while local disentanglements are possible, in the end the tendency is towards increases in entanglement. The hypothesis is that entanglements tend to increase over the long term because of the instability of things and because of path dependency.

This hypothesis about why entanglement tends to increase over the long-term may or may not be shown to be justified by evidence. But whatever the answer to the "why" question, it seems more important to consider the implications of the empirical evidence for increased entanglement for modern predicaments. It is certainly possible to argue on a case by case basis that technological solutions to resource depletion have their environmental dangers. Many will agree, for example, that "fracking" in order to access oil and gas has numerous environmental risks, including contamination of ground water, that lead to greater entanglements. But it is a different and broader argument to point out as an archaeologist that humans have always sought to deal with problems by finding additive technological solutions. Some in the post-environmental movement (Nordhaus and Shellenberger 2007; Latour 2008, 2009) indeed argue that we should focus not on restraint in our relations with the environment but on an increased rate of technological innovation. It seems important that archaeologists use their evidence for the directionality of long-term increased entanglement to contribute to these contemporary debates.

One of my motivations in writing *Entangled* was to draw attention to the dangers of the idea of the Anthropocene. We now live in a world in which all things are effectively human-made, even the weather, climate, soil and air we breathe. This means that humans are having to find solutions on an enormous global scale, and yet the institutions that are needed to find and implement such solutions do not exist, or they do not function effectively: most are in various forms of "gridlock" (Hale et al. 2013). Presumably at some point, solutions will be found and the political road-blocks will be resolved. But the entanglement view is that managing the Anthropocene will be very costly and difficult to reverse. Investing in new technologies will drag us down yet further in the direction of entrapment, constraint and regulation. And there are further dangers. The singularity of the Anthropocene, that fact that we are now all connected in one global system, means that there is little

room for mistake. Things are always going wrong in unexpected ways in human-thing entanglements. In the past, collapse in one system would often allow another to regenerate (see below in the discussion of "hubs"). But today and in the future, the interconnections are such that if something goes wrong there are no alternative places to go.

A good example of socio-material gridlock in the contemporary globalized world is that despite massive global hunger, including the appearance of food banks in developed countries, up to half the food produced in the world is thrown away. In 2013 a series of reports by, for example, the Institution of Mechanical Engineers in the UK and the Natural Resources Defense Council in the USA, provided data showing massive discard of food both at the production end of the food chain and in storage and consumption. While these data were vigorously countered by super-markets, and quantification of the scale of the waste of food is undoubtedly difficult, the problem seems real. The causes of the waste are complex and contested by the different players in the food chain, but they include the globalization of food, the great distances between producers and consumers, the mechanization of storage, the control of food by large super-market conglomerates, and new consumer life-styles that depend on the availability of fast food. Whatever the specific causes of food waste, it is clear that complex socio-material interactions have entrapped us as a species into forms of food procurement that are harmful, unjust and irrational. This is a classic example of entanglement where our dependence on food has led to harmful and destructive dependency.

I would be the first to applaud community gardens, the production of one's own food, recycling, advocacy of fuel-efficient transport and so on. While such grass-roots movements in the 1960s onwards often seemed exciting and transformative, many in the environmental movement have become disillusioned. The calls for restraint and "small is beautiful" do not seem to have been effective in denting the directionality of increased global warming and social inequality (Nordhaus and Shellenberger 2007). Indeed, it is this sense of inadequacy that has fueled the post-environmentalist concern with new technological, large-scale intervention (Latour 2008). In the terms of the *Entangled* book, these small-scale actions have not been effective because they are not "fitting" – or rather they are fitting in relation to the aspirations of the participants, but they are not fitting in that they have not turned the tide. In my view the reason they are not effective is that they deal only

with the proximate problems, not with the deeper issues which have to do with the directionality of human-thing entanglement. We need to move beyond agency to understand the socio-material entanglements within which agency takes place.

Whether I car share rather than take a taxi, or plant a community garden, or recycle or otherwise take active steps to decrease human-thing entanglements depends itself on those entanglements. Whether there are cars, or space to plant gardens, or recycling systems all depends on entanglements. Take the extreme example of one essential personal human action – taking a breath. Is this an example of individual agency, to fill one's lungs when and as one wishes with fresh air? As a child in the London smog it was difficult to breathe. Recently in Beijing and Xian I had to retreat to the pharmacy as my breath and health suffered in the pollution. To be able to breathe clean "free" air depends on governments and laws, degrees of industrialization, police that enforce laws, technologies that decrease carbon emissions and so on. All agency is embedded, then, in entanglements that both facilitate and constrain. To recognize the complex entanglements of even taking a breath, is to recognize the forces against which agency arrays itself in order to achieve change.

So yes, of course, there is local disentanglement. The commentators ask "might the scarcity of material objects not imply an intention toward disentanglement (or avoidance of entanglement)". Of course. As I argued in the book, to be human is to be one with but also separate from things. We depend on things to think, work, be, but we also see ourselves as separate from, free of things. We have an ambivalence towards things, a to-ing and a fro-ing. There have always been movements that eschew materiality, the market, or new technologies. The commentators talk of care and dis-care. And I recognize the excitement of new ideas about the collaborative commons, prosumers (Rifkin 2014) and the common wealth of the multitude (Hardt and Negri 2009), involving sharing rather than possessing things. The commentators argue that Hardt and Negri offer "only one potential way out of the impasse of entrapment in a world of things". Perhaps we can, in our more sophisticated modern utopic imaginings, stem and even reverse millions of years of increasing entanglement. But at present it is not at all clear that the commons will lead to a lesser entanglement with things. After all, there is the possibility of the "internet of things" (Rifkin 2014), and I have discussed elsewhere the notion that "the cloud begins with coal" (Hodder 2014). Hardt and Negrihave very little to say about

the material thingness of the commons, even though the new forms of biopolitical power they describe seem very technology-based.

Over the long-term, dis-entanglement is often temporary and ineffectual in relation to the larger juggernauts of entanglement. Why is it so difficult to change entanglements? I have already outlined above a theory of why entanglements tend to increase, and further discussion takes us to the question of what entanglement is really about and how it differs from related terms like network, behavioral or operational chain analyses, or symmetrical archaeology. Ultimately the problem is that going "to" things is more difficult than getting away "from" them.

What is entanglement?

The commentators say that like symmetrical archaeology, "tracing entanglements means making our way through a strongly heterogeneous world and following links and chains in a fashion that is rhizomatic rather than linear or dendritic". This focus on relationality is also seen in (social) network analyses although here the relations are between humans rather than between humans and things or between things themselves. Even in archaeological applications of network analyses (Knappett 2013; Barbara Mills et al. 2013), studies use material relations in order to construct human social networks. It is true that entanglement involves taking the thing seriously, and it is right that it focuses on the invisible filaments that spread out from things in behavioral chains, operational chains, commodity chains and many other forms of relation. But entanglements are not just networks or rhizomic flows. They are more than that. This "more" is captured by the ideas of dependence and dependency – that rather than the flatness of many network analyses, there is asymmetry and hierarchy within the networks and flows. To put it another way, the chains, networks and flows are tangled up in each other. As the invisible filaments spread out from things, they get caught up in other filaments that connect other things and humans. So there is a fundamental difference between chains, networks, flows and entanglements. The former are often seen as flat and symmetrical. The focus on entanglement, however, sees the operational sequences and flows as caught up, tangled up in each other in asymmetrical ways.

This point can be made very directly in archaeology. We have become used to the idea of the life-histories or biographies of objects (Appadurai 1988;

Gosden and Marshall 1999; Meskell 2004). Lithic technologists have examined the operational sequences of tool production (Leroi-Gourhan 1993). Behavioral archaeology has explored the sequences of procurement, manufacture, use and discard through which artifacts pass. There has been interesting research on cross-craft interactions (e.g. Brysbaert 2007), and there is much potential for moving beyond single behavioral or operational chains to the ways in which they are entangled or intersect. For example, the top line in Figure 1 shows the operational chain for making and using clay balls as pot-boilers for cooking meat in the lower levels of occupation at Çatalhöyük. But each one of the steps in this operation involves other steps in other operational sequences. In Figure 1 I have attempted to map out these cross-cutting dependencies. The end result is a tracing of an entanglement, if in a rather different way to that provided in Figure 9.2 in *Entangled*. We can, then, move from the study of operational sequences to the study of the grids that lock them together. Because each operational sequence has its own processes, needs and temporal or seasonal rhythms, it is in a dependence and dependency relationship with the other sequences. For example, events in one sequence have to "wait for" events to happen in other sequences. There is thus continual tension and asymmetry.

The question of what is entanglement is also raised by the interesting question of whether entanglement might be a zero-sum game: however much entanglements may change and differ, the degree of entrapment remains the same. It is suggested that "the complexity of the entanglement embodied in human-human relationships is much greater in hunter-gather than in capitalist societies where relationships involving things are the primary locus of complex entanglements". It is of course the case that there are many forms of entanglement, and that human-human relations, and human-spirit relations are often extremely complex and entangled. Emotional, religious, spiritual, intellectual ties bind humans together in numerous complex ways that involve dependence and dependency. But in fact it is very difficult for humans to separate emotional and spiritual worlds from things. As the vast panoply of material culture studies have shown, in a great variety of social forms things come to have agency within human worlds, however different the ontologies. Humans thus get drawn into things and they get entangled in the way that I have described. It is this thingly nature of human-human interactions which creates the movement towards long-term greater entanglement.

Of course one can also argue that hunter-gatherers are entrapped in very thingly ways in the sense that they have to fit into the natural cycles and rhythms of the environment around them. It might be argued that being entrapped in a natural world is no different from our own entrapment in a human-made world. This takes us close to the blurred boundaries between entanglement and ecology, as illustrated by Darwin's entangled bank. For some the material world is just another niche – providing a particular selective environment. But my argument is that entanglement is fundamentally different – that gathering and harvesting wild resources at a low and small scale, do not necessarily entrap humans into particular forms of care. Of course, as soon as densities rise and the scale of resource use increases, humans get drawn into management and care. But even at the earliest stage, humans are already transforming their environments and getting drawn into the double bind that is distinctive of entanglement as I have defined it – that is humans depending on things, but also having to produce or care for the things on which they depend.

Shifting hubs

The notion that there is good empirical evidence for the increase in entanglement over the long term leads to the justified criticism that "alternative directions that might have been chosen for some period of time but that did not last over the long term would potentially be written out of history if we follow Hodder's approach, because they do not fit the progression of growing entanglement that leads us to where we find ourselves today".

However entanglement is not something like "higher civilization" or "greater complexity in the management of resources, social and economic relations" that are handed down from society to society in a linear flow towards ever more sophisticated and complex systems. As a student of European prehistory I was always struck by the way that the "centers" of things would never seem to stay in the same place. As one studied the development and growth of the Neolithic, the "hot spots" of change and innovation seemed to start in the southern Levant, then move to upper Mesopotamia, and then to central Turkey. For the later prehistory of Europe, Andrew Sherratt (1998) mapped the changing centers north of the Alps through the late Bronze Age and into the Iron Age. The centers shifted between central Europe, Austria and central France through the phases of the Hallstatt and La Tène cultures, partly in response to changing

trade relations with the Mediterranean, and partly as a result of the affordances of river systems and the distribution of ores. On a larger scale, Ian Morris has charted the shifting centers of power within East and West since the end of the Ice Age (Morris 2010: 160, Figure 3.2).

In my view these shifts should not be seen in terms of the linear flow of culture from high to low, from place to place. Of course these various centers were often in contact with and reacting to each other. But an alternative view to the "flow of culture" idea is that the hubs, centers of power, cores were embedded within larger entanglements. Those wider entanglements were continually changing because of the instabilities of things and of human relations with things. These changes resulted from small-scale local problem-solving. As these wider entanglements changed, certain areas afforded a centrality for a time. The shifts of cores occurred as the potentials of particular times and places became realized. Thus in the rise of industrial capitalism Britain came to play a core role for a number of reasons, including supplies of coal and iron, a Protestant work ethic and a long tradition of mercantile investment. Thus certain areas, regions, institutions, social systems, individuals become hubs at certain moments in time not because of some innate superiority, and not because advanced culture has been handed down to them on some evolutionary path towards a better society, but just because they afforded something at a particular place and time. So it is not that specific alternative directions are "written out of history", but that all directions are brought into play relationally. Whether an entity is a hub depends on place and time within entanglements. There is no determinacy here. It all depends.

Similarly with "collapse", discussed by the commentators with reference to Patricia Ann McAnany and Norman Yoffee's (2009) important contribution. From the perspective of entanglement, and indeed following McAnany and Yoffee, "collapse" does not equate to decline. Rather, we need to understand the reasons for shifts in the location of hubs as entanglements transform. Certainly we can talk of the decline of Britain in the mid 20th century, and that is the way it was perceived from the inside. The decline was often experienced as a dis-entanglement from Empire and the world. But from an entanglement perspective, it would be more appropriate to say that the resources and systems of government and management that had previously afforded a core role came to be less relevant in the late-industrial age and as larger economies became more central to global entanglements. Whether Britain became less entangled would be a matter of empirical analysis (see below), but it is not at all obvious that it did; in many ways it became increasingly part of global networks and processes. It is not obviously the case that "collapse" means less entanglement; it may just mean a different entanglement and one with different cores.

The politics of entanglement: entanglement and power

"His pessimism with regard to the (im)possibility of disentanglement has a fatalistic side to it, one that carries with it a conservative, things-cannot-be-changed-so-why-try message". I hope it is clear by now why I absolutely reject this claim and indeed find it a strange reading of the book. By way of contrast, in a recent discussion of entanglement, Graham Harman (2014) talks of "Hodder on the Dark Side" because of the focus on asymmetry and the constraints and entrapments produced by human-thing dependencies. For Harman, entanglement has an "utterly radical character" (p. 46) because it asks us to "truly rethink what it means to be human" (p. 47). According to Harman "Hodder's essay is nothing if not political" (p. 44). At the end of *Entangled* there is a call to arms that focuses on the need for change at a fundamental level in human relations with the world. The Anthropocene is the logical result of the long-term increase in entanglement such that now everything, including the climate and the air we breathe, is a human product, needing our management and intervention. In my view it is important for archaeologists to give their long-term view on this state of affairs, how it has come about, how deeply it is engrained, how much it is a logical result of our humanity.

In my account, the problem of our entrapment is not just capitalism, even if industrialization and capitalism have of course markedly exacerbated human-thing entrapment. But most of the things and processes that entrap us started well before capitalism, including cattle, wheels, fire, iron. We had passed the point where we could return to a pre-wheel technology well before capitalism. Our dependence on fire long preceded the internal combustion engine. Metals had become essential for agriculture and tool-making long before steel factories. To understand the particular entanglements of capitalism and colonialism is important, but the entanglements that entrap us go far deeper and are far more pervasive. *Entangled* does not offer a way out, but it does argue for fundamental rethinking and for grasping the issues at

a deeper and broader level.

I do, however, recognize that *Entangled* should have engaged more with the question of power, and how entrapment and power compare. Indeed what separates entanglement from operational chains, social networks and symmetrical archaeology is precisely a focus on asymmetry. By the latter I mean initially the asymmetries of dependence and dependency between humans and things, but it is often the case that such asymmetries are the basis for or are entangled up with human-human relationships of power.

What is the relationship between entanglement and power? Since entanglement includes dialectical and asymmetrical relations, it seems reasonable to propose that such a link exists. Certainly both entanglement and power describe situations of limitation and constraint – both describe a situation of entrapment, the "Iron Cage" of Max Weber and Talcott Parsons (Baehr 2001). So, is entanglement a form of, or the same as, power? As an example, are we entrapped in our dependence on cars because of vested interest, or because we have got caught up in a set of practical entanglements? Of course there are powerful interests that get profits from cars and control petrol supply. But at least superficially, the entrapment produced by dominant groups and their control of the car industry seems to differ in some respects from our broader entanglements in wheels and cars. We need cars to get to work and the whole economy and social system of, say, California is entirely car-dependent. We seem entrapped in our need for cars whether elites are involved or not.

I do not want to deny that in many situations people get caught by despots into appalling entrapments. But I do want to argue that there is a dimension of entrapment that is not reducible to control by dominant groups. I want to argue that there are practical entanglements in which people find themselves and which it may be in their best interests to sustain. This is perhaps a slightly different argument from Bourdieu's account of the dispositions of habitus. I am not arguing that people get entrapped in social groups or classes because they have become disposed to act in a certain way. Rather, I argue that they get entrapped because they have little choice in terms of their material and knowledge resources, and it makes strategic sense to work within a system rather than to try to break out of it.

It might be helpful to ask the question, who is most entangled, elites or commoners? While we are most used to think of non-elites as entrapped and powerless, the entanglement perspective allows us to explore the ways in which elites too are entrapped. They may have more resources at their disposal, but these very resources create entanglements and entrapments. For example, elites may depend on access to prestigious or rare goods, they may take on loans and debts, they may depend on their control of armies. In all these ways they have a lot to lose and it is in their interests to maintain their entanglements. On the other hand, they are more likely to have the resources to find their way out of trouble, to relocate, or re-negotiate terms.

Non-elites seem more circumscribed. Indeed I would argue that they are often doubly entrapped. The first type of entrapment is the practical and everyday process of being caught up in human-thing dependencies. These are the strategic decisions of needing to buy a car in order to get to work because houses near the workplace are too expensive or because there is no viable public transport system. Dealt a certain set of cards, we are positioned and situated, and we work within these parameters as best we can.

And yet on top of this there is a second type of entrapment experienced by non-elites, that is the "power over" wielded by elites. To varying degrees in different societies and contexts, elites can manipulate the entrapments of entanglement, add to them, exploit them, to exacerbate entrapment. The chains of slavery, of abject poverty, of ignorance, of lack of rights can be imposed by elites, causing new realms and levels of entrapment. This human to human entrapment is often based on the control of things, resources and labour. But the human to human entrapment is often possible because the two types of entrapment reinforce each other. It becomes possible for elites to exploit non-elites precisely because non-elites are entrapped in entanglements which afford them very little and give them little room to manoeuvre.

Ultimately this is why it seems to me to be important to separate entanglement from power. It is not enough to deal with power if one does not deal with the deprivation, lack of education, lack of resources that people find themselves caught within. It is important to recognize and address the double bind of dominated groups and classes, to understand why non-elites are so unable to resist or overturn except at specific historical conjunctures. It is important too to recognize that elites may hold on to power at least partly because of the entanglements they find themselves within – they have too much to lose. It is from

these entrapments that their brutality may emerge. It seems to me to be wrong or at least unhelpful to say that humans have a basic "will to power" that surfaces wherever and whenever it can. Rather, power over other humans is produced in particular entanglements; it is the study of those entanglements that leads to a deeper understanding of the intractability of power.

Measuring entanglements

Another area of concern raised by the commentators is whether entanglement can be measured. Is "a rigorous quantified analysis, an endeavor that seems impossible because of the heterogeneity of entanglements as well as their diachronic dimension"? Certainly, there are logical and practical difficulties here. If one could disentangle an entanglement it wouldn't be an entanglement! At one level I think it is important to avoid the simplification and reductionism that numerical analysis brings (even in complexity theory analyses). Narrative forms and thick description may be best able to draw out the specific historical intertwinings of entanglements.

At another level, however, some degree of reductionism and simplification is an important analytical tool and there would clearly be advantages in being able to compare tanglegrams and in being able to measure degrees and intensities of entanglements over time, especially if the empirical claim is made that entanglements have a tendency to increase. I admit that the *Entangled* book paid little attention to these issues. The tanglegram in Figure 9.2 in the book was very much a first attempt and I have since received many suggestions about ways in which tanglegrams might be measured and quantified. Several people have suggested that various aspects of complexity theory could be applied, that agent-based modeling or various forms of cost-benefit analysis would be useful. My own focus has been more recently on adapting graph theory, and in particular network analysis to entanglements and I hope to publish on this shortly. It clearly is possible to produce matrices of dependences and dependencies and from them derive networks of relations between nodes in a more formal way than Figure 9.2 in *Entangled*. Such network analyses allow measures of centrality, or betweenness centrality, as well as a host of other measures that might be seen as proxies for entanglement. A further approach is shown in Figure 1. Here the archaeological evidence as well as experimental research on tool production and heating technologies allow a description of numerous

operational sequences and their interactions. In exploring and comparing the use of clay balls with the later use of cooking pottery, comparisons of these operational tanglegrams allow understanding of change through time.

I do not argue that tanglegrams are any more "objective" than other forms of analysis. An entanglement produced in relation to clay (as in Figure 9.2) will be different from one produced with a focus on obsidian. In Chapter 5 in *Entangled* I argued that a sail boat had different entanglements depending on the perspectives of sailing, entertaining, or protecting the marine ecosystem. This leads to the question of "positionality" discussed by the commentators. Figure 9.2 produces the house as a central node in Neolithic entanglements in the Middle East. One could argue that my long-term interest in the house and domus have led me to produce a biased description of Neolithic entanglements that favor the house as central node. But at least the laying out of all the links around houses allows others to critique and argue for alternatives. In addition, the entanglement network allows us to measure how the betweenness centrality of the house changes over time.

Another issue related to the measurement of entanglement concerns where the entanglement begins and ends. If everything is entangled with everything else then how can one draw the entanglement of, say, clay or the house and differentiate it from other entanglements? I have tried to argue that entanglements are often heterogeneous and partial, more or less connected to other entanglements. Certainly network analysis demonstrates that some nodes are more linked than others (Knappett 2013). For example, at Çatalhöyük, the earliest tanglegrams around pottery are very sparse. In the network analyses, pottery has a low connectivity score. But through time pottery becomes more connected. The affordances of pottery are gradually exploited until it is fully entangled with a wide range of processes. It seems one can measure degrees of entanglement of nodes within the overall unbounded matrix of dependences and dependencies.

Conclusion

Other accounts of directionality in human affairs have often argued for a progress toward higher civilization, or increases in the ability of humans to harness energy from the environment, or increases towards greater complexity. These are all directions that have positive connotations, and such approaches

have been criticized for stacking societies in relation to more and less advanced forms, ultimately justifying the expansive reach of empires. While there are positive aspects of entanglement linked to flows of energy and information, and to innovation and problem solving, there is also a focus on a "darker" or more negative entrapment. This is because the networks and flows also get caught up in each other's temporalities and in their thingness. There are the grids and dependencies that entrap and constrain. So it is not at all clear that the "hubs" at any one place and time are "better" in some sense.

There is of course an understandable fear of the dangers of social evolutionism and of thinking of humans as things. And with these dangers and fears I of course thoroughly concur. But in contrast to ANT, one of the distinctive aspects of entanglement as I have defined it is that humans and things differ. The focus is on how humans are drawn or dragged along by things and their needs and entanglements. The theory starts with the ways in which humanity is thingly, but it does not argue that humans are things. Rather it sees humans and things in dialectical tension; humans needing things in order to "be", but

also needing not to "be" things. It seems to me to be important to move beyond our fears of the reductionism of social evolutionism so that we can recognize and deal with our contemporary entrapments in thingness.

Most social evolutionary theory has the directionality of development going towards something better. Progress is towards higher civilization, more just states, greater democracy. Or there is movement towards more complex systems in which societies are better able to harness energy or manage information, be more resilient, more sustainable. Increased entanglement has its positive sides, affording greater use of energy, providing longer and better lives, but it also has the darker side of increased constraint and entrapment. Increased entanglement is not automatically something better, something to be strived for. To discuss entanglement is to talk critique. While other commentators such as Harman have understood this, and while in many ways I learned much from the debate in Berlin, I am disappointed that I was not able to persuade my critics of this key point.
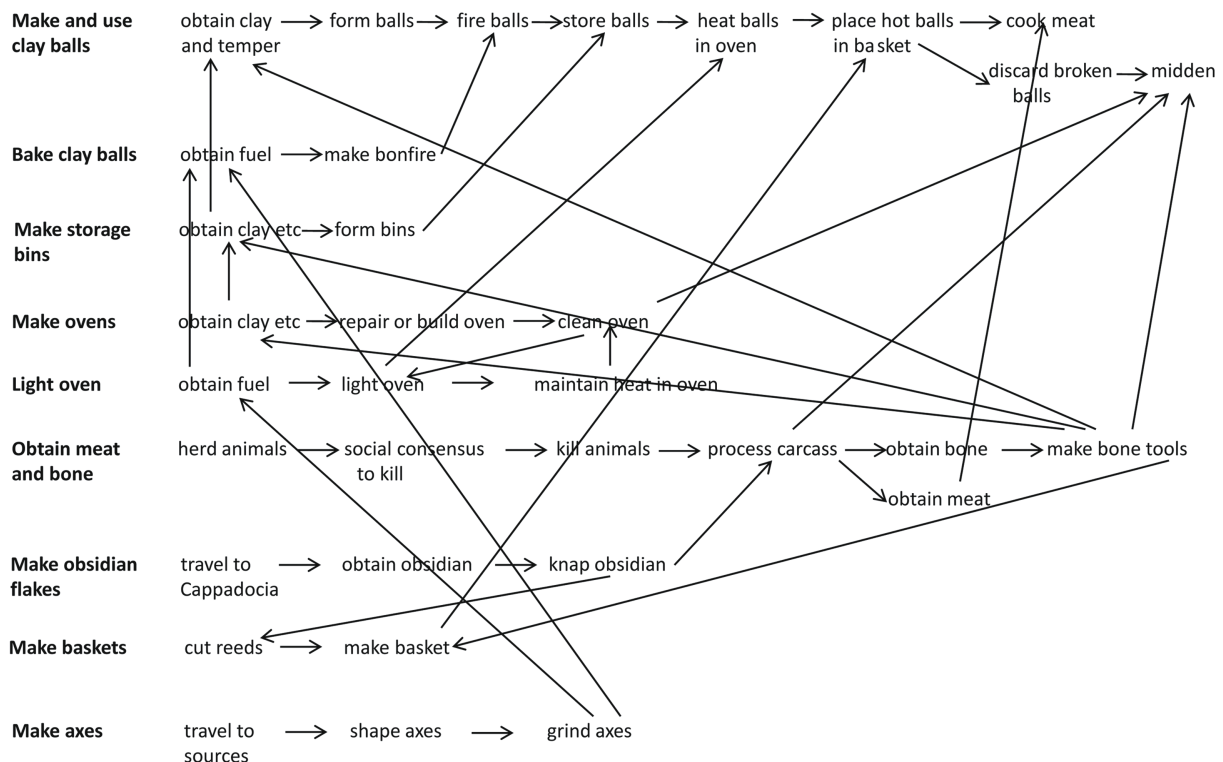

Figure 1. The interaction between operational chains linked to the process of using clay balls to cook meat in the lower occupation levels at Çatalhöyük.

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