Inferring the Unknown: Enacting Organic Standards through Certification

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Abstract. In the food and agricultural sector, third-party certification has become a prominent mechanism to organize markets for 'sustainable' products. Yet, to date the everyday activities through which this is achieved have not been examined. Based on my empirical study of the reproduction of the standards for organic agriculture in the UK, I develop an account of certification practice. I conceptualize the knowledge object of the certification process as having epistemic dimensions that are allowed to unfold for limited periods of time. I argue that there is a systemic absence of knowledge in the certification process, and that the resulting uncertainty in the process cannot be resolved. However, paralysis in the process and arbitrary decision-making are avoided through standardized procedures. I argue that in third-party certification the discretionary space to find interpretations of standards has shifted from farmers to certification bodies. I suggest that this space is highly formalized and documented in response to the inherent uncertainty of certification. I suggest that 'sustainability' standards are continually rewritten in the certification process and that therefore they are alive. The everyday activities of certifying licensees enable the circulation of the knowledge objects of different licensees through which the enactments of licensees become connected. I argue that this formalizes and strengthens the uniformities across time and space that are constructed through standards. I conclude that certification is not mere observation but that it actively shapes how 'sustainability' standards are enacted in farming practice.

Introduction

Most 'sustainability' standards in the food and agricultural sector are based on a certification system in which an independent actor verifies the claims of a producer that the production processes comply with these standards – so-called third-party certification (Hatanaka and Busch, 2008; Busch and Loconto, 2010).[1] Once certified, the producer is licensed to market the resulting products as having additional qualities (Callon et al., 2002), often at a price premium. For buyers of these products, the certificate provides a guarantee of compliance with these standards (Hatanaka et al., 2005) and therefore enables the transaction in markets constituted by the standards

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(Van der Kamp, 2012). Put differently, the independent certification of farming practices is the *precondition for the functioning of these, usually global, markets for 'sustainable' produce*: only once conformity with the relevant standards has been externally verified can produce legitimately be qualified (e.g. through labelling) and traded as such. Thus, certification provides a mechanism for the governance of food production along long and convoluted supply chains (Tanner, 2000) – a mechanism that is, according to the dominant discourse, particularly effective in organizing compliance with standards due to the independence of the actors carrying out certifications (Hatanaka and Busch, 2008). In their analysis of this claim, Hatanaka and Busch suggest that on an organizational level certification bodies are usually independent but that on an operational level this is not always the case. Certification bodies act as strategic actors promoting specific objectives, and are embedded in social, political and economic systems. While they are not quite involved in supply chains like producers and buyers, their activities are constitutive of specific sets of 'qualified' markets.

This implies that the way in which 'sustainability' standards are mobilized and reproduced through the activities of certification bodies is relevant to the constitution of these markets. This extends beyond political influence at the institutional level (e.g. Hatanaka et al., 2005; Mutersbaugh et al., 2005) and in the constitution of new markets (e.g. Higgins et al., 2008) to the everyday activities and practices of individual actors in the certification of licensees. Yet, with the notable exception of Seppänen and Helenius (2004), who analysed the role of advice in inspection practices in relation to the definition of organic farming in Finland, to date there are no studies examining the practices through which licensees are certified. This raises questions about how the routine performances of the activities that make up the certification process are implicated in shaping how these standards are reproduced: how can the everyday activities of actors involved in certifying licensees be characterized? How do they shape different aspects of the certification process? How is the knowledge constituted through which licensees can be certified, and how does this affect producers?

To answer these questions, the article is structured as follows: in the next two sections, I briefly set out the theoretical orientation of my argument and describe the methods underpinning the empirical research. Then, I examine some of the properties of the knowledge object of the certification process, and conceptualize it as having epistemic dimensions (drawing on Knorr Cetina, 2001) that are allowed to unfold for limited periods of time through a managed process. After that, I argue that there is a systemic absence of knowledge in the certification process, and suggest that the resulting uncertainty in the process cannot be resolved but that it also cannot lead to paralysis in the process or to arbitrary decision-making. This is followed by a discussion about how interpretations are coordinated to reduce the impact of this uncertainty. In the final section, I conclude that the enactment of the organic standards through certification results in multi-authored standards in which the practices of individual licensees become connected and through which employees of certification bodies actively shape farming practice in specific ways. This leads me to suggest that certification is not mere observation, but that it constitutes an active shaping of how 'sustainability' standards are enacted in farming practice.

Theoretical Positioning

As central features to (most) forms of standardization, standards provide rules through which uniformities across time and space are constructed (Timmermans

and Epstein, 2010). These uniformities are created because standards extend beyond a single community of practice or site of activity, and are positioned to make 'things work together over distance and heterogeneous metrics' (Bowker and Star, 2000, p. 14). Thus, they contribute to sameness and difference (Higgins and Larner, 2010): actors, things and practices become standardized and therefore, in some sense, the same – uniform. In relation to entities that are not, or differently, standardized, these entities become different. Therefore, standards do more than merely assist in the value-free and neutral resolution of technical aspects of sustainable practices. Indeed, recent studies (e.g. Bowker and Star, 2000; Timmermans and Berg, 2003; Bingen and Busch, 2006; Lampland and Star, 2009; Higgins and Larner, 2010; Busch and Loconto, 2010) have illustrated how standards incorporate social, political and economic interests. As thoroughly socio-technical objects, they establish and shape relations between distributed social and material aspects of everyday life, with enduring effects.

To examine the practices of certification, I therefore draw on concepts that put the object central in the constitution of socio-material practice. Rooted in Science and Technology Studies, I see objects as entities that are 'constructed by actors as they make sense, name, stabilize, represent and enact foci for their actions and activities' (Engeström and Blackler, 2005, p. 310). But these entities cannot be constructed arbitrarily: they have histories and enable particular ways of doing, but also offer resistance to change. As such, they are 'black boxes' (Latour, 1987), i.e. stable assemblages of heterogeneous elements that generate predictable outputs from inputs. Functioning smoothly once closed, black boxes become invisible in socio-material practice. Objects are generally not material, although they are usually embodied in material artefacts. To understand how they are performed through practice, I draw on Mol's (2002) concept of 'enactment'. This refers to the emergent 'doing' of an object in instantiations of practice which are locally situated (Suchman, 2007). I therefore see the practices of certifying licensees against standards as dynamic, yet routine, situated everyday activities through which those standards are enacted.

Methods

This article is based on data generated through fieldwork at the certification body Soil Association Certification Limited (SACL).[2] For one full day per week over 10 consecutive weeks from the end of September 2009, I observed and interviewed staff during their daily activities in their offices in Bristol. I mainly studied the routines of the team dealing with farmers, consisting of nine certification officers and two technical managers.[3] To capture different aspects of their everyday activities, I sat next to different officers while they carried out their daily activities. This showed how certain routines were carried out, but also how members of the team interacted over areas in organic standards for which certain officers acted as specialist advisers to the team. Also, I accompanied an inspector to observe the day-long inspection of a licensee in December 2009; the licensee was a company supplying grass and cereal seed to the agricultural sector. Supplementary data came from interviews with eight other officers, inspectors and senior managers of SACL.

With unrestricted access to the databases that the certification officers and inspectors use in their daily work, archival data came from cases presented to the Certification Committee – the authority on how standards are to be interpreted in practice. In particular, I searched for detailed cases representing conflicts or interpretive uncertainty over how certain rules in organic standards should be enacted. The docu-

ments in the database provided data about how interpretations were established and negotiated and conflicts resolved between licensees and SACL. The sample included 174 cases in which the Certification Committee could not refer to a previous decision or otherwise established explicit interpretation of a rule and therefore required the explicit development of an interpretation.

During all of my fieldwork I kept extensive notes of the activities I observed, the objects and artefacts that were mobilized in them, and the context in which these activities were carried out. Both the observations of certification officers and the inspection were covered by confidentiality agreements. Interviews ranged from 45 minutes to three hours although most were around an hour in duration. Every interview was recorded on a digital recorder and fully transcribed afterwards.

Alongside the generation of data, I continuously analysed what each new instalment of data added to my understanding of certification practice. The analysis of interview data moved from literal to interpretive and reflexive readings to draw out relevant themes. In the second round of analysis, I linked theoretical resources with data from observing SACL employees, and added the reflexive readings of interview and archival data to bring into focus the underlying mechanisms for the practices described. In what follows, I draw interchangeably on different sources of data and theoretical resources to develop an account of the multilayered nature of enacting certification practices.

Conceptualizing the Certification Process

The role of the activities in the certification process is to check 'that products, materials, services, systems or people measure up to the specifications of a relevant standard' (ISO, 2010). In third-party certification systems, this verification of compliance with standards is enacted through two distinct sets of activities performed by different employees of the certification body: an inspector who visits the site of a licensee to assess and report on the operations of the licensee, and an office-based certification officer who reviews the inspection report and supporting paperwork before issuing a certificate of conformity and who also maintains the relationship with the licensee throughout the year.[4]

As there is a space between codified standards and practice (Timmermans and Epstein, 2010), the everyday activities of inspectors and certification officers therefore are to interpret actual farming practices in the context of the standards, i.e. the extent to which practices are allowed according to the codified standards. But also, they interpret the standards in the context of possible practice, i.e. the extent to which the rules codified by the standards can be practically enacted by an individual licensee. Thus, the practices of certifying licensees are aimed at opening the black box of how food is produced by a given licensee to assess compliance with relevant standards. They generate knowledge on the basis of which a decision can be taken about the status of the operations of a licensee with regard to the organic standards. While the processes of generating this knowledge are routinized, the content of the knowledge object created by these processes changes for each licensee: as a Certification Officer explained to me during an interview, each licensee presents a unique case that needs to be assessed in its own context vis-à-vis the standards:

> 'Yes, there has to be a pretty good human element in the certification process because each farm is different. There are so many different scenarios,

and when I first started here I almost thought that book, those standards were just way too big, you don't have to be here very long to realize actually it's not anywhere near big enough. There's a lot of judgments you take as a certification officer to balance the licensee's needs against the needs of the standards. So it's quite an important role in that respect, there's quite a lot of responsibility there. Going through things like management plans, what you will allow, what you don't allow; how can you move forward to get to a situation maybe where, if something is not quite right, how do you make some progress to make sure it does fit into the standards. That's what makes this job really interesting, actually' (Certification Officer Christopher).[5]

'Solving the problems' (Author).

'Yes, and everyone is different. It's very rare you get two things the same. Which is why those standards will never cater for everything because it's just not possible' (Christopher).

Put differently, the object of the certification process is the set of agricultural systems, activities, material artefacts and knowledge that is mobilized by a licensee in a specific context to produce food (or farmed commodities) according to the organic standards: its configuration is different for each and every licensee.

Some elements of this knowledge object can be assessed by looking at the organization and condition of material entities (e.g. fields, livestock, crops) – their state reveals some aspects of the social and material trajectories through which they were constituted, and therefore about how organic standards are enacted. But many elements are black boxes in themselves: their content is not directly accessible and transparent. Namely, the practices through which the standards are enacted are temporally (and in many cases spatially) distributed. Furthermore, elements of 'organic' practice are also socially distributed: professionals such as agronomic experts, vets and contractors carry out specialized activities on site. Therefore, many aspects of how a licensee enacts organic standards are made visible through representations of systems, activities, material movements and transformations, and knowledge. For example, by describing material movements and transformations, a document trail makes those materials traceable, which is one way in which the integrity of the organic system is maintained. The representative function of records and documents is therefore also performative:[6] their presence is required in order for 'organic' practice to exist, i.e. their existence is as important as the trajectory that their content describes.

Besides these representations and embodied traces of enactments, inspectors create another piece of the knowledge object when composing a report. This draws together a number of elements as it provides information about all the agricultural systems through which the licensee is enacting the organic standards. For each system, the entries describe different aspects of practice in the context of the standards – a particular way of doing is either 'to standard' or is non-compliant in one of three degrees, at which point details of the non-compliance are provided and framed by the standards. However, while the report is intended to represent a verified and accurate depiction of the practices on a site, many elements are in fact inaccessible to an inspector. As one Technical Manager explained during an interview, there are numerous practical challenges to obtain the appropriate information. He gave the following example about the limitations of available data for a simple record check:

> 'As an example… there's a limited amount of information you can gain from [grazing records] because you might have 10 fields with all the gates open and [the animals] might just have free rein, which doesn't tell you anything; or in fact you might divide it up into 10 and have 10 fields and you get all these complicated records when they're actually not really telling you much and the farmer has to fill all this in for the sake of it' (Technical Manager Tom).

Furthermore, the scope of the report is limited by temporal, spatial, technological and resource constraints and therefore only a few elements of practice are traced per inspection. Thus, the inspection report constitutes a partial representation of the farm that is dependent on the items chosen by the inspector to trace their trajectories, and by the material entities that were observed *and that triggered questions about their history*. As such, the object of the certification process cannot be revealed in its entirety. Inspectors and certification officers have to make do with a limited amount of information to determine how to proceed, raising questions and then trying to resolve what the answers might have been. The following extract from my field notes shows an example of the typical unfolding of a case where the inspection report contained too little information to proceed:

> 'While reviewing a report, Certification Officer Colin noticed two strange entries: first, the inspector mentioned the use of a broad vaccination programme (the Soil Association standards prefer no interventions or targeted vaccines). Colin did not find any record of the licensee asking for permission in the communication history, and there was no reference to the use in the latest version of the Livestock Management Plan either. Therefore, he thought that this probably would be a missed major non-compliance. But before raising this he contacted the licensee to see on what basis the treatment was given (in previous years the treatment was not given so he did not suspect that the licensee had continued conventional treatments after conversion to organic production). The second point entry indicated that 'a few ewes' had died due to a disease. As this is a welfare issue Colin wanted to have specific numbers and know whether the deaths had all occurred together or spread over the year. He contacted both the inspector and the licensee to discuss these points, and found out that the loss of ewes and the vaccination programme were related to the same problem: this licensee owns several farms, and livestock is rotated annually to avoid the build-up of worms in the fields. Over the past year, the sheep had been housed on a markedly dirtier field compared to the other sites. To protect the sheep against some microbial diseases present in the soil the farmer had used a multi-acting vaccination. Colin decided that the vaccinations were acceptable under these conditions. But he delved deeper into the issue as the licensee had given these vaccinations without asking prior permission, which normally would constitute a minor non-compliance. He discovered that in a much older version of the livestock management plan the use of this particular vaccine had been approved because of this particular site. Over the past four years the treatment was not necessary and therefore was not included in newer versions of the plan. On this basis Colin did not raise this as a missed non-compliance.'

This example illustrates that assessing a specific practice on this licensee's farm prompted by an entry in a report is routine for certification officers: every report contains at least a few instances where they need to probe deeper before being able to conclude that a licensee may be (re-)certified.

The representations and traces show specific aspects of the object, but they never reveal the object in all of its details; the black box never becomes transparent. This suggests that there is a systemic absence of knowledge within the certification process, as there are always more things to probe, more documents to see, more questions to ask and more details to report.

To conceptualize this potential for continual unfolding of the knowledge object, I draw on the notion of epistemic objects in 'knowledge-creating and -validating practice or "epistemic practice"' (Knorr Cetina, 2001, p. 176).[7] Building on Rheinberger (1997) and Heidegger (1962), Knorr Cetina developed this concept of practice out of the observation that scientific and expert practice cannot be captured by conceptualizations of practice as skill or routine. In performative practice objects are indistinguishable elements of a routine – they become 'ready-to-hand' and transparent while they are mobilized in practice (analogous to Latour's black boxes). But in epistemic practice, the object is no longer invisible; rather, it is being investigated, explored, probed. Therefore, epistemic practice is characterized by a dissociation of subject and object, held together by the relationship between the two. This relationship is shaped by the characteristics of the epistemic object: epistemic objects contain a 'lack in completeness of being' and therefore have the capacity of unfolding indefinitively:

> 'They are more like open drawers filled with folders extending indefinitively into the depth of a dark closet. Since epistemic objects are always in the process of being materially defined, they continually acquire new properties and change the ones they have. But this also means that objects of knowledge can never be fully attained, that they are, if you wish, never quite themselves. What we encounter in the research process are representations or stand-ins for a more basic lack of object' (Knorr Cetina, 2001, p. 181)

Knorr Cetina suggests that although epistemic objects exist in a variety of instantiations (representations and material realizations), they simultaneously constitute unfolding, temporal structures of absences. The instantiations are always partial and provide suggestions for further unfolding. Scientists and experts involved in knowledge centred activities act on the lack of a partial epistemic object by unfolding it, which leads to another partial object that presents a different lack on which the experts can act again, and so on.

Like epistemic objects, the object of the certification process is not directly accessible but can only be described by partial instantiations that fail to render it in its entirety – and with each instantiation the object changes. They display a systemic absence of knowledge that warrants further investigation; especially the inspection report constitutes a multilayered, partial object that frequently prompts a chain of questioning on behalf of the certification officer, which could, in principle, go on indefinitely. On the other hand, many of the instantiations of the object of the certification process do not 'explode' into equally complex subsystems – their answers bring specific elements of the object in focus and complete the query. Only some

elements prompt further questioning: these elements render the knowledge object partially epistemic.

While Knorr Cetina developed her conception of epistemic practice in the context of scientific research, she suggests that it may become relevant to object-centred practice outside scientific and expert knowledge contexts. Building on the concept of an epistemic object, Miettinen and Virkkunen (2005, p. 438) argue that a practice 'can be made into an object of enquiry in order to produce novel and alternative ways of acting'. According to them, a practice becomes an epistemic object – at least temporarily – when an actor analyses it with the purpose of improving it. At the time where the actor (e.g. a manager analysing ways of assembling) starts this process, the object is open-ended as the outcome cannot be foreseen. The knowledge-centred work of certification officers and inspectors routinely turns the sets of practices into an epistemic object: the black box of each licensee's enactment of standards needs to be opened to verify compliance. This means that for short timespans the procedural routines of inspectors and certification officers are punctuated by epistemic processes to resolve lacks in the knowledge object to the extent that practically a decision can be taken to (re-)certify a licensee.

This suggests that the object of the certification process always has epistemic properties, but these are only investigated at set times and within specific time and resource constraints. The epistemic qualities of the object are actively curtailed at the stage where sufficient knowledge is available for a practical decision to be taken. This is different from scientific practice, which, according to Knorr Cetina (1999), is constrained by social, political, economic and technological dimensions but which is not terminated. While in practice the object of the certification process could, theoretically, remain epistemic indefinitively, time and resource constraints dictate that at some point it is enough; in very practical terms the object has unfolded to the extent that there is sufficient information to conclude that an enactment falls within the standards, or that a practice needs to be reconfigured. The following extract of my field notes shows how non-compliance unfolds to result in practical action:

> 'Christopher found a remark in a report drawn up in spring that a licensee had some welfare issues and that a follow-up inspection would be required after the licensee had sought veterinary advice. In a different place in the report he found that the livestock in question suffered from two types of parasites associated with outdoor grazing. As the inspection was carried out just before the herd was about to go out into the fields, Christopher found it strange that these problems had not been dealt with over the winter. Looking in detail at the livestock management plan, he found that it did not include any details of how the parasites were dealt with. Also, checking the communication history for the licensee showed that he had not received the required requests for approval prior to application. From the report, the limited information in the plan and the absence of listed veterinary treatments, Christopher inferred that something went wrong in how the animals were looked after and prepared a case for the Certification Committee to decide what level of non-compliance this would be and how this would need to be resolved. Subsequently, the Certification Committee recommended an immediate spot inspection that confirmed this as a major non-compliance that had been missed by the inspector. The licensee received a warning and had to submit a revised livestock management

plan that showed preventative measures; during next year's inspection this would be scrutinized.

As this example shows, the unfolding goes on until it is possible to decide whether or not a licensee's operations are compliant. In this instance the unfolding leads the certification officer to refer the case to the certification committee, which in turn determines the sanctions – a caution and an additional inspection regime.

To accommodate the active termination of the epistemic practice in the certification process, the structure of unfolding is constrained in its directionality, and interrupted instead of being continued. The mutuality of the relationship between the subject and object suggests that this interruption can stem from the object as much as from the subject. Namely, the subject (certification officer, inspector, scientist, expert) can stop acting on the incompleteness of the partial object – for instance, when inferring from other partial instantiations that unfolding the object is not likely to provide a substantially different instantiation (enactment) of the practice. Or the object ceases to be epistemic as it has yielded an answer that is sufficient – it has reverted back to a technical entity that is ready-to-hand and transparent, invisible in the performance of a packaged routine procedure (Knorr Cetina, 2001).

Managing Uncertainty in the Certification Process

As suggested above, in the certification process many of the aspects of its object are simply not accessible to inspectors and certification officers. The temporal, spatial and social distribution of elements of organic practice, combined with the time and resource constraints of the officers, excludes many aspects that could warrant investigation if they were not hidden or beyond resource boundaries. To address this lack of the overall object, the system of certifying licensees is built on the assumption that at least for certain elements of practice (e.g. the traceability of materials and livestock) the unfolding of one empirical case is sufficient to represent the way in which a licensee enacts an element of doing organic. The investigated case comes to represent a particular system of organizing practice. This assumption, then, provides at least one mechanism through which certification officers and inspectors can stop acting on the incompleteness of the overall object: unknowns are inferred from the elements that are available.

Capturing the (administrative) system of a licensee therefore involves an assessment of the extent to which an audit case relates to an entire system. Inspectors and certification officers need to let the chosen case unfold to reveal whether or not there is a system, e.g. by concluding from documents that it is in place, or by tracing the trajectories of materials. As one Certification Officer explained during one of my observations, this can be helped by strategically choosing the (not so) random case through which to investigate the system:

> 'You pick something completely at random, me as an inspector I look through and see what other inspectors have looked at in the past, see what could be potentially areas of risk to integrity and I choose something. So, for example if previous reports have been about bedding levels not been very good or something about animal welfare, I would do an audit on straw purchases, things like that. So, I think it's a really good test of the licensee's system' (Certification Officer Christopher).

Christopher's remark suggests that the audit tests the entire system of producing organically, i.e. not only the administrative system but all of the instantiations through which a licensee enacts organic. This suggests that opening one black box (a specific aspect of administrative practice relating to traceability) acts as a lens on all Latourian black boxes that are assembled in the entire farm system.

However, there is a substantial element of chance in this as not all cases relate to the presence or absence of a system through which the administrative element of organic practice is organized. This can be illustrated by describing the three non-compliances found by the inspector during the inspection I observed. These non-compliances are all administrative, and show different aspects of the relation between case and the assumed system:

'1. During an audit on the organic status for a delivery of organic grain, the SACL inspector (James) found that the supplier did not provide this licensee with a copy of his certificate with the delivery. The licensee did not have a system in place to ensure that this paperwork was obtained, but this is unlikely to emerge as most suppliers would automatically include a copy of their certificate with a shipment.

2. The production record of a seed mix that was audited missed an entry for which official Ministry-controlled numbered labels were tagged to the bags. The records for the preceding and following batches had completed entries indicating that 100 labels were not recorded, which matched the number of bags of the mix that were produced. James noted which numbers were missing and then went back to the stock in the warehouse to verify that some of the missing numbers were on a sample of the bags. James inferred that this was a matter of oversight rather than a systemic problem – from additional documents he concluded that there was a system in place that usually enacts organic in accordance with the standards.

3. James carried out a traceability check on a randomly picked ingredient of the audited mix. He found that the lot was physically delivered on a different date than what was entered on the Purchase Goods Received (PGR) form. The licensee explained that this particular ingredient came from New Zealand, which meant that it would have been paid in advance (goods from any other country would be paid on arrival) and that therefore all the paperwork was done manually rather than through an automated system. This suggests that there is a possibility for anomalies that may remain hidden (if James had chosen a different product this would not have emerged).'

These examples suggest that the assumption that a check on one or two items is representative of the rigour of the systems that a licensee has in place to account for organic production creates a tension for the officers: they should acquire sufficient knowledge of the systems through which a licensee organizes organic practice in order to certify, but this can never be complete. The absence of systems may remain hidden, or their presence may remain obscured; precisely what the opened black box shows about all of the other elements of the farm system cannot be identified for sure. Thus, the unfolding of some audits provides the basis for the decision to (re-) certify, but the absence of attainable knowledge constitutes an inherent uncertainty whether a licensee's practices are compliant.

Yet, this uncertainty should not lead to paralysis of the certification process or to arbitrary decision-making. Rather, the process must be managed so that practical decisions can be taken – decisions that ideally should be independent from who inspected or who certified, and that can be upheld under scrutiny of how they were reached (Hatanaka and Busch, 2008). Thus, while the uncertainty cannot be resolved, the epistemic elements of practice are embedded in and managed through procedural routines. But the procedural routines define not so much what should be unfolded in what manner, but shape the overall certification process so that the uncertainty cannot lead to arbitrariness in how decisions are made. As one of the Technical Managers explained during an interview, they standardize the process through which these decisions are taken:

> 'The majority of our procedures, to be honest, refer to the standards only as the standards. They're not how we will comply with the standards. Because the standards are what the operators must do, we… our standards are derived, if you like, from EN 45011[8] and our requirements to be accredited to certify to them rather than from the standards themselves. So, the how we do things, what we do, rather than how we interpret or whatever the standards, there's very little standards interpretation stuff within the quality system' (Technical Manager Theo).

So rather than prescribing how to interpret farming practice in the light of organic standards, the procedures that govern certification practice script (Akrich, 1992) the process of unfolding by specifying which elements need to be unfolded through empirical cases. This script is crucial for accreditation according to the EN 45011 standards: this requirement stems from the EU regulation governing the production of organic food (Council Regulation (EC) 834/2007, *OJ* L 189, 20 July 2007, pp. 1–23) to ensure that the certification of licensees is done in accordance with the organic standards and in a harmonized way. Accreditation is based on the systems that are in place to ensure that the certification process is performed in a consistent manner in accordance with standard EN 45011 (CEN, 1998). This means that the processes through which SACL organizes the certification process are instantiations of a different standardization process, resulting in a 'nested' set of standards (Lampland and Star, 2009, p. 5). Analogous to how instantiations in organic farming are both representative and performative, these processes organize the certification process and simultaneously enact a specific way of 'doing' certification – as specified in standard EN 45011. The epistemic unfolding of items is, in this context, performative too: the traces of the unfolding (as recorded in the administrative system) show that the unfolding took place and therefore that licensees' practices were investigated, and the extent to which this was done.

The procedures set out how inspectors and certification officers are controlled and how their performance is assessed, how activities are verified, how knowledge is codified, etc. Some of these mechanisms, such as the recording of all communications and documents, make available the details of each licensee so that any queries or problems can be picked up by any officer. Other elements, such as the quality assessments, coordinate how officers go about certifying licensees – not in the sense of prescribing how an inspection should be conducted or how a report should be done, but by controlling the outcomes of the activities that were performed. In principle, this should remove the potential for preferential treatment of licensees, as the outcomes should be similar no matter which inspector or officer dealt with a licensee.

Coordinating Interpretations of Standards

While the enactment of different mechanisms of control organizes the certification process so that it becomes auditable itself, this does not address the inherent uncertainty in the certification process: rather, it organizes how the *accessible* elements of organic practice are assessed. But as another Technical Manager explained during an interview, the impact of this uncertainty that emerges from the epistemic object can be minimized in the context of the standardized certification process by coordinating how standards are interpreted: 'it can be very easy to have a basic standard and then suddenly it just goes "pouf" and it just becomes a huge mass of interpretation "what about this, what about that, what about this, what about that"' (Technical Manager Tom).

Subsequently, Tom explained that dealing with this explosion of possible interpretations requires the coordination of interpretations to direct how inspectors and certification officers relate to and certify licensees – this establishes locally a degree of universality (Timmermans and Berg, 1997) in how farming practice is assessed. The most prominent coordinating mechanism is the certification committee, made up of senior SACL employees; its role is to authoritatively resolve any problems that have arisen during the certification process of individual licensees.[9] Each separate case presented to the committee is at or beyond the boundaries of the standards: some are about requests by licensees to temporarily allow products or practices that are ordinarily not permitted by the standards. Others are about inspection findings where licensees overstepped the boundaries of the standards in such a way that the organic status of their products is compromised. Finally, some are about how SACL employees should interpret certain standards to assess the compliance of practices, or about practices for which there are no explicit standards. For each of these cases, the committee decides, in very practical terms and by drawing on diverse sources and expertise, how these issues are to be resolved. These decisions have direct consequences for licensees as they include disciplinary sanctions for serious non-compliances, and for licensees and SACL officers as they provide binding guidance for how specific standards should be interpreted. For example, an extract from my field notes shows the epistemic unfolding that is coordinated by the Certification Committee:

> 'A standards amendment in 2009 caused some confusion about the requirements for lambs born on a farm converting to organic production. Previous standards required sheep to be kept to full organic standards from the moment they mated for their offspring to have organic status, which included being kept on organic land. To accommodate farmers in conversion, the amendment was introduced to allow the mating to take place on land in conversion rather than on organic land. However, the way in which the amendment was written was ambiguous, leaving open the status of the land onto which the lambs would need to be born so that they would have organic status – it was unclear whether the land would need to be organic or could be in conversion. The committee agenda item for this issue set out the issue and the three options that could apply, and raised the question about which option would be a valid interpretation. The recorded decision on this is clear that the 'requirements for sheep and lamb production should be consistent with other livestock categories', and therefore the committee states which of the three options applies (ewes can be mated and lambs can be born on land in the second year of conversion).'

This example shows that such decisions typically have consequences beyond the current case as in any subsequent case the decision informs how inspectors and certification officers will decide those cases. But the decision does more than that: the choice of one of the three specified options reduces the way in which a practice can be assessed. The descriptions of the three options contain pointers about what would be critical in assessing compliance. In this case, the deciding factor is the status of the land onto which the lambs are born and reared. From this decision onwards, inspectors and certification officers carrying out a verification of the organic status of lambs needed to consider the land status (amongst other things). Put differently, codified interpretations define trajectories of unfolding. Unlike in scientific practice, where unfolding can result in a lateral or angular branching off of lines of inquiry (Knorr Cetina, 2001), certification practice is directed through descriptions of acceptable ways of enacting standards in organic farming practice. These descriptions script (akin to a protocol; Timmermans and Berg, 2003) for individual cases what needs to be done to reduce the uncertainty of assessing how an element of organic farming is enacted.

This means that each case presents a defining moment, not only for the way in which the licensee in question enacts organic standards, but also for the certification organization and indeed organic standards themselves. Consequently, the committee is central to the certification process as it provides the space in which boundaries of organic standards are contested in relation to practice. With each case, the formalized interpretations define explicitly some of the specific points that need to be verified to assess compliance. With each interpretation, standards are rewritten to reflect the extent to which the rules codified by the standards can be enacted practically by licensees – and how traces of these practices need to be unfolded.

It is important to note that these interpretations are based on specific, local cases, i.e. they embody local knowledge that is made mobile (Turnbull, 2000). In certification practice, mobilizing such knowledge occurs through a process of accumulation: all cases are recorded in a database that can be searched by SACL employees to inform how other licensees' cases may be dealt with. Moreover, sometimes the way in which the committee decides to resolve an issue results in the formalization of a precedent that explicitly informs employees how subsequent cases should be resolved.[10] The following extract from my field notes illustrates how locally bound knowledge is mobilized in the assessment of a given case:

> 'One of Certification Officer Claire's licensees produced organic turkeys for Christmas and Easter. This licensee had had many recurring non-compliances over its history, but each year the licensee contracted different farms to do the rearing for them and the management of the licensee had changed frequently over the last three years, leading to a problem of continuity in dealing with issues. To avoid issues arising in the first place, Claire had requested a detailed livestock management plan before the production for Christmas 2009 as she wanted to be "extra, extra careful with going through everything in terms of the management plans and everything". The plan went through a number of iterations, but even the third version raised eight questions, two of which could be resolved by permission from the Certification Committee. In composing an agenda item for the committee outlining the issues, Claire searched the database of committee decisions and a register of precedents for similar cases where the committee had already decided on an interpretation that could inform how these cases could be

decided. The first item concerned the extent of range available to the birds within 50 m. of a fixed barn, and Claire found a number of previous decisions where the committee had already decided on an interpretation that could inform how this case could be decided. She attached those to the agenda item, and added her recommendation to allow the limited space for the current production only. For the second item, which concerned the amount of time some of the birds would have access to the range before slaughter, she found no suitable items. As such, the committee had to assess how the standards could be interpreted, and on what basis permission might be given to allow this to happen.'

The example of Claire's questioning illustrates how the involvement of the Certification Committee results in other elements becoming part of an object by drawing on previous committee decisions, cases from the precedent register and official standards interpretations. This knowledge is not made available to the licensee in question and therefore does not explicitly script a protocol (Akrich, 1992; Timmermans and Berg, 2003) for the licensee to follow, but it does shape how the licensee will enact organic standards as the Certification Committee decides (in part) on this knowledge what will be appropriate measures for the licensee to implement. Hence, this knowledge helps shape the way in which standards will be enacted by connecting the context and conditions of the current licensee to those of other licensees, or by questioning how certain contexts and conditions relate to organic standards (if there is no reference to previous cases). In fact, through this mechanism the enactments of different licensees become connected across space and time (Lampland and Star, 2009) as the objects of different licensees become embedded in the object of another licensee. Put differently, the coordination of interpretations extends beyond the office of the certification body to farming practice.

Discussion and Conclusion

The findings presented here suggest that certification practice navigates the space between codified standards and farming practice through a knowledge object. I have argued that the configuration of this object is specific for each licensee, but that it is impossible to reveal it entirely – it has partial epistemic qualities. The conceptualization of object-centred practice (Knorr Cetina, 2001) has been useful to analyse how certifying licensees is based on a chain of unfolding using partial representations of the knowledge object. I suggested that there is a systemic absence of knowledge within the certification process, and showed some of the practical strategies employed by SACL to reduce and contain the inherent uncertainty of certifying practice. These strategies result in a process that is recursively standardized (Hatanaka and Busch, 2008) and in which organic standards are continuously rewritten through the coordination of interpretations of local enactments of those standards. I argued that how these interpretations are mobilized shapes organic farming practice and certification practice.

Based on these findings, it is clear that what certification officers and inspectors do in their everyday activities of certifying licensees raises some important points about how 'sustainability' criteria of food and farmed commodities are enacted through the use of voluntary standards and their certification.

First, the findings add to analyses of third-party certification (e.g. Hatanaka et al., 2005; Busch and Loconto, 2010) by illustrating how these processes enable the circulation of farming practices of different licensees. The enactments of licensees become connected through the mobilization of knowledge objects in certification practice. While this does not necessarily mean that the enactments of the standards by different licensees become uniform (Timmermans and Berg, 2003), this does imply that certain aspects of farming practice become standardized. In fact, the uniformities across time and space constructed through standards (Timmermans and Epstein, 2010, p. 71) are formalized – and therefore strengthened – through certification.

Second, with standards always incomplete and overdetermined *at the same time* (Timmermans and Epstein, 2010), finding interpretations and tinkering with the rules (Star and Lampland, 2009) are essential parts of making standards work. Indeed, as Jasanoff (1998, p. 180) argues, discretionary space is co-constituted with the presence of rules: 'The unruliness of the real world creates discretionary space for individuals or institutions to exert their tacit knowledge and subjective moral sensibilities'. But as the findings show, the discretionary space to do so is no longer available to farmers in the case of third-party certification: they cannot decide how to interpret or deviate from a standard. Instead, the space has shifted to certification officers and the certification committee. The analysis of the everyday activities of and the practical strategies employed in certification practice shows that this discretionary space is highly formalised and documented in response to the inherent uncertainty of certification. Granted discretion is recorded so that justifications are retained for future reference, and these records enable the circulation of local knowledge (Turnbull, 2000) to inform future discretions. In fact, this space is placed outside of the practices to which discretion is applied: any consideration for discretion must be referred to an actor who is external to the context in which a standard is enacted. Inspectors and certification officers therefore are not mere external observers trying to reveal how a licensee enacts organic standards. Due to their activities of producing an instantiation of and subsequent questioning of the object, they – and the Certification Committee – are active participants in shaping the object and consequently how a standard is enacted by a licensee. These points suggest that Hatanaka and Busch's (2008) challenge to the claims of operational independence of certification bodies must be extended to include the practicalities of certifying licensees.

Finally, as shown by this example of certification practice, 'sustainability' standards are not only written by the standard setter, but continually rewritten in the certification process. As such, they are alive (Berg, 1996): with each new interpretation by a certification body and with each new instantiation as enacted by a farmer they subtly change and reconfigure how a particular form of farming is and can be enacted. This is in line with accounts of how single actors enact standards in local settings (e.g. Timmermans and Berg, 1997; Lampland and Star, 2009). But the current argument extends these accounts by showing that this reproduction is clearly an accomplishment of different actors. Inspectors and certification officers unfold, delineate and make explicit the practical meaning of the standards in relation to how licensees practise farming for each single relevant activity or set of activities; the certification committee resolves contested boundaries by establishing interpretations; and the mobilization of local, context-specific knowledge (both internally and externally) through certification practice standardizes certain aspects of the certification process as well as farming practice.

In fact, the reproduction of 'sustainability' standards is necessarily distributed due to the specific practices that constitute them and that are performed by different actors: farming in particular ways, inspecting and certifying licensees, coordinating knowledge, setting standards, trading produce, etc. As shown in this article, in this 'web of practices' certification is not mere observation: the continuous rewriting of the standards in the certification process results in the reconfiguration of particular aspects of local, socio-material practices and therefore constitutes an active shaping of how 'sustainability' standards are enacted in farming practice.

Notes

1. There are other forms of certification involving different actors, but they are irrelevant to the current discussion. For ease of reading, I use the simplified term 'certification' to denote third-party certification in the context of standards aimed at more sustainable food production.
2. Due to specific historical processes, organic certification in the UK is characterized by a market-based approach to certification. In total there are currently seven bodies operational: four national bodies (with one body offering two types of scheme) and three regional schemes (for Wales, Scotland and Ireland). SACL is one of the four nationally operating certification bodies in the UK, and is a wholly owned subsidiary of the Soil Association.
3. Usually, Technical Managers have had a long career as certification officers/managers and are qualified inspectors. They support the certification process by coordinating interpretations with internal and external parties, and developing tools to assess farm conditions and to manage risk.
4. In fact, the person carrying out the inspection is not allowed by law to decide whether the inspected licensee is (re-)certified to avoid conflicts of interest or the possibility of coercion towards certification (CEN, 1998, clause 4.2.f). Moreover, as familiarity with the circumstances of individual licensees might colour the reporting of an inspector, inspectors are only allowed to inspect the same licensee three times in a row, after which another inspector will take over the inspections.
5. All names have been changed to protect confidentiality.
6. In this article, the adjective performative relates to material performation, and has no relation to discursive performativity.
7. Knorr Cetina also uses the terms object-oriented or objectual practice.
8. EN45011 is a standard for certification processes that all certification bodies operating in Europe need to be accredited against.
9. Other mechanisms include coordination of interpretation between different certification bodies, and tools for managing risk in the certification process.
10. When a specific issue has come up several times indicating that the standards are difficult or impossible to implement, the committee suggests a change to the standard setter.

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