



The sociology of translation and accounting inscriptions: Reflections on Latour and Accounting Research ☆



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ABSTRACT

This paper is a reflection upon the work of Latour and its influence upon accounting research, thirty years after the publication of *Science in Action*. After outlining the core features of the Sociology of Translation, we reflect upon the reasons we consider made the sociology of translation a productive methodology for understanding accounting practices. We place this analysis within the context of the development of an organizational and sociological understanding of accounting that was emerging during the 1980s. Three key themes in the accounting research that has drawn upon the sociology of translation are elaborated. We follow this with an extended account of the accounting literature that has mobilised Latour's work. We conclude with several suggestions for where this work is still going and might go further, before a concluding summary.

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1. Introduction

As we write, it is over 30 years since the publication of Latour's *Science in Action* (1987), a summary overview of the reasoning that shaped the methodology/toolkit underlying his research into the production of scientific texts. Latour's science and technology studies project shared many ideas with other colleagues at the Centre de Sociologie de l'Innovation (CSI) of the *École Nationale Supérieure des Mines de Paris*, most notably, Michel Callon whose work and collaboration developed the concept of translation considerably (1983; 1986). As such, though we celebrate *Science in Action*, we acknowledge that its arguments were shaped considerably by Callon's work. Nevertheless, *Science in Action* was especially significant as both an extended primer and elaboration of the key concepts and their conceptual relations that were at the basis of Latour's 1986 revision of previous work with Steve Woolgar, *Laboratory Life* (1986). **In this essay, we are going to examine and reflect upon the influence of Latour's work upon accounting research. The essay will focus upon the effects of work that have been most keenly felt, rather than the more recent inquiries, such as *An Inquiry Into Modes of Existence* (2013).** As Jutesen and Mouritsen recently noted:

"However, even though the ANT-influence on accounting research has been quite clear, it seems that a certain reading of Latour has dominated the accounting literature. *Science in Action* has been the dominant reference and the vocabulary found in that book continues to be used in most actor-network analyses in the accounting field." (2011: 185).

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Rather than dispute their point, we suggest that, notwithstanding Latour's later writings, perambulations and projects, the *Science in Action* text remains central to productive work done in accounting, but, we contend, remains relevant to work that is yet to be done in accounting. Moreover, it is our view that the focus upon accounting practices as inscriptions and inscriptions devices in processes of translation forms a core component of further possibilities for accounting research.

In this paper, we want to reflect upon the Sociology of Translation (Callon, 1980), what it is, why it was important to accounting research, why it remains so, the work that it has inspired, and where further work might go. As Latour and others have noted, the label, first termed by John Law, 'Actor Network Theory', as a description for this work, has been, if not controversial, then reluctantly embraced from the start (Latour, 1996, 1999a). The method Latour adopts is better described, following Callon (1980), as a *socio-logic* of translation in that the central focus has always been how complex and distant relations come through, often multiple, translations to be inscribed and "represented" by singular objects. Similarly, while this relationship will likely involve many human actors, this Sociology of Translation has consistently highlighted usages of the term 'actant' to signal the enrolment of both human and non-human 'actors' (Callon, 1998; Latour, 1996). As such, though it may seem perverse to take this line many years after the label ANT has been attached to Latour (2005), we prefer to keep the focus upon the centrality of the processes and practices that achieve translations between distant entities, and which, in so doing, allow two-way interaction between them; that is, enabling "action at a distance".

The paper proceed as follows. After the briefest of outlines of the Sociology of Translation, we reflect upon the reasons that we consider made the sociology of translation a productive methodology for researching and understanding accounting practices. We place this analysis within the context of the development of an organizational and sociological understanding of accounting that was emerging during the 1980s. This is followed by an overview of three key themes in the accounting research that has drawn upon the sociology of translation. We follow this with an extended account of the accounting literature that has mobilised Latour's work. This is followed by several suggestions for where this work is still going and might go further, before a concluding summary.

2. The sociology of translation

Many overviews of Latour's work now exist beyond his own writings, and our intention here is not to offer a comprehensive detailing of the terms and concepts, and their historical emergence in his work (cf. Justesen & Mouritsen, 2011). At this point, we might have hoped that papers drawing upon Latour/ANT would be able to avoid lengthy recapitulations of the methodology, but, from experience, this hope remains reviewer-permitting. However, our aim here is to signal the key features of the Sociology of Translation, and indicate how it departed from other theories in common currency in organizational and sociological accounting research.

Translation is the process by which a dispersed array of sites, activities and interactions are tied through a network, such that they come to be represented by a single entity, which can, in itself, be an individual calculation, text or another network. The Sociology of Translation is then a set of concepts that theorise both the production of this entity and how this entity, the product of a complex reduction, is simultaneously the means for knowing and acting upon those same remote sites, activities, etc. Networks of inscriptions explain and act by 'reducing' entities that might otherwise stand as *irreducible*. So, for example, the Sociology of Translation takes a complex entity, such as a corporation or an 'investor', and explores the actants (objects, relations, inscriptions and other devices) that make it up (cf. Young, 2006). Actants are things that act or to which activity is granted by others:

"An actant can literally be anything provided it is granted to be the source of an action" (Latour, 1996: 7)

For Callon (1998) and Latour (1996), the actant ('actor') has a *radical indeterminacy*:

"the actor's size, its psychological make-up, and the motivations behind its actions – none of these are predetermined" (Callon and Law, 1997: 273)

Latour contends that all 'networks' start from many "irreducible, incommensurable, unconnected localities" from which might come "commensurable connections" (Latour, 1996: 3). While, as Latour notes "[n]othing is, by itself, either reducible or irreducible to anything else" (Latour, *The Pasteurization of France*, 1988: 158), networks are established by equivalences forged through semiotic/material translations of entities. Through multiple translations entities come to *stand for* other entities. However, the network achieves not only a *reduction* of many distant sites and relationships by reducing matter to form, but at the centre of network – the centre of calculation – the inscription is also an *amplification* of a remote site, becoming, at once, less 'local' and more of an 'exemplar'. This amplification is gained through operations central to much of accounting: processes of standardisation, compatibility, harmonisation, textual writing and calculation (Latour, 1999b).

Much of Latour's focus is on the work that establishes a network or chain linking a centre to distant contexts. This process has in turn given rise to a specific vocabulary in which the production of the network entity is formed from a complex of problem-definitions by actors in specific situations: Callon's *Moments of Translation* (1986) is often drawn upon as a short-hand overview of key dimensions of this process. From this array of problematizations, actors/actants seek to tie others into such problem definitions by articulating common meanings and 'interests' that can lock or bind others into shared involvement in a common programme or suggested solution. By specifying interrelated roles that might enable common interests, actors are (or can be) successfully enrolled into a particular relationship of dependency in pursuit of this problem

resolution, and mobilised as collective entities in a network formed of multiple translations from different sites to 'powerful' centres.

In placing the concept of 'network' centre-stage, Latour departed from a common sociological focus upon 'social networks' to suggest how networks that enable collective action from a distance are formed of an ensemble of people, instruments, inscriptions, algorithms and other devices that carry 'traces'. Moreover, there is no assumption that the network is a literal entity in the sense that a telephone or rail network carries communications or trains. The network is not simply a set of personal or professional relationships or interactions – it is not a 'social' network (Latour, 1996). The network certainly requires interaction, but Latour's networks are also enabled by material agents and mediations as much as inter-subjective meaning exchanges. The networks in a chain of translations will have nodes that each have differing dimensions, as well as 'connections'. From the early and, perhaps, foundational statements of what became actor-network theory, Latour stressed how the mediation along networks enabled by devices that are mobile (a map on paper, rather than one traced on a beach), combinable (classifying/defining commonalities, aggregating, averaging) and stable (the traces of a remote context that retain a form or consistency, remain 'uncorrupted' or 'untainted' by their journey from diverse points to a remote centre of calculation).

As above, an important feature of Latour's 'network' is the way his theory of 'acting' is also, at once, connected to a theory of 'knowing' (Robson, 1992). While Foucault's construct of power/knowledge had foregrounded knowledge's 'power effects', Latour in his way managed to link how our reductive theories of (scientific) knowledge (our epistemologies) were at the same time a kind of ideal template for how to act upon many different places or contexts at the same time. Latour and Callon, with little explicit reference to Foucault (but see Latour, 1986a, 1986b), fleshed out considerably how the material and semi-otic processes that construct knowing (how scallops behave, the topography of a region, whether a Savannah plain is advancing) were at the same time the media through which remote centres/actants could influence and shape these contexts: a kind of power/knowledge, – but with much less explicit emphasis upon the construction of the subject and processes of subjectivising that became the core of Foucault's later work on 'governmentality'. Moreover, while the category construction is an important element of his theories, Latour is not a *social* constructionist in the Berger and Luckmann (1967) sense. Indeed, among almost any category of entity that he describes are social, semiotic and material attributes that contribute to the building of those entities. Latour's work, we would suggest, has concern in common with Hacking's account of his 'dynamic nominalist' theory of science (Hacking, 1990a, 1990b, 1998, 2004, 1986, 1994; Sugarman, 2009).

Yet, the relationship of Latour's oeuvre to the category (social) 'theory' is not the kind we see in Giddens' *Theory of Structuration* (1984), Bourdieu's *theory of practice* (1977) or Elias' *Figurational sociology* (2000). Indeed, Latour has suggested that 'ANT', as it has become known, is not a theory at all, and, in this respect, we propose that he is right – another reason, perhaps, to resist the term Actor-Network Theory (cf, Callon, 1998). Latour's work offers a kind of toolkit or, as Law has suggested (Law, 2004), a 'How-to' method for exploring the attribution of agencies and the construction of knowledge in sciences and social sciences (though Latour would dispute the separation of categories into social and physical sciences). Again, following Law, Latour's methods offer a kind of conceptually dense 'description' of how complex relationships between distant and diverse subjects and objects can become coherent – a constructed order from disorder – or why they may otherwise be transient and dissolving. So, while Latour's work embraces the classical sociological concern with order, his propositions depart from duality of structure and agency formulations.

In the next section, we look more closely at how of Latour's work, we think, came to be interest to accounting research. We start with a historical account of Latour's passing into accounting research, before elaborating why we believe this research has become of specific interest to researchers of accounting (and finance).

3. Why might Science in Action have appealed to accounting research?

If the sociology of translation was, perhaps, a little slow in being absorbed by accounting researchers, it is, nevertheless, possible to construct why it might have been thought to offer tools for thought to accounting researchers and PhD students in the latter half of the 1980s and early 1990s. There may be many 'networks' through which accounting research and the work of Latour and inscriptions have met, but, in this section, we are going to focus upon one: the publication of Burchell, Clubb, Hopwood, and Hughes (1980), and Burchell, Clubb, and Hopwood, (1985), and how these papers charted challenging paths for accounting research which, we suggest, Latour's work helped to mark and to follow.

Justesen and Mouritsen (2011) and others (Miller, 2006) have suggested, with good reason, that much, though not all, of the sociologically-inspired accounting research had tended to look towards the 'grand theorists' of society: in particular, Marx (Cooper & Sherer, 1984) and Weber (Colignon & Covaleski, 1991). Often transported through organizational theory annexations of social theorists (Chua, 1986; Hopper & Powell, 1985; Hopper, Storey and Wilmott, 1987), accounting researchers were searching for ways to theorise accounting and practice research in ways that departed from the dominant assumptions of rational information for decision making in markets that characterise much accounting research. Miller (2006) has also critiqued the limited, perhaps 'over-socialised', embedding of accounting in the works of Weber and Marx, suggesting that sociology's canonic interpretations of the accounting phenomenon make the idea of defining and researching accounting practices both unambiguous and essentialized. In short, it took accounting scholars time to develop understandings of the complex relationships between accountings and societies.

While economics was, and is, undoubtedly the dominant paradigm in accounting studies, the establishment of *Accounting, Organizations and Society* in 1975, provided an outlet for studies researching behavioural aspects of accounting, decision

making and judgment that did not automatically assume actors (economic) rationality. Similarly, organizational and sociological studies of accounting were given a major boost by the publication of Burchell, Clubb, Hopwood, Hughes and Nahapiet, “*The Roles of Accounting in Organisations and Society*” (1980), with its provocative call to explore:

“how the actual practice of accounting can be implicated with the furtherance of many and very different sets of human and social ends.” (Burchell et al., 1980: 22).

Burchell et al. (1980) sought to highlight two of the key processes influencing accounting practices that they considered widely ignored. First, the increasing *institutionalisation* of accounting practices: processes of standardisation, regulation and professionalisation that have led to changing functionalities of accounting that invest accounting with broader political significance beyond the ‘technical’ claims. Second, the increasing elucidation and *abstraction* of accounting as a body of knowledge: rather than being implicitly invested with economic or social imperatives, accounting, Burchell et al. suggested, is being continually endowed with new meanings and rationales for its existence and which in turn enable accounting’s transformations. In both processes, Burchell et al. (1980) laid the foundations for thinking about accounting as a practice invested with many and changing purposes. Hopwood was soon after to remind us of this point by observing how often we note accounting becoming “what it was not” (Hopwood, 1983: 289; Hopwood, 1987: 207).

Within the Burchell et al. (1980) was also a reminder of how two grand social theorists, Karl Marx and Max Weber, had previously simplified and reduced accounting:

“For Marx, accounting served as an ideological phenomenon. Perpetrating a form of false consciousness, it provided a means for mystifying rather than revealing the true nature of the social relationships which constitute productive endeavour.” (Burchell et al., 1980: 19)

“The contribution which accounting has made to the emergence and maintenance of the particular order inherent in economic rationality was emphasised by Weber (1969)” (Burchell et al., 1980: 20)

In both these quotations, we see how Burchell et al. drew attention to the determining assumptions underlying accounting’s purposes and functionalities. Marx and Weber were not the only examples, Schumpeter, Chandler, Bettelheim, and Braverman were also discussed in order to show how their theories saw accounting as both reflective, and also enabling of the society in which it was located. This was not to say that accounting does not or cannot play roles in domination and rationalisation, but that accounting was in certain times and social spaces capable of playing these and other roles.

The main point, we think, for Burchell et al. was how complex and multifarious accounting practices and the theories of accounting practice could be. Yet, at the same time, was a more or less implicit critique of the idea of accounting’s *essence*, and the assumptions commonly disseminated about ‘what accounting is’. For Burchell et al. (1980), a key concern was their sense of accounting’s entanglements in organizations, situations and guiding beliefs, a point also established in their well-known redrafting of the Thompson and Tuden (1959) from a figure on “Decision making and the location of organizational uncertainty” (1980: 13) into a figure indicating “Uncertainty, decision making and the roles of accounting practice” (1980: 14). Yet, relatedly, their point also highlights how deep assumptions about organizations and society often place accounting as a mirror of that society. As Justesen and Mouritsen put it:

“...one cost [to accounting research] has been forcing the phenomena to be explained through reference to macro conditions or personal sensemaking, thus turning accounting phenomenon into an Appendix of these other phenomena or causing such phenomena to be completely encapsulated by them. ... Accounting is not what it seems to be; it is essentially something else. It seems to be all about technicalities, but in reality it is a tool that e.g. serves the dominant capitalist classes, or it functions to create trust or social cohesion, or it is relativized by the individual’s own meaning creation” (Justesen and Mouritsen, 2011: 163).

However, one final point regarding the possibilities that were beginning to open up in accounting research during the 1980s. On page 12, Burchell et al. noted:

“Financial accounting and reporting are coming to be seen as outgrowths of institutional processes of enormous and still uncharted complexity (Burchell et al., in press).” (1980: 12)

The reference to forthcoming work was, of course, Burchell, S., Clubb, C. & Hopwood, A. G., “Accounting in Its Social Context: Towards a History of Value Added in the UK”, which, in fact, did not appear for another five years. Nevertheless, this publication and its associated problematic was to have a significant impact on the work of accounting researchers. Moreover, both the ‘Value Added’ paper and the Burchell et al. (1980) helped to steer one of this paper’s co-authors in his PhD thesis topic and, via that, towards the work of Bruno Latour.

“In the United Kingdom, for instance, we have witnessed how the institutional mechanisms for accounting regulation arose at the interface between a critical media, concerned agencies of the state and a profession concerned with preserving its powers of self-regulation and control (Zeff, 2017). ... the articulation of accounting standards has continued to reflect the dynamics of the institutional context of which they are an outgrowth. The case of inflation accounting is a particularly interesting example of such forces at work.” (Burchell et al., 1980: 21)

For one of the authors (Robson) of this paper, these suggestions formed part of a conversation he had with Anthony Hopwood about potential studies on the standard setting process for a PhD. Keith Robson had entered the PhD programme at UMIST in 1984 under the supervision of David J. Cooper with the plan to explore the roles of the “conceptual framework”. At this point other accounting researchers, such as Macve (1979), were also beginning to question the relationship between texts on the conceptual framework for financial reporting, and the processes of developing accounting standards. Macve entitled his study “Vision, tool or threat?” and his report (prepared for and ambiguously received by the ICAEW) expressed some scepticism as to the role and objectives of Conceptual Frameworks.

Anthony Hopwood, during the mid-1980s, arranged occasional workshops at London Business School for his PhD students, close colleagues, and for PhD students and colleagues of David Cooper. At one of these, a draft of the Value Added paper was presented and further projects were discussed. In the course of discussion at which a current co-author was present, Hopwood suggested that the formation of the Accounting Standards Setting Committee in the UK, and inflation accounting would be more fruitful ‘episodes’ for exploring the socio-political aspects of accounting.¹ And it was these (and some other standards) that Robson researched for his PhD thesis, and which became the basis for a number of subsequent publications (Robson, 1991, 1992, 1994).

For this PhD research, the Burchell et al. (1985) provided a key inspiration. As Robson and Young (2009) noted, Burchell et al.’s Value Added study seemed mould breaking for any number of reasons, but their chapter highlighted three:

- Accounting problematization in space and time;
- Accounting and social interests;
- The power of accounting: Accounting knowledge as representation and intervention.

In 2017, a term such as *problematization* is common parlance in many studies of accounting changes and transformations. However, the idea that:

“...the space which the value added event occupied is seen to be comprised of a very particular field of relations which existed between certain institutions, economic and administrative processes, bodies of knowledge, systems of norms and measurement, and classification techniques” (Burchell et al., 1985: 400)

offered accounting research a new and more overtly constructionist approach to how accounting practices come to be questioned, found lacking in some regard, and gradually start to become “what they were not”. Similarly, as Robson (1993) later elaborated, the concept of interests came to be understood not as a simple attribute of social or economic location, but as a kind of co-construction between organizational/societal actors and accounting discourses and calculations:

“[W]e are concerned to discover how self-interests, or particular policy positions, are in fact established—including the role which specific economic calculations and accountings. . . play in the process” (Burchell et al., 1985: 409).

Finally, Burchell et al.’s paper revealed an association with a kind of social theory that saw practices such as accounting not only through the lens of ‘representation’, neutral or otherwise, but as something actively implicated in attempts to ‘intervene’, to ‘control’, to ‘shape’ and to ‘determine’ particular social and economic relations.

In terms of explicit theoretical commitments, the Burchell et al. (1985) study was reticent to disclose much. Although they positioned their study within its similarities and contrasts to other work, Burchell et al. were almost silent on issues of method, conceptual underpinnings, etc. The earlier “Roles of . . .” paper had, in several footnotes, gestured towards post-positivist philosophy of science (Kuhn, Popper) as well as Foucault’s work on power/knowledge (1980: 3–5). One connection in the Value Added paper, often noted, is the link to Foucault’s concept of a genealogical historical methodology, which signals Burchell et al.’s deployment of “three branched genealogy” that constituted the three arenas of their value added constellation (1985: 399).

Yet, the paper and its theoretical diffidence were also the opportunity for others to pick up and elaborate. While the expansiveness of the earlier “Roles of . . .” paper opened a world of possibilities for thinking about management, financial and other accountings, the Value Added had at its core an emergent way of thinking about the expanding domains of accounting, the relationships to ‘social’ or to ‘context’, and, to use the Latourian term, the mobility of accounting practices. If much of the paper has a clearer sense of what its theory was not, not “monolithic”, “contingent” not totalising, borne of intentions but also with “unintended consequences”, a study of “processes” not “correlations”, there was significant potential for drawing out connections, elaborations and developments from theories that had not yet touched accounting.

Latour’s sociology of translation, we suggest, was one of those. Although, the paper on inscriptions held at its core an account of the Latourian project and the potential for understanding and researching accounting (Robson, 1992), it was the Robson 1991 paper on the establishment of a standard setting body in the UK, and Robson 1994 on the Sandilands

¹ The Value Added paper also prompted the idea that inflation accounting might be an area of related study noting “Inflation accounting occupies some of the same accounting constellation as the value added event, albeit that different aspects are emphasised. Indeed in the accounting standards arena discussions of the two were intertwined at particular junctures in the politics surrounding the processes of accounting regulation. Inflation accounting also was implicated in debates on macro-economic management, although in somewhat different policy arenas than those which explicitly related to value added.” (Burchell et al., 1985: 401).

episode on inflation accounting, that provided the workshop for slowly developing and thinking about what Latour (and others) might bring to accounting.

At this point, to conclude this history (and part-memoire), we refer back to some of the key elements that Robson and Young (2009) outlined. First, “problematization”: here, the conceptual debt was probably, perhaps entirely, related to an adaptation of Foucault’s genealogical method. Burchell et al. developed the idea that arenas were related to specific problematizations in which the value-added statement was a common object of thought. Each of the three problematizations presented a set of discursive and non-discursive practices through which calculations of and refinements to the statement of value added could be thought of as both ‘problems’, and potential ‘solutions’. Hence, a genealogical approach in which the concern is to try and analyse why at specific times and in particular circumstances or situations certain phenomena are thought of. Practices are the basis upon which these problematizations are formed; they are neither social constructions, nor ‘representations’ of pre-existing objects. In this sense, it is clear Foucault’s work was the inspiration, but it is also true that the concept of problematization plays a similar role in the sociology of translation. As we noted above, Callon’s classical exposition of the four moments of translation starts with the concept of problematization: “problematization describes a system of alliances, or associations, between entities, thereby defining the identity and what they ‘want’.” (Callon, 1984: 211).

With regard to the second key point, the role of social interests, there is more in common. As with the Burchell et al. (1985) paper, Latour’s work gives the concept of interests an interactive character. Actors’ interests are not merely read off from their position within a social field, but, in the context of an accounting problematization, interests are constituted by actors’ assessments of accounting calculations and their associated rationales. Accounting, in this formulation, is not outside of ‘interests’, rather the material practices within which accounting calculations are embedded co-construct actors’ assessments of their interests. As Latour has noted, interests (or in Callon’s terms *interessement*) arise from the interaction of the material practices within which accounting calculations are embedded with shared definitions and alliances of common aims and rationalities. They are not entirely prior to, or an instrument of, pre-given social groupings.

Finally, in highlighting both the representative and the interventionary potentials of accounting, Burchell et al.’s Value Added study was of a piece with work that attempted to recast experimentation (Hacking, 1983), the history of sexuality (Foucault, 1981) or the development of ‘centres of calculation’ (Latour, 1987) as ways of acting on the world. For Latour (1987), the idea of intervention was expressed as the question of ‘how to act at a distance’. As such, inscriptions and inscription devices, including accounting statements such as Value Added, could be thought of as ways in which the macro-economic management or industrial relations could be influenced by creating inscriptions that translate, by reducing and amplifying the traces created by inscriptions, and then create certain visibilities (“representations”) upon which it is then possible to act upon corporations and the economy from afar.

In this way, Latour’s work was, in our view, not a total disruption or revolution to streams of accounting research – though nor was it mainstream, then or now. Rather, while it might also have challenged social theory in ways that accord with sociologies strange lack of concern with accounting, at the same time the sociology of translation could be seen to have threads that could be tied to how the study of accounting and accounting’s relationship to ‘context’ might be thought of.

In the next section, we move from this historical analysis of how Latour crossed with accounting research, towards a closer analysis of the key concepts we think the sociology of translation has offered.

4. What has Science in Action given accounting research?

Latour’s work has many distinctive qualities, and it would be a stretch to attempt enumerate all of them in one short section. Perhaps, one quality of Latour’s work, not often mentioned, but which may have reinforced his appeal is the clarity and the playfulness of the (translated) writing. Latour’s work often brims with inventive examples and lively metaphors.

While the 2005 book on *Re-assembling the social* is often taken literally for its subtitle “An Introduction to Actor Network Theory”, to our mind both the 1987 book on *Science in Action*, and the 1986 re-write of the ethnography of scientists at the Salk Institute, *Laboratory Life*, are models of innovative, resonant and energising prose, but which are, above all, more transparent in their problematic and suggested approaches. The 2005 book is threaded by an extended engagement and critique of existing social theories drawn upon in science and technology studies, and, for that reason, we suggest, is not the ideal introduction to his (or Callon’s) work.

While Latour’s work has developed wider concerns about democratic processes, the dualistic errors of ‘sociologies of the social’ (Latour, 2005) and explorations of *Modes of Existence* (2013) in the 21st Century, we might also note how Latour’s inscription/network-based methodology presaged later debates in accounting on the centrality of the concept of practice. Whilst, of course, one might also stress the concepts of practice as central to other writers, such as Giddens, Foucault or Bourdieu, the point is that as “accounting as practice” became a dominant discourse in the framing of accounting research, those invested in the sociology of translation remained within “the practice turn”. However, we want to highlight three aspects of Latour’s work that has seemed to help motivate studies drawing upon Latour’s innovations in the study of science and the production of scientific knowledge. We emphasise these three points, in particular, as they, in our view, seem closely tied to the elements we consider might be most appealing to accounting researchers. The choices make no pretence to be exhaustive and we, for example, avoid discussing performativity explicitly, though, of course, it is another central feature of work

inspired by social studies of science/sociology of finance (MacKenzie & Millo, 2003; Millo & MacKenzie, 2009; Muniesa, 2014).

The first theme is the focus upon *inscribing* and the materiality/semiology of *inscriptions* and calculations. By centring the focus of ‘science in action’ upon the production of texts, Latour helped to bridge for us a key dimension that had often seemed lacking in sociologically-inspired research in accounting – a focus upon networks of (accounting) inscriptions, inscription devices and calculative action. As Miller noted, “even today a sociology of [accounting’s] calculative practices exists only in embryonic form” (2006: 3); calculations and calculating seemed so often to be a missing link in twentieth century sociology, notwithstanding the core assumptions given to rationality and rationalisation in the work of ‘grand’ social theorists.

In this regard, the work of Latour, and his close colleague Callon, has been central to attempts to motivate sociological investigation into the practices that realise the work of scientists, the work of economists and others; in particular, the sociology of translation has brought further attention to the role that accounting calculations play in *constituting* ‘macro-actors’, such as corporations, states and markets, that sociological theorising of structures has been so often keen to build or reify. Callon has helped develop an understanding of “markets” as particular assemblages of calculative devices that attempt to realise the “homo economicus” of the discipline of economics by disentangling constructions of a market from their social context (Callon, 1998).

The appeal of studies of translation/ANT to our mind has been in the way that it takes seriously the *materiality* of calculation. Rather than assume away the attribution of costs, prices and values as the instantiation of (a theory of) rational actors and markets, the sociology of translation, in its own way, aided in putting calculative practices, such as accountings, algorithms and spreadsheets, stage centre. Accounting techniques, devices and inscriptions come to be seen for what they act: practices that connect and create centres of calculation, and which, in turn, perform (calculative) actions. For accounting researchers, there seemed to us to be a connection to the comparative advantages accounting researchers had accrued in understanding the influences of accounting on visibility, the shaping of behaviours and indeed the unintended consequences that accounting numbers can create – often referred to as ‘biasing effects’ or “what you measure is what you get” in conventional accounting parlance. In this way, the very idea of societal macro-structures and macro-actors could be shown to turn upon the assemblages and regularities of networks of practices inscribed by accounting devices. Moreover, what Law has termed Latour’s ‘material-semiotic’ approach draws our attention to how such calculations also embody ideas and ideals that inform our selves and alter our agency, although not always in the ways that were envisioned.

Of course, since *Science in Action* was published we now have a lot of work in organizational and sociological research into the effects of ‘rankings’, ‘classifications’ and the like (cf. Espeland & Sauder, 2007). The significance of commensuration in bringing together, combining and reducing various inscriptions, and traces of the modern Law and Business Schools has been uncovered in discussions of rankings and assessments. At the same time, we have seen how such practices reshape and reform those objects which they claim to rank, as university and business school departments act in ways they perceive optimise their scoring.

Second, accompanying Latour’s focus upon inscribing, inscriptions and the calculation that enable long distance control is a close attention to the processes wherein practices or their absence that were not a problem become concerns. Again, the overlap with Callon is clear from their joint work, and Callon has paid close attention to how practices become “matters of concern” (2003). Here we want to emphasise how processes of translation have become central to an understanding of what is regarded as problematic and what is not. Not that this is a simple binary choice, but one in which the ‘choice’ of problem, in Callon’s terms, requires “struggles” and “negotiations” (Callon, 1980).

In a further advance of the idea that accounting’s roles shift and “become what they were not”, we see how a close attention to the discourses that intersect with accounting calculations (in the abstract or in practice) illuminates how accounting techniques and calculations can be given a potentiality that was not there previously. Of course, as Latour has noted, much of what we think of as problematization is almost inseparable from the process of translating interests among actants. Networks and assemblages are formed in part from negotiations between actants who seek to persuade other actants that their interests are either similar, can or should be aligned, or can be harmonised if one makes a detour or changes their goal or objective (Latour, 1987, 187; 114). As such, problematization arises from the negotiation between actants who seek to align their ‘interests’ and can then see common problems and potential solutions.

The third related theme we want to elaborate from the accounting literature concerns the question of the relationships between accounting and its context. Of course, the Sociology of Translation, or ANT, has as its core a focus upon the production or networks, chains or assemblages that facilitate control processes – action at a distance. Consequently, accounting research that draws upon the Sociology of Translation deploys the notion of a ‘context’ in a quite different way. Rather than assuming, for example, a management accounting technique is an effect of an ‘organizational’ or ‘environmental’ context (or the product of its technological context), we see how accounting techniques and ‘innovations’ for out of chains of translations that influence what accounting gets done and in what name that accounting is done. This is not merely to say that ‘wider’ or ‘social’ context is important to ANT, but that the question of context is recast to a focus upon the specific translations that can occur between accounting devices and techniques, and practices that, at one point, seemed to be distant from accounting concerns.

As Miller (1996) has noted, the network focus taken from Latour’s work highlights the dispersion of actants and domains potentially engaging and interacting with accounting practices. Miller (1996) reinforced the importance of this dispersion in highlighting how the ‘margins of accounting’ are frequently the sites at which accounting innovations and transformations

are more often effected. As before, we see how the earlier development of “arenas” of accounting change in the [Burchell et al. \(1985\)](#) Value Added study has, through the sociology of translation, influenced a body of work that has looked closely at the connections forged between accounting calculations and their imaginaries, and the aspects of ‘government’, whether in terms of accounting’s role in forms of governmentality within the corporation, or links to macro-economic programmes, policies and ideals in dispersed centres of calculation. Accounting has been shown to be a lot more ‘interested’ in its functioning than a reductive focus upon ‘investor decisions’.

In the next Section, we elaborate further how these themes have in many ways shaped and inspired accounting research.

5. Science in Action and Accounting Research

“There is not a history of engineers, then a history of capitalists, then one of scientists, then one of mathematicians, then one of economists. Rather, there is a single history of these centers of calculation. It is not only because they look exclusively at maps, account books, drawings, legal texts and files, that cartographers, merchants, engineers, jurists and civil servants get the edge on all the others. It is because all these inscriptions can be superimposed, reshuffled, recombined, and summarized, and that totally new phenomena emerge, hidden from the people from whom all these inscriptions have been exacted. More precisely we should be able to explain. . . how insignificant people working only with papers and signs become the most powerful of all” ([Latour, 1986: 32](#)).

Complementing or problematizing economic-based, interpretive, and macro-level explanations of the emergence and functioning of accounting, the Sociology of Translation has recast the centrality of calculations and technical artefacts in explaining the constitutive potential of accounting and its power “in” and “for” action. The following section reviews a selection of articles informed by ANT. We divide this review into three main sections that reflect our discussions above, although we also recognise that many articles have overlapping concerns across our divisions. The three sections explore:

- (1) the role of accounting inscriptions in making visible and constituting the entities and agencies upon which accounting operates;
- (2) processes of problematization, and in particular the construction of accounting “problems” and their “solutions”; and
- (3) the circulation of accounting and accountings at the margins, as accounting techniques both originate from, and impact upon, domains that are far from the field of accounting, so as to shape private and economic action.

5.1. Accounting inscriptions, calculations, and the constitutive

Correspondence theories explained the prominence of quantification in accounting and accounting development in terms of the assumed capacity of accounting numbers for mirroring organizational substances and distant contexts neutrally and accurately. Critical of this characterization of accounting as a neutral, reflexive practice, researchers have drawn upon the concept of accounting numbers as “inscriptions” to highlight the constitutive and enabling power of accounting. In this literature, accounting, and its visual schemata, has been shown to create “new categories of ‘objects’ and ‘entities’, that arise from the ‘play’ of mathematical transformations” performed by accounting calculations ([Robson, 1992: 698](#)).

5.1.1. Accounting visibility and the constitution of economic objects

In a paper that might have been an echo of Callon and Latour, Hopwood noted how, rather than simply reflecting a given economic reality, accounting can play an active part in the creation of a domain of economic action ([Hopwood, 1990: 10](#)). Following his proposition, accounting studies have sought to examine how accounting constructs and transforms the practices and rationales of the contexts it is assumed to represent, and how, by creating new fields of visibilities, it performs and acts upon its environment in name of the economic.

Economic “reality” and “truth” have been shown to be the result of fragile and contested processes of “fact-fabrication”, in which the establishment of claims to the “real” in terms of the economic is accomplished through the gathering and aggregation, the “making and judging”, of accounting inscriptions ([Bloomfield & Vurdubakis, 1997](#); [Chua, 1995: 138](#)). For example, [Chua \(1995\)](#) explored how the introduction of costing techniques in the healthcare sector constituted the “hospital” as an economic entity. And how, in turn, the particular visibilities and comparative exercise enabled by calculative practices actively transformed existing perceptions of health organizations and shifted modes of seeing, thinking and talking about hospitals and patients. The accounting representation of the hospital mediated and installed an economic language and rational in the public sector, within which “patients became products which consumed scarce resources, doctors – resource managers who determined resource demand, medical specialties – clinical directorates/product divisions, hospitals – multiproduct firms, and health-care provision – a manufacturing process” ([Chua, 1995: 137](#)).

In a similar framework, [Bloomfield and Vurdubakis \(1997\)](#) challenged the idea of accounting systems as merely technical solutions to actors’ pre-existent information needs. They traced how the “users” of information, their “context”, and demanded informational “content” are presupposed by, and constituted within, the representational practices of accounting. Acting as ordering and enframing techniques, accounting inscriptions enable the objectification of the “hospital” by turning its activities, patients, and the relationships between them, into stable and “mobile” entities disembedded from their context and organizational politics, and thence amenable to control and action.

Implementing new forms of accounting is shown to imply a (re)configuration of the (“macro”) actors accounting inhabits and works across. In the context of a State budgetary reform in France, [Muniesa and Linhardt \(2011\)](#) have seen the introduction of new accounting methods in the French government as an “operation of re-description (and, in a sense, of self-description) of the state” ([Muniesa and Linhardt, 2011: 551](#)), bringing about visibilities that problematize, alter, and promote particular views about the nature, boundaries, and agency of the State. Similarly, [Edwards, Ezzamel, and Robson \(1999\)](#) explored how the introduction of budgeting and funding formulas in the education sector constructed schools as individual accounting subjects, senior teachers as “rational”, autonomous economic agents, and pupils and parents as calculating customers. By promoting ideals of managerial enterprise and economic accountability upon public schools and their members, accounting techniques were “mechanisms for the conveyance of forms of long distance control” that, while claiming to decentralize, drew schools closer to state agencies ([Edwards et al., 1999: 472](#)).

Expanding on these ideas, other researchers have sought to explore the role of accounting in enabling the constitution and operation of markets. In the case of the Local Management of Schools initiative, [Edwards et al. \(1999\)](#) examined how the association performed between discourses of economic rationality in the public sector, accounting techniques, and education, made possible the realization of a “pseudo-market” in which pupils and parents were turned into clients and schools into providers that could make business decisions about “desirable” students ([Edwards et al., 1999: 495; 492](#)).

Overall, this literature has emphasised the ability of accounting numbers to create a visibility of remote objects, by standing for and in turn constituting the entities – the firm, the State, public sector organizations, or the users of accounting – they are said to represent. Elaborating upon these insights, researchers have explored the “visual” of inscriptions to illuminate how the ideals accounting templates embody inform action and reconfigure practices, subjects, and affects within the firm.

5.1.2. *The visual power of inscriptions*

Accounting inscriptions create new spaces of representations that regulate and transform the ethos, boundaries, and operations of the organization, as well as the human agencies of its employees. At Britech, [Ezzamel, Lilley, and Willmott \(2004\)](#) disclosed how new forms of accounting inscriptions promoted the reconfiguration of the structure, tenets and power-knowledge relationships of the organization. Visualizing the processes of the firm and disembodying the expertise of its members, visibility charts and diagrams acted as “plastic brains” to construct a new disciplinary regime to subjectify employees in becoming entrepreneurial and commercial agents, capable of enacting the new commercial agenda ([Ezzamel et al., 2004: 794](#)).

Other studies have emphasized the power of accounting visualizations in engaging users and creating the conditions for further action and innovation (e.g., [Boedker & Chua, 2013; Busco & Quattrone, 2015](#)). Accounting inscriptions have been conceived as a “performance” that allows accounting systems, such as BSC, to maintain visual unity and stability while undergoing continuous reconfigurations ([Busco & Quattrone, 2015](#)). Prompting interrogation and new sense-making, hierarchical trees, wheels, and strategy maps provide a visual space within which strategic objectives can be performed, new solutions imagined, and diverging organizational interests and meanings mediated into a stable diagram. Elaborating on the role of visual artefacts in informing organizational action and rationales, [Boedker and Chua \(2013\)](#) suggested that accounting also acts as an “affective technology”, providing actors with particular emotional identities which in turn generate and sustain their engagement and desired behaviour. By circulating hopes and anxieties, accounting images and template make “people’s feelings amenable to intervention”, thereby “seducing” employees to tolerate ambivalent instructions and untrusted working relationships ([Boedker & Chua, 2013: 249](#)).

Overall, this literature has sought to reveal the constitutive and performative nature of accounting numbers, and their power “in action”. Other studies have drawn upon the Sociology of Translation to propose novel (and critical) explanations for processes of accounting change and uncover the relationship between accounting and its context. In particular, a substantial contribution has been in illuminating why, at specific times, particular accounting techniques come to be constructed as “problems” and others emerge as their “solutions”.

5.2. *Accounting problematization*

5.2.1. *Accounting as the problem and the solution*

From an economic and functionalist perspective, accounting development has been understood as a search for “superior” systems of management and control. Assuming “a process of technical elaboration and, almost invariably, improvement” ([Hopwood, 1987: 208](#)), concerns with existent accounting techniques and the emergence of new accounting rationales have been explained through arguments of economic advantage, managerial rationality, and technical considerations. Critical of this viewpoint, researchers have drawn upon the Sociology of Translation to explain the *construction* of accounting problems and their advocated solutions as attempts to form and translate interests in accounting innovations, mediate programmatic aspirations, and establish particular knowledges of remote objects and subjects so as to facilitate control and “action at a distance”.

In the field of accounting regulation, for example, [Robson \(1993\)](#) studied the problematizing discourses through which governmental and parliamentary agencies articulated their interests and the interests of a dispersed set of other agencies and actors so as to position the disclosure of R&D expenditure as a “solution” to problems of managers, analysts, and the economic prosperity of the UK economy. This idea has been taken forward, for example, to unpack the “problems” and

“interests” of investors in financial reporting practices, as well as the “commitment” of financial institutions in improving transparency in capital markets. [Lowe, Locke, and Lymer \(2012\)](#) traced the discourses through which the Securities and Exchange Commission constructed the category of “retail investors”, their preferences and needs, in such a way to legitimize the implementation of a new reporting system for the US capital market. Depicted as a calculating agent requiring automated, quantitative data for decision-making, the “average investor” was made to fit with the proposed interactive data solution, and became a rhetorical means to enroll other actors, such as the SEC Commissioners, in making the new system mandatory.

Studies have explored the connections between accounting changes and government policy initiatives. [Miller \(1991\)](#) has shown the contingent intersection of macroeconomic policy discourses, ideas of modernization of management, academic debates, statistical visibilities about the decline of the British economy, that, in the 1960s, constructed existing ways of making investment decisions within firms as “problems” and promoted Discounted Cash Flow (DCF) techniques as their “solution”. Translating discourses about deficient investment rates in UK manufacturing and political rationales for economic growth into a calculative technology, DCF techniques provided the means to align the capital investment decisions of the enterprise with the objectives of national economic policies, and operationalized governmental programmes to act upon the economy while avoiding direct intervention. [Robson \(1994\)](#) examined economic and industrial policy discourses and rationales of national economic growth in the United Kingdom to illuminate how the problematization of inflation accounting techniques emerged from the attempt of governmental agencies to exercise long distance control upon the investment decisions of organizations, their management–employee relationships, and other institutions.

Exposing the role of accounting inscriptions in authorizing and facilitating processes of problematization, [Preston and Oakes \(2001\)](#) revealed how constructing an “economic” solution for the soil conservation problem of the Navajo required a set of mobile, stable and combinable inscriptions that connected the interests of governmental officials in Washington, DC, other state agencies, and local institutions. The Navajo Documents, mediating financial and science accounts through sociological surveys and family budgets, constituted the reservation and its members as economic entities that framed land erosion as an economic “problem”, and legitimized action from the US Government against the resistance of local residents and authorities.

Examining the linkages between the development of R&D accounting and emerging problematizations of the value of scientific investments in the United Kingdom, [Robson \(1994\)](#) illustrated the role of accounting in connecting science and the economy, and the concerns of state agencies, investors, business organizations, and professional bodies to that of the individual manager. In a context in which the development of R&D statistics had translated scientific activity into a calculable space correlated with economic measures of (future) national productivity, accounting for R&D became a means to tie the investments of industrial organizations with governmental policies of economic growth, enabling action at a distance upon the R&D investments of the private enterprise.

5.2.2. Arenas of accounting change

Through the concept of “translations”, and the arenas they constitute and intersect, accounting is seen as the outcome of linkages and mediations performed between political and economic discourses, bodies of knowledge that lie outside the field of accounting, and assemblages of “calculative practices and rationales that were invented in other contexts and for other purposes” ([Miller, 1998: 605](#)).

In the field of accounting regulations, for example, [Robson \(1991\)](#) showed how the formation of the accounting standard setting programme in the 1960s arose from the intersection of three quite distinct arenas in which the production and review of profit forecast statements came to be problematized and reformed in relation to governmental policies of industrial growth, the emergence of financial investment bodies of expertise, and the interests of the accounting profession in defending its self-regulatory organization. Similarly, as [Robson \(1993\)](#) has shown in the case of R&D disclosure, accounting standards for innovation emerged at the intersection of state agencies’ concerns with economic growth and R&D funding responsibilities, the managerial and investment decisions of private sector organizations, and the financial evaluations of analysts and investors.

[Miller and O’Leary \(1993\)](#) located the management accounting innovations of the 1980s within a broader assemblage of political and economic discourses emerging from three separate arenas, each one sharing an overlapping concern with traditional accounting expertise, its roles and financial mentality. The relevance of accounting expertise to the management of manufacturing firms had been problematized in relation to concerns with the inefficiency of the American manufacturing management and policy, the entrepreneurship endeavour and managerial expertise of American corporations, and the failing competitive position of the nation. Linking up these domains, the “politics of the product” connected the management of the factory with issues of national competitiveness, and called for reforming accounting practices to foster a new “economic citizenship” (:187).

In the study of the Sandilands Report, [Robson \(1994\)](#) highlighted the political, economic, and industrial rationales that informed the rise of inflation accounting standards, and, in turn, the role of accounting in translating policy discourses and enabling government intervention upon distant and apparently unrelated domains and concerns. Mobilized and problematized in the arenas of industrial relations, counter-inflation, taxation and industrial policies, inflation accounting techniques became means for the British government to exercise control and act upon wage bargaining processes, macroeconomic problems of hyper-inflation, and the activities and investment decisions of corporate managers.

Overall, these studies have highlighted the constructed and contingent nature of accounting problems and the related processes through which accounting comes to be endowed with particular rationales and objectives. Extending further on this idea, researchers have illuminated the fluid and mobile nature of accounting (Miller, 1998: 605), as it assumes and shifts purposes and form through associations with networks of heterogeneous actors and extra-organizational collectives, other bodies of expertise, and ideas and discourses that lie outside the field of accounting.

5.3. *Circulating, connecting and extending: accounting on the margins*

5.3.1. *Accounting as a networked practice*

Critical of the idea of accounting change as arising from economic imperatives, pre-given interests of principal and agents, or isomorphic movements, accounting innovations have been conceived as the outcome of processes of translation among shifting interests of dispersed actors, technical objects, and programmatic discourses and ideas of management. Departing from diffusion theories in which technologies are said to be transmitted and implemented as ready-made objects with fixed nature and functions, translation-influenced studies have understood accounting innovations as emerging from fragile processes of “fabrication” and network formation through which technologies circulate, acquire and shift meanings, purposes and features as they are mobilised and resisted in their design and implementation (Andon, Baxter, & Chua, 2007; Briers & Chua, 2001; Chua, 1995; Preston, Cooper, & Coombs, 1992).

For example, Preston et al. (1992) researched how new accounting possibilities in the UK hospital sector arose from an intermingling of discourses of efficiency in health care, compromises to reconcile conflicting aspirations and technological uncertainties, and rhetorical strategies and expert inscriptions for enrolling physicians and hospital managers in the realization of a management budgeting technology. In this process, the stabilization, success or failure, of accounting systems do not depend on judgments about the technical or representational capabilities of the technique, but rather on the creation of networks of support for the technique. Similarly, Briers & Chua (2001) showed the construction of an ABC technique to be a so networked endeavour among heterogeneous actors cooperating and competing to establish stronger ties and associations to sustain and control the innovation. At the end of this process, the ABC system was said to be a “boundary object”, able to accommodate and tie together the interests and hopes of local and global agents – industrial engineering, business analysts, accountants and cosmopolitan experts – involved in the use and maintenance of the technique. As they noted, adoption begins with soft facts, and “it is when new accounting technologies can hold diverse ‘facts’ and interests together, stabilise them (temporarily), that these ‘facts’ will start to become ‘true’” (Briers & Chua, 2001: 267). In this perspective, the making of accounting systems is not a linear or “engineered” trajectory with intended outcomes. Rather, as per Andon et al. (2007), it is an unpredictable “relational drifting” of improvisations, experiments, and unfulfilled attempts to make the technology work among shifting groups, divergent imperatives and conflicting accounting “identities” (Andon et al., 2007).

Critical of the notion that accounting techniques emerge from the invention of great innovators or their discovery in organizational practices, researchers have relied upon the Sociology of Translation to acknowledge the constructed nature of management accounting ideas and their ascribed functional effects. In this literature, accounting theories and techniques have been understood as resulting from mediations and alliances among a disparate web of experts, organizations, academics, and professional bodies, through which ideas acquire solidity and legitimacy (Cooper, Ezzamel, & Qu, 2017; Jones & Dugdale, 2002).

While this literature has exposed the relational character of the “implementation” of accounting technologies, other researchers have drawn upon these insights to problematize linear and functionalist models of “diffusion” of accounting ideas.

5.3.2. *The linking of actors and domains*

Functionalist approaches considered the relationship between accounting and its environment in terms of the reflective ability of accounting to represent, or adapt to, its context. Contingency-based theories have seen accounting as shaped by its environment, and environmental changes as requirements for reforming accounting techniques. From a technical and economic perspective, accounting is presumed to mirror the space in which it operates. This assumption, however, has neglected the dialectic relationship between accounting and its context, and the capacity of accounting to influence fields of action that lie outside the economic domains.

Many studies have sought to explore the processes through which accounting connects to its context, illuminating how accounting is informed by rationales and concerns that are far removed from the field of accounting, as well as its capacity to affect non-accounting domains. By rejecting predetermined, fixed categories of space, the Sociology of Translation has been drawn upon to argue that accounting creates perceptions of distance and proximity by establishing calculative associations among people, activities, domains and ideas that are otherwise considered detached. Through the practices of accounting “disparate concepts and entities . . . can be combined and analysed to establish new relations” (Robson, 1992: 698). Here, accounting has been said to be an inherently “territorializing” activity, that recursively construct the “calculable spaces” – physical or abstract, internal or external to the firm or collectives of firms – “that actors inhabit” (Miller & O’Leary, 2013: 561). In this literature, accounting and information systems are time-space ordering devices that are both shaped by and shape their context; and, “distance” is a problem of establishing power-knowledge relationships and exerting influence upon “many contexts at the same time” (Robson, 1991: 691)

As Justesen and Mouritsen (2011) noted, Latour's work has been deployed in accounting research to highlight the capacity of accounting to *transform*. Rather than just presupposing, the intra- and extra-organizational space of the firm, accounting is often forging connections among the activities of the organization, and between the organization and its environment (e.g., Mouritsen, 1999; Mouritsen, Hansen, & Hansen, 2009; Mouritsen & Thrane, 2006). In the case of innovation, for instance, Mouritsen et al. (2009) have conceived management accounting calculations as translations that create a "context" for innovation to occur, and mediate between the economy of the firm, innovation practices, customers and suppliers. In turn, as Mouritsen (1999) has shown in the "virtual organization", by mobilizing organizational activities and turning external partners into a quantitative and manageable space within the firm, accounting redraws the perimeter of the organization, as it reconfigures patterns of closeness between the factory and its environment. Blurring market and bureaucratic spaces, the firm, accounting, and markets mutually constitute each other (Mouritsen & Thrane, 2006: 243). Literature has highlighted the power of accounting in enabling the "command of space" (Mouritsen, 1999: 34), inside and outside the firm.

Other studies have relied on the notion of "space" as a power-knowledge relationship between a centre and its periphery to question assumptions of linear directionality between space, integration, visibility, and control. Quattrone and Hopper (2005), for example, explained how alternative configurations of accounting and information systems can result in different spatio-temporal regimes, in which the compression of distance enabled by the accounting visibilities can impede, rather than facilitate, order and control. At Think-Pink, the quest for integration and knowledge through ERP systems produced "minimalist" control and organizational disorder. Changing information flows and dispersed access to data entries resulted in the emergence of multiple and shifting centre(s) and peripheries, with different interests and demands, installing a form of mutual control and diffused visibilities that made action at a distance impossible. Bringing forward the proposition that accounting technologies and inscriptions create the new spaces across which they perform, researchers have sought to explore the ways accounting draws together and is drawn upon by disparate actors to shape private, economic, and non-economic action.

5.3.3. Connecting domains: shaping economic, public and private action

The above characterization of accounting as an inherently relational and spacing practice has highlighted the capacity of calculative and accounting devices to connect, and impact on, distant agencies, bodies of expertise and domains, including science (Robson, 1994), education (Edwards et al., 1999), healthcare (Preston et al., 1992), the environment (Corvellec, Ek, Zapata, & Campos, 2016), and the making of markets (Miller & O'Leary, 2007).

Corvellec et al. (2016) studied the capacity of accounting inscription to forge linkages between the economic and the environment, and between sustainability policies and the private choices of residents. In their study of a recycling programme in the City of Göteborg, they showed how waste-collection invoices, through their economic calculation of citizens' environmental impact, established a rational, accounting-based relationship between house-holders and their waste. By fusing economic and environmental rationales, these inscriptions translated the city's environmental policy into the individual behaviour of residents.

Focusing on the connections between domains of knowledge, Picard (2016) followed the translations that underlie the hybridization of accounting and marketing expertise. Her study of the marketization of accountancy highlighted the set of discourses of competitiveness, experiments, and alliances between marketing experts and accounting bodies that redefined the field of the profession toward a more commercial orientation and the identity of accountants as both "marketed" and "professional" accountants.

Emphasizing this relational potential, calculative devices have been conceived as mediating instruments linking the scientific and the financial domains, as well as strategies and aspirations of disparate and distant entities pertaining to different arenas and bodies of knowledge, so as to shape economic action and contribute to the making of markets (Miller & O'Leary, 2007). By framing and aligning expectations for technological innovations in microprocessor devices across agencies and sectors, the Moore's Law and technology roadmaps coordinated the investments decisions of firms, research agencies and universities in the same and related industries, in such a way to envision and realise a future market for semiconductors.

6. Further steps in the sociology of translation?

In this section, before the concluding summary, we want to pick up some details in the Sociology of Translation that we recommend warrant further elaboration. Our focus is upon the concept of stability, and, indeed, what has also been termed the problem of 'practice stabilization'.

Plainly, the attributes and qualities of inscriptions that Latour prizes as valuable in achieving long-distance control through translation are well-understood. Mobility, combinability and stability have served as useful shorthand for the efficiency of inscribing processes that allow a circulating reference between a site and a centre of calculation, and for that reference to hold throughout a network. The interest in combinability we have seen in attempts, for example, to link accounting numbers to other forms of calculation, such as corporate R&D accounting and national productivity. The mobility of inscriptions in compressing space-time relationships is also well-understood, as for example in the implementation of, for example, new information systems, such as SAP (Quattrone & Hopper, 2005).

Yet, stability, in our view, has received considerably less attention, even though debates about the stability of accounting representations in accounting theory discourses have been a central component of the knowledges/theories in accounting –

certainly in the era of a priori theorising in accounting research (Robson, 1999; cf., Parker, Harcourt, & Whittington, 1986). Clearly, the idea of an inscription as stable in the sense of avoiding corruption in a material sense is unproblematic. But within the idea of accounting practices generating inscriptions that are held to be 'stable' is a much more complex discussion of forms of calculation and 'representational' validity.

Stability, or immutability, in accounting we suggest raises a set of questions about the possibilities for accounting to 'represent' and 'intervene' that are relatively unexplored in accounting. One way to explore this matter is to look more closely at how and where chains or networks of accounting inscriptions fail. As Latour has made clear, the sociology of translation facilitates a close analysis of the qualities that allow networks to succeed, or have what he later termed a 'circulating reference' (1999: 21) whose traces can travel back and forth. At the same time, a focus upon translation can allow us to see how networks may not hold, or even, as Dambrin and Robson (2011) showed, 'broken' or interrupted networks may still effect actions. The recent focus upon 'flawed measures' is open for a closer analysis of how accounting fails (Dambrin & Robson, 2011; Jordan & Messner, 2012).

As we noted above, for a centre of calculation to 'hold' many remote contexts in a calculation, text or number requires both a process of reduction of traces and reference (losing the 'matter' deemed inessential) and an amplification of the reference to a 'form' allowing greater compatibility (Latour, 1999: 70–71). Such amplification requires an *infrastructure* of codes of standardisation, comparability, calculation and/or text that allow the matter of a reference to be lost but the 'power' of the inscribed reference to be garnered. For the networks of influence of accounting practices to take hold (stabilise) is to be able to describe how the accounting infrastructures are built in order for a network of accounting inscriptions to hold along the chain.

One recent exploration that is suggestive of what we write is Power's (2015) account of the development of Impact Case Studies reporting at a university for submission to governmental research quality assessments in the UK – another instance of "Accounting becoming what it was not". His paper on 'how accounting begins', explores the development of new accountings in universities in the UK in the REF 2014 (Research Evaluation Framework), in order to judge the impact of the research outputs from universities. The paper traces how an emergent government policy to boost national productivity is related to a pre-existing periodic exercise to judge the quality of academic publications by academics, departments, universities. In order to judge this impact, for last REF UK universities were required to submit for assessment Impact Case Studies (ICS). The ICS constituted a new "accounting instrument" that universities have been required to submit to government agencies for quality oversight purposes in the name of productivity.

As Power notes, while his account of problematization/'policy object formation', 'object formation' and 'activity orchestration' embraces many familiar Sociology of Translation tropes, his paper contributes to a call for closer consideration of how the 'stability' of the Impact Case Study might be achieved. In terming this end stage, 'practice stabilization', Power notes not only the routines, standards, rules and governance processes that helped define how an Impact Case Study should be constructed, but how this fraught and unstable process of 'validating' impact (through personal testimonies, for example), and at the same time *amplifying* (Latour, 1999a) the translations between research outputs and 'impact', remained open to contest and dispute that will most likely require further iteration before stability can be assumed.

The network finally achieved through the various translations may have operated for one cycle of university research assessment, but its *stability* remains in question while government agencies, university administrators and academics define, refine and re-think what traces can constitute impact – and whether such traces and inscriptions can be deemed auditable. The focus upon audibility in particular highlights a dimension of accounting practices of inscription often central to accounting stability: the idea that 'following the network' constituting the accountings are open, not only to the actants involved in their construction, but to verifying agencies who can attest, somehow in parallel, to their stability.

Of course, Power's paper links accounting development to quite abstract (macro-) ideals and policies that posit organizational and societal problems (in this case, productivity) in the name of abstract/transcendent values, against which it becomes difficult to argue. In this respect, the analysis shares elements with governmentality studies (Miller & Rose, 1990). It shows how these problems come to be attached (almost simultaneously) to available accountings (the REF) that can be further added to, modified and refined (accounting accretion) to make them stable, auditable, verifiable, and fully embedded. Yet, while for one round of research evaluation the process achieves a temporarily stable outcome, he finishes by highlighting how this stability is provisional, and remains under review as further assessments are pending. The Impact Case Study network is yet to be fully stabilized and entrenched.

7. Concluding summary

In this paper, we have reflected upon the reasons that we consider have made the Sociology of Translation a productive methodology for understanding accounting practices. In the context of developments in theorising accounting in its social context, we argued that the appearance of *Science in Action* (and the revised *Laboratory Life*) in the mid 1980s was an opportune moment in time for developing thoughts about the processes of change that "passed through" accounting that had begun at least in part with Burchell et al. (1980), and which were further expounded by Burchell et al. (1985). Of course, there is nothing historically inevitable about these conjunctions, and at other points in time the reception of Latour's sociology of translation might well have been more muted.

Among the many insights that Latour's 'irreductionist' concept of translation enabled, to organize our discussion we highlighted three themes in the accounting research that has drawn upon the sociology of translation that we feel help structure the work that accounting researchers have undertaken whilst drawing upon 'ANT'. Moreover, while we have expressly focused upon work explicitly linked to Latour and ANT, we also acknowledge the profound developments in understanding accounting, devices and the construction of "markets" that Latour's long-time associate, Michel Callon, has offered accounting and finance research. The recent interest in understanding financial markets, valuations and practices have done so much to open up an area of research that most finance departments in universities and business schools seem prepared to ignore (Callon & Muniesa, 2005; Mackenzie, Muniesa, & Siu, 2007; Muniesa, Millo, & Callon, 2007; Stark, 2011). Moreover, both and Latour's network approach has stimulated a welcome emergence of studies into financial accounting practices of valuation within and beyond their corporate context (Hartmann and Mouritsen, Huikku et al., 2017; Robson, Young, & Power, 2017) and the fluidity of the boundaries between management and financial accountings (Hartmann & Mouritsen, 2011).

Recently, it was suggested that the focus and 'take-up' of Latour's work has been partial, that more recent offerings have been underplayed or ignored. Yet, we would suggest that this is hardly unusual. Researchers study, pick and adapt ideas and concepts and theories of interest and relevance to their studies. The impact of the work of Michel Foucault, for example, has relied much more strongly upon his later writings on discipline, subjectivity and governmentality than the work on epistemes or archaeologies of discourse. Similarly, with Latour, his writings on democracy, monsters and modes of existence can be stimulating – and have been controversial (Klein, 2015; Latour, 2004).

However, a simple point, Latour's later work has expanded into fields of political ecology and democracy in interesting ways, while relying upon familiar and core constructs on 'agency' of humans and non-humans; nature and the social, etc. If there are implications for accounting research from his interventions into political philosophy, perhaps we will see this in the future, but there is no necessary reason to assume either, that this will happen or, if not, that this must necessarily be a loss for accounting research. While Justesen and Mouritsen (2011) have noted the lack of attention given in accounting research to Latour's work on 'Modes of Existence', our conclusion would be that the Sociology of Translation might be the zenith of Latour's relevance to accounting research and, if that is so, it remains a significant contribution. We suggest, beyond the substantial impact Latour has made to defining a sociology of translation, there remain further contributions still to be made.

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