Video in sociomaterial investigations:

Reflections on the 'problem of relevance' for organizational research

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Abstract

This paper considers the application of video-based research to address methodological challenges for organizational scholars concerned with the *sociomaterial* foundations to work practice. In particular the claim that 'all practices are always sociomaterial' raises a 'problem of relevance' – that is on what grounds can we select material to include in the analytic account when there is a vast array of material in each setting? Furthermore, how can we grasp the sociality of material objects that are often taken for granted and that drift in and out of view? We address these methodological questions drawing on ethnomethodology and conversation analysis, and by making use of video recordings of everyday work and organizing. We demonstrate the approach with data from two service settings and explore the analysis both of single cases and collections. To conclude, the paper considers the distinctive contributions that these video-based studies have for our understanding of sociomateriality and organizational practice more generally.

Keywords: *Sociomateriality, relevance, video, ethnomethodology, conversation analysis*

Introduction

In this paper we address a fundamental methodological problem faced by all video researchers, the 'problem of relevance' (Schegloff 1991). In contrast to research interviews, for instance, video recordings of everyday organizational practices capture a bewildering amount of detail – within just a few minutes of pressing 'play', the researcher will hear people talking, see facial expressions, gestures, bodily movements, the use of various objects, etc., all within a complex material and organizational environment. While rich and engaging, these details can also be overwhelming. Indeed, they present a problem of how to focus on specific aspects over others in the analytic account; how to decide on the 'relevance' of different features for the production of action. We present an approach to the analysis of video that provides a powerful solution to this 'problem of relevance.'

We explore this issue by engaging with a rapidly growing area of organizational research, in which the problem of relevance is particularly acute – namely, studies of 'sociomateriality' (Orlikowski, 2007, 2010; Orlikowski and Scott, 2008; Leonardi and Barley, 2008, 2010; Leonardi, 2012; Jarzabkowski and Pinch, 2013). In this field, researchers face a challenge in that all organizational settings house a staggering array of material objects and features – but somehow they need to determine which features are relevant for inclusion in the analytic account. Selection is inevitable, but what grounds are to be used to address this? How can we identify the 'matter that matters' (Barad 2003) for the accomplishment of organizational activities and the reproduction of organizational settings?

We are by no means the first to recognise this significant trouble for the field of sociomateriality. Indeed others have also argued that investigating materiality should amount "to noticing what appears to move, animate, concern, or preoccupy the people in the interaction" (Cooren et al. 2012, p. 302). For Orlikowski (2007), the neglect of materiality is

the result of conceptual problems in organization studies; the absence of theoretical frameworks able to successfully accommodate the sociomaterial basis of organizing. However, the solutions are not solely theoretical, but there are significant methodological problems to be addressed. Video, as rich, dense and real-time data (Grimshaw, 1982), powerfully reveals the problem of relevance when the analyst confronts a screen full of bodies and matter, but it also provides an opportunity to deliver rather distinctive insights and solutions.

In this article, we demonstrate an approach to the analysis of video (Heath et al. 2010) that is informed by ethnomethodology and conversation analysis (Garfinkel, 1967; Lynch, 1997; Sacks, 1992; Sidnell and Stivers, 2012) and that draws heavily on Schegloff's (1991) criteria for addressing the problem of relevance. These criteria focus on assessing the relevance of the account for organizational members in the production of their actions and activities. We will introduce data from service encounters in order to bring to life the methodological issues that we are grappling with and to reveal the significant analytical opportunities presented to organizational researchers by the approach. The use of real-time data also enables us to walk through the development of analytic accounts from this perspective – by working on both single cases and collections.

In using this approach, we fall in with a body of work that has for quite some time been using video recordings to recover work practices. This is an approach to the analysis of work and interaction that has developed over thirty years and more (Goodwin, 1995, 2000; Heath, 1986, 2014; Heath and Luff, 2000; Hindmarsh and Heath, 2000; Hindmarsh and Pilnick, 2002, 2007; Koschmann et al. 2011; LeBaron and Jones, 2002; Llewellyn, 2015, in press; Llewellyn and Hindmarsh, 2013; Mondada, 2014; Streeck, 1996; Streeck et al. 2011; Suchman, 1987 – and for a recent historical view of how video has been used in social research on everyday and institutional settings, see Erickson, 2011). Interestingly Orlikowski

(2007) – a key author in the field of sociomateriality (Jones, 2014) – makes notable reference to the work of Suchman (1987), who undertook early video-based studies of technologies in use. Our paper, in part, attempts to re-emphasise this research approach within the broader concern with sociomateriality in organization studies.

The problem of relevance for studies of sociomateriality

All organizational actions rely upon material objects and the material features of settings. But, arguably, only recently have organizational scholars taken seriously the relevance of materiality to studies of work, organizing and organizations. The specific term 'sociomateriality' marks the recognition that the social and the material are 'inherently inseperable' and "constitutively entangled" (Orlikowski 2007, p. 1437). Much of this work has emerged in studies of technology development and use, but marks "a move away from focusing on how technologies influence humans, to examining how materiality is intrinsic to everyday activities and relations" (Orlikowski and Scott, 2008, p. 455). Furthermore, it is suggested that we should "go beyond [preoccupations with] intentions encoded in the objects or materials themselves to examining activities as they are accomplished with objects in a multiplicity of contexts" (Jarzabkowski and Pinch, 2013, p. 579).

The growing interest in sociomateriality is an important development within organizational research, which has given rise to such a notable collection of papers (Jones, 2014) that Jarzabkowski and Pinch (2013) have been encouraged to call sociomateriality the 'new black.' What concerns us here, are the methodological challenges presented when establishing the sense and significance of matter for everyday organizational conduct. If materiality is to be grasped through the analysis of work practice, quite how should this be done?

A great many articles concerned with sociomateriality have engaged in programmatic and conceptual work, but empirical treatments have been less prominent. For instance, Jones (2014) reviewed 146 papers in the organization studies and information systems literatures that were published between 2007 and 2013. He notes that, of these, only 38 are empirical studies.

While they adopt a range of theoretical perspectives, many of these (and more recent) empirical studies rely heavily on fieldwork and, in particular, in-depth interviews. Scott and Orlikowski (2012, 2014) work on hotel reviews and online accountability in which the reported data are predominantly drawn from interviews with staff, hoteliers and travel professionals. Barley et al. (2011) focuses on interviews with people about their email usage. Iveroth (2011) uses interviews with professionals regarding the material features of change management at Ericsson. Indeed, this use of semi-structured and unstructured interviews is highly prevalent within the field (see Baptista et al. 2010; Jarrahi and Sawyer, 2013; Mazmanian et al. 2013; Symon and Pritchard, 2015; Simpson et al. 2015). Even within broader ethnographic studies that utilise a range of qualitative data, including field observations, documents, communication logs and similar, the analytic claims routinely rest most heavily on participants' accounts of sociomaterial practice (see Oborn et al. 2013; de Vaujany and Vaast, 2014; Venters et al. 2014; de Albuquerque and Christ, 2015).

Thus, the qualitative interview provides a key resource to uncover and unpack the character and significance of sociomaterial practices. However the use of the interview has the tendency to draw the analytic eye to attitudes and perceptions towards tools, technologies and various forms of matter. So, the analysis tends towards participant interpretations as opposed to specific moments of organizational action, with emphasis given to themes such as the disappropriation of the histories of place (de Vaujany and Vaast, 2014) and legitimacy and trust in leadership (Oborn et al. 2013).

Let us be clear: these present rich and insightful analyses of a range of engaging themes and issues. However it is notable that some within the field have begun to reflect on the limitations of the interview for sociomaterial investigations (Feldman & Orlikowski, 2011). As Symon and Pritchard (2015) contend, the interview delivers "good insight into reported practices" (p. 246) but they also recognise that such data are "somewhat limiting, as we are not observing the practice … unfolding in real-time" (p. 258). The interviews provide insight and intelligence unavailable through other means: for example, on the significance of politics, identity, history and setting. However, for us, there is space and scope within the sociomateriality programme to explore actual practices with and around matter; to get to grips with "activities as they are accomplished with objects in a multiplicity of contexts" (Jarzabkowski and Pinch, 2013, p. 579) and "the specific ways in which the features of particular artefacts become entangled in the social practices of people's work" (Leonardi and Barley, 2008).

The reliance on interviews, or accounts of practice, means that the opportunity to witness, show and share the entanglement of the social and material is lost. However there are some ethnographic studies within the field that do draw more heavily on observations of actual practice. For instance, studies by Mazmanian et al. (2014) and Jones (2014) use in-depth ethnographic observations to chart the flow of work and bodies, the relevance of different materials for the work at hand, and so forth. However, they tend to provide a broader picture, rather than settling on specific moments of practice. That said, Barley (2015) does focus on concrete encounters in great detail. He delivers an insightful analysis based on a two-year ethnographic study of car dealerships and draws extensively on his field notes to unpack the entanglement of vehicles, phones, price guides, inventories, and so forth, in the course of specific sales encounters. Nevertheless, the detail of the insights is inevitably restricted by the limits to human observation, note-taking and recall.

Video recordings have unique and highly relevant qualities here, qualities that provide opportunities beyond more traditional observational research. They deliver a 'dense' and 'permanent' data record (Grimshaw, 1982), that captures a range of material resources available to workers in the course of their activities and allows analysts to play and replay, view and review, show and share episodes of work in order to drill down on their organization. As we shall argue, this can facilitate fine-grained analyses of the very ways in which the social and the material are mutually constituted. The potential value of video for sociomaterial investigations has been noted elsewhere (Balogun et al. 2014). However, these data remain rarely used within the field, although there are some notable exceptions that interrogate video by using forms of analysis common to Grounded Theory (Jarzabkowski et al. 2015) and video ethnography (Balogun et al. 2016).

The use of video provides additional opportunities. For example, the focus of the vast majority of studies in the area remains on novel or specific technologies, from smartphones and mobile devices (Mazmanian et al. 2013; Symon and Pritchard, 2015), through to Grid computing (Venters et al. 2014), social media (Scott and Orlikowski, 2014; Jarrahi and Sawyer, 2013), the internet (Barley, 2015), an intranet (Baptista et al. 2010), and so forth. But as Orlikowski (2007, p. 1436) notes, one difficulty for organization studies "…concerns the explicit focus on technology adoption, diffusion, and use as separate and distinct phenomena occurring within organizations. The implication of such a focus is that materiality is an issue to be considered occasionally, as specific technological events arise."

The use of video unavoidably confronts the analyst with the various forms of materiality "… entailed in every aspect of organizing … such as bodies, clothes, rooms, desks, chairs, tables, buildings, vehicles, phones, computers, books, documents, pens, and utensils" (ibid., p. 1436); materiality that is not constrained to new technologies but permeates all features of the encounter.

Within the strategy-as-practice field, Balogun et al. (2014: 185) also refer to "dress, spatial arrangements, such as round tables, U shaped set-ups and strategy games" as well as "flip charts post-it notes, PowerPoint" and other visual aids that are critical to the practice of strategy. However while there is theoretical interest in this 'mundane materiality' (Orlikowski, 2007), the opportunity to explore such routine, "seen but unnoticed" (Garfinkel, 1967) features of the material surround is not often taken up in empirical accounts. Matter disappears from view in the analytic account – both in data collection and review. However, and in line with ethnomethodology, we aim to give "the most commonplace activities of daily life the attention usually accorded extraordinary events… to learn about them as phenomena in their own right" (Garfinkel, 1967, p. 1).

Nevertheless this presents a substantial challenge.

The claim that "all practices are always and everywhere sociomaterial" (Orlikowski 2007: 1444) can be overwhelming. The limits to the network of social and material things would seem nigh on impossible to demarcate (Collins and Yearley, 1992). However the analytical choices made by researchers within the field to focus on this object or that body are rarely elucidated. As we have suggested, this 'problem of relevance' is the key challenge for research on sociomaterial practices.

Our methodological solution starts with a seemingly simple rule: first and foremost treat matter as a members' concern (cf. Blumer, 1969). We are guided in our analytic work by the way members demonstrably and accountably orient their conduct towards some (but not all) material features of the settings they inhabit. Not all matter will matter for any one organizational moment. Rather, there is a *prima facie* case for privileging only those features that organizational members utilise, invoke or index in producing and coordinating action. For all organizational members in all environments, the question is 'why that now' (Schegloff

and Sacks, 1973, p. 299) – how does this matter matter for the activity presently underway? Similarly, this is the question that we pursue as analysts. However, while that seems like a simple rule, video data can be obstinate and complex. Below we describe how this seemingly simple rule informs our research practice, and indeed how it informs a wide-ranging literature on the interactional foundations to institutional practice.

So we aim to show both how to gain analytic purchase on these matters, but, equally critical, we aim to use data to start to demonstrate the theoretical and substantive significance of revealing and understanding such sociomaterial practices in detail.

Analysing video using ethnomethodology and conversation analysis

This approach derives from ethnomethodology (Garfinkel, 1967; Lynch, 1997) and the allied tradition of conversation analysis (CA) (Sacks, 1992; Sidnell and Stivers, 2012). These fields are rooted in a sociological interest with the ordinary 'methods' – "rather than on formal structures, or individual motivation" (Rawls, 2008, p. 701) – in and through which members achieve social order. They rest on the notion that "mutual intelligibility (or sensemaking) in all situations from ordinary conversation through work in the most highly structured organizations requires constant attention and competent use of shared methods of organizing action for its achievement" (Rawls, 2008, p. 702). Thus the ethnomethodological project is pre-occupied with uncovering the routine methods and practices that underpin everything from everyday conversations through to cutting edge scientific work.

Broader introductions to these approaches (Heritage, 1984; Button, 1991; ten Have, 2007), and their more general significance for organizational studies (Boden, 1994; Silverman 1997; Rawls, 2008; Llewellyn and Hindmarsh, 2010) can be found elsewhere. Of most importance here, however, is the fact very early on in the development of conversation analysis, Sacks (1992) recognised the unprecedented opportunities afforded by recorded

materials as data. It is maybe not surprising then that this field has given rise to a burgeoning body of work concerned with the analysis of video, and embodied conduct, that has been pioneered by Goodwin (1981) and Heath (1986), and that has built into a significant corpus of studies that explore how texts, tools and technologies feature in, and are critical to, the work of mathematicians, surgeons, controllers, journalists, tour guides, interviewers, salespeople, auctioneers, call-takers, and many more groups and occupations (e.g. Streeck et al. 2011; Heath and Luff, 2000; Heath, 2012; Mondada, 2014).

While often peripheral to organization studies, and indeed the sociology of work, they have engaged in topics of central concern within those fields – for instance, studies of skill and expertise, standardization and coordination, rules and identity. In doing so, they clearly demonstrate the ways in which social conduct is understood in relation to material features of a scene, and, reflexively, how objects are given their (momentary) sense and significance in and through social interaction.

The approach begins with the collection of 'naturally occurring data;' video recordings that capture versions of organizational events as they happen. The term 'naturally occurring' is used as a contrast to experimental or other forms of researcher-contrived encounters (for a debate regarding this contrast, see Speer, 2002, and her critics) or indeed documentary film which presents some severe limitations for the study of interactional phenomena (Wieder et al., 2007). When the researcher enters the field they inevitably make choices about how many cameras to use, where to position those cameras, what sorts of microphones to use and where to place them. All of these issues will shape and limit the analysis of work practice and these are analytically-informed decisions. We will return to them as we introduce our settings.

Once collected, recordings of even a few hours will be strikingly rich and complex, with texts, tools and technologies used or invoked by organizational members. We mentioned earlier that, for this reason, the problem of relevance is a major challenge to scholars interested in sociomateriality. How do we assess the relevance of different forms of matter for participants?

Here we draw heavily on Schegloff (1991, 1997) who raises similar issues in relation to studies that attempt to reveal the significance of social structures when analyzing the organization of talk. His argument is readily transportable to the analysis of embodied conduct in a complex material world.

Essentially Schegloff (1991) suggests that there are two broad solutions to the problem of relevance. The first way to warrant the relevance of some feature is to draw on the notion of the success of the account – according to "statistical significance, a preponderance of historical evidence" (p. 50) or whether it resonates with the theoretical position adopted by the analyst. The second way, the way that we adopt, focuses instead on identifying what is demonstrably relevant to the participants at just that moment. It is not to say that other aspects are not important, but rather than the analyst must demonstrate their relevance for the participants in organizing their activities *in situ*.

Following Schegloff, it is critical to demonstrate 'procedural consequentiality' – that is the ways in which some object or artefact can be seen to have determinate consequences for the way in which the action is produced. It is here that Schegloff's (1991, p. 64) 'paradox of proximateness' has utility. Essentially, Schegloff argues that if some aspect of wider context (e.g. a feature of the local environment) is relevant to participants we should be able to show how they orient to it in and through the details of their conduct. If they do not, then, he questions the warrant we have to invoke its relevance:

"That is, either there is a proximate, conversationally represented indication of the relevance of context, in which case invocations of more remote context are unnecessary; or there is no conversationally represented indication of the relevance of the aspects of context which have been invoked, in which case warrant for invoking it has not been established" (Schegloff, 1991, p. 64).

The challenges are the same when considering the relevance of material in analyses of video data. Our aim must be to demonstrate procedural consequence of this or that object for the production of an action. Here, the notion of sequential organization is useful as it can deliver an analytical 'proof procedure' to use in demonstrating relevance (Sacks et al., 1974). Sequential organization is the principal vehicle through which all actions in focused interactions are accomplished (Schegloff, 2007), in that each and every action in interaction can be seen to be attentive to what has just gone before and recast the interactional environment in which subsequent actions are produced. Thus participants, in the very course of their affairs, display to one another (and therefore to the overseeing analyst) the matters to which they are attentive in producing an action.

Thus, conversation analysts focus on sequential organization to show how practical (organizational) matters are accomplished through talk (and other forms of action). Indeed, for studies of work, conversation analysts are pre-occupied with the ways in which success in a particular occupation can often rely upon a demonstrable awareness of conversational sequences and the normative ordering of conversational turns – for instance, such that salespeople can anticipate and manage objections or build rapport (Clark et al., 1994; 2003).

Now, a claim to procedural consequentiality cannot rest solely on the fact that two actions are immediately juxtaposed. To build a robust analysis it is necessary to consider how

an action can be seen, in and through its design, to display an orientation to a prior. This analytical work reveals a thoroughgoing concern for the participants' perspective, a very common concern within interpretivist approaches, and yet one that is given a distinctive and novel treatment here.

Of course, someone might say that an office chair matters, because – by not collapsing – the participants maintain their position and can do their work. Or they might say the lighting matters, because it means people can see one another. And so on. However this is not our focus. Our focus is action-oriented. We are interested in how matter becomes relevant for the composition of specific actions; how matter is invoked, moved, noticed, touched, etc., in ways that are consequential for the interaction in progress. This allows us to demonstrate relevance for participants and to provide a warrant for our discussion of this or that aspect of the material world.

Illustrative cases: Research sites and methods

To illustrate the approach we have selected data from two settings, both featuring interactive service work: specifically moments when customers (i) exit a dental consultation and (ii) enter an art gallery. We use them to chart how to initiate the analysis of a single case (dentistry) and how to pursue the analysis of a collection of cases (art gallery). While the two settings are primarily used to illustrate the approach, and the two projects were developed entirely separately, in bringing them together we are also able to show how this approach applies across contexts, and indeed, we can also begin to indicate the types of academic and organizational leverage that can be generated for studies of service work more broadly.

In both cases we decided to use single, fixed cameras to record the action. We focused on physically stable service encounters – around a dentist's chair in a dental clinic and at a reception counter in an art gallery. While participants worked and moved elsewhere in the

settings, we used field observations to identify key locales for the production of work in the settings. The camera was positioned to capture a view that balanced the need to be close enough to see all relevant participants and the surrounding materials in detail, while far enough away so that they would not constantly be moving in and out of the frame.

The limitations of a camera lens mean that some aspects of the scene will not be in view – the cashier's face or the dentist's instruments inside the mouth – but this simply demands that the analyst refines the scope of the analysis to consider only practices that are visible on the video materials at hand. While the use of multiple cameras can be of value (e.g. to explore detailed manual work, Luff et al., 2009; or distributed coordination, Koschmann et al., 2011), the added complexities they create for analysis can be counterproductive. It is often most useful to keep the data collection as simple as possible, whilst remaining aware of the inevitable limitations of the data.

The associated collection of audio data can present an even more significant challenge. One principle for guiding the selection of audio devices relate to determinations about the involvement of specific individuals. For instance, and as we shall see, the dentist does much of the talking in the dental consultation and is often at the centre of the service encounter. Therefore we asked them to wear a lapel microphone to ensure that their voice would be captured along with the voices of others nearest to them (usually the patient). However, in the art gallery the employees often switched positions during the course of the day. So, a flat microphone was placed on the counter to capture all the service encounters that arose throughout the day, regardless of the employees concerned. In all cases, decisions around video and audio capture will be tailored to the practicalities of the scene and the concerns of the analyst (Mondada, 2013).

Example 1: Exiting the dental consultation

The first data extract is drawn from a hospital dental clinic. The patients in these data are usually referred to the clinic by their high street dentist, often because there are some complications requiring specialist care. The data were collected as part of a wider study of dental training, but we included a small corpus of materials involving expert dentists at work. So we have a few hours of material and a small sample of consultations. However, even within a small sample it is possible to generate insights of relevance to our understanding of service work and that can suggest avenues for further inquiry.

The richness of the data can be so overwhelming that it can be tempting to move straight into charting the frequency of activities or actions. However our approach demands consideration of the local production of moments of organizational conduct. As we have stated, we attempt to elucidate the participants displayed orientations to the matters in hand, as opposed to drawing on *a priori* analytic judgements of relevance**.** Thus, it is helpful to interrogate single instances early in the process to ensure that the analysis is grounded.

The analysis of specific extracts can begin anywhere – indeed for Sacks there is "order at all points" (Sacks, 1984) – and so, in theory at least, any moment could deliver analytically. However, often moments of organizational practice will be striking, for a range of reasons, whether due to something unanticipated, something unusual, some kind of problem or breakdown. Or where there is even a slight 'kink' in the progressivity of the encounter. It is one such episode that we now consider. In this case, we noticed simply that at one moment the patient begins to leave the dental chair and then sits back down again. There was no obvious reason for this and so it presented a preliminary analytical puzzle. At the outset one cannot anticipate whether a puzzle like this will deliver analytically interesting findings, but a necessary feature of the work is to pursue such puzzles without prejudging them. Some will deliver in more ways than one can anticipate.

Initiating the analysis

With this particular sequence, we start the presentation of the data a few moments before the patient begins to stand. Part of the process is to understand the context in which such a moment arises. That inevitably leads to running the tape earlier and later to develop a sound sense of the interactional context. Once the analyst has a clearer idea of the sequence and the resources of relevance to the participants, this informs how the extracts can be edited for presentations and publications.

So, as we join the action, the patient is sitting in the dental chair, patiently waiting for the dentist to write up his notes in her health records (figure 1). The chair back has been raised so she is sitting upright, and the chair is still some distance from the floor. The dentist is writing the notes just behind her and, unless she turns all the way around, she cannot see what he is doing.

Figure 1

The sequence can be characterised straightforwardly. The dentist stands up, moves towards the patient, the bib and safety glasses are handed to the nurse and the dentist then begins to explain what the patient should do next as he hands over her files: "this is for you to

take downstairs…" That is it, and yet the density and permanence of the video record make available so much more.

As a means to focus our analytic gaze, transcription is an incredibly valuable tool both for analysis and for presentation. The practice of transcription follows the concern that "no order of detail in interaction can be dismissed *a priori* as disorderly, accidental, or irrelevant" (Heritage, 1984, p. 241). An important feature is that it demands, even forces, the analyst to look closely and repeatedly at the episode. Moreover, it supports the analyst in identifying the sequential organization of action by mapping the temporal order of events. The transcription also provides a resource to share the rendering of 'what happened' with others such that they can assess the analysis for themselves (Hepburn and Bolden, 2013).

The transcription system for talk and other vocal conduct developed by Gail Jefferson (1984) is widely adopted within conversation analysis and the notation is designed to capture qualities of the talk that will help to draw out the sequential organization of activities. So, it captures the temporal production of utterances: pauses between turns at talk are marked in tenths of a second, as are pauses within the production of an utterance; elongation in the production of a word is marked with a colon; and so forth. It also highlights some of the aspects of delivery: for example, quieter talk is surrounded by degree signs and upward intonation is highlighted with an upward arrow. For this sequence, the talk can be laid out as follows (extract 1).

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Extract 1
1    D:    °okay. ° (.) there: we go.
2          (1.3)
3    D:    °we'll° jus:t take your bib off for you:
4          (1.0)
5    P:    thank you.
6    N:    okay^
7          (0.5)
8    P:    thank you.
9          (0.8)
10   D:    o:kay. this is for you to take downstairs…
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This transcript provides a broad outline of the episode. It implies some of the work in hand, but it does not reveal all of the resources that participants are drawing on to make sense of the situation. In co-present interaction "a whole range of physical doings and positionings … become available" (Schegloff and Sacks, 1973, p. 323). Therefore the transcription system has been developed and refined over many years to try to incorporate visible features of the scene – gaze, gestures, the use of objects, and so forth (Luff and Heath, 2015). The system retains a focus on the temporal qualities of the episode, and thus reveals the relative positioning of vocal, bodily and material conduct. Mapping the onset and completion of specific actions is anchored against talk (if it is available) or else conduct can be aligned with dashes that are used to mark out tenths of a second.

Transcription of talk created for analytic purposes are routinely identical to those included in publications. However this is not the case for more fine-grained 'multimodal' transcripts (Luff and Heath, 2015). The complexity of the transcription of talk, gaze, gesture and the like often needs to be simplified for presentational purposes. Therefore, and as you will see throughout this article, there is an attempt to preserve features of the extract in sufficient detail for others to be able to assess the analytic claims and observations being made, but these remove a great deal of the detail included in analytic transcripts and are tailored for the character of the episode under scrutiny. Nevertheless textual renderings of video are inevitably deficient in many ways (Bezemer and Mavers, 2011).

Extract 1a

D: - - - - - - - - - - °okay.° - there: we go.- - - - - - - - - - - -°we'll° just take your bib .
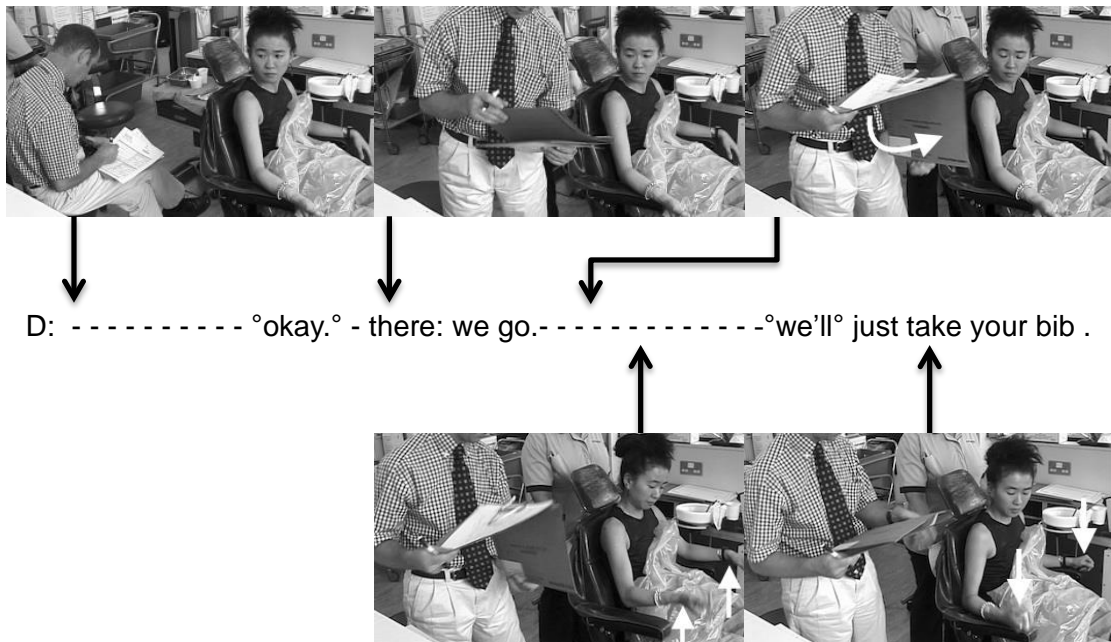
Returning to the extract (extract 1a), it can be seen that the sequence begins as the dentists is completing his notes (image 1 in the series). He then moves alongside the patient (image 2) while holding the folder open to reveal the page that he has written in. As he steps alongside the patient he tilts that folder slightly towards her and says "there we go". The patient is looking at the folder as it is tilted towards her (image 2), but then the dentist begins to close it (image 3, notice the dentist's hand flipping the cover from underneath the folder) and the patient immediately starts to turn away from the folder and begins to move off the chair (image 4). Thus, the movement of the folder is treated as relevant by the patient in subtle and emergent ways – initially orienting to the document as an object for attention and a moment later the turning of the cover is treated as closure implicative. So, in concert with the talk, the movement of the folder has procedural consequence for the patient – something to look at and then something that marks an "activity transition" (Robinson and Stivers, 2001).

It is here that the patient lifts her hands off the chair as if to prepare to support her weight as she stands (image 4). Intriguingly, however, just as she lifts her arms from the arm

rests, she places them straight back down again (image 5). So, analytically, we have a puzzle: just what is it that might encourage the patient to forestall her move to stand up at this moment? Why might this seamless exit be deferred (if only momentarily)? Why that now? For this, it is important to return to the extract to assess the range of resources that might be available to her.

Revealing 'virtuoso' moments

Through the close and repeated looking required for transcription, we can notice that while our attention has been focused on the dentist and patient, the other person in the scene turns out to be highly relevant for the interaction.

The dental nurse had been standing nearby, ready and prepared to help when needed. As the dentist swivels his seat, visibly ending his note taking, the nurse starts to move towards the patient to be ready to assist. Furthermore, it is not only the patient that treats the dentist's "there we go" as closure implicative. The nurse does also and this provides a resource for her to anticipate what comes next and how to contribute to the service encounter. Just 0.5 seconds after "there: we go" she starts to lower the dental chair towards the ground to make it easier for the patient to step off it. Extract 1b reveals that as soon as the chair starts to drop (notice the annotation above the chair is slightly lower on each subsequent frame), the patient immediately puts her arms back down on the armrests. The transcript shows how the patient lifts her arms, the chair starts to lower and then almost immediately the arms return back to the armrest.

Extract 1b


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D: - - - - - - - - - - - - °we'll° just take your bib
Arms:  [Up] [     D o w n     ]
            [C h a i r   l o w e r s      ]
```

So the transformation of the patient's trajectory is not responsive to something that she has seen or heard but rather the conduct of another that she *feels*. She re-adjusts her conduct as soon as the chair starts to be lowered to the ground.

The nurse does not *ask* the patient to remain seated and, as she is behind the patient, she cannot be seen. However the manipulation of the chair encourages the patient to remain seated without interrupting the interaction between the patient and the dentist. Her actions would inevitably be missed on an audio recording and easily overlooked by field observations and yet are highly relevant to the coordination of the service encounter.

A further issue for the patient arises moments later. When the dentist says "just take your bib off for you" he looks initially at the patient and then flicks a glance towards the nurse over the word "bib". The utterance can be seen once again to engender actions from both parties.

In the second that follows the dentist's turn (extract 1c), the patient looks down to the bib and starts to lift her left hand to remove it (her right hand is already holding her safety glasses). However, unbeknownst to her, the nurse is moving her left hand over the shoulder of the patient to take the bib (image 1 in the series). As the nurse touches it, the patient

transforms her movement. Her hand, which is rising upwards, moves instead to her side and out of the way (image 2). Furthermore she tilts her shoulder back to allow more room (physically and symbolically) for the nurse to retrieve the bib.

Extract 1c


```
N:                              okay^- - - - -
P: - - - - - - - - - thank you.          thank you.
```

The utterance "just take your bib off for you" could be heard as a request ('please give it to us') or as an explanation ('this is what we are doing'), but its ambivalence is resolved in bodily and material interaction with the nurse.

The patient then offers the nurse her safety glasses (image 3) – thereby anticipating the next item in the class of collectables. Subsequently she turns away from the nurse and the dentist re-engages her in conversation by moving the folder near to her and saying "okay this is for you to take downstairs." The folder provides a vehicle to initiate instructions about next steps in her service journey (to get an X-ray) and anticipates the transfer of the folder before exit.

This, for us, is an example of what Jefferson (cited in ten Have, 2007, p. 38) referred to as a 'virtuoso' moment – a striking or "particularly felicitous" episode. However it is not a virtuoso moment from the outset. Only through transcription, and repeated analysis, do extracts like this begin to reveal their true richness and complexity. At first glance it could be seen to be an entirely mundane few seconds of conversation between a dentist and his patient.

And yet, the further interrogation facilitated by the video record, enables us to reveal the artful practices that bring about the close coordination of an exit from the service encounter: removing organizational materials from the patient while furnishing her with key organizational documents.

After numerous viewings, the data reveal features and practices that could not be anticipated, and would certainly be missed through the use of other methods. It shows how the talk from dentist to the patient underpins the coordination of the service delivery with his colleague, the nurse. She uses the dentist's talk, and conduct, to anticipate when and how to contribute to the work in hand. Similarly, she silently, but significantly, interacts with the customer in managing tasks set in motion by the dentist. Furthermore the video reveals how various material resources (folders, chairs, bibs, glasses, etc.) become relevant for the encounter at different moments, moving from figure to ground as the sequence unfolds. Beyond that, it also powerfully reveals how the patient experiences those resources using different senses – hearing, sight, touch, and indeed equilibrioception.

Outlining organizational significance

This one marks one of the first extracts that attracted the analyst's eye in the corpus. As such it provides the basis for developing the study further.

The approach relies upon an iterative relationship between data collection and analysis. Therefore, preliminary analytic insights inform the pursuit of further and more tailored data collection, where camera positions and microphone placement are adjusted and refined over successive periods to ensure the best quality materials to work with. The analysis of this extract suggests that a second camera may be relevant to capture the work of the nurse around and about the dental chair – to ensure that her actions are captured in full, moving in

and out of the current frame. Furthermore an additional microphone may be useful if we are to focus our analysis on the character of the nurse's assistance.

The extract also points towards potential areas for further analysis and elaboration. It encourages us to consider, not only the role of the professional in 'delivering' the service, but demands that we explore the coordinated work of professional, patient and indeed the less visible, but no less significant, co-worker. It provides us with the data to be able to begin to address calls to bring the customer more firmly into our analyses of interactive service work (Bolton and Houlihan, 2005; Korczynski, 2009). It also suggests that something as straightforward, mundane even, as stepping out of a service encounter demands a sociomaterial analysis, involving as it does the re-arrangement of objects, documents, bodies, clothing, tools and technologies.

The familiar experience of a being a patient, client or customer, not knowing what to do and when to do it, as well as the solutions to those many, minor troubles in the course of a service encounter, are amenable to the analyst through the close scrutiny of the video data. Robinson and Stivers (2001) have outlined the challenges for healthcare practitioners in managing patient uncertainty (around what is expected of them and when), and indeed suggest that the reduction of patient uncertainty is associated with positive healthcare outcomes. So our preliminary analysis of this extract provokes a consideration of other moments of patient uncertainty that permeate the dental consultation more widely, and closings more specifically, to identify how and when uncertainties in procedures arise and how they are best managed. So, while the analysis of the single case can stand alone in empirical studies (LeBaron and Jones, 2002), more usually it is used to motivate a broader analysis, one that draws together a collection of instances.

Example 2: Entering the art gallery

We now consider the analysis of large samples. For this we explore a rather different organizational setting – an art gallery – but again where customers are interacting with service providers. In this sample, across 189 separate encounters, the video materials capture how customers order and pay for entrance tickets.

When dealing with a large collection of cases, the methodological approach we are discussing remains thoroughly grounded in the close 'real time' analysis of single episodes. In this regard, there are no short-cuts. Methodologically, the requirement to demonstrate 'relevance' (Schegloff 1991) remains the defining feature of this approach whether we are looking at 1 or 1000 cases. However, collections are useful because they enable the analyst to identify patterns and contrasts: "consistencies or recurring forms or features that run across" different encounters (Gylfe et al. 2016, p.140).

In the art gallery ticket hall, where the recording took place, we focus on one material form that did matter, demonstrably and accountably, for the actions we observed. This is money, and more specifically the cash form of money (see also Llewellyn, in press). One element of conversation analytic work is the "discovery of previously unknown regularities of human interaction" (Sidnell, 2013, p.77). In this case, we are interested in patterns pertaining to the use of cash-money and we show how this can be done below and how this is enabled by having a large sample.

Finding initial patterns in the collection: Co-ordinating payment

For money to function it has to be transferred. For cash, this often means being passed from hand to hand. So, we begin with this basic question: how do customers and service staff co-ordinate their actions so that simple material objects can be transferred from one person to the

other? We begin with a single case, but then start to compare and contrast a wider body of resources. Methodologically, how do we go about identifying 'regularities' (Sidnell, 2013) or patterns (Gylfe et al. 2016) in the way people do this across cases?

In extract 2 below, the customer begins by ordering two tickets. As he orders, he holds a bank note out towards the employee. He is trying to pay by passing the note. But the note is not taken; it is left hanging. During this time the employee is inputting data into the PC pertaining to the order. She doesn't have a free hand and the till isn't yet open. The customer then places the note down on the counter, before picking it up again, with one end in each hand. So, an initial attempt to pass the money has failed. Across the collection as a whole, this was the dominant pattern. Overwhelmingly money is transferred at the right organizational time, when the employee is ready, and not before.

(2)   [CV. D1. 69]
```
1  E: that's six pounds. >sorry< (.) thirteen
2     twenty you need to pay then [ please,
3  C:                             [ thank you
4     you very much.
```


The second attempt to pass the note

As the E says 'six' (line 1), C passes the note towards her with his left hand.

The third attempt to pass the note

Two seconds later, the note is now on the counter. As the E says 'please' (line 2), C nudges the note towards her with his left hand .

Staff signal they are ready by requesting payment, which the employee in the extract then does ('that's six pounds', line 1). Immediately the customer, now holding it only with his left hand, starts to rotate the bank note through 45 degrees towards the employee. This is the second attempt to pass the note. In this extract, we see clearly that the customer is thoroughly attentive to his role within the organizational process. He is awaiting an organizational cue and responds immediately to the sociomaterial implications of the request.

A complication then arises. The employee has mistakenly requested the wrong amount ('six pounds' line 1). She apologizes ('sorry', line 1) and re-launches the request. Illustrating his close attentiveness to the sociomaterial implications of her actions, at the exact point the request falters, the customer stops moving his bank note towards the employee and places it down on the counter. The customer re-adjusts his conduct for a second time, in response to the employee's activity, and in so doing displays his understanding that it is once more the wrong time to act. A second attempt to pass the note has failed.

As the employee re-launches the request ('thirteen twenty', lines 1-2), she returns back to the keyboard and quickly does some work on the PC, amending the customer's order. We can notice that she completes the second request for payment ('you need to pay then please', line 2) at exactly the same time she finishes the PC work, thereby freeing her hand to take the money. In this case, and generally across the collection, employees bring these two activities (the verbal request and the PC work) to a close simultaneously, so as to smoothly coordinate their own, and the customers', conduct.

Finally, the employee moves to take the note, which is now right on the edge of the counter. As her hand moves towards the note, but before she touches it, the customer gives it a final push in her direction, saying 'thank you very much' (lines 3-4). A remarkably fine

ordering of co-ordination is evident and the movement of money is accomplished, at the third attempt.

Methodologically, this extract suggests a pattern. Coordination is not idiosyncratic behaviour, rather it is organized in systematic ways. There is a right time and a wrong time to act and thus coordination has a normative component. Moreover, this is defined by the employee, rather than the customer. The rule is – 'pass money when payment is requested' and not before. By 'pattern' then, we do not mean merely empirical recurrence. Rather, we are talking about 'social order' (Sacks 1984). Empirical recurrence is the product of an underlying normative context – the sense of a right and a wrong time to act - which is communicated and reproduced in and through interaction.

Extract 3 [CV. D2. 107]

Note held out following order   Held over counter   Nudged following request

With the sample at hand, it becomes possible to then search for further cases to assess the robustness of initial attempts to describe 'regularities of human interaction' (Sidnell 2013, p.77). Quickly and easily in the present sample, we are able to find more or less identical examples that conform to this basic patterning. In extract three, for example, as the customer orders, he holds-out a bank note, which is ready to be taken. He is trying to pay. When it is not taken, he leans forward with the note hanging over the counter (see the middle image). The note is there to be taken. There is a 5 second delay and the note is moved back to the service counter. The employee then requests payment and the bank note is finally nudged

towards, and taken by, the employee. Try as they might to pay 'prematurely', customers learn they have to wait for the relevant cue. In this way, their conduct is aligned with the gallery processes.

Through the video recordings, we learn how coordination is not idiosyncratic behaviour, but a practical and normative accomplishment. This is sharply apparent above because we have brought 'mundane materiality' (Orlikowski, 2007) so closely and concretely into view. The fact that requests facilitate the movement of money in the vast majority of cases suggests a largely cooperative group of customers who, for their part, allow their conduct to be guided by organizational cues.

Accounting for deviant cases

Across the sample as a whole, we have noted the dominant pattern is that money is transferred following requests for payment. However, in some cases, there are deviations, or "deviant cases" (Heritage, 1999, p.70; Heritage and Stivers, 2013, p.665). Deviant cases often nicely elaborate the normative underpinnings of ordinary activities. where there is either (1) something unusual going on or (2) the activities at hand are marked as deviant and problematic. The deviations, therefore, do not somehow weaken the prior claim about patterning, because conversation analytic work is not concerned with raw empirical-quantitative patterns, but with underlying normative regularities.

To illustrate, we will briefly outline two forms of deviation, both of which relate to the materiality of cash money. More broadly, we might ask, whether and how the materiality of money matters. Do people do different things with cash, which they cannot do with cards? With a large sample, it is possible to address these broader questions.

In extract three, we can reveal how cash, rather than words, can be used to communicate ticket orders. Here the action hinges on the distinction between 'gift aid' and 'standard' prices. In the gallery, customers faced a choice between paying two prices (see also Llewellyn, 2015). They could pay the standard entrance rates (£8 for adults or £6 for concessions) or voluntarily choose to pay the higher 'gift aid' rate (£8.80 for adults; £6.60 for concessions), which enabled the gallery to reclaim tax (at 20%) on the whole ticket price.

In this extract, as the customer arrives at the till, the employee is elsewhere. The customer, looking back and forth to the price schedule and her wallet, assembles the 'right money' to pay for two standard concessions (that is, £12), placing a two-pound coin on top of a ten-pound note. It is *only* possible to assemble the 'right money' with cash; cards always match the price on offer.

As the employee returns to his seat, the customer orders 'two concessions'. Notice the verbal order does not elaborate whether she wishes to donate or not. She doesn't say 'two standard concessions please'. Rather, she exhibits this choice in and through the assembled denominations. Two standard concessionary tickets cost £12 and she is paying with exactly £12. The material objects elaborate her action in a public and thus accountable way. This is something that can be accomplished only with cash money. The 'matter matters' for this action.

Extract 4 [CV. D1. 20]

Assembles money	Slides money as she says 'please'		Money collected

C: two concessions please

Across the sample as a whole, we have noted the dominant pattern is that money is transferred following requests for payment. In the case we are presently discussing, there is no request. In this case, there is something unusual going on. Given the way she has silently signalled her desire not to donate, it might be quite inapposite to request payment, because that would make explicit and public a matter the customer has artfully kept silent. There may be a certain delicacy here.

As she orders, the customer slides the money towards the employee and raises her hand, revealing the cash sum. From the assembled money, her intentions are surely clear enough; she does not wish to donate. Moreover, she has moved her money right towards the employee. It is over the lip of the counter. The employee inputs the ticket order into the PC, the till opens and he takes the money, without saying anything.

We now turn to a further example (extract 5) where the activity also hinges on the material form of cash money. Again, we find a deviation.

Often one customer is buying two tickets – they are paying for another person. But what is the context here? Is payment obligatory, as it would be if a parent were paying for a young child? Is the customer 'treating' a friend or companion? Is the customer paying from a joint account? While often these issues are not oriented to, in some extracts these background

features are made directly relevant, and cash is implicated in these processes, through which people establish what they can give and owe others.

In this case, a customer (party A) orders two tickets ('two concessions please'). As she does this, her companion (B) extracts a twenty-pound note from her purse and places this on the payment counter. The fact that a twenty-pound note is extracted is a source of possible ambiguity because it is enough to pay for *both* tickets. What order of activity is the £20 note 'projecting' (Goodwin 2000, p.1491)? Is the customer offering to pay for both tickets or just her own?

Immediately upon looking to B's bank note on the counter, customer A opens her own purse and starts to check in various sections. By doing this, she is 'orienting to' the £20 note in a particular way. It is there to pay only for her companion; it is not a 'gift'. As a material artefact, A's purse is now more than a simple carrier of money. By keeping her purse out, and searching through it, customer A is actively accounting for the £20 note.

Customer A then stops searching for coins in her purse, and reaches into a different section for a note, which she starts to remove. Immediately, and before the note is fully removed, B says 'it's okay'. She reaches out to the £20 note and moves it still further across towards A. The scene has "switch[ed] from one contextual configuration to another" (Goodwin, 2000, p.1503). It is now clear what the note is doing. It is there to buy both tickets. B is 'treating' A. Customer A immediately starts to protest ('no I am'), which is countered by B ('no no no'). She then acquiesces, implying she will pay for coffee in the café later.

Extract 5 [CV. D3. 121]

B's £20 note
A searching her purse

B slides the £20

A ceases searching
her purse

1   B: it's okay

2   A: no I am ([ )
3   B: [no, no, no
4   t-truly

5   A: well, shall we go and
          get that coffee first...

This extract nicely elaborates one important reason why ethnomethodological and conversation analytic studies "insist on the study of naturally occurring activities as they ordinarily unfold in social settings" (Mondada 2013, p.33). Imagine interviewing B about her practical uses of cash money. Would she say 'I like to use large bank notes to allude to gift exchange, this avoids going through the rigmarole of verbally offering to pay for others'? – almost certainly not. At this level, social life is often not discursively available; rather it is 'taken for granted' (Garfinkel 1967). Video brings into focus swathes of routine, familiar forms of conduct which are potentially lost to other data types. At what level of detail could a field observer, who gets to observe activities only once, record what happened in extract five? In addition to the considerable challenge of accurately remembering what people say, there is

the much greater problem of noting how talk interacts with bodily movements, gaze and the use of material objects. In short, "recordings allow for the study of temporal and embodied details that are difficult, if not impossible, to notice without repeated viewings" (Mondada 2013, p.33).

This extract also highlights the benefits of working with collections. Something that was invisible in the earlier extracts, is brought sharply into focus here. It very well elaborates the approach to *relevance* we are discussing. This approach demands that we understand the 'context' of any action, not as a pre-defined set of external constraints, but as an oriented-to feature of social conduct.

Distributions and Patterns

Above, we have discussed how an approach grounded in the close analysis of single cases can nevertheless be applied to larger samples. The search for 'patterns' characterises much empirical social science work, and video-based organizational analysis specifically (Jarzabkowski et al. 2015; Gylfe et al. 2016). For ethnomethodological work, we have argued the identification of patterns is likewise similarly important, but that it is performed in light of the relevance constraint discussed above.

It is worth commenting on this further to better appreciate how this approach contrasts with others in the field. For instance, in a video study of strategy meetings, Liu and Maitlis (2014) develop a coding schema consisting of facial, vocal, physical and verbal cues, e.g., 'hard direct glaring', 'loud and fast pace', 'involuntary twitches' and 'challenging behaviours'. The researchers watched video materials to identify these cues, and then linked them to one of eight emotional states, such as 'angry', 'annoyed' and so forth. Our approach is quite different. Methodologically, our measure of evidence is not that a particular 'cue' occurred, but that the cue is 'oriented to' by those in the setting as having a particular quality

or implication. After all, people can display 'highly animated hand gestures', speak with a 'lowered voice' and 'lean forwards' without being or appearing 'angry'.

Robinson (2007, p. 69) notes that conversation analysis "is not, in principle, opposed to coding and counting, but rather to doing so at the expense of detailed single-case analyses, and thus at the expense of interactional phenomena as oriented to by participants". Similarly Stivers (2015) argues that coding is not wholly antithetical to conversation analysis, but she describes a series of considerable problems, arguing that coding "drastically reduces and bleaches the cases compared with what a moment by moment analysis can offer" (Stivers, 2015, p.15). Indeed while the identification of patterns may involve noticing differences and similarities, in the fine detail of cases differences are actually quite easy to identify. In many ways the identification of similarities is much harder.

For example, imagine two speech acts are coded similarly as 'requests', because on both occasions the customer orients to a request for payment, by passing money. Whilst coding can remain within the relevance constraint, the act of coding may 'bleach' important differences between the episodes. These problems become more pronounced when the analyst has to contend with multiple sign and activity systems (Goodwin, 2000), which include multifarious aspects of bodies, objects and scenes. Consider extract 2 in this regard. In this case, the employee first requests the wrong amount, she notices this, and then reformulates the request. But, the request is not just verbal. It also has material features. The work of 'requesting payment' is bound-up with a material task, namely inputting data. The employee can take payment only when the system requirements have been met. Furthermore, the 'request' had clear implications for the customer's activity. Immediately as she verbalises the 'request', the customer starts to pass his bank note towards the employee. By coding only the verbal 'request' the speech act is methodologically decontextualized. It is disconnected from the material and embodied features of interaction. So, any formalisation, coding or

quantification is "not an alternative to single case analysis, but rather is built on its back" (Schegloff, 1993, p. 102).

Discussion

We have suggested that the problem of relevance is a particularly acute methodological issue for studies concerned with sociomateriality. Video both reveals this problem and provides a resource to address it. We have used Schegloff (1991) to outline a solution to the problem that capitalises on the characteristic 'density' and 'permanence' of the data. Furthermore we have discussed data extracts in order to reveal how assessments of relevance can be made in relation to single cases and collections – focusing exclusively on the design and orientation to action in interaction, and in the participants' displayed orientation to matters.

Interestingly, it has been suggested that "one of the problems for research in sociomateriality and practice theory more generally, has been how to render everyday materials visible as objects for study … given their tendency to fade into the background and to be taken for granted within practical action" (Jarzabkowski and Pinch, 2013, p. 587). Many studies indicate an interest in mundane materiality – including mention of pens, chairs, flipcharts and the rest – but inevitably struggle to gain analytic purchase using interview data and the like. What we have shown is a straightforward but demanding way of targeting these "seen but unnoticed" (Garfinkel, 1967, p. 36) features of everyday life. In line with the sociomateriality agenda, we have shown how any object is not "independent of the socially organized occasions of [its] use" (Garfinkel, 1967, p. 3) and have used Schegloff's approach to the problem of relevance to navigate through vast swathes of matter in our data.

There are two key points to raise here. Firstly, that other forms of data simply do not provide access to these sociomaterial practices, and thus are doomed to gloss them. For example, if people were asked to explicitly describe ways they use £20 notes, this would

seem an obtuse and awkward question and one that a respondent would struggle to answer in any detail. Yet with video materials, we can identify and reveal participants' demonstrable and ongoingly evolving orientations to such objects. The simple requirement to take seriously the problem of relevance helps to address methodological problems that arise from the gross materiality of even simple work settings. There is so much 'matter' in both settings, but we had no empirical warrant for invoking lights and light switches, floor tiles, electric cabling, dust, windows, the ceiling, signs and so on and so forth. These items could have been made relevant for the activities at hand by the participants, but they evidentially were not. Our focus on action in interaction, however, reveals very strong procedural consequences of the movement of the dental chair and cash money rendered.

Secondly, and relatedly, we have show that even a few seconds of video allows us to unearth a dense and rich social organization. It facilitates insights into the fleeting, yet fundamentally ordered and organized, nature of everyday work. If, as organizational researchers, we are truly concerned with better understanding the nature of 'organizing', then it provides a unique perspective on the matters of relevance to participants in the course of the production and coordination of work. Barley and Kunda (2001, p. 90) suggested that the "dearth of data on what people actually do – the skills, knowledge, and practices that comprise their routine work – leaves us with increasingly anachronistic theories and outdated images of work and how it is organized." These data, and this approach, enable us to provide contributions to our understanding both of what people do, and indeed the entanglements of social and material resources critical to the organization of those activities.

Indeed, we would argue that it also delivers a distinctive rendering of the concept of 'entanglement'; one that is rooted in interaction. Our examples reveal how the sense and significance of matter and body are mutually constituted in moments of interaction. A movement of the hand or the body is seen and understood in relation to the material surround

– the chairs, the bibs, the medical notes and the cash that we have discussed. Similarly, and reflexively, the objects and artefacts gain their local and determinate sense by virtue of the ways in which they are moved towards and away from, physically shifted here and there, and so forth. In this very specific and interactional sense, they are fundamentally entangled, and inherently inseparable.

The use of our two cases allows us to briefly reflect more broadly on the contributions of this type of approach, especially for studies of service work. The attention to detail in our accounts of service work shows how such work rests on tacit, emergent, interactional and sociomaterial coordination between staff members and customers. In the analysis of these data extracts, we have shown how even a few seconds of action are rich and complex in terms of the coordination among service workers and customers – the ways in which talk or actions from one person are highly relevant to the conduct of those who have not even been addressed; how seemingly invisible or insignificant aspects of material conduct are treated as highly relevant for the progress of the service encounter. Both cases have charted the ways in which the customer is key to the service encounter, and indeed, the ways in which all parties to the encounter draw on multifarious sociomaterial resources in coordinating those encounters. This acts as a clear corrective for those who have argued that while the customer is centrally involved in interactive service work, customers remain all too peripheral to organizational research on service work (Bolton and Houlihan, 2005; Korczynski, 2009).

It encourages us to develop a clearer sense of the organization of service work. So, just as Gylfe et al. (2015, p. 135) aim to use video to "tap into the rich micro culture of strategy", we demonstrate in this paper how video is a powerful resource with which to explore the rich micro culture of service encounters. Of course, the short extracts that we present here are merely indicative of the insights and contributions that can be made. However a wider body of video-based field studies in this tradition are already beginning to

unearth the interactional production and coordination of interactive service work. For instance, these studies have unpacked the sociomaterial 'choreography' to call centre services (Whalen et al., 2002); the ways in which high value and multi-party economic transactions are coordinated through talk, gesture and gavel (Heath, 2012); the management of 'quality' service in beauty treatments (Nishizaka, 2015; Oshima and Streeck, 2015; Nizameddin, 2016); and so forth.

Thus, the approach has the potential to deliver in-depth understandings of performance and practice; reveal unanticipated findings resistant to other approaches; and indeed unpack the relevance of sociomaterial resources for participants. These are some of the reasons why major corporations have been so interested in this kind of video-based research. In the late 1970s, Xerox PARC, through the work of Lucy Suchman among others, was at the forefront of developments in the use of video-based workplace studies. Over the years these methods at Xerox have informed the emergence of a range of technologies, from expert systems through to advanced video conferencing software. The approach has subsequently become revised and refined as a part of a broader ethnography 'product' in various ways (Szymanski and Whalen, 2011) and due to successes at Xerox, we now see the use of video, and the concern with work and interaction, in the operations of other major technology firms (Microsoft, Xerox, Fujitsu, Yahoo, etc.) and consumer insight companies. The interest for them is in an approach that accesses how consumers directly experience their products, how they organize their interaction with the world around them and, indeed, how and when matter (of various forms and kinds) matters.

Conclusion

To conclude, we want to agree with Orlikowski and Scott (2008, p. 465) who state that "[i]f we can find a way to reveal the taken-for-granted, invisible dynamics of sociomateriality, it

will enable us to generate deep insights into the contemporary world." We believe that the video-based research approach that we have outlined in this paper enables scholars to examine just those dynamics and in doing so makes visible the inevitably and irresistibly sociomaterial practices of everyday work and organization. This can be applied well beyond the dental clinic or the art gallery to pursue insights and observations that inform practice and developments in complex, and materially dense, organizationsal settings, from operating theatres (Koschmann et al. 2011) to centres of coordination (Heath and Luff, 2000).

Furthermore while the discipline often seeks greater amounts and forms of data, this approach demonstrates what can be revealed in only a few seconds of video. It brings a really rather distinctive approach not only to sociomaterial investigations, but also to the ways in which we might conceive of concepts such as skill, knowledge, coordination and routine in organization studies more generally. If participants orient to organization at this level of detail, if these matters are relevant to them, then it would suggest that they should be equally relevant to organizational research. As Sacks (1992, p. 298) suggests:

> "… these are *ordered events on single occasions*. It isn't the same stability … which is gotten via summation of frequencies of occurrence. That isn't its beauty … It's that sort of thing that provides why one ought to be fascinated by a thing like this running off in five seconds – if five seconds is what it takes; it may take less. You're really seeing stuff with tremendous power at work."

Appendix 1: Transcription symbols included in the article

Symbol	Use
(1.3)	In the verbal transcripts, a pause in talk is indicated in brackets and is marked in tenths of a second; in this case, 1.3 seconds
(.)	In the verbal transcripts, a pause of less than 0.2 of a second is indicated using a single dot in brackets.
-----	In the visual transcripts, a pause in talk is indicated using a series of dashes; each dash marks one tenth of a second
then [please [thank you	Overlap between utterances is marked by lining up square brackets at the onset of the overlap
t<u>r</u>uly	Talk that is produced slightly more loudly than surrounding talk is indicated with underlining
jus:t	Elongation in the vocal production of a word is marked with colons; the more colons used, the longer the stretch on the word
okay^	Upward intonation in the vocal production of an utterance is highlighted with an upward facing arrow
°okay.°	Talk that is delivered more quietly than surrounded talk is indicated using degree signs
>sorry<	Talk that is delivered more quickly than surrounded talk is indicated using inward facing arrow heads
For a fuller summary of conversation analytic transcription symbols used for talk and visual conduct, see Heath et al. 2010, pp. 150-154.	

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