

'Keep Up the Good Work!': The Concept of 'Work' in CSCW

Kjeld Schmidt

Abstract The scope of CSCW has been a topic of sporadic debate for many years, but in a programmatic article from 2005, three esteemed CSCW researchers – Andy Crabtree, Tom Rodden, and Steve Benford – now forcefully argue that CSCW should 'move its focus away from work'. It is thus time to reconsider CSCW, to rethink what it is and why it might be important. This paper focuses on CSCW's scope: the rationale for its focus on ordinary work. It offers an analysis of the concept of 'work' (based on Ryle, Urmson, and Schutz), a critique of prevailing illusions about the realities of work in the contemporary world, and an attempt position CSCW in the context of technological development more broadly.

Introduction

It is hardly controversial to say that our understanding of work practices has become significantly more realistic and sophisticated over the last 2 decades or so. It is hardly controversial, either, to say that CSCW has been a major force in bringing this about. The intellectualist and mechanistic (or 'cognitivist') notions and theories of orderly activities that only 1 or 2 decades ago seemed unassailable and unquestionable have been upset and, by and large, overthrown. By virtue of its commitment to the development new classes of information technology, CSCW has succeeded in situating technology in the context of ordinary practical activities in material settings. In doing so, CSCW researchers have developed conceptual frameworks and investigative strategies and techniques that, however tentative they may be, enable us to hone in on the ways in which mundane artifacts and clusters of such artifacts are deployed and developed by practitioners and have set a new standards for rigorous analysis of actual work practices. And complementary to

K. Schmidt (✉)

Department of Organization, Copenhagen Business School, Denmark
e-mail: schmidt@cscw.dk

these achievements, CSCW has articulated (in outline, at least) a fundamental critique of fundamental assumptions and tenets in computing and has fostered multiple promising lines of technological development in areas such as ‘awareness’ mechanisms and flexible workflows.

However, these achievements are somewhat overshadowed by retrograde developments in the form of, for example, the increasing emphasis on studies of the use of well known ‘collaborative’ technologies with little or no relevance for the development of new technologies. At the same time, and related to this, doubts about the direction and scope of CSCW, especially the field’s declared focus on ‘work’, have been simmering for years (witness various panel discussions at ECSCW 2003 and 2007). In the meantime, however, a programmatic article has moved the debate to the public forum. It is written by three distinguished CSCW researchers, namely, Andy Crabtree, Tom Rodden, and Steve Benford [7] who deserve credit for providing an occasion for taking the discussion to the public arena. *The horse is out of the barn.*

CSCW’s program obviously needs clarification, but as Wittgenstein asks somewhere, Isn’t a clarified concept a new concept? That is, in taking the challenge, I will not simply articulate what was previously taken for granted as common ground, for that is obviously no longer the case. It is time to reconsider CSCW, to rethink what it is and why it might be important. This paper will focus on CSCW’s scope: the rationale for its focus on ordinary work.

Moving with the Times, or Blowing in the Wind?

Crabtree and his colleagues do not beat around the bush. Under the title ‘Moving with the times’, which is obviously meant to resonate Dylan’s clarion call (‘And the first one now/Will later be last/For the times they are a-changin’), the article states its message forcefully already in the abstract: “it is no mere accident that CSCW took work as its topic and resource – the historical nature of IT research from which the field emerged meant that for all practical purposes it could not be otherwise. Yet times change. IT research moves on. Today mobile, ambient, pervasive, ubiquitous, mixed reality and wearable computing, et cetera, are of fundamental concern to the contemporary computing research community. Furthermore, these developments are accompanied by a movement away from the workplace to focus on diverse settings in everyday life: homes, games, museums, photography, tourism, performances, indeed diverse bodies of people and pursuits that generally fall under the conceptual rubric of the ‘ludic’. Accompanying this shift away from work is a call for new approaches and concepts that will enable researchers to better understand the ludic and inform design appropriately” [7, p. 217].

The prophetic rhetoric is obviously intended to convey a notion of ineluctable fate: ‘times change’ and ‘IT research moves on’ (‘you better start swimmin’). Invoking ‘The Development’ and other forms of hype is very much like military March music and battle cries; it is meant to encourage the faint-hearted (‘We’ll be

victorious!') and to intimidate the opposition ('Resistance is futile!'). New technologies, we are told, are emerging that are 'of fundamental concern to the [sic] contemporary computing research community'. And nothing less than 'a movement away from the workplace' is taking place, shifting the 'focus' from work to 'diverse settings in everyday life', and this 'shift away from work' is accompanied by 'a call for new approaches and concepts that will enable researchers to better understand the ludic'. In short, we are told, 'move with the times' ('or you'll sink like a stone').

Pipes and drums notwithstanding, the three authors are already slightly less confident in the last section of the article. Here CSCW no longer has to 'shift its focus away from work', nor does it have to 'radically reshape itself in order to tackle these new areas of interest' (p. 247). Rather, 'the horizon should be broadened' to 'incorporate' 'ludic pursuits'. But this is just a change in tone, not in substance. The basic argument is that new information technologies require the scope of CSCW to be altered significantly.

Their argument runs like this: 'Contemporary IT research agendas are concerned with the development of such technologies as mobile, mixed reality, ambient, pervasive, ubiquitous, and wearable computing systems, devices, applications, and architectures. Visions of these technologies often hinge on notions of ubiquitous or pervasive computing where technology is interleaved with our everyday activities, located in the places where we live, work and play. The need for these technologies to be situated in our everyday lives suggests that many of the lessons learned in CSCW about the sociality of work are salient to ongoing developments in these and other emerging areas of IT research. To explore the salience of CSCW in such contexts will require the field to extend its boundaries and broaden its horizons beyond the bounds of the workplace, however' [7, pp. 218 f.]. Accordingly, they argue, CSCW should shift its focus from work to "homes, games, museums, photography, tourism, performances, indeed diverse bodies of people and pursuits that generally fall under the conceptual rubric of the 'ludic'" (p. 217).¹ They elaborate this proposal: "while ludic pursuits may be essentially 'playful' in character they are nonetheless socially organized and it is this that makes them available to CSCW research. Furthermore, the need for new technologies to be situated within these diverse activities strongly aligns this research with the underpinning motivation of CSCW to develop technologies that are situated within real world activities and informed by our understanding of the socially organized nature of those activities" [7, pp. 219 f.].

The gist of what the authors are saying can be summarized in two arguments:

1. The first argument is that CSCW is to be demarcated in terms of certain technologies. Their argument, stated clearly and repeatedly, is that *because of* these new technologies CSCW should abandon or broaden its scope, 'shift away from work' (p. 218) or, less drastically, 'broaden' its horizon (p. 247). Condensed, the argument is this: (a) CSCW was and should remain 'thoroughly intertwined with

¹It takes some stretch of 'sociological imagination' to extend the concept of the 'ludic' to include, of all things, domestic life.

IT research'; (b) IT research now 'moves out from the workplace to consider how IT may be situated in a broader range of social settings'; (c) *therefore* CSCW 'must also move with it' (p. 247).

2. The second argument, to which the bulk of their paper is devoted, is formulated as a reply to an objection to this program that was raised in 2001 by Bill Gaver who argued that 'ludic pursuits' are characterized by very different objectives, priorities, and criteria of validity compared to the world of ordinary work: 'There is a danger that as technology moves from the office into our homes, it will bring along with it workplace values such as efficiency and productivity at the expense of other possibilities. People do not just pursue tasks and solve problems, they also explore, wonder, love, worship, and waste time' [10]. Gaver restated and elaborated this argument in 2002: 'As collaborative technologies move out of the office and into the home or local community, new goals emerge, and thus new requirements for information and media. At home technologies could support emotional connections, providing access to other peoples' moods or attitudes, not simply their presence or availability. Within the community, technologies might help bridge different social groups, values and attitudes, to potentially mediate the communication of varied subcultures.' [11, p. 477].

In short, Gaver is warning that the concept of *working* and the concepts of exploration, wondering, loving, worshipping, and wasting time cannot simply be assimilated, as these different domains are characterized by different criteria, priorities, values, attitudes, and so on. Gaver could have said simply that we must be careful not to make 'the phenomenon disappear', to use a key expression from ethnomethodological studies of work [22].

Anyway, Crabtree et al. object that it is indeed possible to 'unpack the social characteristics of ludic pursuits using existing CSCW concepts' such as 'routines', 'constant interruption', 'distributed awareness', 'local knowledge', 'surreptitious monitoring' (p. 248). To support this, they present a study of a game and then show that such CSCW concepts can be applied to the data. They are indeed able to recognize 'routines', 'constant interruption', 'distributed awareness', 'local knowledge', 'surreptitious monitoring' in the way the players go about doing the game. Indeed! They conclude from this that 'ludic pursuits' and other domains of activity beyond ordinary work settings are 'available to CSCW research' because they are 'socially organized'; that is, such activities also '*rely on, exploit, and exhibit their sociality* as a condition of their intelligibility, meaningfulness and value' (pp. 219, 247). Hence, they argue, CSCW can shift or widen its focus to address 'socially organized activities' in all generality without confounding what we normally would consider quite different domains.

This argument is immediately and obviously absurd, for Gaver did not claim that such CSCW concepts *cannot* be applied beyond the domain of work. He argued that doing so would make the phenomenon disappear, namely, the phenomenon of playing games, of horsing around, of worshipping, etc. Doing so would not yield an adequate picture of the phenomenon, playing games, etc. And in fact, in presenting their study and in applying CSCW concepts to the case, Crabtree, Rodden, and Benford do not manage to give us an inkling as to whether the players were having fun! They do not

seem to have realized that they would have to do *just that* to demonstrate that Gaver was unduly worried. As it is, then, Gaver's objection still stands.

My concern, on the other hand, is what it would do to CSCW if its scope is extended and broadened, as called for by Crabtree et al. My answer is that for CSCW too the phenomenon would disappear.

I will deal with these two sets of issues in turn.

Before we move on, however, it should be pointed out that the general argument advanced by Crabtree et al. seems to be shared by significant sections of the CSCW community. It is for example echoed by Barry Brown and Louise Barkhuus in their introduction to the special issue of the *CSCW Journal* on 'Leisure and CSCW': 'Our goal [...] has been [...] not simply to move CSCW into studying leisure, entertainment and pleasure but to explore the new contributions and outputs from our research' [5, p. 8]. Citing the article by Crabtree et al. they state: 'The interdependences between work and leisure cuts across many core concerns of CSCW: awareness, division of labour, collaboration, distribution of tasks, efficiency and even workflow. These exist in our leisure lives as much as [in] our work [...]. It is not that leisure is exactly like paid employment, but rather that many of the concepts of CSCW are concepts of *collaborative organization*. As such, leisure can depend upon this organization as much as work, giving CSCW leverage in understanding, and designing for, this domain of activity' [5, p. 3].²

However, Brown and Barkhuus are more circumspect in their discussion, in that they remain aware of the 'irony in how a field such as CSCW, and the concepts it has developed, have turned out to be of relevance when looking at leisure', and they caution that 'studying leisure demands that we consider aspects of practice, such as happiness and enjoyment, as much as effectiveness or efficiency' (p. 7). This leads them to suggest that the issue that should be explored is: 'How can our methods help develop enjoyable and not just effective systems? How can we explore enjoyment as a broad research goal?' (p. 8). If these questions are researchable questions at all (which I seriously doubt), are they issues that can be accommodated within a practice-oriented research program of CSCW without depriving the program of practical relevance and orientation? And at another level of abstraction, are we now, after all these years, supposed to again embrace the scientific myth of a universal method?

Interdisciplinary Pitfalls

Early in their article, the Crabtree, Rodden, and Benford observe that CSCW was 'motivated and underpinned by advances in distributed computing and aligned with a number of technological research trajectories' (p. 218). This is not controversial

²It should be noted, also in passing, that it requires *more* than 'sociological imagination' to claim that 'awareness, division of labour, collaboration, distribution of tasks, efficiency and even workflow [...] exist in our leisure lives *as much as* [in] our work' (emphasis added).

at all; it is a historical fact. Without computers in networks, no CSCW. But the authors then begin modulate their language: ‘Technological developments and research played a central role in establishing a nascent field of interdisciplinary inquiry at the centre of which was a concerted effort to develop systems from these emerging technologies that would resonate with the social character of work and organization’ (ibid.). This is at first rather puzzling. Should this be read as implying that CSCW is about developing ‘systems’ (based on ‘these emerging technologies’) but has no role in developing ‘technologies’? The difference is important. Do we have the requisite technologies and is the job simply restricted to configuring these technologies in the form of ‘systems’ for specific settings? If this reading is correct, how are the new technologies supposedly developed? Do the authors believe that they are and can be developed ‘automatically’ or ‘spontaneously’, that is, without a view to their potential application? Although not uncommon, this notion of a strictly unidirectional process of technological development, from mathematics to technologies in search of an application, is a fantasy. This reading is confirmed when the authors emphasize that “the historical context of interdisciplinary research, which underpinned the emergence and development of CSCW [...] was one motivated by the needs of IT researchers to understand the socially organized (‘collaborative’ or ‘cooperative’) *situations and settings in which developing systems would be deployed and used*” (p. 218, emphasis added).

This paints a strange picture of the roots of CSCW. It is a picture where ‘technological development’ and ‘developing systems’ were *going concerns* that simply happened to be in need of supplementary understanding of the settings ‘in which developing systems would be deployed and used’. Were the then existing technologies adequate for ‘designing systems’ that ‘resonate with the social character of work and organization’? Did CSCW just have to take the technologies and put them together?

This picture of the origins of CSCW is a gross misrepresentation. One example will suffice to show this. If we take the classic CSCW article by Rodden, Mariani, and Blair from 1992, we will see a completely different view:

‘Cooperative applications which have started to emerge from CSCW research place new demands on the computer technology used to support them. These demands raise a number of fundamental questions about the way in which computing systems provide application support.’ ‘The majority of applications have been developed using existing and proven computer systems and technology. These supporting systems provide many of the services necessary to realise cooperative applications. However, the means by which these services are provided and the techniques used to present technological support to application developers incorporates an assumed model of use’ [18, p. 41]. Calling for ‘a re-consideration of the design decisions underpinning existing computer techniques’, Rodden, Mariani, and Blair stated that: ‘Many of these assumptions are challenged by the needs of cooperative applications which highlight a significant role for computer science research within CSCW and suggests that CSCW will have far reaching consequences for computing’ (p. 42).

As this one example amply demonstrates, CSCW from the very beginning did not merely take existing technologies for granted (apart from *post-hoc* studies of

the uses of 'groupware' and computer-mediated communications). On the contrary, progressive CSCW research questioned the 'assumed model of use'. What Crabtree, Rodden, and Benford now propose is a view of CSCW that is the diametrically opposite. On this view, CSCW is field defined by a certain family of technologies and its role is to assist technological researchers in developing systems based on these technologies; the 'assumed model of use' is not questioned.

Crabtree et al. are of course correct in emphasizing the potentials of new interaction technologies such as mobile, ambient, pervasive, ubiquitous, mixed reality and wearable computing, etc. What they refer to is a family of technologies that, in different configurations, may make it possible to build applications that are both embedded in ordinary artifacts, typically mobile devices (handheld, wearable, etc.), and at the same time reactive to the state of the material environment. This family of technologies includes positioning based on any kind of wireless networks (GPS, GSM, WiFi, Bluetooth, RFID), sensor and actuator technologies, multi-modal representations, and the like. By making it possible to build highly mobile and reactive devices these technologies may enable us to build applications that support 'mutual awareness' in ways that are far more effective and far less intrusive than previously [for fascinating examples, cf. 11]. After all, how much 'mutual awareness' can be obtained by means of a 17 in. screen, a keyboard, and a mouse? In short, these technologies are obviously quite relevant for ordinary cooperative work. They promise ways to facilitate 'mutual awareness' in settings in which the state of the physical environment and of actions in terms of location, movement, direction, velocity, temperature, etc. have practical significance for members: Where is part #36.87.6745? Has it been moved? Where to? Will the next shipment of cylinder blocks arrive on time? When will this process be finished? Has this roll been exposed to humidity? Is Mike from Maintenance on his way? Has he already been here?

But this is not the message Crabtree et al. want to convey. The potential application of these technologies in ordinary cooperative work settings is not even mentioned in the article. Their message is the opposite: that CSCW must to shift the focus away from work or 'broaden' its horizon *in order to* accommodate these new interaction technologies. But this line of reasoning is a *non sequitur*. For the arrival of these technologies offer no reason whatsoever why CSCW should 'shift away from work'.

Unusually muddled thinking seems to be at work in the call for shifting the focus of CSCW away from work. This becomes evident if we, just for a minute, consider other technologies than the ones mentioned by Crabtree, Rodden, and Benford. When we do so, we will easily realize that a vast variety of other technologies exists, in various stages of maturity, that (potentially) are of equal relevance to CSCW. Let me just point to high-level computational notations for 'business process modelling' (e.g., BPEL), computational 'ontologies', peer-to-peer protocols, 'service-oriented architectures' (SOA), robotics, space-based architectures ('data grid' technology), 'bigraphical reactive systems', 'XML spaces', and so on. In fact, no kind of information technology is, in principle, without actual or potential relevance to CSCW. Given the endless variety of technologies of potential interest to CSCW, it would be futile for CSCW to shift its focus in response to new technologies. In short, their argument for moving away from work is confused.

The Concept of ‘Work’

When the scope of CSCW is discussed and the proposal is put forward to remove or ignore the ‘W’ in the acronym, the argument is often that ‘work’ is a term of many uses anyway and that CSCW. It is thus suggested that, since the term ‘work’ is being used in some sociological literature in a highly derived sense, the same loose usage is legitimate in deliberating the scope and focus of CSCW as well. But to argue that just because we use the word ‘work’ in many ways and for all sorts of phenomena, then all these phenomena are *of the same kind* and can be studied as more or less the same phenomenon – is the classical nominalist fallacy.

I will here present two arguments, one based on some remarks Ryle made rather tangentially, and another based on some remarks that Schutz developed as a centerpiece of his philosophy of sociology. I will then, thus supported, try to put these arguments to work.

‘Work’: A Rylean Argument

In his protracted effort to evict Cartesianism (and Behaviorism) from the philosophy and psychology of *thinking*, Gilbert Ryle introduced a series of auxiliary or meta-logical concepts and distinctions. They were all introduced in an ad hoc manner as useful tools for his analyses. One of his tools is a class of concepts he calls ‘polymorphous concepts’.

To understand what Ryle is up to with this category, let us briefly follow his argumentation in a short paper on ‘Thinking and language’ from 1951. When theorizing about *thinking* we are, he notes, naturally inclined to say what thinking consists of and how these various elements are combined. Since processes like perspiring, digesting, counting, and singing can be broken down into elementary processes, we would expect the same of thinking. ‘But this is a mistake’, Ryle observes, adding: “There is no general answer to the question ‘What does thinking consist of?’”. Ryle then, to sustain his argument, switches to the concept of work:

If asked “What does working consist of?” we should quickly object that there was no general answer. Some sorts of work are done with some sorts of tools, others with other sorts. But sometimes the same work might be done with alternative tools. Some work does not require tools at all. The dancer uses her limbs, but her limbs are not implements. A headmaster might do his work though deprived of the use of his arms, or his legs or his eyes. Some sorts of work are done with special materials, like string or Carrara marble. But the work might be done with different materials, and some work does not require materials at all. An artist’s model need not even be attending to her work. She might be paid for sleeping or playing patience in the studio. There need be no action, inner or overt, performed by the policeman on his beat, which he may not also perform when strolling round the same streets when his work is over. Not all work is for pay; not all work is unpleasant; not all work is tiring. Nothing need be done, thought, or felt by the professional footballer at work that might not be done, thought or felt by the amateur at play. *Work* is a polymorphous concept. There is nothing which must be going on in one piece of work which need be

going on in another. Nothing answers to the general description "what work consists of". None the less, each specific job is describable. The workman can be told what he is to do. The concepts of *fighting*, *trading*, *playing*, *housekeeping* and *farming* are also polymorphous concepts, where the concepts of boxing and apple-picking are nearly enough non-polymorphous. [19, pp. 260 f.]

For Ryle the concept of work has now done its job and he can turn back to the job at hand: 'The concept of *thinking* is polymorphous' (p. 261). We leave his inquiry there, for what concerns us here is of course not Ryle's analysis of the concept of 'thinking' but his characterization, in a kind of adjunct line of argument, of the concept of 'working' as a polymorphous concept. Concepts like 'practicing' or 'obeying' are polymorphous in that none of these words indicate some specific activity. By contrast to concepts such as 'singing', the concept of 'working' is polymorphous in the sense that the application of the term 'working' does not imply the performance of any *specific* activity.

In the words of Alan White, in his concise account of Ryle's philosophy of mind, polymorphous concepts like 'practicing' or 'obeying' indicate the relationship of a given activity 'to its circumstances, and thereby signifies what, on this occasion, it is a form of' [25, p. 59]. What is implied, then, when we say of a man, for example, that 'he is now working again', or that 'he is working hard', or that 'he has not been working for quite some time', or that 'he is only pretending to be working'? James Urmson, another of Ryle's and Austin's younger colleagues at Oxford, has written a comment on these remarks by Ryle in which he makes some, for our purpose, very cogent remarks on the concept of working:

Working has no strict opposite or contrary; but it is most typically contrasted with recreation and leisure pursuits. One of Ryle's leisure pursuits and recreations is gardening; I should never be surprised to hear that he has spent the afternoon working in his garden. But perhaps I ought to be surprised when I hear this, for if gardening is his recreation how can he be working when he is gardening? Yet in fact it does not ring at all oddly if somebody says that his favourite recreation is working in his garden. However, we should be surprised if a professional philosopher, filling in one of those tiresome statisticians' questionnaires, were to include his hours of gardening in his answer to a question about the number of hours he worked each week; we should be shocked if he were to refuse a legitimate professional call on his time on the ground that he had other pressing work to do, if it emerged that this other pressing work was lawn-mowing; if he can find much time for gardening over a certain period, then for that period he cannot have been very busy. It is clear that only for certain limited purposes can a professional philosopher's gardening be called work, and that for many important purposes it must be contrasted with his work. [24, pp. 260 f.]

That is, to categorize a given activity as work involves implicit references to motive and circumstance. Just like a man's writing his signature on a piece of paper may be described as his practicing his signature, authorizing a purchase order, or signing a peace treaty, depending on the situation at hand, a man's turning soil with a spade may be described as recreation or as working; it simply depends on the context. That is, without background information, one would not be able to tell from a short video snippet of an activity whether what it depicted was somebody engaged in work or recreation or something completely different (somebody imitating a gardener, say, for purposes of satire or ceremony). In short, the same activity

may count for working in certain situations, or when referred to in certain discourses, whereas the same categorization of the same physical activity in another discourse would be considered flippant.

However, Urmson goes on, not *any* activity would qualify for the label *work*: 'It is also worthy of attention that not all recreation, however strenuously pursued, can be called work. It is all very well in the case of gardening, knitting, carpentry, and rug-making; these are most naturally categorized as working; it is perfectly reasonable to speak of somebody as working on his stamp-collection or on a painting. But we should require some special explanation if we were told that somebody was working on a game of ludo or a detective story, or that he was working at a country walk or a game of cricket. No doubt, if I am writing a detective story, even for fun, I may be said to be working at or on it, but not when I am sprawled in an armchair reading it' [24, p. 261].

It is evident that we, in our ordinary discourse, make an informal distinction between occupations which would be counted as 'work' in *all* standard contexts and those which would be called 'work' only for *some* purposes. Dubbing the first ones 'primary cases of work' and the others 'secondary cases of work', Urmson then goes on: 'The central among the primary cases of working are those in which one does something, whatever it consists of, because it is necessary or useful in a practical way. Since people typically have the duty to do such things and are frequently paid for doing them, we also extend the primary cases of working to include doing anything, whatever it consists of, if it is done as a matter of duty for pay. In this way the game-playing of the professional comes to be counted as a primary case of work. [...] In the case of primary work we thus have a slide, excluding action-content, from whatever is practically necessary or useful, to the same done as a matter of duty for pay, to anything which is done as a matter of duty for pay' [24, p. 263].

That is, central to the concept of work, *the primary cases of work* designate activities that are considered 'necessary or useful', either in terms of the concrete fruits of the labor (food, clothing, timber, tools, machines) or in terms of some other reward (recognition, salary). The point is practical necessity or usefulness. For an activity to count as working requires more than its unfolding in time and space. What counts is whether it is done and done well. In performing the activity the actor must deal with all sorts of constraints and requirements, and in the modern world, in the dense web of global division of labor, these are typically externally defined. Preparing a meal for others, perhaps even for paying clients, implies different constraints and requirements and hence different concerns, procedures, and techniques, than preparing a meal for oneself. After all, if you are cooking for yourself, no real harm is done if the sauce is too salty or the steak too 'rare'. It is not very serious. It may look the same but it is a different ballgame: the criteria are different, the requirements in terms of planning and skill are different.

The *secondary cases of work*, by contrast, can be considered work because they are *also* serious affairs in that they *too* require 'effort and concentration': 'Secondary cases of work are those which resemble reasonably closely in action-content typical and common forms of work. One of these, for example, is the cultivation of the soil,

and thus the construction of an ornamental rockery for the pleasure of its construction comes to be counted as (secondary) work. Also, since central cases of work typically require effort and concentration, we are even prepared to say of an enthusiastic amateur game-player that he is working hard, though we are unlikely to say that he is working *simpliciter*. It would seem that we will not say that the solver of crossword puzzles is working because he is not doing anything sufficiently similar to what people commonly do in the way of primary work, though we can say that the amateur carpenter is working at his bench without any qualms' [24, p. 263].

In sum, the concept of work is used in ordinary language to highlight or emphasize that the given activity serves practical purposes, that it requires effort and concentration, and that it presumes mastery of all sorts technicalities. The concept of work implies that it is not mere pleasure but serious stuff: activities faced with serious complexities. It is because of this that one can say, as Marx does, that even 'really free working', such as composing music, 'is at the same time the most damned seriousness, the most intense exertion' [16, p. 499].

In other words, the meaning we impart to an activity by using the term 'working' was expressed succinctly by Johnny Cash in his introduction to the song 'There ain't no easy run', a salute to the work of truckers:

Sixteen forward gears, diesel smoke trailing in the wind.

Eighteen tires checked and singing on the pavement.

Five thousand miles to cover, three weeks away from home.

And it's work, Mister, it demands the best.

And whether your run is on Interstate 70 or hauling freight down the eastern seaboard,

If you're a gearjammer you know there ain't no easy runs.³

Work, as we know it, demands the best: it requires skill and training, stamina and effort, dedication and attention.

'Work': A Schutzian Argument

The everyday world of working plays a key role in the thinking of the founder of phenomenological sociology, Alfred Schutz, who discusses the concept of work in many key places. His purpose of these discussions are of course different from those of Ryle and Urmson, but his line of reasoning is nonetheless somewhat congenial with their argument. In view of the historical role Schutz played in the development of the sociology of ordinary practice (from Garfinkel [9] to Bourdieu [4]), it may be worthwhile to quickly summarize his view on 'work'.

'We begin with an analysis of the world of daily life which the wide-awake, grown-up man who acts in it and upon it amidst his fellow-men experiences within

³ Johnny Cash: *The Johnny Cash Show*, Columbia Records, October 1970.

the natural attitude as a reality,' goes a typical beginning of a Schutzian argument. He then goes on to describe this natural attitude of a person engaged in his or her daily work: 'To [the natural attitude] the world is from the outset not the private world of the single individual but an intersubjective world, common to all of us, in which we have not a theoretical but an eminently practical interest. The world of everyday life is the scene and also the object of our actions and interactions. We have to dominate it and we have to change it in order to realize the purposes which we pursue within it among our fellow-men. We work and operate not only within but upon the world. Our bodily movements – kinaesthetic, locomotive, operative – gear, so to speak, into the world, modifying or changing its objects and their mutual relationships. On the other hand, these objects offer resistance to our acts which we have either to overcome or to which we have to yield. Thus, it may be correctly said that a pragmatic motive governs our natural attitude toward the world of daily life. World, in this sense, is something that we have to modify by our actions or that modifies our actions' [21, pp. 208 f.].

In this particular context, Schutz wants to contrast the world of work and its natural attitude with other regions of human experience. Taking his cue from some comments by William James in the latter's *Principles of Psychology* on different experiential 'sub-universes', such as the world of material things, the world of ideas, the worlds of mythology and religion, or the world of sheer madness, he wants to 'free this important insight from its psychologistic setting'. Schutz therefore proposes the term 'finite provinces of meaning', mentioning as examples, in addition to the world of working, 'the world of dreams, of imageries and phantasms, especially the world of art, the world of religious experiences, the world of scientific contemplation, the play world of the child, and the world of the insane' (pp. 229 f.). The major difference between the world of working and these 'finite provinces of meaning' is that 'the *epoché* of the natural attitude' of the world of working is replaced by 'other *epochés* which suspend belief in more and more layers of the reality of the daily life, putting them in brackets' (p. 233). 'The world of working in daily life is the archetype of our experience of reality. All the other provinces of meaning may be considered its modifications' (p. 233). For Schutz, that is, the world of working – the world of embodied socially situated material activities – stands out as 'paramount' because 'We have an eminently practical interest in it, caused by the necessity of complying with the basic requirements of our life' (p. 226 f.). In short, if we follow Schutz's train of thoughts, the distinction between the world of working and those other 'provinces of meaning' is critical to the project of phenomenological sociology, because without it the essential insight expressed in the concept of 'the natural attitude' is blowing in the wind, down the drain, gone.

But what is now being proposed is just that: to move or widen the scope of CSCW to include 'socially organized activities' of whatever 'finite province of meaning' ('ludic pursuits' like playing games, watching daytime TV, playing the Ancient World of Warcraft, but presumably also – why not? – daydreaming, courting, pillow talk, praying for redemption), without discrimination or ranking, on an equal footing with ordinary cooperative work.

'Work': Sociological Jargon and Ordinary Language

As noted by Urmson, the concept of 'work' is used in different ways, in the primary case used of serious and demanding activities that serve practical purposes; in the secondary case of activities that, in the effort and technical mastery required, resemble work of the primary category. We of course also use the term in even more derivative ways, tertiary and onwards, such as when we ask someone proposing a new technical term, 'What kind of work does it do for you?', meaning of course: is it of any *practical* use? does it make a *difference*? does it *do* anything? We use terms in such derivative meanings routinely, normally without getting into trouble.

Not surprisingly, the term 'work' has been appropriated by different disciplines to do, well, all kinds of 'work' for them. In physics, for instance, 'work' means the expenditure of energy required to cause a state change (a displacement of an object). An abstraction over the notion of work as mere toil, 'work' is here defined as 'force times distance'. Physicists and mechanical engineers normally have no difficulty in distinguishing this concept of work from the concept of the work in which they daily are engaged. They do not apply the mechanical or the thermo-mechanical concepts of work when they discuss whether a particular project is interesting work or hard work or boring work. Likewise Freud could talk about 'dream work' without falling into the trap of mistaking the work in 'dream work' for the work of those who manufactured his couches and cigars.

Now, the term is also used in sociology in a similarly derivative sense, for instance when ethnomethodologists use it to denote what members do to sustain social order [23, p. 11] or when Anselm Strauss in more or less the same sense talks about 'articulation work'. These phenomena are dubbed 'work' because they involve specifiable competencies. But nobody in his right mind mistakes, *or should mistake*, this derivative sense of 'work' for 'work' in the primary sense. The distinction is one that all workers apply and must apply, and they do that when they complain that they have too many meetings, that they are being interrupted in their work by phone calls, that some colleagues spend too much time drinking coffee or on Facebook. It is the distinction workers apply when they say, 'Enough talk, let's get to work!' It is a central concern to all work (in the primary sense). It is the basic tenet, also, of 'the natural attitude'.

We thus get into trouble if a term from ordinary language, like 'work', that has been appropriated by sociology to do some specialized job, is then re-imported into and imposed upon ordinary discourse. But the urge to do so is sometimes strong and it is perhaps not surprising that this stratagem is deployed in a later paper by Crabtree and colleagues [8] that argues that the ethnomethodologically informed ethnographic studies of work that have been published in CSCW are not really about work as we know it, and that most of the CSCW community thus must have got it all wrong. These studies were rather about 'the *interactional work* through which people organize a setting's activities' (p. 880 f.). Having thus emptied the concept of work of its ordinary meaning and retroactively made CSCW an esoteric

outgrowth of the philosophy of sociology, the authors feel free to dismiss any idea that ‘somehow or other the analytic practices of ethnography in the workplace are different to the analytic practices of ethnography in, for example, the home or the museum’. It is an old trick that has been played for centuries, sometimes to overawe the peasants, as when an enthusiastic student of nuclear physics on his first weekend back home tells his dumbfounded parents that the family’s sturdy dining table is not solid at all: it’s mostly empty space. Some would call it playing with words.

By going down the path suggested by Crabtree and his colleagues, i.e., the path of assimilating the dissimilar, we would not only be causing confusion; we would be losing our ability to *focus* on exactly those practices that we find in complex cooperative settings: the elaborate coordinative practices (skills, typifications, techniques, schemes, notations, etc.) that have been developed *to get the job done* and get it done efficiently, well, timely, dependably, etc. We would produce accounts of work in which what is specific about work – about cooperative work in modern settings – is bracketed out, and we would instead come up with something akin to the vacuous accounts produced by mainstream sociology.

In this regard, we have been duly warned by Sharrock and Anderson: ‘The things that characterize ordinary activities for those engaged in them seem to disappear whenever sociological theories and methods are brought into play. Whenever sociologists talk about family life, work, leisure and the rest, they seem to change the subject and discuss things that we as ordinary people would not recognize. In fact, in order to decipher what is being discussed, even sociologists have to refer back to their ordinary knowledge and experience of social life.’ [22, p. 15]. Only this time it seems as if ethnomethodology itself is being dressed up as yet another presumptively universal method that can be applied across the board, without alteration, irrespective of the specifics of the domain. Old habits certainly die hard.

‘Work’: A Reality Check

What are the criteria for demarcating CSCW’s horizon? By arguing that CSCW has to move in the particular direction they are pointing to, Crabtree, Rodden, and Benford seem to employ an implicit criterion that we most definitely need to make explicit and discuss. A closer look at their argumentation will make it clear.

The article makes one *non sequitur* after another. This is very weird indeed. Why would Crabtree et al. argue that, since CSCW has lessons for, say, the computer games industry or for performance art, then its focus should be shifted away from work? Why abandon a line of research just because it has produced interesting and successful spin-offs? Why shift the focus away from work when this focus has produced insights – conceptually and technologically – that apparently are exceedingly valuable to other fields? Likewise, why should the arrival of interaction technologies of the contextual computing category, which are of obvious potential relevance to ordinary cooperative work settings and thus to CSCW, motivate CSCW to shift its focus away from those very same ordinary cooperative work settings? Why is their

potential application in ordinary cooperative work settings not even considered by Crabtree and his colleagues? Why should CSCW move away from work when these new technologies are in fact highly relevant to CSCW? Why should CSCW move in precisely *this* direction? Why exactly *these* technologies? It would of course make sense for CSCW to move its focus away from work if its program have been completed and if the major problems that motivated the field in the first place have been solved. But CSCW has *not*, by any standard, solved the problems of supporting 'articulation work' in complex cooperative work settings. Why abandon a progressive research program that is important in its own right? This is perplexing.

Now, could it be because the authors believe that problems of cooperative work are no longer important problems? This seems confirmed by this passage: 'As research moves out from the workplace to consider how IT may be situated in a broader range of social settings, then CSCW must also move with it to consider how best to inform technological development within these contexts, *unless it is to run the risk of becoming a historical curiosity rather than a vibrant living research community*' [7, p. 247, emphasis added]. But how *could* CSCW possibly become 'a historical curiosity' *if and as long as* ordinary cooperative work is economically, demographically, socially important and *if and as long as* the conceptual and technical problems of developing adequate computational support for articulation work are large and generally unsolved? Because, I suggest, the authors presume ordinary work to be of ever diminishing importance (Brown and Barkhuus in fact argue along that exact line). This interpretation solves all the puzzles: it would explain the direction Crabtree et al. argue for CSCW to take: 'the ludic'; it would explain why the obvious relevance of the new interaction technologies for ordinary cooperative work settings is not considered at all; it would also explain why 'business process modelling' and other technologies destined for work settings would not be considered either; and it would explain the dramatic rhetoric and the fear of being left behind when 'the times' move, the fear of becoming a relic, a mere 'historical curiosity'.

If the authors believe that ordinary work is waning, they are not alone in doing so. It has, in different shapes and forms, been the gospel of business pundits and central bankers for quite some time. Epoch-changing transformations of human society are indeed proclaimed at a frequency that seems to match the business cycle perfectly. Social scientists are as gullible (or cunning) as technologists. The 'post-industrial' society that was proclaimed by Daniel Bell (in 1973) has been overtaken many times since – by the 'network society', the 'new economy', and the 'knowledge-based society'. The refrain of all these postulates is that ordinary industrial work is on the way out, to be replaced by 'service' work, if not by leisure *tout court*. We are all of us, or so we are told, already or soon to become, 'symbol analysts' or 'knowledge workers' who make our income in 'virtual organizations' and dwell in 'cyber-space', in the 'weightless world' of the 'digital economy', and because of the ever-increasing amount of time at our disposal for leisure, the 'experience industry' is destined to become the big thing of the future 'leisure society'. If this was even close to being realistic, it would certainly seem as if CSCW, with its focus on ordinary work practices, is indeed in risk of becoming 'a historical curiosity'. The problem with this, however, is that it has no foundation.

The Myth of the 'Leisure Society'

Let us take the issue of leisure first. Are we not moving into the leisure society or whatever it is called: an era where work plays a diminishing role in people's lives?

The first thing to note is that statistics about work and leisure are tricky. However, there are some serious and careful studies we can build on.

In the United States, working hours have been on the rise for decades. While US workers around the middle of the nineteenth century had put in about 70 h per week, the working week was gradually reduced to about 40 h by the time of the Second World War, at which point it stabilized. From 1948 to 1969 this level was maintained. However, according to the authoritative study by Schor [20, p. 79], the number of hours worked per adult per year 'rose modestly', whereas hours per labor force participant fell slightly (the difference largely reflecting the effect of women's increased participation in the work force). But then the trend shifts. 'After 1969, hours began to rise' (*ibid.*). During the 2 decades from 1969 to 1987, the hours worked by labor force participants increased from 1,786 per year to 1,949. Public perceptions notwithstanding, the conditions in 'Old Europe' are comparable. A survey study commissioned by the European Union from 1997 concludes that 'Overall Europeans work long hours'. Half of the employees work more than 40 h per week [3, pp. 140–147].

Now that we are considering the presumptive need to move the focus away from work, we should not omit the domestic or household work that has to be taken care of after paid work or in weekends: caring for children, shopping, cooking, cleaning, washing clothes, personal hygiene, and sleeping. In her study of the development in working hours in the US from 1969 to 1987, Schor shows that the total hours spent by US labor force participants on paid work together with household work rose from 2,675 to 2,837 h annually; that is, average time for leisure *fell* by 162 h per year. If one considers the entire population ('working age persons'), 'leisure time has fallen by 47 h a year' [20, pp. 35 f.]. Again this is not special to the US. In the industrialized countries members of the work force on average work about 80 h per week [12, 15].

Finally, for the sake of proportions, workers in East Asia are of course even less close to the 'leisure society' than workers in Europe and North America. China is the obvious example. According to Judith Banister, an authority on Chinese labor statistics, in many export-oriented factories in the Pearl River Delta, the new manufacturing center of the world, 'employees usually work 6 or 7 days a week, totaling 60–80 h per week in whatever period constitutes the peak season for that manufacturing sector. That season can last up to 8 months a year. Average yearly hours actually worked per employee might be as high as 4,000 h in some China manufacturing enterprises' [2, p. 31].

The leisure society is not imminent. Nor is there any necessity in its coming.⁴ References to it coming are somewhat premature. That is, a change in the scope of

⁴The huge increases in productivity under the Industrial Revolution were accompanied by something in the magnitude of 100% increase of overall work time [20, Chapter 3]. The fact of the matter is that the development of technology does not in any way automatically translate into improved conditions of work and life.

CSCW cannot be motivated by references to the notion that work should play a diminishing part of people's lives.

The Myth of the 'Post-Industrial' Society

Proclamations that the 'industrial age' is behind us are usually buttressed by official occupational statistics that show that 'manufacturing' jobs and similar jobs in material production⁵ are indeed dwindling and have long since been overtaken by jobs in the 'service' industries. True, in the developed countries, the OECD countries, the occupations categorized as 'services' have long since surpassed 'manufacturing' in numbers of people employed; they now employ approximately twice as many as 'manufacturing'. However, such statistics are useless when used as a basis for understanding structural developments and long-term trends.

However, as pointed out by many researchers, the concept of 'service' is confused [e.g., 14]. Or to say it as clearly as possible: 'The services category is a category totally devoid of scientific value' [3, p. 120]. This makes occupational statistics largely useless with respect to understanding major changes in the national and international economy. But even leaving aside the utter meaninglessness of the 'service' category itself, the debates over the issue of the relative size of 'manufacturing' versus 'services' in OECD countries is really quite absurd; or rather, provincial. The fact that factories can no longer be *seen, heard, and smelled* from the suburbs of the West, is no proof that they no longer exist. What has happened over the last 2 decades or so is that many industrial jobs have been moved from the West, especially from the US, to East and South Asia and Latin America. The percentage of jobs in manufacturing (as reflected in occupational statistics) has certainly declined in the West but, as pointed out by (even) Manuel Castells, the decline is more than offset by the increase in manufacturing in the Third World [6, p. 253]. In fact, he observes, 'While theorizing on postindustrialism we are experiencing [...] one of the largest waves of industrialization in history' (ibid., p. 113).

Today, more than 10 years later, that wave has not subsided one bit. If we again take China, the case in point, the official statistics showed 83 million manufacturing employees in 2002, but, adds Judith Banister, 'that figure is likely to be understated; the actual number was probably closer to 109 million' [1, p. 11]. To give an idea of the proportions, Banister adds that the major industrialized countries in the Group of Seven (G7) in 2002 had a total of 53 million manufacturing workers. And we have not even considered the growth of manufacturing in the other industrializing countries of Asia (India, Thailand, Vietnam, Philippines, Indonesia, etc.). As for China, there was a period, in the late 1990s through 2000, where the number of manufacturing workers in China was declining, caused by privatization of state- and

⁵The term 'material production' is here used as shorthand for 'production of material goods'. The term 'material work' should be understood in the same way. This usage should not be read as implying that 'immaterial production' is something out of this world.

collective-owned factories in cities and the ensuing massive layoffs and increase in productivity. However, 'China's manufacturing employment began to rise again after 2000, regaining the upward trend from 1980 to 1995' (ibid.).

We have not entered a 'post-industrial' age or a 'weightless world'. We live in the middle of an industrial revolution on a truly global scale, a massive transition from traditional agricultural work (and the domestic work and small-scale craft work that is connected with traditional agriculture) to industrial work.

What does that mean for CSCW? It means first of all that millions if not billions of people these years are moving from forms of work in domestic production, subsistence agriculture, and small-scale handicraft, which are only sporadically performed as cooperative work, to the generally systematic and increasingly complex cooperative work relations that characterize the industrial mode of production. More than that. The current process of industrialization in East Asia and elsewhere does not reiterate the forms the industrialization of England took two centuries ago. The historical *milieux* in which the current industrialization process unfolds is radically different from that of the original, of course. The process of industrialization unfolds within an already established world economy, with a global infrastructure of transportation, communication, banking, etc. Consequently, the millions of new industrial workers typically enter the world of industry in production sites that are part of global production networks, that is, they enter cooperative work relations of global scope.

In sum, focusing on ordinary work hardly makes CSCW 'a historical curiosity'. If somebody claims that CSCW's program, its focus on work, *has* to be changed, then it *cannot* be because work, including ordinary work in material production, has ceased to be economically, socially, or demographically important.

The Work of CSCW

Focusing on work is crucial for CSCW for these reasons. Work is the paradigm of the natural attitude. The worker has things to do, he or she is faced with things that have to be done in a certain way at a certain place at a certain time and that must meet requirements of all sorts. It is necessary activity, 'the realm of necessity', and resources are scarce. It is characterized by all sorts of technicalities that workers must master. It demands 'the best'. For those reasons, workers develop (or acquire or a trained in) sophisticated coordinative practices. Professional work of any kind poses the paradigm of sophisticated coordinative practices and hence of the natural attitude.

For CSCW ethnographic and other forms of in-depth workplace studies are of critical importance simply because understanding professional cooperative work practices that, as a rule, are alien to technologists, requires rigorous studies, in contrast to many other provinces of activity in which we all engage and generally master (domestic life, tourism, having fun, hanging out). Of course, *for sociology* all work domains and all kinds of work are of equal interest. The *chique boutique* in the city center offers instances of work that, to 'the sociological eye', are just as

interesting as the work of assembling an airplane, performing heart surgery, or devising the proof of a mathematical theorem. But CSCW is not sociology, nor is it sociology of work; it is an interventionist enterprise, very much drawing on sociological competencies, of course, but committed to the *development of technologies* for – and their transformative integration in – cooperative work practices. This has implications for what is of *particular* interest to CSCW. And what is of particular interest to CSCW is, I submit, cooperative work practices in which coordination technologies serve, or may serve, as regulators of the interdependent activities of the members of the ensemble.

Let me flesh this out by very briefly attempting to position CSCW in the context of technological development. The machines of the Industrial Revolution – such as Robert's Self-Acting Mule spinning machine from 1825 – were mechanical in the sense that the transmission of power and the control of movement were physically integrated. Power was transferred to the tool or the work piece by means of belts, cogwheels, gear trains, camshafts, and so on, and those very same parts at the same time also regulated the movements of the tool (controlled the speed, direction, etc.). To construct and modify machines required significant skill and effort, and indeed, the cost of their construction and modification were such that the use of machinery was restricted to a few branches of industry, typically mass production [13].

This picture has changed radically with Turing's computer design: the stored program architecture. It makes it highly economical to construct control systems that are not physically integrated with the power supply. One can in fact consider the computer as a universal control system: it can be made to incarnate any control function, be it a spinning machine, a machining center, a typesetter, or a jukebox. Now, in view of the mythological notion of the digital as something non-material, it is necessary to point out that a software program that has been launched and resides in the computer's memory, in RAM, is a *machine* as much as the Self Acting Mule. It is just as material, it is just not *tangible*: one cannot touch it. However, a software machine is infinitely faster because the mass of the electron is many magnitudes smaller than a cogwheel, a camshaft, a crank, etc. (the difference in magnitude is about 10^{30}). It can move at a velocity close to the speed of light. What is equally important is that software machines can be constructed more or less automatically. When the blueprint has been designed, that is, the source code has been written and tested, the code can be compiled and executed automatically. The costs of modifying a software machine like a spreadsheet model of a budget are insignificant compared to the cost of modifying, say, the gearbox of a car. And as soon as the software machine has been built, it can be copied and distributed at an insignificant cost. And more than that, software machines can be linked: they can transfer data or code to between themselves, and one machine can trigger the execution of another, perhaps at another location. In this way, vast machine systems are being built. In fact, the Internet itself is a vast machine system that facilitates the construction and operation of other specialized machine systems. The economic, organizational, and social consequences of this radical reduction of the cost of producing and modifying machinery are enormous, to say the least: we live in the midst of the turmoil unleashed by this.

With electronic computers (with high-level programming languages and the rest) the construction of machinery has become immensely inexpensive compared to previous technologies. The same applies to the cost of modifying such machines. Whereas machinery, until a few decades ago, was rare outside of mass production industries, it now becoming ubiquitous: from CNC machines and CAD to CT scanners and GPS navigation. Moreover, due to the development of computer network technologies, it has, in the course of merely a couple of decades, become economically feasible to construct and deploy vast systems of interconnected and interoperating software machines. The ‘industrial’ modes of working that Marx characterized as working with and collaborating via ‘machine systems’ [17], are now no longer confined to classical mass-production industries, but are, in important ways, becoming characteristic of medical work, movie production, scientific laboratories. The post-industrial society is industrial, through-and-through.

And this is where CSCW enters both the story and the history. With networked computers it is technically and economically feasible to build machine systems specifically designed to regulate the coordination of cooperative work activities: workflow management systems, production control systems, scheduling systems and group calendar systems, project management systems, document management systems, configuration management systems (in software engineering), medical record systems, etc., just as it is technically and economically feasible to integrate such dedicated coordination technologies with the computational tools of the trade (CNC machines, CAD plans, etc.). More importantly, it is – in principle – technically and economically feasible for these coordination technologies to be designed in such a way that ordinary workers, of whatever profession, can devise, adopt, modify, and control the rules according to which their work is coordinated by machine systems.

These potentials have only been realized sporadically. Why? Because our understanding of cooperative work and its coordination is deficient, vague, patchy. This, I submit, is the task for CSCW.

References

1. Banister, Judith: ‘Manufacturing employment in China’, *Monthly Labor Review*, July 2005, pp. 11–29.
2. Banister, Judith: ‘Manufacturing earnings and compensation in China’, *Monthly Labor Review*, August 2005, pp. 22–39.
3. Basso, Pietro: *Modern Times, Ancient Hours: Working Lives in the Twenty-first Century*, Verso, London and New York, 2003. Transl. by G. Donis. Text ed. by G. Donis.
4. Bourdieu, Pierre: *Le sens pratique*, Les Éditions de Minuit, Paris, 1980. – English translation: *The Logic of Practice*, translated by Richard Nice, Polity Press, Cambridge, 1990.
5. Brown, Barry; and Louise Barkhuus: ‘Leisure and CSCW: Introduction to Special Edition’, *Computer Supported Cooperative Work (CSCW): The Journal of Collaborative Computing*, vol. 16, no. 1–2, April 2007, pp. 1–10.
6. Castells, Manuel: *The Rise of the Network Society*, vol. 1, Blackwell, Oxford, 1996.

7. Crabtree, Andy; Thomas A. Rodden; and Steven D. Benford: 'Moving with the times: IT research and the boundaries of CSCW', *Computer Supported Cooperative Work (CSCW): The Journal of Collaborative Computing*, vol. 14, 2005, pp. 217–251.
8. Crabtree, Andy, et al.: 'Ethnography considered harmful', in R. B. Arthur, et al. (eds.): *CHI 2009: Proceedings of the 27th international conference on Human factors in computing systems, Boston, MA, 4–9 April 2009*, ACM Press, New York, 2009, pp. 879–888.
9. Garfinkel, Harold: *Studies in Ethnomethodology*, Prentice-Hall, Englewood-Cliffs, NJ, 1967. Polity Press, Cambridge, 1987.
10. Gaver, William W.: 'Designing for ludic aspects of everyday life', *ERCIM News: Online edition*, no. 47, 2001. <http://www.ercim.org/publication/Ercim_News/enw47/gaver.html>
11. Gaver, William W.: 'Provocative awareness', *Computer Supported Cooperative Work (CSCW): The Journal of Collaborative Computing*, vol. 11, no. 3–4, 2002, pp. 475–493.
12. Goldschmidt-Clermont, Luisella; and Elisabetta Pagnossin-Aligisakis: *Measures of Unrecorded Economic Activities in Fourteen Countries*, United National Development Programme, New York, 31 January 1995. *Human Development Reports*. – Occasional Papers #20. <<http://hdr.undp.org/publications/papers.cfm>>
13. Hirschhorn, Larry: *Beyond Mechanization: Work and Technology in a Postindustrial Age*, MIT Press, Cambridge, MA/London, 1984.
14. Huws, Ursula: *The Making of a Cybertariat: Virtual Work in a Real World*, Monthly Review Press, New York, 2003.
15. Ironmonger, Duncan S.: 'Household production and the household economy', in N. J. Smelser and P. B. Baltes (eds.): *Encyclopedia of the Social & Behavioral Sciences*, Elsevier, Oxford, 2001.
16. Marx, Karl: *Grundrisse der Kritik der politischen Ökonomie* (Manuscript, 1857–58). Text ed. by V. K. Brušlinskij; L. R. Mis'kevič; and A. G. Syrov. In K. Marx and F. Engels: *Gesamtausgabe (MEGA®)*. Dietz Verlag, Berlin, 1976–1981, vol. II/1, pp. 47–747.
17. Marx, Karl: *Das Kapital. Kritik der politischen Ökonomie. Erster Band. Buch I: Der Produktionsprozess des Kapitals* (Hamburg, 1867). Text ed. by E. Kopf, et al. In K. Marx and F. Engels: *Gesamtausgabe (MEGA®)*. Dietz Verlag, Berlin, 1983, vol. II/5.
18. Rodden, Tom A.; John A. Mariani; and Gordon Blair: 'Supporting cooperative applications', *Computer Supported Cooperative Work (CSCW): An International Journal*, vol. 1, no. 1–2, 1992, pp. 41–68.
19. Ryle, Gilbert: 'Thinking and language' (*Proceedings of the Aristotelian Society*, 1951). In G. Ryle: *Collected Papers. Volume II: Collected Essays, 1929–1968*. Hutchinson, London, 1971, pp. 258–271.
20. Schor, Juliet B.: *The Overworked American: The Unexpected Decline of Leisure*, Basic Books, New York, 1992, 1993 (Paperback ed.).
21. Schütz, Alfred [A. Schutz]: 'On multiple realities' (*Philosophy and Phenomenological Research*, June 1945). Text ed. by M. Natanson. In A. Schutz: *Collected Papers. Vol. I. The Problem of Social Reality*. Martinus Nijhoff, The Hague, 1962, pp. 207–259.
22. Sharrock, Wes W.; and Robert J. Anderson: *The Ethnomethodologists*, Ellis Horwood, Chichester, 1986.
23. Turner, Roy (ed.): *Ethnomethodology: Selected Readings*, Penguin Books, Harmondsworth, England, 1974.
24. Urmson, James Opie: 'Polymorphous concepts', in O. P. Wood and G. Pitcher (eds.): *Ryle: A Collection of Critical Essays*, Doubleday, Garden City, NY, 1970, pp. 249–266. Macmillan, London, 1971.
25. White, Alan Richard: *The Philosophy of Mind*, Random House, New York, 1967.

