



# Discourse/s in/of CSCW

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## 1. An analytic framework for the discourse/s in/of a research community

### 1.1. An analytic framework for the relations of language and world

In general, we may understand the research process in terms of a theory of action in the world and its representation in text (Ricoeur 1984). Accordingly, research may be understood as a three-part process of mimesis, with the phases of *prefiguration* (mimesis<sub>1</sub>), *configuration* (mimesis<sub>2</sub>), and *transfiguration* (mimesis<sub>3</sub>) of the world of action. Research such as the one reported in the lead article (Tenenber et al. 2016, this issue) requires (recorded and direct) observations and associated descriptions that become the data for the interpretive process in which theory is built.

The concept of mimesis<sub>1</sub> pertains to the facts that as part of life we, before being researchers, make order, that is, develop a fundamental sense of how the world works; and these order-making aspects of life prefigure our observations and descriptions. This point is foundational to ethnomethodology but is not recognized at its full value in other forms of research that devise and rely on special methods that are marked as different from human pre-understandings and ways of making and seeing the orderliness of the world. A world characterized, for instance, by dialogue and transaction, makes the lived world such that any event transcends the individual intent and understanding. The textual world to which research reports contribute, to greater or lesser extent, seeks recourse in the everyday world: less conspicuously so in the fact that we would not be able to read each others' texts without knowing our way around the world, and more conspicuously when we directly refer to everyday life—as in 'Nothing much is being implied here except some facts of life' (Harper 2016, this issue).

Configuration (mimesis<sub>2</sub>) pertains to the ways in which actions appear in the world of text that no longer is characterized by the temporality of the lived-in world. Instead, the text descriptions are reigned by plot and actions reduced to individual agents. At this level, the narrative is not purely in

terms of pre-understanding but also involves explanation (Ricœur 1991). ‘Meaningful action is an object for science only under the condition of a kind of objectification that is equivalent to the fixation of discourse by writing’ (p. 150). Any such ‘objectification is made *possible* by some inner traits of the action that are similar to the structure of the speech act and that make doing a kind of utterance’ (p. 151). But in this same process, the relational character of the world, the transaction, comes to be reduced to actions of agents and their *inter*-actions. In the emplotment, the why, how, who, where, and when of action come to be represented together with narrative particulars that explain, depending on the context, past events in more or less theoretical terms. At this level, the narrative forms and the requirement for intelligibility impose constraints on how events can be recounted. The intertwining of description and explanation may lead to categorical differences (cf. Schmidt 2016, this issue).

Finally, *mimesis*<sub>3</sub> concerns the process by means of which the world of action is transfigured by the narratives from the world of text. That is, *mimesis*<sub>3</sub> concerns the extent to which everyday human praxis is changed when the research narratives, the concepts they provide, re-enter the everyday world and transform it.

## 1.2. The discourse/s in/of the CSCW community

As a whole, the contributions to the special issue are manifestations of the world of the text generally and of the world of text within the CSCW community more specifically. Although doing the research, writing it up, reading the lead article, and writing commentaries all constitute real practices in the world we inhabit, the publications of the original research with its commentaries form ‘this relation of text to text, within the effacement of the world about which we speak, [and] engenders the quasi world of the texts or *literature*’ (Ricœur 1991, p. 109).

The (meta-) analysis in the present text therefore concerns the analysis of the discursive form or forms at the textual level; it is not concerned with the way in which the everyday world and living speech come to be represented in the text or how the textual quasi-world, the conceptual-theoretical understandings, come to be applied to the world that we inhabit (e.g. that of software engineering). However, the meta-analysis is concerned with an implication at another level: that concerning the CSCW research community and, therefore, what we can learn for the purpose of the relation of the textual world to itself.

This text deals with the discourse/s in and of the CSCW community. That is, rather than attributing a text to the authors (*their* thoughts, opinions), as more or less directly mirroring what they think (believe), each text is taken to be a manifestation (documentary evidence) of a cultural phenomenon: the

‘discourse/s of “awareness” in CSCW’.<sup>1</sup> In co-authored pieces, such as the lead article (Tenenberg et al. 2016, this issue), the authors may differ when they talk through the issues, and the text represents what they settled on without representing the view of any single individual.<sup>2</sup> But the text, as text, is a constitutive part of a world of text. Here, we take the sociological route to cultural phenomena, which in themselves never are accessible other than through their manifestations (Mannheim 2004). We are therefore in the position according to which the documentary method of interpretation is one of the prevalent methods for making sense of the world (Garfinkel 1967). Our considerations therefore do not pertain to the special issue contributors as such, their intentions, beliefs, or thoughts, nor even to their thoughts about the thoughts of other people, but to the cultural phenomenon. The move is legitimate because, from sociological (e.g. Bourdieu 2000), philosophical (e.g. Heidegger 1977), and anthropological perspectives (e.g. Varenne and McDermott 1998), we use discourse (concepts) as much as discourse uses us.

If the present text, which may be characterized as a meta-level analysis of the discourse/s in/of the CSCW community, is a text of the CSCW community then it does not exist over and above all the other texts, despite (or in spite of) our use of the term ‘meta’ to characterize it. Instead, in that it is *produced for* the community, it constitutes an integral part of this same discourse that it analyzes. It therefore is liable to the same phenomena it makes its topics—e.g. ‘misreading’ (providing one of many possible readings) and being misread—as the representatives of the discourse/s it analyzes.

## 2. Discourse/s of awareness and its/their alternatives

Much of the conversation in this special issue is about the social order in the ways that it appears in mimesis<sub>2</sub>, that is, in the world of the scholarly texts that constitutes ‘the CSCW literature’.

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<sup>1</sup> Having co-authored a text does not mean that a person ‘obviously believes’ (Schmidt 2016, p. 18) something. Authoring may mean producing a text that can hold its ground among other texts rather than manifesting any beliefs—if beliefs even exist as stable features or frameworks in the individual mind. Within our author team, there have been discussions about the intellectualism that manifests itself in the article, and not all authors would use that discourse if they were writing on their own, and similarly for any text produced by this authoring team (or any other, for that matter). This has a reflexive bearing on the issues developed in this special issue, for people can ‘cooperate’ on something without ‘sharing’ particular beliefs, conceptual frameworks, or theories for the purpose of arriving at a product; and they can fully support that one project even if they (knowingly or unknowingly) differ from their collaborators. This diversity-in-cooperation can be seen as well if we look at the special issue taken as a whole, by considering that all of the commentators and the authors of the original paper are all ‘cooperating’ in producing the special issue, without the necessity of ‘sharing’ beliefs, conceptual frameworks, etc.

<sup>2</sup> Over the years of our collaborating on a number of projects, we have come to joke about the mentalist versus collectivist discourses in our midst. It may be in that the very diversity of discourses that we produce among ourselves that we are able to notice and make salient *for others* some of this diversity.

## 2.1. Diversity of discourse/s

Reading the lead article and commentaries reveals a multiplicity of discourses. One text (Schmidt 2016, this issue) already provides an interesting discourse analysis of the different ways in which awareness is theorized including the various, problematic ways in which terms such as ‘shared’ are used or when different kinds of textual work is done when metaphors shift. These are problems in the textual world of publications, which, because of the dialogic nature of everyday life, likely would have been settled in praxis to address any communicate troubles that arise. In the transactional world of our experience, ‘in the simple situation of dialogue, explaining and understanding just about overlap with one another’ (Ricoeur 1991, p. 129). When we do not understand the other, we ask, engaging in ‘conversational repair’ until we have sufficient ground for continuing with the main activity. In the reading and analysis of texts, the two come to be separate moments. ‘Reading is no longer simply listening. It is governed by *codes* comparable to the grammatical code that guides the understanding of sentences’ (p. 129). Prior to reading the commentaries, we had envisioned doing an extended discourse analysis of ‘awareness’ and the discursive field/s in which it occurs in order to establish codes about ‘awareness’. As the Schmidt-signed text already exemplifies the form and content of the analyses required, we do not need to repeat them here.

This special issue testifies to a highly diverse, even contradictory discourse—particularly in the lead article, possibly because of the differences within the group. A colleague who had known only one of the present authors and his work (WMR) immediately pointed us to the tensions internal to the lead article. The diversity of discourses is also apparent within one of the commentaries: the one that discusses the history of the different discourses in the CSCW community (Stahl 2016, this issue).

Between the commentaries, there are also very different, mutually exclusive discourses. There are those that begin with individual cognition from which the social is to be constructed (Greenberg and Gutwin 2016; Tenenberg et al. 2016). These are contrasted by suggestions that ‘a better conception is to think of code writing as an instance of cultural practice where the culture is the thing that members of the community in question share’ (Harper 2016, this issue, §1). A stronger formulation of this is to articulate the practice as a cultural phenomenon staffed in different ways, acquiring individuals for the purpose of reproducing itself. It may not be so much that ‘programmers share a point of view, a cultural practice centred around coding and reasoning about code’ (Harper 2016, this issue, §1) and more an issue that practice itself subjects the programmers to work under specific conditions and according to certain constraints. There are not just programmers, who are the subjects of practice (agents) but also programmers who are subject and subjected to the conditions of the practice.

In the commentaries, a bridging discourse also manifests itself. In such discourses, groups, consisting of individuals that produce something together, might become the point of articulation between the individual and the social (Stahl 2016, this issue).

However, (some) such discourses that attempt to bridge the individual and collective can be shown to be subject to the critique that much of social science research takes the social in a trivial sense, because it focuses on the presence of people *in* a group where they do things together (Livingston 2008). But doing things together does not make the doing *inherently* social. Instead, ‘the primacy of the social . . . is a directive to find the social as the irremediable physics of physics’ (p. 212).

This special issue, therefore, allows readers to conclude that the discourse concerning ‘awareness’ and ‘common ground’ in the CSCW community is not unitary. It does not constitute one single voice. Rather, there is a multiplicity of voices—talking to each other or talking to themselves. What should be our communal position towards such a multiplicity of discourses? For answers, we may look into one of the fields that contribute to CSCW: psychology. A text that analyzes the psychological approaches around 1930 is entitled ‘The Historical Sense of the Crisis of Psychology’ (Vygotsky 1997). It characterizes the state of the different discourses, the biological (individualist) and cultural (intellectualist, mentalist) as *crisis*. It was to be a preparatory work for overcoming the contradictory approaches, which also reflected the Cartesian gap between body and mind (i.e., the ‘psychophysical problem’). Viewed negatively, such diversity in the discourse may be deemed to be a ‘general eclectic soup that is now being cooked by psychologists—each according to his own recipe’ (Leont’ev 1978, p. 2). More positively viewed, the diversity may be considered to constitute a plurality of voices that can lead to the development of ideas when they engage each other in dialogue, (e.g. Bakhtin 1984), actively *listening to* one another, *speaking for* each other, and, in so doing, *returning to* the other the transformed word. In section 7 below, we therefore articulate the discourse/s as a *singular plural*.

## 2.2. Absence/s in the discourse

In this special-issue, one type of discourse is absent. We are thinking about the type of experiences referred to as ‘absorbed coping’ (Dreyfus 1991). Thus, not all ‘awareness’ is of the same type, that is, not all of human engagement in the world goes through conscious awareness (see also below the discussion of affect, i.e. in section 5 below). An example for how (‘tacit’) ‘common ground’ (Greenberg and Gutwin; Koschmann; Robertson; Schmidt; Stahl; Tenenberg et al.) can be read is from an everyday experience: We can walk through the city having a conversation with a colleague and, when asked, find that we have been completely unaware of our surrounding and cannot therefore recall any specifics of the world along our trajectory. Perhaps more importantly, this is the case for both interlocutors, who may navigate around some lamp pole on the way without being able to recall that they did even when they had to do so on opposite sides of the pole. In the same way, the conversation itself occurs within a world of text that does not need to bring to ‘conscious awareness’ anything other than the particulars of the specific topic of the talk. (Even linguistic forms are not salient, and even grammatical forms are the

results of cooperative work rather than features of individual talk, e.g. Roth 2010.) What we do is constrained in ways that we most often are not even aware of, such as the configurations of the spaces that we navigate in walking. We do so without conscious awareness, just as we use language without being aware of its limitations and constraints (captured in the above-mentioned idea of a discourse using us as much as we use it). Thus, actors may be able to ‘see motion through peripheral vision, and can easily scan the environment by glancing around’ (Greenberg and Gutwin 2016, this issue, §3) without actually doing so intentionally, without being reflected in ‘intellectual consciousness’ (‘conscious awareness’). The problem with some discourses is that when everything in the software solution concerning the ground is intellectualized, then there tend to be limitations in the processing capacity (cf. Greenberg and Gutwin). The tendency to intellectualize life has been integral to psychological research, including that of Vygotsky, who attempted to overcome Cartesianism. Only towards the end of his life did he recognize the absences and began working towards a discourse in which intellectual, affective, and practical-perceptual were combined—e.g., in the analytic category experience [perezivanie] (Vygotsky 1994).

### 2.3. Contradictions in the alternative discourse/s

Any concept/term such as the one under discussion here, ‘awareness’, lives in a ‘quasi world’ of text. ‘This relation of text to text, within the effacement of the world about which we speak, engenders the quasi world of texts or *literature*’ (Ricoeur 1991, p. 109, original emphasis, underline added). Any term such as ‘awareness’, ‘shared’, or ‘intentionality’ therefore cannot be understood apart from all the other texts of that world to which it relates. As a matter of fact, all this other text constitutes the *context* of a term. The world *about* which the texts of mimesis<sub>2</sub> speak comes to be effaced—creating what common discourses denote as the theory–praxis gap.

Pertaining to the concerns raised in this special issue, the term ‘awareness’ is related to, and inseparable from, language generally and particular other terms specifically, including ‘perception’, ‘cognition’, ‘knowledge’, ‘understanding’, ‘communication’, and ‘common ground’. The particular meshwork of terms, together with the adjectives used to modalize them, depends on the particular text, which thereby contributes to the different textures (‘meanings’) that arise from the different and differential uses (‘meanings’) of the term; not just the individual term but all the other terms as well. Importantly, whichever discourse is chosen or created, we cannot escape the slipperiness that comes from the very nature of the word (sign) and its constitutive relations to language as a whole. Language, when it is alive, inherently shifts, constantly dying and being reborn, ‘since another’s discourse, if productive, gives birth to a *new* word from us in response’ (Bakhtin 1981, p. 347).

The alternative discourses proposed in the commentaries cannot escape from this nature of language. Thus, in the process of constructing an argument about the shortcomings of the discourse chosen in the lead article, some commentaries draw

on other discourse/s or discourse aspects that entail the same or even more serious problems—even and especially in the case of texts that claim allegiance to a social perspective. These include the terms ‘meaning’ (Harper, Koschmann, Robertson, Stahl) and ‘understanding’ (Harper, Koschmann, Robertson, Schmidt, Stahl) and all the terms with which they co-appear. Thus, for example, almost 100 years ago, philosophers recognized the multiple and contradictory use of ‘meaning’, seeking to find out ‘the meaning of meaning’ (Ogden and Richards 1923). This had not changed by the end of the 20th century (Nöth 1990); and it continues to the beginning of the 21st century (Roth 2013). The term is used even though the philosopher often invoked for supporting pragmatic approaches suggested the going usage of the term ‘meaning’ frequently is more consistent with a primitive understanding of the way language functions (Wittgenstein 1953/1997) so that the term ‘meaning’ may just as well be stricken from use (Wittgenstein 2000). The apparent problem is that ‘meaning’ is used to seek recourse in/to something that is not given by word-use. Thus, for example, we are provided with ‘a detailed example of group cognition, in which a face-to-face student group co-constructed the meaning of a scientific representational artifact in an educational computer simulation’ (Stahl 2016, this issue, §10). Here, the ‘meaning’ is ‘of a scientific representational artifact’; it is something other than the artifact itself in that it is ‘of’ or ‘about’. It is not actually there, and, in using the term ‘meaning’, we observe the gesture to something else that is not in itself available.

### 3. The discourse/s on the topics of interest

Not all discourse/s on the topics of interest in CSCW situate themselves in *mimesis*<sub>2</sub>. Even though all texts in this special issue are contributions to the topic ‘reconsidering “awareness” in CSCW’, they arise in parts of the community with very different interests. The difference is particularly evident in the case of the discourses affiliating themselves with ethnomethodology (EM), which distinguishes itself from all other formal methods and formal analysis (FA) for conducting research. This is so even though the text authored by typical representatives—Harold Garfinkel, Emmanuel Schegloff, Lucy Suchman, Christian Heath and others—become part of the list of authorities mobilized in non-EM research. Thus, the ethnomethodological discourse (representatives in this special issue include Harper and Koschmann) radically differs from the social-constructivist discourse (representative here is Stahl) even though they might get lumped together (Stahl), and differs as well from other approaches (Tenenberget al.). In the latter, FA discourses, the focus is on *mimesis*<sub>2</sub>, establishing a conceptual order that is said to describe the world that humans produce together. Formal analysis (FA) requires special methods to produce this order, including concepts and their relations. In the EM discourse, the ‘fundamental phenomenon’ and ‘standing technical preoccupation’ is described as ‘find[ing], collectin[ing], specify[ing], and mak[ing] instructably observable the local endogenous production and natural accountability of immortal familiar society’s most ordinary

organizational things in the world' (Garfinkel 1996, p. 6). Hank and Danny, in the lead article, apparently were not concerned with the issues discussed in this special issue—including 'intersubjectivity', 'we-awareness', or 'common ground'. None of these topics of order, therefore, would be of interest to an ethnomethodological description. The two approaches (EM and FA) are recognized to be the different types of 'work from within and work from without' (Harper, this issue, §2). This, then, may lead to the EM practitioner's charge that the "'thoughts about work' [that] are the topic of Tenenberg's paper" 'are of another order' than the 'thoughts-about-work that are the stuff known in common by those in that work setting by dint of those individuals being workers within' (Harper 2016, this issue, §2).

Ethnomethodology (EM) not only has different research interests, but also differs substantively from other forms of research collectively referred to as FA. Thus, these 'two disciplines, FA and EM, 'are both simultaneously incommensurably different *and* unavoidably related' (Garfinkel 1996, p. 9, original emphasis). As a result, 'the EM alternates are incommensurable, asymmetrically alternate phenomena of order' (p. 9). In terms of the general model offered above, EM is interested in *mimesis*<sub>1</sub>—not in the order itself but in the methods of everyday people to produce-for-visibility and make-visible the order that is the very condition for the visibility of order. That is, humans do not just act but they act in ways that maintain the conditions for acting in this way (Livingston 2008). Whereas EM does not dispute the phenomena of order produced by FA approaches, we find at its heart an incommensurability in the underlying claims about the visibilization of the order: one part of the discourse claims that it is a mundane effort, so mundane that the people themselves tend to find it unremarkable and not worth talking about, whereas scientific journals tend to make a big deal about describing the nature of the special methods (*mimesis*<sub>1</sub> used in the construction of the proposed order).

#### 4. Primacy of the individual vs. primacy of the social

The CSCW discourse/s on the social is/are contradictory. Even though there are claims that the CSCW has settled its discourse in a particular way (Robertson 2016, this issue), the very differences observable in this special issue as a whole on the question of awareness exhibit that there is not one discourse but that there is a plurality of discourses on the nature of the social, some taking their beginning in the individual and others beginning with the social (e.g. the 'cultural practice where the culture is the thing that members of the community in question share', Harper, this issue, §1). The *intrasubjectivity* in the cognitivist and constructivist discourse is replaced with *intersubjectivity* in the socio-cultural-historical-practical discourse of all the other traditions of CSCW. But to say 'intersubjectivity is a foundation for—a condition for the possibility of—modern human interaction' (Stahl 2016, this issue, §8) does not likely get us further ahead. This is so because the move replaces one primacy (that of the individual) with another primacy (that of the social, cultural). It does not explain how intersubjectivity was born in the course of human evolution;



and it does not explain how intersubjectivity can exist in ontogeny when there is no intrasubjectivity, and vice versa. To arrive at plausible and useful categories requires showing how something like the primacy of the social is the result of a natural, evolutionary process. Such a discourse then no longer dichotomizes nature (biology) and nurture (culture) or individual and social. Instead, we arrive in such categorical reconstruction at a discourse capable of articulating the very origin of the contradictions apparent today (e.g. Holzkamp 1983; Il'enkov 1977). In the following, we first comment on the discourse/s of the social and then sketch how the same type of contradictions has led to a new form of discourse in the field of psychology.

#### 4.1. The discourse/s of the 'social'

The contributed texts to this special issue manifest a continuous tension between conceptualizations of the individual and the social. Some studies clearly focus on the individual psychological (biological), reducing the events observed to various aspects attributed to the individual—actions or agency, physiological processes (the perceived), or subjectivity (Greenberg and Gutwin; Tenenberg et al.). Other texts, no less reductionist, attribute everything to the social nature of practices. But how could saying that the practices are social explain the social of whatever is to be explained of awareness?

Even in accounts that apparently rely on the primacy of the social, the actions are attributed to individuals. For example, the lead article states analyzing 'joint activity' (Tenenberg et al. 2016, this issue, §4.3.1), but then offers a description in which the work is accounted for as a sequence of individual actions—e.g. 'Hank turns to gaze directly toward Danny, who does not turn to meet Hank's gaze but continues to orient to the left monitor' (§4.3.1). The same form of discourse can be found in other contributions, for example, in the statement that

'None of the students could construct the triangle configuration themselves and the process of construction involved all three exploring, planning and carrying out the construction. Each of the three girls displays a different characteristic behavior pattern throughout their work in the 8 h-long sessions of our study. Yet, the team is impressively collaborative. This illustrates nicely the notion of individual perspectives within intersubjective group interaction.' (Stahl 2016, this issue, §10)

Doing something in a group does not make it inherently social (e.g. Livingston 2008). Not unlike in Livingston, the common approaches to understanding the social have been subject to critique more than 90 years ago. Thus, psychologists

'assume that there is a special individual psyche and that from the interaction of individual psyches or psychologies there arises a collective psyche or psychology common to all individuals. Thus, social psychology is regarded as the psychology of a collective individual in the same way that a crowd is made up of single individuals.' (Vygotsky 1971, p. 14)

As a result, ‘society is taken to be an association of people, and it is regarded as an accessory activity of one individual’ (p. 14). Some 80 years later, an ethnomethodological study of reason notes that in the sociology of science generally and in constructionist studies particularly, various contextual aspects are said to have an influence on the state of knowledge claims. However, in this approach ‘the problem remains that the social character of domain-specific skills and reasoning may only be an incidental feature of scientific discovery’ (Livingston 2008, p. 212). In the move to the ‘primacy of the social’, we seem to have thrown out the baby with the bathwater, gone from one end of the extreme, where there is a *primacy* of the individual (as in the cognitive approaches), to the other extreme, where there is a *primacy* of the social. We may also characterize this opposition in terms of that between biology and culture. Would it not be better to ask: ‘How did this social that is characteristic of human behavior come to exist in the phylogeny of the human species?’ and ‘How does this social come to exist today in the ontogeny of each individual?’

The problem arises from the way in which *mimesis*<sub>2</sub> operates. Thus, in the movement from a relational (transactional, dialogical) world to the world of text, actions are modeled on the text—subject, verb, object—so that transactions are reduced to the actions of individuals (Ricœur 1991). In the presence of multiple individuals, there is then *interaction*, where each subject acts on others. This reduction is apparent in the common ways of transcribing talk and attributing each word to the person who produces it:

Fragment 1

1.15 Hank: ankoom light (.) do not have it (.) unless I’m crazy

1.16 Danny: you attempted to do a search and it didn’t come up with anything

Researchers with very different epistemological commitments will tell us what Hank or Danny has done. They might say, for example, that *Danny* elaborated what Hank has said without actually saying so or that *Danny* described/explained what Hank has done. We can observe such moves even in conversation analytic studies where the turn pair is taken to be the minimal analytic unit. The danger that occurs in the process has been articulated in the 19th century: there is a movement from an ontology of relations and movement to an ontology of things (people, mind) (Nietzsche 1954). The philosopher suggested that the effect is used to make an attribution of cause. A transaction is reduced to an action of the individual. Thus, with a transactional orientation, saying that a phrase was a ‘statement’, ‘question’, ‘reply’, or ‘command’ can be made only after the fact. This is so because questions, answers, requests, insults etc. are not features of language but are features of social relations (Vološinov 1930). In a transactional (dialogical) view on events, whether something was a query, . . . can be established only from the effect on the situation, e.g., in the way it was taken up.

Pragmatic philosophers have pointed out the dangers of depicting the social in terms of *interaction* (Dewey and Bentley 1949/1999). They propose a very different discourse, which arises as soon as it is organized around the idea of *transaction* and the associated {person | environment} unit. Here, the effects of the person on performance cannot be understood without specification of the environment, and the effects of the environment on performance cannot be understood without specification of the person. The person no longer is an entity acting in the environment treated as a box, but the {person | environment} unit as a whole continuously changes without that there has to be a homunculus tracking all the changes. In such a relational ontology—one that also comes with a Marxist reading of Spinoza’s one-substance approach—actions, including thinking, cannot be understood based on the characteristics of the individual. This is so because

‘To explain the event we call “thinking”, to disclose its effective *cause*, it is necessary to include it in the chain of events within *which it arises of necessity and not fortuitously*. The “beginnings” and the “ends” of this chain are clearly not located within the thinking body at all, but far outside it.’ (Il'enkov 1977, p. 37)

We may appreciate talk differently when we account for the fact that a word not only exists in the mouth of the speaker but also in the ears of the recipient/s (Bakhtin 1986). Fragment 2 constitutes an expansion of Fragment 1 in this sense.

*Fragment 2*

Hank:	$\left[ \begin{array}{l} \textit{(says)} \text{ ankoom light } (.) \text{ do not have it} \\ (.) \text{ unless I'm crazy} \\ \textit{(hears)} \text{ ankoom light } (.) \text{ do not have it} \\ (.) \text{ unless I'm crazy} \end{array} \right]$	
Danny:		(says): you attempted to do a search and it didn't come up with anything

This transcription renders apparent that ‘ankoom light do not have it unless I’m crazy’ does not belong to Hank, in whose mouth the sound originated; instead, it also belongs to Danny, in whose ears the sound resonated. The words are a reality for two, for ‘the word . . . is absolutely impossible for one person’ (Vygotsky 1987, p. 285). The words are not Hank’s, for they have come to him *from* the other, and, in speaking, they are produced *for* the other, *to* whom the words thereby return. The italicized words here articulate the relational nature of the phenomena in these statements; using relational terms thereby opposes the trend that reduces events to its substantive parts (James 1890).

It has been noted that the reply in the second part, where Danny speaks, actually begins to be framed during the active reception (Vološinov 1930). That is, just as it appears in the quotation concerning the origin of thinking, the said (reply) has its origin in the environment, what has come from the other and, thereby, has been received. Because Danny could not have known what was coming, he had to open up to receive,

and, thereby, to be affected. This aspect, affect, is completely absent from the manifestations of the CSCW discourse that appear in the feature article and the six commentaries (see below).

The revised transcription also makes apparent that the word does not somehow stand between two individuals, serving (qua sign) as a mediator, an idea that often is attributed to Vygotsky. Whereas this may have been at least partially the case—*Mind in Society* (Vygotsky 1978) to which this take is attributed is highly contested and the editors admit that they ‘have taken significant liberties’ (p. x)—the psychologist certainly abandoned this approach near the end of his short life, e.g., in the final paragraphs of the posthumously published *Thinking and Speech* (Vygotsky 1987). His radical theoretical revision involved a transition from the mediational nature of language to the intra-intersubjective speech field (Mikhailov 2001, 2006), where the term ‘intra-intersubjective’ marks the ‘dynamic identity of intersubjectivity and intrasubjectivity’ (Mikhailov 2004, p. 36). That characterization of the speech field as ‘intra-intersubjective’ points to an inclusive position that does not reduce the phenomenon to either the individual or the social.

#### 4.2. Spinoza’s ethics read through a Marxist lens

In the discourse/s of CSCW, we can find proposals for how to get out of the quagmire that opposes the individual and the social (collective), intrasubjectivity and intersubjectivity. This occurs in statements that simultaneously attribute a role to the individual in the collective. Thus, ‘the point is not so much to always opt for an individual or a group focus, but to recognize their intertwining: that the individual is a social product, but also that the intersubjective has the individual at its poles’ (Stahl 2016, this issue, §9). However, here, as in most other approaches, the question of the collective tends to be approached ‘by designating the “social” and the “sociological” as relatively autonomous spheres of action and knowledge’ (Nancy 2000, p. 43). The result is not the social of the social but rather something like an assemblage of individuals (the ‘group’ in the Stahl-signed text). A solution to the problematic that exists in the discursive opposition of the intrasubjective and intersubjective cannot come by positing the group as a place where individuals co-construct knowledge that is beyond the individual knowledge and which the individuals then interiorize to make it their own (Stahl). One solution lies in showing that ‘any higher psychological function . . . was the social relation between two people’ (Vygotsky 1989, p. 56). That is, what matters is that the social relation *constitutes* a behavior that subsequently is the behavior of the individual. This is precisely the point of CSCL (Stahl), which is modeled on the earlier suggestion of *sociogenesis* (Vygotsky 1989). Studies of the emergence of mathematical reasoning in ontogeny show how the classification of geometrical objects and the associated account first exist *as* transactional order before they are observed as characteristics of individual behavior (Roth 2016; Roth and Jornet 2017). In these studies, children placed mystery objects with an existing set of objects (and thereby categorize), or place it on its own (thereby creating a category).

But they did so immediately retreating to their seats and without providing a reason. Invited to ‘explain their thinking’, they then provided a reason. The tie between classification and verbal account—i.e. the structure of practical action in the form ‘doing [accountable text]’ (Garfinkel and Sacks 1986)—first existed as transactional order. Later in the mathematics curriculum, children began to produce such ties in talk with other students, without being asked, and in the absence of the teacher. In these studies, therefore, the transactional order constitutes the social in the mathematics of mathematics—being based on an already existing social.

An alternative to the existing discourses that oppose the biological (individual) and cultural (social) or posit them as two parallel, interacting planes was proposed in the early parts of the 20th century. Dualism in psychology was to be overcome by reading Spinoza’s *Ethics* through a Marxist lens (Vygotsky 2010). Against the Cartesian division into body and mind Spinoza had postulated that there is only one substance, which has body and mind (culture) as its attributes (Spinoza 1883). Near the end of his life Vygotsky (e.g. 1997) incessantly emphasized that there are two distinguishable but inseparable lines of development. In the Marxist take, anything specifically human exists in and as societal relations (Marx and Engels 1978). Those existing relations, in and through which culture exists, provided an advantage at some point in the history of our species; during the period now named anthropogenesis, those relations (culture), which previously constituted a minor function in the life of the species, evolved into its major function (Holzkamp 1983; Roth 2016). That is, culture, as biology, is a manifestation of human life in its environment (Laland and O’Brien 2011). Culture, and, with it, the form of human consciousness we know today—including intra- and intersubjectivity—has arisen from ‘a relation that is generative of man . . . a relation generative of man is nothing other than the affective, sense-giving relation of our animal forebears, in the first instance, toward one another’ (Mikhailov 2001, p. 26). A similar approach may be observed in the philosophical discourse, where it has been stated that ‘Prior to “me” and “you”, the “self” is like a “we” that is neither a collective subject nor “intersubjectivity”, but rather the immediate mediation of Being in “(it)self”, the plural fold of the origin’ (Nancy 2000, p. 94). That is, neither ‘I’ nor ‘we’ is constitutive of the social and intersubjectivity, rather an originary being-with unfolds into the ‘I’ and ‘we’, into the intrasubjectivity and intersubjectivity. These relations of our forebears orienting towards joint activity, including the articulation of future action for cooperative purposes, create ‘the borderline situation in which the alien is identical with one’s own and one’s own exists as an experienced reality of Other’ (Mikhailov 2001, p. 26).

## 5. Possibility or the invisible of the CSCW discourse/s (unseen?)

More than 80 years ago, a now-famous psychologist noted that ‘the most basic defects of traditional approaches to the study of psychology has been the isolation of the intellectual from the volitional and affective aspects of consciousness’ (Vygotsky

1987, p. 50). This affective aspect of life is largely absent from the CSCW discourse/s manifested in this special issue. For Vygotsky, this absence of affect and its separation from intellect has led to the consideration of thinking with its own internal dynamic, independent of life. His is a Spinozist take, whereby ‘there exists a dynamic semantic [smyslovaja] system that constitutes a unity/identity [edinstvo] of affective and intellectual processes’ (Vygotskij 1934, p. 14). With respect to speech, he proposes analyzing sound and semantics together, forming a single unit characterized by the unity/identity of the physical sound and culture-specific semantics. It is precisely in the sound part that affect manifests itself—a phenomenon that in recent years has been used in social psychology, sociology, and anthropology in the study of social relations (e.g. Goodwin et al. 2002). Our own studies of knowing and learning in science and mathematics lessons exhibited the coincidence of prosodic and rhythmic features of the transactional relations with the intellectual and affective aspects of classroom life, including solidarity and conflict (e.g. Roth 2011a; Roth and Tobin 2010).

We note above that a reduction from the transactional relations constitutive of everyday life to self- and inter-action is brought about in mimesis<sub>2</sub>. The attribution of actions to individuals is associated with an intellectualization of everyday life. The intellectualism apparent in ‘cognitivist approaches’ also underlies the constructivist approach, which makes it unclear how something really social comes from the individual construction of the other. Thus, common to the very different CSCW discourses is the appearance of agency and the absence of passibility. This appears to be a reversal of Marx and Engels, who noted that humans are not merely subject (subjected) to conditions but, as subjects, have the capacity to transform the conditions, similar to the niche construction theory recently proposed by biologists to resolve similar dilemmas in evolutionary biology theory (Odling-Smee et al. 2003). In all its variance, the CSCW discourse/s represented in this special issue focus/es more (or entirely) on the doing in activity and less (to the point of absence) on the undergoing of the activity. Thus, in activity, people do not just ‘rapidly shift their gaze direction to acquire a holistic sense of the entire scene, and to attend to particular features within the scene’ (Greenberg and Gutwin 2016, this issue, §3) but also *find themselves having shifted their gaze*. In everyday situations, we may *find ourselves* saying, ‘I did not want/mean to hurt (insult) you’, when, following something we said or did, someone else felt hurt (insulted). In this instance, what we have done has transcended our intentions. As a result, what we have done is also subject to the actions of another.

In relations, passivity goes both ways. As seen in Fragment 2, in actively listening, recipients have to open up to the unknown (alien) that is coming at them, which is precisely why a person may feel hurt when listening to another. (A phenomenon quite pervasive in current online culture, where some youths feel bullied; but to be bullied they have to actively attend to, and take personal, the comments of others.) In attending to what others do and say, recipients make themselves vulnerable. But speakers, too, are vulnerable. As seen in the example, speakers (agents) may find

themselves having done something that they had not intended to do (e.g. hurting, insulting another person). In the workplace, too, we are *affected* emotionally, clearly made visible, for example, in situations where someone comes to the office in good spirits only to find herself down due to the workplace atmosphere; and the reverse, too, may happen, where someone feels lifted in spirit coming to work and interacting with others. Importantly, in either case the person contributes to the production of the ‘collective mood’ or ‘collective effervescence’. Sociologists of emotion have borrowed from physicists the notion of *entrainment* to explain the relationship between affect at the individual and the collective levels (Collins 2004).<sup>3</sup>

In phenomenological discourses, theorizing begins with passibility, the human capacities to be affected and to become aware of this affection (e.g. Henry 2000; Roth 2011b). For epistemology, this means that we do not construct the world but that the world is given to us. The *givenness* of the world, the experience of being-affected, is a condition for both subjectivity and intersubjectivity (Marion 2002). For phenomenological philosophers from Heidegger to the present day, the world reveals (gives) itself, allows itself to be seen—which is a discourse radically different from the agent-centered, constructivist discourses currently available in the social sciences. And one of the functions of speech, *logos*, is to “‘let us see”, from itself, *apo* . . . what is being talked about’ (Heidegger 1977, p. 32). Most explicit is this phenomenon in the experience of pain. We do not construct it but find ourselves affected by something that we only subsequent to being affected *know as* pain (Henry 2000). We experience givenness, but ‘few phenomenologists have tried to establish continuity between *Gegebenheit* and the phenomenon of the gift, so fascinating and inevitable for the analysis of intersubjectivity’ (Marion 2002, p. 74). Givenness, because it is independent of our individual and social constructions, leads to interobjectivity and thereby constitutes the foundation of intra- and intersubjectivity.

## 6. Why discourse/s matter/s

The classical critique of human endeavors has characterized philosophical (social scientific) inquiry as being concerned with merely understanding the world—that is, with order as articulated in *mimesis*<sub>2</sub>—when the real point is that of changing the world, that is, the use of forms of thinking to change the world (i.e. *mimesis*<sub>3</sub>) (Marx and Engels 1978). Some readers might therefore consider this special issue to be but a continuation of philosophical interests to understand the world rather than to change it. However, such events and the discourses inevitably evolve affect and change language and, therefore, the world. Here, we consider two ways in which the

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<sup>3</sup> The notion of entrainment was first studied (by the physicist Christian Huygens) in the case of two pendulum clocks with different base periods hanging sufficiently close on the same wall. The clocks will eventually swing in synchrony. An example with 9 metronomes can be seen at URL <https://www.youtube.com/watch?v=DD7YDyF6dUk>.

discourse/s matter: in the world that the discourse is about and in the CSCW community itself.

### 6.1. On the substantive matters

One of the questions raised in the world of text concerns the relationship between the world and text (e.g. the discussion of the work of Tomasello, how concepts from computing and computer science come to enter, in various ways, the description of simple actions, such as opening a box). In one take on the kind of discussions taking place in this special issue, what contributors write may be taken as not mattering, because ‘it is all discourse’ or ‘it is just theory’. Such concerns historically have led to the discourse of ‘usability’ (e.g. Ehn 1992). Danny and Hank, the programmers that appear in the original contribution, may not recognize themselves or what they are doing in any of the texts, whatever the particular form of discourse chosen; and they may ask questions about the relevance of the CSCW special issue discussion to their work. This is so even in the ethnomethodological enterprise—as can be experienced by any first-time reader of a Garfinkel text, even if these are slated as ‘instructions’ for finding the phenomena in the appropriate field (e.g. those pertaining to ‘lecturing’ in Garfinkel 2002).

But in another take, such discussions do matter. This is the case when the theoretical concepts used in *mimesis*<sub>2</sub> re-enter the everyday world of our experience with others as part of *mimesis*<sub>3</sub>. Not only concepts enter the world but also technology, a process that can be understood in terms of the model of the text (Ricoeur 1991). The academic discourses that the academic community evolves—together with the technological artifacts and tools that the community produces—come to matter when, in the process of *mimesis*<sub>3</sub>, they transfigure the world. It is this movement that Marx and Engels (1978) care about in their eleventh thesis on Feuerbach, according to which philosophers only contemplate the world when the real issue is changing it. It is in that movement that the real power of human thought comes to the light of the day. Thus, ‘the question whether there is objective truth to human thinking is not a question of theory, but a *practical* question’ (p. 5). This is so because ‘in praxis, man [sic] has to prove the truth, i.e., reality and power, this-sidedness of his thinking’ (ibid.).

The CSCW discourse/s matter/s in the world of software design concerned with ‘build[ing] these systems on a strong theoretical design foundation rather than mere intuition’ (Greenberg and Gutwin 2016, this issue). How the discourse/s conceptualize/s the everyday world on the level of *mimesis*<sub>2</sub> may lead to opposing and contradictory discourses and to different designs. The chosen discourse therefore matters because it changes and transfigures our everyday world—frequently in unexpected and unanticipated ways. Consider ‘workarounds’ or qualitatively new uses of technology, where new practices emerge and spread that the software had not been designed for. For example, in a Norwegian experiment that provided students with a data-sharing tool, not only did the pupils figure out a way of transforming the



tool to share sexually explicit content but also their within-classroom and after-school language changed (Mifsud 2005; Roth 2007). For this reason, some theorists—with recourse to the same kind of phenomenological discourse as some of the papers in the special issue (e.g. Harper 2016, this issue; Koschmann 2016, this issue)—have asked for designing software that makes it possible to recover from ‘breakdown’ (Winograd and Flores 1987). The ethnomethodological dimension of the social science discourse tends to be silent with respect to normative endeavors and even tends to refuse doing so, for example, using descriptions of science for organizing science curriculum (e.g. Sherman 2004). Education and software engineering (e.g. Greenberg and Gutwin 2016), on the other hand, do have the normative goals of producing tools that affect individual and collective behavior.

Sometimes, what appear to be innocuous changes are anything but, such as when research contributes new theoretical concepts. Such discursive innovation may have tremendous (often detrimental) effects on the lives of real people, caught up in institutional machineries and their consequences that constitute them more than they constitute themselves. Thus, the sociological discourse about the ‘standard North American family’ has had substantive effects on the ways in which children and their single parent are treated in and by schools (Smith 1999); and the ‘learning disability (LD)’ discourse educational psychologists generated and evolved has transfigured the lives of those who are captured by the phenomenon (Varenne and McDermott 1998). And all of these may be cases where, as Bourdieu (1992, p. 237) notes, ‘the social world constructs its own representation, by using sociology and the sociologist’ who are subjects of and subject to discourse within their social worlds. Similarly, the discourses in CSCW matter because they contribute to the mix of constraints on the kinds of collaborative software that is built for doing work together (e.g. Winograd 1995; Winograd and Flores 1987). The discourses matter because they affect not only what is designed but also how the design is accomplished, e.g., by means of a third kind of language game (language and its activity, Wittgenstein 1953/1997) where designers and users have opportunities for building a common discourse that may serve as a bridge between the specialized discourses of their workplaces when they are among themselves (Ehn 1992).

## 6.2. On communal matters, reading and misreading

We note above that the six contributions that follow the lead article differ considerably, in content and form. They also reflect the very different readings that the original article obtained in the first round of the peer review process; and the same occurred during a second round, when the text had become a very different one. The lead article has been read as ‘having gone to pains to avoid mentalist explanations’ (Stahl 2016, this issue, §9). But it also has been read as (a) reproducing intellectualism, as when ‘shared intentionality’ and ‘shared goal’ are identified as ‘a marker for the intellectualist legend’ (Schmidt 2016, this issue, §3.3); (b) ‘point[ing] towards the mechanisms of the brain’ (Harper 2016, this issue, §2); and (c) ‘perpetuating the

problems with cognitive approaches and metaphors of human action’, containing ‘examples of misrepresentations of [Robertson’s] work’ that tremendously ‘bothered’ the reader (Robertson 2016, this issue, §2). Such differences in reading, under different circumstances (editor, journal) easily could have led to a reject decision. As a result, the discussion published here might not have taken place at all.

In the CSCW discourse we find instances where one text may charge another one to have misread some third text (e.g. Robertson). There may then be situations where the ‘concern is with the other misquoting, sleights of hand, straw people and informal fallacies in the arguments used to ground the conceptualisation’ (Robertson 2016, this issue, §2). In the framework outlined here, differences in reading would be the norm. This is so because the author only signs the text, but the reader ‘countersigns’ it (Derrida 1988).<sup>4</sup> A well-known cultural-historical literary scholar articulated this phenomenon in this way:

‘The transcription of thinking in the human sciences is always the transcription of a special kind of dialogue: the complex interrelations between the *text* (the object of study and reflection) and the created, framing *context* (questioning, refuting, and so forth) in which the scholar’s cognizing and evaluating thought takes place. This is the meeting of two texts—of the ready-made and the reactive text being created—and, consequently, the meeting of two subjects and two authors.

The text is not a thing, and therefore the second consciousness, the consciousness of the perceiver, can in no way be eliminated or neutralized.’ (Bakhtin 1986, pp. 106–107)

It is in the nature of the sign (text) that there is always another sign relation that can be grafted onto it so that one sign relation comes to be replaced by another and, thereby, changes signification (Ricoeur 1991). Thus, it is easy to show that any one text misreads, misrepresents, or misinterprets the texts of (some of) the authorities just as one of the commentary texts (Robertson 2016) accuses the lead article to do. Such an argument would be easy to construct, for example, in the case of Vygotsky, for the Russian psychologist himself has turned away from his earlier work because of the remnants of Cartesianism. Especially problematic in the discourse offered up in the Stahl-signed text are the notions ‘meaning’, ‘sign mediation’, ‘internalization’, . . . because they all point us back to the very metaphysics that lies at the basis of the Cartesian split apparent in the dichotomies of body and mind, individual and culture, or Self and Other.

We may therefore take alternate readings (including ‘misreading’) as an unavoidable feature of language and social interaction itself. Each text then is seen as ‘a

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<sup>4</sup> Incidentally, the development of this point involved one of the authorities that also has been a discursive resource in the exchanges of this special issue: John Searle. The topic was speech act theory, which had been produced by another authority mobilized in the present debate.

statement [utterance]' in reply to the situation, taking up other texts in various ways: sometimes in direct quotations, sometimes in indirect quotations, and sometimes transformed to the extent that it has become the author's own voice (Bakhtin 1984; Vološinov 1930). The mechanism thereby is the same as in Fragment 2. Each text then is only the second part of the *response*, the first of which comes in the form of reading (actively attending) to and being affected by (intellectually, emotionally) that text that has come from the Other.

The upshot of this has implications to the ways in which we deal with differences in the peer review process. Rather than rejecting an article because it does not fit our own approach, we might consider the possibility of using the text as the starting point of a dialogue that has the potential to move our communal discourse ahead, as the current journal editor (and the author of one of the commentaries) decided to do with the lead article.

## 7. Moving on

We observe in this special issue the relations of texts and the work of the discourse of the CSCW community. This discourse, as discourse more generally (Bourdieu 2000), uses us (members of the CSCW community) as much as we use it. The texts are not just about the chosen topic 'reconsidering "awareness" in CSCW', but there are many other features that are more general or that have little to do with the topic itself but, for example, with the relation of texts, positioning of the signing author, etc. (e.g., 'avoids perpetuating the problems with cognitive approaches and metaphors of human action . . . that exclude the bodies of the actors . . .', Robertson 2016, this issue, §3). It is apparent from this special issue that there is both one CSCW community with its discourse, and that this discourse is multiple to the point of containing incommensurable parts. That is, there is not one but there are many discourses. How can we conceive of this? We may do so by taking discourse to be a *singular plural* or, equivalently, a *plural singular*. It is thereby just as any other social (cultural) phenomenon that manifests itself in different, one-sided, and contradictory ways—i.e. revealing itself in documentary evidences pointing back to the phenomenon unavailable in itself (Mannheim 2004). It is one phenomenon (singular) manifesting itself in plural ways or a (singular) plural; but we may equivalently say that it is a plural singular. In the materialist dialectical approach, the corresponding discourse approaches this singular plural or plural singular in statements about the unity/identity of opposites (e.g. Il'enkov 1977).

In the CSCW discourse/s, there are ontological and epistemological differences. Such may hurt the community when they interfere, or negatively affect, the development of ideas when articles are rejected in the peer-review processes for this or that reason—but often because of the particular set of reviewers that the paper received. The dialogue with the 'cognitivist approaches' may in fact be useful to CSCW even if the majority of its members were adhering to the 'situated approaches that have been defining of CSCW and Participatory Design' (Robertson 2016, this issue, §3). In the

textual examples from CSCW, much has been made about the distinction between what happens in the mind (brain) and what happens in the world, whether the perspective is a social/cultural (e.g. Harper) or a phenomenological one (e.g. Robertson). There are examples of texts where such apparently different discourses and perspectives are mobilized together or are shown to lead to the same results.

Instead of emphasizing differences and divides, the community might strive to sublimate (overcome and retain) them for the purpose of dealing with interesting phenomena in new ways (using new forms of discourse) as this is exemplified in other research communities. Thus, for example, a paper discussing the results of research on the role of different neurons in spatial perception summarized that the data and hypotheses discussed ‘are at odds with the traditional view of cognitive sciences that percepts are built from elementary sensory information via a series of progressively more and more complex representations’ (Rizzolatti et al. 1997, p. 191). That study concludes by stating, ‘it is interesting to note *the closeness of this view*, emerging from single-neuron recordings, and the philosophical stance of phenomenological philosophers on space perception’ (p. 191). Other studies, with clinical relevance, have been able to correlate phenomenological analyses of pre-epileptic seizure (preictal) states with the corresponding electroencephalographic (EEG) signals, in which, using mathematical methods, preictal states are detected (Petitmengin et al. 2006). We envision that it would be equally productive for the CSCW community to seek working across what appear to be divides for the purpose of bringing out the best it has for dealing with the really interesting and most difficult problems. How, we may ask, might the CSCW community continue to afford such sublative practices that honor the *singular plural* and *plural singular* nature of discourse?

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