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Conversation: Possibilities of Its Repair and Descent Into Discourse and Computation

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Abstract
This essay contends that radical constructivism makes a mistake by focusing on cognition at the expense of where cognitive phenomena surface: in the interactive use of language. By contrast, it advocates a radically social constructivism grounded in the conversational nature of being human. It also urges to abandon the celebration of observation, inherited from the enlightenment's preoccupation with description, in favor of participation, the recognition that speaking and writing are acts of continuously reconstructing reality, only partly conceivable by participants yet interactively realized.

It distinguishes between conversation as observed and conversation as articulated by its participants. It postulates accountability as a chief conversational move through which conversations can regain their natural flow when disturbed and construct inherently ethical realities for their participants. Unwillingness to repair problematic conversations amounts to acquiescence to constraints that are typical of discourses and the construction of institutional realities. It suggests that the ultimate institutionalization consists of replacing institutional artifacts by computational ones, which was the aim of early cybernetics. Computational artifacts have no agency and cannot be held accountable for what they do.

This essay proposes a continuum of possible discourses between authentic conversation and computation. It concludes by calling for drawing finer distinctions within that continuum and expresses the hope for not closing off the possibility of returning to authentic conversation where humans realize their being human, not institutional actors or machines.

Keywords
Constrictivism, Language, Conversation, Discourse, Institutions, Cybernetics, Computation

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Conversation

Possibilities of its Repair and Descent into Discourse and Computation

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► **Context:** This essay contends that radical constructivism makes a mistake in focusing on cognition at the expense of where cognitive phenomena surface: in the interactive use of language. ► **Goal:** It grounds radically social constructivism by exploring the conversational nature of being human. It also urges abandoning the celebration of observation, inherited from the enlightenment's preoccupation with description, in favor of participation, the recognition that speaking and writing are acts of continuously reconstructing reality, which is only partly conceivable yet is interacted with. ► **Method:** It distinguishes between conversation as observed and conversation as articulated by its participants. It postulates accountability as a chief conversational move through which conversations can regain their natural flow when disturbed and construct inherently ethical realities for their participants. Unwillingness to repair problematic conversations amounts to acquiescence to constraints that are typical of discourses and the construction of institutional realities. ► **Implications:** It suggests that the ultimate institutionalization consists of replacing institutional artifacts with computational ones, which was the aim of early cybernetics. Computational artifacts have no agency and cannot be held accountable for what they do. This essay proposes a continuum of possible discourses between authentic conversation and computation. It concludes by calling for the drawing of finer distinctions within that continuum and expresses the hope for not closing off the possibility of returning to authentic conversation where humans realize their being human – rather than institutional actors or machines. ► **Key words:** Language, institutions, conversation, computation, participation, cybernetics.

Introduction

In my answer to Ernst von Glasersfeld's (2008) question, "Who conceives of society?," I proposed a radically social constructivism (Krippendorff 2008a) that overcomes what I perceive to be an unfortunate cognitivism in von Glasersfeld's, Heinz von Foerster's, and Humberto Maturana's work. Since then, I published two other papers on the subject. One (2008b) moves the notion of human agency into the center of my project, focusing on its role in conceptions of social organizations – a concept less grand than "society"; one (2008c) teases out several reflexive turns that have grown in cybernetics but cannot be subsumed by the epistemology of radical constructivism and second-order cybernetics, which privileges observation and a representational theory of language over participation in conversation and cooperative constructions of reality. In all of these efforts, conversation has become the starting point of my conceptualizations of being human. In this essay, I wish to discuss what conversation entails, how it is maintained, and under which conditions it degenerates into something else.

Since Martin Heidegger, many philosophers have based their work on the contention that humans live in language. I concur with this proposition but must warn that there are several conceptions of language (Volosinov 1986) and it is important to be clear about the specific conception of language when subscribing to such a proposition. Linguistic conceptions of language are largely due to Ferdinand de Saussure's (1916) unfortunate but consequential distinction between "langue" and "parole." For him, langue, the French word for language, is the relatively *enduring system of rules and conventions* common to all of its speakers, and parole, the French word for speaking, is what speakers do with language. The latter is considered full of idiosyncrasies, marred by individual incompetencies, entirely situational, messy, difficult to study, and hence excluded from the object that linguistics constructs and calls *language*. Also, for Saussure, langue and parole are what *individuals* speak. That we always speak in the expectation of being understood by those addressed, in *social relations with others*, not merely expressing our experiences to the world. Inter-individual relationships do not enter traditional linguistic inquiries, socio-linguistics nudging excepted. In my view, linguists study a convenient abstraction from processes of conversations, purporting to be the systematic and conventional structure that governs individual speakers. It construes that abstraction as the government of individual speech.

For me, Humberto Maturana and Francisco Varela's (1980, 1987) term "languaging," or "the use of language," brings the linguist abstraction back to where it is embodied, in real people speaking with each other. Languaging is a process of mutual human engagement. It is not just a biological capability. Languaging has a history: developmentally, in the sense that individual humans learn it from each other; etymologically, in the sense that spoken utterances and written words have lineages that go back generations of uses by largely unrecognized cultural ancestors; and ontogenetically, in the sense that it goes hand in glove with the evolution and use of cultural artifacts. Languaging is a social or inter-personal phenomenon, not a cognitive one.

For Ludwig Wittgenstein (1953; Schulte 1992), *language is a game* we play with each other, and the meaning of its words is the history of acquiring their use. When we learn a language, we learn to coordinate ourselves with present others. This is quite consistent with Maturana's (1988) conception of language as the con-sensual coordination of consensual coordinations of actions. The dash

between "con" and "sensual" is mine and is intended to highlight the jointly sensing of (focusing on) something and each other by speakers, and to prevent the common reading of "consensual" as relating to consensus or agreement. Playing soccer, for example, requires much coordination among players relative to a moving ball. But what makes handling that ball a soccer game has much to do with the interpretation of written rules, for example, by referees who must declare something to be a violation or a scored goal, or which team won.

I contend that Wittgenstein's choice of the game metaphor may not have been an entirely happy one as it suggests language as a means of accomplishing something; a tool, for example, to decide who won the game. Surely this is not what he implied. Rather, his language games do not need to be finite and may well be ongoing, a "way of life" in which people have the courage to change their being with each other. I have similar misgiving with the idea of language as the coordination of coordinations of actions. Language does not control anything. Speakers interact with each other and define themselves interactively, not as individual actors, but as participants, acting jointly (Shotter 1993). Even in a soccer game, not all participants are eager to win the game. Besides the two teams of players, including their coaches, there are referees, audiences, field owners, and their employees, whose diverse realities are necessary but not questioned during a game. As Wittgenstein reminds us, using language does something. In the process of speaking, realities are cooperatively created and maintained in which speakers constitutively participate in relation to each other. Human relations, soccer games, cities, and technologies are interactive accomplishments, cognition always playing only a part in them. What individual soccer players have in mind may well affect the outcome of the game but does not determine its end.

In (2008c), I worked towards the conclusion that *cybernetics is an interdisciplinary discourse that brings radically reflexive realities into being*, which includes attention to a host of familiar constructions from feedback loops, self-references, recursions, autonomies, to its own constructive use of language. There I suggested that second-order cyberneticians do not go far enough when they merely reflect on their observations, taking responsibility for observing, constructing realities, and describing that process to others. The idea that observers observe their observations abstracts individual capabilities from the fabric of conversations in which observations become inter-individually meaningful and in which constructions of reality become coordinated among interlocutors. I am suggesting that the realities we say we see or think we know are not mere cognitive constructions, they become intelligible and are continually shaped in conversations. The point is that words do something (Austin 1962), organizations are performed in conversations (Krippendorff 2008b), and theories can change the very world they claim to describe, right in front of their theorists' eyes (Krippendorff 2009: 112–130) with reality conforming to or running away from the unreflected belief in its representation in language.

For this reason, I prefer not to ground my argument in a radical constructivist conception of reality as a cognitive construction, or in its objectivist counterpart: that physical or biological reality affords (explains) our perception. To me, physicists construct a universe for the sole convenience of getting answers to their questions (Werner Heisenberg: "What we observe is not nature itself, but nature exposed to our method of questioning"). Physics becomes foundational when insisting that the reality it constructs underlies everything else. Similarly, biology becomes foundational when claiming that the living systems that biologists construct underlie all human sciences. Foundationalisms are often maintained by denying the discourses in which they are claimed. All questions and answers, truth claims, theories, and conceptions are articulated in conversations; not realizing them as arguments or claims diverts attention from how realities are socially constructed to what results from that process, from what we humans create to what we dare not question. The conception of causality, for example – the backbone of physical explanations – has no place for human agency. The conception of autopoiesis – basic to biology – is entirely optional to, has no effect on how beings organize their lives. Finally, cognitive autonomy, which underlies radical constructivists' explanations of human cognitive abilities, is an epiphenomenon of conversations and other forms of interaction. Cognitive phenomena cannot be observed, least of all located in someone's brain. They become manifest in institutionalized vocabularies that psychological experimenters can elicit from their subjects – experiences, understandings, conceptual models, intentions, and other individual abilities – omitting the essentially linguistic, social, interactive, embodied, and ongoing nature of the situation in which such data emerge as co-constructed.

In his paper, *Producing a Cognition*, Charles Antaki (2006) gives a good example of an interview that is designed to test the cognitive ability of respondents. It starts with an interviewee's denial of having any knowledge of where his money comes from. But after interacting with the interviewer, the interviewee ends up constructing an answer that satisfies both the interviewer and the respondent. This is one of many conclusive demonstrations for cognition to be constructed interactively and in language. Here, cognition is housed neither in the mind of the interviewee nor in that of the interviewer.

I am suggesting that all sciences are practiced in constrained conversations, in discourse, as I will detail below. They create and rearticulate their objects so as to be observable and rearticulable within their respective discourse communities. Contrary to convenient but questionable beliefs that their objects precede attention to them, I contend that the realities the sciences describe are the artifacts of constrained conversational practices by their communities. Almost everything we think we know, plan, build, and use emerges from disciplined verbal and non-verbal interactions.

It makes sense, therefore, to ground this essay in where questions are asked, truth claims are negotiated, and realities are co-constructed, that is, in *conversations.* This is where physical, biological, cognitive, linguistic, and sociological realities are created and take hold of the imaginations of diverse communities whose members listen to, live with, and enact these conversational realities. I am assuming that we humans, like all animals, are constituted in togetherness as a condition of our existence, not in biological or cognitive functioning. For some species, togetherness is short lived, consisting of coincidental coupling, birthing, and temporary caring. For us humans, togetherness is richer. It involves interactively coordinated languaging during which we are constantly reminded that our

engagement with each other has a history that precedes our participation in it and this history inevitably resonates in ongoing conversations. Conversation is one explanation that constitutes itself in practicing human togetherness.

The following two sections describe conversation from two contrasting positions. The first applies von Foerster and Maturana's variously articulated conception of a standard scientific observer (here of conversation) whose aim is to be conscious of his or her acts of observing and describing his or her observations/constructions to others. The second takes the position of a participant in conversations whose competencies reside in contributing to what is happening there. The difference between these two positions is not found in the difference between objective and subjective accounts of the same phenomena but between outsider and insider accounts. All accounts occur in conversations and are offered in the first position by one observer (of conversations) to a community of other observers, and in the second position by participants in the very process to be accounted for. I am using the second section not only as a critique of the first, showing the epistemological limitations of celebrating observers and observations, but also as a reference to what happens when conversation degenerates into something else.

Conversation observed

Morphologically, "con-" means together, joint, or among, and "-versation" has many roots, from making "verse" out of experiences as poets do, being "conversant" in a subject matter, to a "version," translation or interpretation of something, including of reality. The *Oxford English Dictionary* (1991: 868) traces "Conversation" to the 12th century and gives its earliest meaning as "The action of living or having one's being *in* a place of or *among* persons" and "The action of consorting or having dealings with others; living together; commerce, intercourse, society, intimacy." In the 16th century, conversation became "Interchange of thoughts and words; familiar discourse or talk." This etymology suggests the meaning of conversation to be remarkably stable. Its overriding use as *a way of being together in talk and interaction* serves me well.

Contrasting dialogue with writing, I suggested: Everything said is said in the expectation of being understood by an addressee. Everything heard as being said is taken as having been said by one person to another. Understanding does not need to be mutual and shared, but needs to be complementary in how it is performed (Krippendorff 2009: 159). Minimally, conversation requires two participants in interlacing expectations. Charles Goodwin (1981: 4), citing Erving Goffman (1976), differentiates three listeners to talk. Those who *overhear* a conversation without being part of it and without the expectation or ability to respond, those who are part of a conversation and (in case of three or more participants) *are addressed* by the speaker and expected to respond, or those *not addressed* and not expected to respond. Goffman and Goodwin thought of overhearers as casual bystanders. I am including as bystanders the observers of conversations – for example, through a one-way mirror – the listeners to wire tapped telephone conversations, the viewers of verbal interactions on a movie screen, and, most important here, the conversation analysts, typically working from transcripts of naturally occurring talk. The latter are scientific observers of conversation and I maintain their view is necessarily unlike the view of involved participants.

As a scientific *observer*, overhearing and recording conversations from their outside, Robert Nofsinger (1991) considers conversations as:

- *Mundane activities* among those observed together. Everyone is able to engage in conversation with others without specialized knowledge, preparation or equipment. This observation may need to be qualified by noting that conversation is learned. Mothers incessantly talk to their babies, initially pleased to get at least a smile in response. It is not clear how babies or children listen, but in time, their participation becomes richer and entirely natural or mundane. Then Nofsinger's observation applies.
- *Common occurrences.* Conversations are observed everywhere, at home, at work, while shopping, in public places, on the telephone, and between waking up in the morning and exchanging intimacies with a partner at night. While mostly taking place among acquaintances, conversations also occur among strangers such as when waiting in line for a cashier or in a doctor's office.
- *Interactively unfolding in time.* Participants take turns and respond to each other's utterances. A conversation essentially is a sequential activity. It creates its own history. This history can be recorded, videotaped, transcribed, and examined in detail, providing analyzable data.
- *Locally managed.* During the course of a conversation, participants themselves determine who speaks, for how long, and in which order. Responsibility for maintaining a conversation is distributed among those present.
- *Accompanied by other activities.* Participants do not merely *say* something to each other when they talk. They also *do* something at the same time. Activities may include nonverbal expressions – gestures, eye contact, variations in voice – but they also establish relationships among speakers and coordinate parallel activities. Conversations between the pilot and copilot direct an airplane's flight; within a team of designers, result in a novel technology; between therapist and a client, produce new realities, ostensively for the client but in fact for both; among business partners, shape actionable agreements; or among the employees of a social organization, determine what that organization is and how everyone contributes to it. Conversations coordinate the realities of everyday life.

Other scholars consider conversations as:

- *Extendable to mediated activities.* Although speaking a language is acquired in the bodily presence of others in conversation, once learned, conversations can continue through interactive media, between participants out of sight of each other. Exchanging written letters, once the only form of mediated conversation, is being replaced by telephone conversations, online discussions, email, and texting. While all mediated conversations omit some features of face-to face conversations – sight in telephone conversations, identity in some text-based internet discussions – they always extend desirable dimensions – distance, for example. Yet, even in mediated conversations, participants are aware of each other.

Academic interests in conversations assume conversations to be

- *Analyzable and theorizable,* usually from recordings and transcripts that allow the conversation analyst to examine and

reexamine the data for patterns that may otherwise escape even the most attentive listening, or in the case of mediated conversations, casual reading.

Theories based on such data always are and cannot be anything other than the theories of observers, not of the observed participants – unless the latter articulate their theory in use, which is rare. However, the position of observers and participants should not be confused on epistemological grounds. Also, theories always reflect the disciplinary interests of theorists in a limited aspect of the available data. For example, therapists typically look for clues to a diagnosis of their clients' mental problems, ignoring everything else, including their own creative contributions to this end. Employers may examine interview data to predict whether an interviewee will fit their job description; cognitive scientists select from verbal interactions that which allows them to infer what is going on in participants' minds. Conversation analysts are not immune to such limitations either when seeking to invent rules that could explain the organization of talk and exchange of written messages, except that their theories tend not to aim at generalizations but are satisfied with moment-to-moment explanations.

It is often taken for granted that conversation analysts can hardly proceed without speaking the language of the participants in observed conversations, nor can they succeed without conversational experiences on their own. Even the transcripts they prepare are cultural artifacts that speak of the analysts' competencies to engage in and write down what they observe. Reliance on such data questions the detachment that conversation analysts seek to project in their analyses and explanations.

Insightful analysts may well have been part of the very conversations they subsequently analyze. Goodwin (1981), for example, taped many birthday parties and gatherings among friends, bringing insider experiences into his analysis. But being forced to demonstrate the validity of a conversation analysis in terms of quotes from transcripts or clips from video recordings encourages explanations of sequential interactions, turn taking, and how categories of utterances follow each other. Such sequential data lead some analysts to causal explanations, for example, John Searle (1969) and other speech act theorists invoke "illocutionary forces" to explain what speech acts do; Gordon Pask (1975, 1976) relies on computational explanations of conversations. Such explanations make sense from the position of an observer who has no direct access to the choices that participants exercise and what motivated them. All they can work from is how observations follow each other.

While acknowledging local management as a defining feature of conversations, what conversation analysts easily overlook is their inability to account for what is happening inside conversations. Self-organizing systems, by definition, develop their own identities, their own realities, and their own meanings for what occurs within their boundaries. For outsiders, it is extraordinarily difficult, perhaps impossible, to explain why participants say what they say and how a conversation develops the way it does, except for the above-mentioned possibility of asking questions of the participants, in effect intervening in the conversation of interest, thus bringing their own conversational experiences into the very conversation to be analyzed.

By analyzing the transcripts of conversations, conversation analysts notice patterns that may mean nothing to participants inside conversations. To claim that participants in conversation are unaware of the patterns that conversation analysts are "discovering," or more correctly, "constructing," is epistemologically untenable – unless analysts step out of their observer role, explore their hypotheses with the participants in a conversation, and thus become conversationally involved, leaving their preferred observer role. In the social sciences, participant accounts largely are considered unreliable and not born out by observational facts. Preservation of objectivity was one reason for linguistics to exclude parole and conversations from their object of study. Conversation analysts are not committed to the abstract-objectivist notions of language (Volosinov 1986) that linguists pursue but also shy away from becoming conversationally involved in their object of analysis.

To appreciate the severe limitations of understanding conversations by overhearing or observing conversations from the outside, let me now describe, as far as possible, conversation from within the process, as a participant.

Authentic conversation

In existential philosophy, authenticity has to do with being true to one's self despite pressures from society to be otherwise. There, authenticity is celebrated as an individualist ideal that denies the conversational reality of being human. I am using authenticity here to refer to the pleasure of participating in togetherness in which one is free to speak for oneself, not in the name of absent others, not under pressure to say things one does not believe in, and not having to hide something for fear of being reprimanded or excluded from further conversations. But I will be more specific than that.

Authentic conversation is not easily, if at all, identifiable from the outside. How would an observer access someone's construction in progress, why something is said, and what is not being said? Questions of this kind should not be dismissed as being subjective. Inasmuch as participants in conversations can be asked and may be willing to account for their feelings, the act of making them public, where they can be dealt with in the very conversations that elicit them, renders feelings – supposedly subjective – inter-subjectively acceptable. One is reminded of Wittgenstein's argument against private language. Participant accounts are not only richer in meaning and closer to what is going on inside a conversation than their observable manifestations, but also more predictable of how a conversation unfolds – at least to the satisfaction of the participants.

Participants in authentic conversations – whether as speakers or listeners, and in case of the latter, whether addressed and expected to respond or waiting for their turn – may experience conversations as:

- *Occurring in the presence of addressable and responsive individuals.* In authentic conversations, participants distinguish themselves and each other by the contributions they make to them. The act of distinguishing oneself is public. It does not impose identities on others, which is what observers are destined to do. When participants cannot be seen as addressable or the source of their voices cannot be distinguished – for example, when in a large and anonymous crowd – conversation is no longer authentic.
- *Maintaining mutual understanding.* In conversations, mutuality, agreement, and

coordination of understanding and acting are of central concern for all participants. However, since cognition cannot be observed and nobody can compare their own understanding with that of others, in conversations, understanding or the lack of it, is performative and evident in certain speech acts, such as "I understand," "I agree," or "tell me more." Here, acknowledging understanding does not mean similarity or sharing of conceptions, its affirmation constitutes an invitation to go on, including to other subjects.

Observers, by contrast, are effectively excluded from the possibilities of checking their understanding of what they overhear against the performative understanding among participants in conversation. In this respect, analysts of transcripts of conversations or written exchanges are literally "out of the loop," isolated, and responsive, at most, to their scientific community of equally detached observers.

■ *Self-organizing and constituted in the contributions their participants make to each other.* Conversations are communicationally closed. They are not abstracted from anything. They are embodied in real participants' talking and listening to each other, responding to what they heard, and acting accordingly. The identity of a conversation – dinner conversation, political deliberation therapeutic session, focus group discussion, business meeting, or design project – emerges from talk and text generated within that conversation. With the emergence of conversational identities comes the feeling of being part of it, referring to its participants by the inclusive "we." How the responsibility to maintain the flow of conversational moves is distributed among participants and the direction in which a conversation is going is always uncertain – save for one's own contribution. Among participants, this uncertainty is not a deficiency, however. Participants trust each other to make sense of what is said.

Observers who seek to understand a conversation from a recording of what happened, looking at it from a God's eye view, cannot possibly appreciate the feeling of being part of it, the feeling of being able to shape an always evolving conversation, and the feeling of trusting each other to maintain the flow. As Michael Billig (2006) noted, we have a rich vocabulary of inner processes – feelings, thoughts, attitudes, experiences, memories and reasons – in terms of which psychologists construct the cognitive processes of their interest without being observable. However, it is because the conversational use of these words is public and coordinated with other speakers of a language that they become meaningful in conversations, not as description of individual states but as performing certain speech acts.

■ *Intuitive, not rule governed.* Authentic conversations are embodied practices. Turn taking, topic switching, coordination of reality constructions is natural, requiring no reflection, no preparation, no special training – as Nofsinger said, notwithstanding the fact that children, born into a community, need to learn joining its conversations. Children do not learn rules, however, and then apply them. They learn to interact with others by speaking much like how they see and hear others interacting with them. Authentic conversations do not follow rules; they give birth to further conversations. Only after sufficient conversational competencies are acquired is it possible to talk of improper practices – "do not interrupt," "don't be rude," or "listen!" from which conversational conventions may emerge. But authentic conversations may go on without them.

Conversation theorists may well draw useful distinctions from the transcripts of conversations, for example, by analyzing conversational triples and adjacency pairs, formulating and testing hypotheses about how natural conversations are organized (Goodwin, 1981), postulating conversational maxims (Grice, 1975, 1978), or theorizing a universal pragmatics for ideal speech situations (Habermas, 1970, 2001). But all of these grand theoretical precepts are constructions by and for outsiders to conversations.

Conversation analysts have the tendency to claim that participants implicitly follow the rules they have invented. This claim is epistemologically preposterous, however. Drawing on Sigmund Freud, Billig (2006) makes a useful distinction between the unconscious and the preconscious. The former is an observer's construction of cognition that is inaccessible to an observed individual (and often related to oppression). The latter is an observer's construction of what that individual does not attend to at the moment, takes for granted while conversing with others. But from the perspective of social construction, there is the possibility that conversation analytic vocabularies enter a conversation and start coordinating participants' talk whether of cognitive conditions or conversational rules. In other words, while the results of conversation analysis may not have anything to do with how conversation is practiced, teaching conversation theoretical explanations diverts practitioners' attention from what they had been doing naturally.

■ *Dialogically equal.* By dialogical equality I mean that every participant in a conversation has the possibility of contributing to it. Nobody feels excluded. Every contribution, even silence, is respected and appropriately responded to.

Indeed, participation is rarely observed equal. Some participants inevitably speak more than others do, leading to claims of observed power inequalities within conversations. Moreover, participants usually have unequal resources (experiences) to contribute. Turn taking is inherently asymmetrical. However, such interpretations of observed differences in frequencies as indicators of inequalities may not matter to insiders to whom unequal experiences may not be detrimental to authentic conversations, more likely, they are what keeps a conversation alive. Even without making an observable contribution, the perception of being able to contribute when the opportunity arises and be accepted for what one says is all that matters. Needless to say, dialogical equality is not observable from outside a conversation. Participants may not notice it either but might articulate its lack.

■ *Creating possibilities of participation.* Conversations may well take place while doing a job. But besides correlations with a purpose, conversations are inherently creative, offering participants possibilities to contribute and realize themselves in the contributions they and others make to the process. One obvious example of opening possibilities of participation is to raise questions not previously answered, inviting addressees to construct answers. Conversational possibilities expand when participants assure each other that their contributions are understood, important, and appreciated (Brown & Levinson 1987), and that their creativity is appreciated. Creating and maintaining possibilities for others relates to von Foerster's (1981: 308) ethical imperative: "Act always so as to increase the number of choices." Here, I am embedding his imperative in the context of social interactions. Socially relevant

choices, not their numbers, are the gifts that partners in communication can offer each other (Krippendorff 2009: 34).

Obviously, possibilities can be created, pondered, exhausted, and constrained, but not observed. It should also be noted that not all questions may invite participation, as I shall discuss below.

■ *Irreversible, progressive, and unique.* For participants, conversations never repeat themselves. Each turn is experienced as unique; each utterance reveals its speakers' shifting perspectives. As Heraclitus suggested, "you cannot step in the same river twice." Participants have numerous conversational moves available to alert each other to redundant threads: "here we go again!" "didn't you already tell that story," "old news," etc. Indeed, it makes no sense to repeat stories unless they have been forgotten or decisions unless they have not been followed up or been previously undone.

For conversation analysts, each transcript may well be unique as well. However, scientific analysis calls for the identification of recurrent pattern and generalizations at the cost of excluding the very uniqueness to which the participants in conversations respond. Observers tend to be blind to the unique contributions made in conversations. Participants tend to be blind to the repetitions they take for granted. Evidently, observers and participants construct realities that are orthogonal to each other but not necessarily incompatible.

■ *Coordinating constructions of reality.* Conversations always leave artifacts behind, minimally the memories of their own history. Other artifacts include the always evolving relationships among participants. But most important are the changes that participants introduce into the world while being in and after participating in conversations: decisions with practical consequences, institutionalizations of procedures, projects, designs or texts, and realizations of diverse technologies. Rarely do these artifacts correspond to any one individual's cognition. Participants supplement each other's contributions (Gergen 1994). Indeed, furniture, cars, computers, the internet and cities are designed in the course of many conversations, having long histories with changing participants but a common thread. Conceptions of these artifacts need not be shared and mostly cannot be articulated in full by any one individual but may complement each other in the interactions that set these artifacts in motion.

Conversation theorists cannot achieve such coordinations for their theories – unless they join the conversation they are theorizing and become active participants, no longer observers. Similarly, theorists of technology are comfortable in describing the histories of technological developments, but rarely appreciate the multiple conversational grounds of such developments, much less dare to forecast technological developments. The belief in technological determinism is an extreme case of denying the role of language and social interaction that drives such developments.

■ *Continuable in principle.* From the perspective of external observers, conversations may be short, such as between occupants of neighboring seats on a city bus, terminating when they no longer sit next to each other, or long, such as between teenage friends who talk for hours on the telephone. For observers, both examples are finite in time. But what they have in common is the possibility of their continuation at a later time, at a different place, and perhaps including new participants, no matter what has happened in between separate encounters. When children move out of their family – for instance, when they go to college – and stay in touch with their family members and friends by telephone, email, or text messaging, they continue to weave the conversational realities they had started long ago, albeit by different means, across geographical distances, and under continuously changing circumstances. Conversations can terminate when they degenerate into other forms of interactions, incompatible with the above, and, in the extreme, when violence enters, which is a categorically different way of being together.

Evidently, there are vast differences between how participants see themselves in authentic conversations and what outside observers, conversation analysts, can record, analyze, articulate, and theorize. The two positions are con-sensually different, distinguished by unlike epistemologies, unlike relationships to their objects of attention, and unlike experiences with the subject matter of talk or writing. I am not devaluing the position of the conversation analyst, but wish to highlight that their reality constructions necessarily differ from the ones of those who are conversationally involved with each other.

Accountability and possibilities of repairs

The above depicts conversations as self-organizing and unproblematic verbal and nonverbal interactions among participants, including the constructions of reality they produce. Authentic conversation is typical among trusting friends but also among strangers who, having nothing to lose, feel alive in each other's presence. I do not expect participants able to describe what authentic conversation entails – as I tried above – but to become aware when disruptions of it are experienced.

In everyday life, people do not always respond in perfect alignment to each other. We say things that may not be understood as intended, interrupt someone's turn, offend someone without wanting to, or talk too much and thereby preempt others from speaking their mind. Besides such unintended disruption of unproblematic interactions, we know of systematic and institutionalized disruptions that we may notice when they occur but fail to address for a variety of reasons. I maintain that conversational competencies include ample possibilities to repair problematic conversational sequences within them. Whether or not we utilize these linguistic resources and how aware we are of these possibilities is a big question that I cannot answer here. Often it is only after encountering the efforts of others to repair problematic conversations that we are made aware of how we deviate from authentic conversation – without implying the ability to articulate just how a conversation got astray. Possibly the most important linguistic resource for repairing disruptions of authentic conversations is *accountability*.

I contend that everything said is said not only in the expectation of being understood by addressees but also in the expectation of being held accountable for what was said or done. As John Shotter (1984, 1993) suggests, speakers tend to articulate their contributions to a conversation not merely in response to other speakers but also with possible accounts in mind in case their contributions are challenged. The process of holding participants accountable may be initiated by noting an infelicitous, untoward, or problematic conversational move, action, or sequence of exchanges. Expressing dis-ease with some-

one's contribution – sometimes called meta-communication – amounts to a momentary disruption of that flow and implies a request for an account by the presumed source of that dis-ease. Requests for an account may also be made directly: "Why did you say that?" "What do you want to accomplish with that proposal? "Why do you come so late?" The account subsequently given is then evaluated and either accepted or rejected, and in case of the latter, a new account may be requested, until the issue is resolved (Buttny 1993).

The most typical accounts are explanations, justifications, excuses (Mills 1940; Scott & Lyman 1968), and apologies. The interactions they set in motion are part of the conversation. They differ from the unproblematic flow of a conversation by focusing on the interaction in question, not on what they construct.

- *Explanations* are least disruptive of conversations. They respond to assertions such as "I don't understand" "I am not following you," and questions such as "can you clarify?" or "what do you mean by that?" Explanations, once accepted as making sense, have the effect of coordinating participants' understanding performatively and bringing a conversation back to an unproblematic flow. Good explanations rearticulate or expand what had been said in terms compatible with listeners' background of understanding.
- *Justifications* acknowledge a speaker's agency in an actual or anticipated happening, and respond to expressed doubts of the merit of that happening. Justifications may be defensive when responding to challenges or preparatory when actions are proposed with the intent to seek approval. Often justifications are used to enroll listeners into the speaker's project (Krippendorff 2008b). Once justifications are accepted, conversation can proceed to other topics.
- *Excuses,* by contrast, deny a speaker's or actor's agency, intention, or involvement in what happened and offer grounds for not being responsible for it. Typical excuses are appeals to external causes, lack of knowledge, accidents, being under the influence of drugs, or having acted on the orders of a superior. The latter may shift blame to someone else, which is a common diversion. If accepted, excuses render speakers blameless and enable them to continue their participation in the conversation. Excuses rely on narratives that are intended to be compelling, but not necessarily true by extra-conversational standards. Excuses do not change the condition for which they are offered.
- *Apologies* admit responsibility for an offensive conversational move or action, express regret, and imply the promise not to repeat it in the future. Unlike excuses, apologies admit the actor's agency. Accepting an apology forgives the perpetrators of offensive conversational moves or actions and is a way to continue the conversation in the hope that the offense will not recur.

Shotter's (1984, 1993) observation that all speakers talk in the expectation of being held accountable by listeners for what they say and do applies to the act of giving accounts as well. Accounts too are always articulated in the hope of being accepted and only those that have that chance are offered. Although accounts may well appeal to general conventions – rationality, common benefits, individual values, or established practices – such conventions are effective only in the very conversations in which participants are willing to let them stand. Inasmuch as the mutual acceptance of practices of living together is a matter of *ethics* by definition, successful accounts provide narratives that participants in conversation consider ethical. Thus, in repairing problematic conversations, conversation-specific ethical narratives are proposed, tested, and accepted, i.e., narratives that participants can live with and find no reason to object to. The ethics that emerges in repaired conversations has two remarkable features. It is rarely generalizable to all conversations – effectively denying their universality; for example, the universal pragmatics of communication proposed by Habermas (1970) – and it cannot be represented by any one observer's or participant's cognitive construction. Conversational ethical realities are performed in conversations or interactively constructed.

Accounts may be personal, "I was angry," informational, "I didn't know that," related to efficiency, "this is all I could afford," ethical, "I didn't want to hurt her," moral, "everyone does it," pragmatic, "it worked in the past," or institutional, "this is the approved procedure."

Problematic conversations can be considered repaired when they resume their natural flow. However, conversations are not machines that can be fixed by replacing defective parts. Successful repairs have the potential of leaving memorable residues behind, an awareness of what happened and how it was resolved. Such residues may become part of the history of a conversation and direct that conversation's future along paths not taken without prior repairs. Therefore, a history of successful repairs holds the seeds of conventional accounting practices in terms of which future problematic conversational moves may become explained, justified, excused, or apologized for.

Thus, unless the history of repairs is forgotten, repaired conversation may no longer be quite authentic and I would argue this condition to be most common in naturally occurring conversations.

Degeneration of conversation

While language always provides ample resources for repairing untoward conversational moves or actions, this is not to say that all disruptions of the flow of interactions are indeed repaired. Not repairing problematic conversations is not limited to children who are in the process of developing accounting competencies. It applies to competent speakers as well. Failing to repair conversations that have turned problematic has two important social consequences. On the one hand, participants who do not hold each other accountable for what they say or do, whether for reasons of expediency or fear of reprisals, grant implicit permission to continue the untoward practices, which can lead to their tacit legitimization. On the other hand, participants who refuse to give adequate accounts when requested of them claim exceptional privileges, in effect, which can lead to the institution of inequalities and violate the dialogical equality that authentic conversation requires.

There may be reasonable and unfortunate conditions for not practicing accountability. Temporarily suspending conversation to get something more important accomplished might be considered reasonable – as long as this suspension is temporary and mutually consented to. Entrapment of one by another – threads of exclusion from a conversation, induction of fear of retribution, and exercising authority – is always unfortunate because acquiescence inevitably creates burdensome

interpersonal relationships that are incompatible with authentic conversation. The unwillingness to repair problematic conversations is the root cause of conversations descending into other forms of interaction, as I shall exemplify below. The results of such degenerations are where conventional sociological abstractions start – without adequate reflection on their roots in conversations.

There are innumerably many ways a conversation can degenerate into other forms of social interactions. I can offer only a few examples.

Physical constraints

The most benign and not entirely social in nature are physical constraints. Conversations become increasingly difficult when noise competes with participants' ability to listen to each other's voices, or when the number of participants grows too large for speakers to address individual participants or to distinguish individual voices, for example at mass rallies, political demonstrations, or public performances. In such situations, participants acquire collective identities that divide participants into, say, performers and audiences or demonstrators and police.

Dialogical inequalities

Most obviously, authentic conversation degenerates by tolerating dialogical inequalities. Interruptions of a speaker's turn can happen carelessly, but they also may be part of accepted discourse practices. For example, it is well known that men interrupt women more often than the reverse. Numerous explanations have been suggested, including a prevailing acceptance of patriarchy. More clearly explainable dialogical inequalities occur at board meetings. Authentic conversation among equals disappears as soon as the CEO or a person in charge of the meeting enters. Such situations are often explained in terms of unequal distribution of power. Power, however, is not what superiors have and subordinates lack. It is not measurable by unequal access to material resources but manifests itself in the unwillingness to hold authorities accountable for what they say or do, and, its complement, in the refusal to provide accounts when requested (Krippendorff 2009: 131–155). Power arises when accountability is not exercised and subsequent interactions are tolerated.

Therapists have sometimes been characterized as conversation managers, which makes therapy different from conversation. Managing focus groups or group discussions, for example, by instructing participants to list their ideas on a predefined issue, putting them on public display, and then proceeding to group them gives the impression of dialogic equality by granting every participant a voice while leaving the moderator in charge of the process. Widely practiced in marketing research and used as a qualitative method for generating data in the social sciences, such methods elicit information that is biased by the management of the group's interactions, revealing something very different from what people would express in unconstrained conversations.

Inauthentic questions

I suggested that asking questions with unknown answers creates possibilities for participants to choose their contributions and experience respect when their answers are acknowledged by responding to them. But questions may be inauthentic as well. Knowledge tests, for example, whether administered in educational settings, aptitude tests for hiring employees, or scientific research, are not geared to understanding but to establishing a respondent's comprehension, the criteria for which reside in the questioner. Asking questions to which the answers are known is consistent with conceptualizing communication as the accurate transmission of information from one mind to another – a process that is institutionalized in many educational and administrative situations that have nothing to do with conversation.

In public opinion research, interviewees are asked to commit themselves to answer an interviewer's questions, and to give up their conversationally expected ability to ask questions of their own. In this genre of social research, questions are standardized for all interviewees, asked according to a schedule, and a prepared set of answers conforms to the interest to the sponsors of the research. Whatever results from such interviews has less to do with what people would say to each other than with what sponsors want to hear (Krippendorff 2005) – a seriously biased investigative technique. Talk show hosts on radio or television are notoriously in charge of what counts as appropriate to the institutionalized genre they enact. They define the topic, ask the questions, interrupt as they see fit, including signaling the audience to applaud. Talk show guests tend to go along with these inauthenticities for the publicity this affords them on a show.

Institutionalized interactions

Mariaelena Bartesaghi (2009a), studying therapists' use of questions during therapeutic sessions, found less obvious inauthenticities. The therapeutic use of questions may give clients the impression that the therapist is genuinely interested in their problems, but systematically directs the clients' answers to where therapists wants to go with them. She defines therapy as an institutionalized form of interaction. Therapy includes avoiding answering clients' questions, for instance: Client: "Why can't I see you on Monday?" Therapist: "That seems to disturb you, doesn't it?" (Lakoff 1990: 69).

Referring to participants in terms of stereotypical categories

When addressing each other or some participants in social categories, for example, as a (typical) woman, black, Frenchman, gay, mental patient, catholic, or consumer, the ensuing interaction is no longer among mutually respecting individuals but between social categories in terms of which participants are expected to reply. Peter Berger and Thomas Luckmann (1966) discuss these social categories as "typifications." It would be difficult to hold categories accountable for what their members say and do. Similarly, when participants in conversations come to divide themselves into opposing camps with ideological, party political, or ethnic labels, for example, into progressive and conservative politicians, often resulting in the use of plural pronouns – the inclusive "we" and the exclusive "they" – communication becomes interactions among publically identified collectivities and conversation is, at best, a wrong metaphor. Party politics attests to perfectly reasonable individuals adopting ideological voices.

Even deliberatively avoiding public stereotypes can degrade authentic conversation. John Jackson (2008) explores the unintended consequences of political correctness in the United States. By confining the use of racial stereotypes to conversations in the privacy of

one's home, public discourse becomes disingenuous and the realities it constructs schizophrenic, not resolving the racial tension that political correctness was thought to alleviate. This phenomenon also exemplifies how the invocation of normative theories about proper talk in public can destroy the authenticity of conversation.

Institutionalizing reality

Bartesaghi (2009b) identifies several strategies that therapists apply *to establish their authority* vis-à-vis their clients. Some authority is already presupposed in the very act of clients seeking therapeutic advice. But in therapy sessions, this authority needs to be realized in talk. Therapeutic authority derives largely from using a vocabulary that is institutionalized in therapeutic discourse in which therapists claim expertise. Therapists are trained to reframe clients' personal narratives in professional terms, constructing a psychotherapeutic reality for them that therapists can treat with the institutional resources they command and clients lack. This practice renders clients as incompetent narrators of their own world. Bartesaghi made three important observations. (1) The therapists she observed managed to prevent being held accountable to their clients by hiding behind the professional community of therapists, referring to themselves in terms of the collective "we," having "years of experience," and professional affiliations. That community is physically absent from the therapeutic session. Channeled into the conversation by the therapist leaves the client no chance to address that community directly. (2) By applying institutionally established therapeutic theories to the social life of clients – theories of the clients' mental and emotional states that they are not expected to know – client accounts are rendered unreliable or flawed. This gives therapists (3) the justification for *replacing clients' narratives, feelings, and social problems with institutional accounts* that enable treating clients as individuals by therapeutic means.

Therapeutic discourse is not the only discourse that constructs *institutional realities* that clients are asked to accept on the therapists' authority and with their help. Scientists, too, tend to claim possession of the instruments for establishing objective truths, realities that laypersons must accept on account of the scientific authority articulating their truths. Teachers assume their authority vis-à-vis their students by claiming to have valuable knowledge that students need to acquire. Literary scholars presume the ability to interpret texts in ways that untrained readers cannot and authors may not be aware of. For example, Paul Ricoeur's (1970) "hermeneutic of suspicion" insists on characterizing authors as hiding their agenda behind their writing, which has given literary scholars the professional license to construct what could underlie a text regardless of what its author says it means. In effect, this scholarship thrives on institutionalizing what has been called "conspiracy theory." It permits scholars to not listen to how others – readers and authors – interpret the text they are analyzing. Conspirators must, by definition, deny being one. It follows that an author's denial of the suspected intentions can be interpreted as evidence for the validity of the suspicion – a cognitive trap. One cannot converse with institutionalized realities, only with people willing to consider them as mere hypotheses, which is what social constructivism advocates.

Not confining accountability to those present in conversations is a premise of sociological theorizing. Besides what I mentioned above, there are at least three ways this can happen and it would be important to recognize the linguistic ground, as Habermas (2001) does, that makes sociology possible.

Speaking for absent others

When therapists rearticulate their client's stories in therapeutic terms, therapists and clients are at least co-present. It is conceivable; therefore, that they could hold each other accountable should the evolving conversation go astray. Even institutionalized realities can be contested, although I am told that clients in therapy rarely ever do this in their sessions, which is not to rule out the possibility of expressing their misgivings in conversations with trusted friends. However, when speaking for absent others, speakers usurp the voices of individuals who, perhaps conveniently excluded from a conversation, can neither be questioned within that conversation nor be held accountable for their views as channeled into a conversation by one participant. Noble intents notwithstanding, speaking for the poor, oppressed, minorities, victims of crime, or even for familiar acquaintances is a discourse strategy in which speakers claim to have more voices than their own. When compellingly asserted, this gives speakers rhetorical strengths over those who cannot claim such backing. Reporting rumors or something overheard may not have much weight, but claiming to speak for one's boss during a contentious meeting can convert a conversation among equals into a game of usurped, claimed, perhaps invented voices, which is no longer between authentic participants.

Speaking as representatives of others

I.e., individuals, organizations, movements, or governments. Lawyers represent their clients in court mainly because untrained individuals believe they do not have the know-how to navigate themselves through the legal system. In taking on a case, lawyers translate their client's stories into legally valid narratives that a court is designed to handle and to which clients are asked to submit for fear of failing. In this process, clients become legal categories – plaintiffs, defendants, or witnesses – whose roles are circumscribed by being treated as their category and forced to respond accordingly. Politicians in democratic governments often face the difficult choice between speaking their conscience or in the name of the constituencies that elected them. The latter has the advantage of giving those with larger constituencies more clout and allows them to defer voting until after consulting with their constituency. In all of these cases, interactions are constrained by the process of representation. Therefore, a parliament is not a place for conversations but for institutionalized debates, public posturing, behind door negotiations, compromises, and voting in the name of absent others.

Speaking as the occupant of an office

In social organizations, members are assigned to offices that serve particular functions with responsibilities for coordinating the work of subordinates. Occupants of an office dedicate all communications to the purpose of that office, speak from that position, not for themselves, and expect all subordinates to be accountable to them without challenging their office. The transitivity of such asymmetrical accounting practices cre-

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ates and maintains organizational hierarchies, such as in business, government, the military, and even the Catholic Church. Office holders are not addressed as individuals, as would be expected in conversations, but as part of a hierarchy of which that office is a part. Such hierarchies tend to be described in terms of power relations. Through such transitively unequal accounting practices, intra-organizational interactions are coordinated and directed towards organizational goals. Thus, organizational communication deviates markedly from the mutual accountability in conversations and therefore deserves special attention. In the social sciences, that attention largely comes from sociology, which rarely acknowledges how organizational realities are reconstituted by actors (Krippendorff 2008b) and maintained in communication.

Discourse as constrained conversation

I use "discourse" to describe what conversations can become when untoward conversational moves are not accounted for or repaired. Discourse surfaces when interactions become systematized, organized, institutionalized, and no longer open to everything its participants may have to say; when dialogical equality is replaced by asymmetrical communications; when the insistence on consistencies constrains the creativities that authentic conversations afford their participants; and when self-organization (communicational closure) is replaced by hierarchies of asymmetrical accounting practices outside the present interactions. Elsewhere, I have written about "discourse as systematically constrained conversation" (Krippendorff 2009: 217–236) of which I can outline here only its principal features.

To be clear, when saying that conversation descends, degenerates, or erodes into discourse, I do not wish to imply that discourse is an undesirable form of languaging. We know many discourses that have made contemporary society more livable. We have reasons to be proud of scientific discourse, public discourse, legal discourse, design discourse, and the discourse of cybernetics (Krippendorff 2008c), to name but a few. While these discourses can be enormously productive, I do suggest that conversations open spaces for people to realize each other as human beings, that conversational competencies precede discursive practices developmentally (children need to acquire conversational competencies before becoming competent in a particular discourse), etymologically (the vocabularies of discourses tend to go back to generations of speakers), and epistemologically (personal experiences that enter conversations may become displaced by discursive constructions of reality). Therefore conversation should not be ignored when theorizing human communication in general and human participation in social organizations (Krippendorff 2008b), science, and culture, in particular.

According to earlier distinctions, there are five constitutive features of discourse.

■ *Discourses surface in the artifacts they construct,* including the body of their texts. The discourse of physics constructs a logically consistent universe amenable to observation and causal explanations; that of medicine, one of diseased or debilitated human bodies open to cures or surgical interventions; that of design, one of future technologies of everyday life. Discourse-specific vocabularies are standardized building blocks for constructing such artifacts. The body of artifacts that a discourse attends to needs to remain open to rearticulation, recombination, and creative extensions, or else the discourse dies for lack of space. Traditional discourse analysts limit their attention to available texts. I maintain this to be insufficient. Texts are read and embedded in talk among particular people and acted upon. The artifacts that discourses generate include all of their visible and somewhat enduring manifestations, not just texts but also discourse-specific universes, professional practices, and technologies. These artifacts are co-constructed in interpersonal interactions, which, while inconceivable without individual cognition are not intelligible in terms of cognitive processes.

However, unlike the traditional emphasis of discourse analysis, these artifacts alone are not sufficient for understanding the operation of a discourse; hence there are four additional features of discourse.

■ *Discourses are kept alive within a community of their practitioners.* Texts need to be read, reread, reinterpreted, reconstructed, and updated by members of a discourse com-

munity specializing in that practice. Texts have no meaning without readers and the artifacts of a discourse are rendered meaningful primarily by the members of a discourse community that has created and used them in their midst as well as by users outside the discourse. A discourse community is self-organizing by legitimizing its own practices, including creating and maintaining standards for reading, writing, interpretation, and construction of their own realities, conditions for membership in the discourse community, and criteria for attributing meanings to the activities of its members. For example, the medical discourse community trains future members, certifies its practitioners, determines codes of conduct and defines the criteria for good medical research. All discourse communities are autonomous and pursue their distinct identities.

■ *Discourses institute their recurrent practices.* This is to say that discourse-specific practices – courses of education, applicable methods and techniques, media of publications, awards for outstanding accomplishments, etc. – are codified, institutionalized, and maintained as the preferred practices of members of the discourse community and maintained in the name of that community. Social science publications, for example, are carefully evaluated by editors and reviewers, encourage a common vocabulary, allow younger members to qualify for promotion, and assure the efficiency of constructing discursive artifacts. Theorists refer to their predecessors, research methods build on each other, intervention strategies are improved over time – all of which contribute to an institutionalized history of discourse practices, which has the benefit of avoiding the duplication of innovations, standardizes methods, typifies expertise, and thus serves to make the discourse more efficient.

■ *Discourses draw their own boundaries,* deciding who and what belongs and what does not. Some discourses identify themselves by reference to the construction of a particular class of artifacts – biologists, for example, are concerned with what they construct as living organisms; others are committed to applying particular theories – physicists, for example, are committed to causal explanations and the construction of a consistent universe; still others are dedicated to solve particular problems – engineering, for example, seeking technological solutions to all kinds of problems, including social ones.

■ *Discourses justify their practices to outsiders.* Justifications may be motivated by the need to continually recruit new members for the discourse community to remain viable, mobilize the resources necessary to construct their artifacts and promote their use by others. But justifications also provide the perhaps unintended ground for driving various discourse dynamics. One may note discourses that compete with one another, as science and religion did until the discourse of religion found a niche that resists scientific penetration. Some discourses consider themselves foundationalist, such as physics claiming that everything real is physical in nature and everything else is inferior science or fiction. Some discourses colonize others, as cognitive science has been doing lately to psychology.

Computation

If discourse emerges when constraints on authentic conversation are naturalized, talk becomes institutionalized, and unequal accounting practices are accepted and directed to the construction of discursive artifacts, then the implementation of technological solutions to social problems or the replacement of social practices by more efficient mechanisms can be considered a move from discourse to the entirely non-linguistic processes of *computation*. Today, we are witnessing the massive translation of discursive practices into efficient computational mechanisms: delegating repetitive work to robotic devices, searching for relevant texts on the internet with search engines, scheduling airplane traffic, letting computers buy and sell stocks, using online accounting for the essential variables of social organizations, and automating whole businesses. In the same way, statistical software in the social sciences has replaced seemingly endless and error prone hand calculations by teams of researchers, and electronic banking accomplishes what a social network of coordinated bank employees did before the advent of computers. These replacements are driven by the increasing availability of software, discursively developed by armies of collaborating programmers.

Software is written in a computer language and explicates algorithms, i.e., step-by-step instructions in which all conceivable paths are anticipated and by means of which receptive hardware can be programmed to be a purposefully functioning machine. Much like in discourse, where it does not matter who practices it as long as someone does, computation is not tied to particular material manifestations as long as it works. In other words, the material makeup of hardware is irrelevant to its proceeding from state to state in a determinist fashion. Hence, software specifies a deterministic process, rendering computers deterministic machines that cannot choose what they do. They have no agency. Non-digital technologies – simple tools, cars, hospitals, public performances – may not be programmable as computers are, but their design has always focused on how they go from here to there, what, in the digital world, is called "computation," hence my use of this term.

All conversations, discourses, and computations produce something. The products of conversations and discourses are still coordinated by talk, text, and interactions. Computations, however, once initiated by human actors, run their course unless intervened with at their interfaces. People may blindly accept the results of computations and allow themselves to be affected by these devices, but this is a user's choice, not a necessity.

Because of the difficulty of grasping the complexities of computational devices, we often attribute human qualities to them – intelligence, temperaments, likes and dislikes (Turkle 1984, 2007; Reeves & Nass 1996), and the ability to act (Latour 2005). However, such attributions do not change the deterministic nature of computational artifacts. One cannot hold computers accountable for what they do. Therefore, replacing discursive practices with computational technologies and relying on them in everyday life amounts to a fundamental shift away from human participation. It is truly amazing to realize how many discourses depend on digitally mediated communication and computation and how little the social sciences have conceptualized this fact of social life or how they have confused the two as Latour (2005) does. Here, cybernetics has much to explore and many insights to offer.

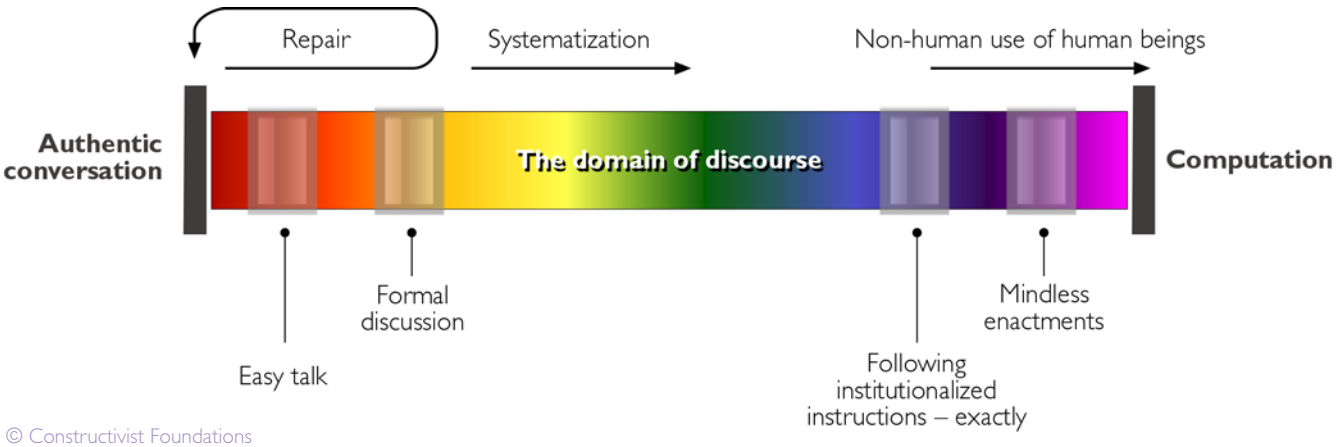

Figure 1: Continuum of linguistic/interactive participation.

Conclusion

To sum up, Figure 1 depicts a continuum between the extremes of authentic conversation and computation, populated by discourse formations of varying degrees of rigor. Conversational competencies include, as I suggested, the ability to repair untoward moves that speakers may make, which can bring discourses back to conversations and the latter to authentic ones. But by not repairing problematic encounters when they occur, by consenting to limit accountability for problematic actions, conversations unwittingly drift into discursive forms that may well construct realities of a kind that conversations cannot construct – think of sophisticated information systems, highways, and the infrastructure of cities. The evolution of such artifacts is accomplished by discourses that coordinate large numbers of human participants, including over some time. It follows that social artifacts of such complexity cannot possibly be explained by the cognitive constructions of an observer or of any one of its constituent creators, users, or stakeholders. What participants do know is their own creative but always only partial contributions. The remainder consists of trust in the linguistic competence of the other participants to coordinate their understanding and interact towards what is to be done. In the transition from conversation to discourse, conversational possibilities are traded for practical conveniences. In the transition from discourse to computation, seemingly costly, unpleasant, or inefficient discursive practices are implemented in mechanisms whose ultimate consequences may be difficult to foresee.

I am suggesting that the move from conversation through the large domain of discursive forms is attracted by the ultimate temptation of turning social processes into productive algorithms whose operation in various technologies is no longer social, except before their inception and subsequently, at occasional interventions through multi-user interfaces with them. Since computational artifacts often are beyond individual understanding of how they work, such technologies can no longer be treated as tools under rational control of their creators and users. Uncritical reliance on computation can lead communities into unintended realities that may well become unbearable to live in and therefore constitute an important domain of scholarly and designerly attention.

This essay is intended to expand the limits of radical cognitive constructivism, which confines itself to individual understanding, into the social domain, and introduce doubts in the epistemological position of observers at the expense of participatory and interactive reality constructions. I maintain that human realities, including the idea of cognition, are conversational or discursive realities in the sense that we humans interactively participate in their construction – without being in charge or fully cognizant of each other's conceptions, except for our contribution to them.

I hope that readers of this essay consider conversation – not individual cognition and efforts to describe one's observations – as the essentially human way of living together. Following from that, is the awareness of the often casually accepted drift from conversation through various discursive forms to computation. I invite readers to draw finer distinctions within the domain of discourses and reflect on how their own contributions affect the spaces left to exercise accountability along this sometimes appealing journey. Although computation deserves more attention than I could devote here, it should be recognizable as that which early cybernetics thrived on and proposed in the form of theories, models, and mechanisms for augmenting social reality. Computation undoubtedly has vastly expanded the horizon of our abilities, but it can also constrain human agency. When moving through various discourses, converting recurrent social practices into computational artifacts, we should always preserve the possibility of returning to authentic conversation, its sheer pleasure and fundamental humanness.

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