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Speech Acts On Trial

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Abstract

In this document we discuss the applicability of speech act theory as a theoretical foundation for the design of information technology (IT). We pay special attention to the adaptation speech act theory has undergone when applied in the IT-field. One question we address concerns what happens when we import passive descriptive theories from other disciplines and use them as a basis in active design. The basic standpoint is that speech act theory may be useful, but only if one is aware of its shortcomings. By surveying various criticisms directed towards speech act based design along with extensions and alternative approaches we attempt to pinpoint these shortcomings. Our aim is to identify breakdowns of speech act based methods and discuss the need for further adaptation. This is done by the use of a framework, also presented in the chapter.

Key Words: Speech act theory, language/action approach, IT design, IT development.

1. Introduction

In the field of IT-design the dominating perspective on IT-artifacts has been an information storage paradigm. Over the course of time, the social and communicative aspects of IT-usage have become more stressed. In this process speech act theory has come to play an important role (Auramäki 1988, Auramäki *et al.* 1988, 1992a, 1992b, De Cindio *et al.* 1986, De Michelis & Grasso 1994,

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Flores *et al.* 1988, Kensing & Winograd 1991, Medina-Mora *et al.* 1992, Winograd 1988, Winograd & Flores 1986). From the early applications in the Coordinator, its use has spread to industrial practice in the Workflow management area. The more widespread use of speech act theory has become, the more it has also been debated and criticized (Bowers 1993, Bowers & Churcher 1988, CSCW—An International Journal, Vol. 3, 1995, Dietz & Widdershoven 1992, Suchman 1994, Winograd 1994). A part of this criticism is not specifically about speech act theory, but concerns general issues about designing and using IT in an organizational context. There exists a need to create an overview of this criticism. Exactly what is wrong with speech act theory? Can it be adapted to overcome some of the criticisms?

In "How To Do Things With Words", the posthumously published lectures of J. L. Austin, the view that language is only a means to assert propositions about the world was attacked. Austin recognized that truth conditional semantics was troublesome for certain kinds of utterances that are not descriptive, but rather constitute actions. The saying of certain words changes the world, rather than merely describing it. The failure of traditional semantic theories to deal with this problem he called the descriptive fallacy.

> "It was for too long the assumption of philosophers that the business of a 'statement' can only be to 'describe' some state of affairs, or to 'state some fact', which it must do either truly or falsely." (Austin 1962)

Austin called these special kinds of utterances performatives (e.g. baptising, marrying). Related to performative utterances is a special class of performative verbs (e.g. apologize, criticize, approve). Performatives are not judged to be true or false, rather they are happily or unhappily performed. To be happily performed certain conditions must be fulfilled (felicity conditions), e.g. to give a sentence in court, the act must be performed by a judge.

To say something is, according to Austin, to perform three simultaneous acts: one locutionary act, one illocutionary act and one perlocutionary act. The locutionary act is the act of uttering a sentence with a sense and a reference. Whenever we perform a locutionary act, we also perform an illocutionary act, according to conventions of language associated with the act, e.g. urging, warning et cetera. Saying something will also typically cause certain consequential effects upon thoughts, beliefs or actions of the hearer. Bringing about these effects is to perform a perlocutionary act, e.g. persuade, alarm et cetera. According to Austin, illocutionary acts are conventional, but perlocutionary acts are not. That is, the former could be made explicit by a performative formula, but the latter could not. "I argue" and "I warn you" are possible performative constructions, but we cannot say "I convince you" and "I alarm you".

While Austin's theory was open ended and Platonic, Searle systematized it, made it formal and Aristotelian, with a set of necessary and sufficient conditions, constitutive of a basic categorization of speech acts. He identified five fundamental illocutionary points, i.e. things possible to do through language (Searle & Vanderveken 1985, Searle 1969, 1979).

Searle added the notion of indirect speech acts, i.e. a certain speech act

could be expressed in a number of ways without reference to explicit performatives. He also based his notion of illocutionary point more on the intentions of the speaker, than on conventionalized meaning, claiming that any analysis of illocutionary acts must capture intentional as well as conventional aspects (Searle 1979) and the relations between them.

1.1. Communicative Aspects of IT-Usage

In the field of IT-design the prevailing language perspective is a referential one. The most fundamental activities of system design are seen as the mapping of a universe of discourse into abstract symbolic models and databases. The "descriptive fallacy" of methods and techniques for IT-design has been attacked by Lyytinen (1985, 1987), and the limitations of these assumptions (also founding prevailing views of artificial intelligence) to generate new kinds of designs, were put forth by Winograd & Flores (1986). A set of methods, techniques and software artifacts has now evolved that may be seen as a kind of "communication paradigm", in the way Winograd and Flores argued for a "new foundation for design" (Winograd & Flores 1986). A way to state this impact of speech act theory is found in (Whitaker 1992):

> "The greatest impact of alternative linguistic models on IT has been that of Austin's theory, as elaborated by Searle and evangelized by Winograd & Flores (1986)."

This new orientation in design is directed towards the development of computer software for organizational communication and action. Organizations are viewed as networks of commitments and undertakings (Flores *et al.* 1988). The speech act based approach has been explored, discussed, and criticized extensively. Pioneering work was made by Winograd, Flores *et al.* (Flores *et al.* 1988, Medina-Mora *et al.* 1992, Winograd 1988, Winograd & Flores 1986) and Auramäki, Lyytinen *et al.* (Auramäki *et al.* 1988, 1992a, 1992b).

Several broader views on the design of IT and its role in the context of work, collaboration and communication also exist, e.g. Mechanisms of interaction (Schmidt 1993, 1994), Coordination theory (Malone & Crowston 1990), and Activity theory (Kuuti 1991). There are also several approaches focusing on work practice and workers/users influence on the design of new technology and its usage in work settings, e.g. Participatory design (Kyng 1995, Grønbæck *et al.* 1997), and the Tools approach (Ehn 1988). Other approaches are influenced by sociology and anthropology such as ethnography in system design (Hughes *et al.* 1994). The work of Blomberg *et al.* (1997) are also examples of this. To these we could add recent approaches such as ethnocritical heuristics (Muller 1997), and aesthetic aspects (Ehn *et al.* 1997).

According to these broader views, a pure communicative view of IT-design, as we discuss in this paper, may have severe shortcomings. Still, a communicative or language oriented view, may be rewarding. A large part of work is performed through language, and IT is used to support communicative activities to a considerable extent. Besides speech act theory, several directions in the study of language usage and communication are available from disciplines such as linguistics, language philosophy, social

psychology, sociology, and anthropology, e.g. social interactionism, ethnography of communication, and conversation analysis to mention but a few (Schiffrin 1994).

However, we believe speech act theory has played a particularly important role in the context of IT-design. At the same time it appears that it needs to be used with caution and to be adapted for an IT context. Consequently we have set out to investigate how far speech act theory might guide us in design, and to reflect upon what the consequences of using it might be.

To investigate speech act theory as a foundation for design, we must address the boundaries and potential breakdowns it may posit in its new context. In order to interpret and understand these limits, we need a framework going beyond the communicative perspective, giving hints to other aspects listed above. This paper presents such a framework, involving also dimensions that are not covered by speech act based design. The problem at hand concerns articulating communicative aspects of work and IT-usage. When we view IT as a mediator and support for communication, how should we then apply communicative theories in modeling and design? When is it appropriate to apply a speech act perspective, and when not? In what ways should one extend it? A natural point of departure for this discussion is the generic schema, *conversation for action*.

1.2. Conversation for Action

The generic schema of *conversation for action* presented by Winograd, Flores, *et al.* (Winograd 1988, Winograd & Flores 1986, Medina-Mora *et al.* 1992) has widely influenced the areas of Workflow

management, Computer supported collaborative work (CSCW), and Business process re-engineering. A conversation is in this approach a coordinated, coherent sequence of language acts. At each point in the conversation, there is only a small set of possible action types. The idea is that whenever a task is being performed for a customer there is a generic pattern of speech acts that occurs. The sequence typically starts with a request from the customer, then the performer makes a promise, and reports completion, which in turn may either be declined or declared complete by the customer. A discourse may thus be defined in a state transition diagram (figure 1), where each state-transition corresponds to a speech act.

FIGURE 1. State-transition diagram for a workflow
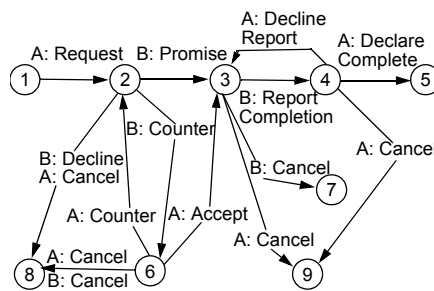
A set of methods and software products, have emerged that use a modeling approach of business activities, similar to the one proposed by Flores *et al.* For each task there is a workflow, which includes communication with the customer, according to the schema in figure 1. This is illustrated as a basic workflow loop with four phases (Figure 2) (Medina-Mora *et al.* 1992). A work activity is in this view the fulfilment of commit-

ments by a performer to the satisfaction of a customer.
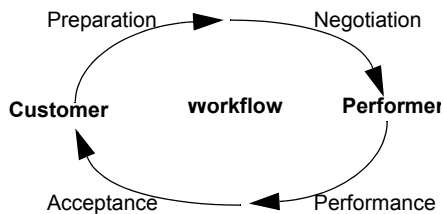
According to this view, any work activity can be sequenced in four basic steps: *preparation*: the customer makes a request, or the supplier makes an offer; *negotiation*: the parties establish a mutual agreement of conditions of satisfaction; *performance*: the supplier declares that the undertaking is complete, and *acceptance*: the customer declares satisfaction. Several circles can be interconnected with links, such that a speech act in one workflow may trigger one in another workflow. In this way, one workflow can be viewed as a sub flow to another workflow.

The customer/supplier metaphor has been reified and objectified to a remarkable extent in literature on Business process reengineering (see e.g. (Hammer & Champy 1993, Keen 1991)). The basic workflow loop is used as a means to articulate customer-supplier relations, with customer satisfaction in focus. There is always an identified customer and a performer, with the loop representing a particular action the performer agrees to complete to the satisfaction of the customer. Problems may however arise when this basic loop is applied to any

kind of activity, as proposed by Flores *et al.*

2. Themes in the Criticism of Speech Acts

Speech act theory in the shape of *conversation-for-action* seems simple and attractive, but what is the price we have to pay for this simplification of complex organizational reality? What is actually happening when speech act theory is imported to the field of IT-design? What objections might be raised and why?

It is possible to categorize the criticisms and discussions of speech act based design in several ways. Some arguments are more philosophical in so far as they concern the very nature of theoretical abstractions *per se*. Related to this philosophical concern is the question of how theoretical abstractions could be used in the practice of IT-design.

Further arguments concern the limitations of the particular abstraction comprized by means of speech act theory. These arguments are mainly matters of expressiveness, and a concern for the important phenomena one may abstract away when using speech acts as the abstraction instrument. This criticism is of a more linguistic nature, addressing the appropriateness of speech act theory to give an account of pragmatic phenomena inherent in real language usage. These arguments concretize specific shortcomings of speech act theory and give valuable hints of break downs or needed extensions. They are generally of the form "if we abstract by means of theory X, we miss the important phenomenon Y".

Together these two lines of criticisms form a theme related to different means

of theoretical abstractions, in general, and in particular.

Furthermore, it is also possible to identify a set of criticisms related to issues of power, control and rational design of work organizations and their IT-support. This criticism concerns problems with rigid work design versus needs for flexibility, and issues of power relations, such as authority and control versus autonomy. Designing for change and flexibility will entail possibilities of learning, while routinization may lead to deskilling and alienation. This will raise questions such as: "To what extent is it possible and desirable to achieve a rational design of work? For whom is it desirable?" The need for skill, flexibility, and social responsibility may prevent the possibility of achieving a rationalistic work design.

These sets of criticisms or themes, form a framework for discussing and interpreting breakdowns and limitations of speech act based design in particular, but also IT-design in general:

1. The problems of theoretical abstractions

    a. The insufficiency of any theoretical abstraction;

    b. The insufficiancy of particular abstractions, in this case speech act theory;

2. The problems with a rationalistic design of work (i.e. problems with rigid design versus flexibility, and global authority versus local autonomy).

3. Speech Acts on Trial

Sorting out the diverse strands of criticism, we start with the criticism directed towards speech act theory *per se*, i.e. as a philosophical and linguistic theory, and related to that, the idea that a theory rejected within its own field should not be imported to another field. An example of the latter critique, i.e. "...that speech act theory has been reified in the design and implementation of IT artifacts after the model has lost its currency in its parent field.", is found in (Whitaker 1992).

Such criticism, however, overlooks the fact that a theory exported to a new field often serves new purposes and should be evaluated on new grounds. It also ignores the adaptations that speech act theory has undergone, when applied in its new field. We will discuss some of these changes in more detail below. As we will see, several critics fail to see the implications of this adaptation. (By this we do not mean to say, that it is irrelevant to examine critically the background of imported theories. Rather we wish to qualify such reflections by considering also the changes that these theories undergo.)

3.1. The Insufficiency of Any Theoretical Abstraction

One line of criticism against speech act theory starts from the premise that human actions are always situated (Suchman 1987). According to Suchman (1994), some criticisms of speech act theory are based on insights concerning the "circumstantially contingent character of meaning and intention". Such insights are, however, invoked for many different purposes. For some it denotes a need to construct new theories about

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communication and language, as for Suchman (1987). However, the reference to the "contingent character of meaning" is also related to a philosophical critique of speech act theory. As such it has quite different implications. It concerns the (im)possibility of classifying the world in an Aristotelian way. Is it possible at all to give an absolute and final account of speech acts in terms of necessary and sufficient conditions in the way Searle does?

The core of this philosophical argument can be brought to light by contrasting the philosophy of Searle with that of the later Wittgenstein (1958). Both Searle and Wittgenstein addressed meaning theoretical issues. Wittgenstein claimed that meaning is not a thing, such as the referent or a speaker's mental ideas. The meaning of an expression has to do with its use in a *language game*. A language game is a practical social activity. The term denotes something wider than linguistic behavior. The meaning of the word "pain", for example, has to do with the activity of comforting each other. When two people say they attach the same meaning to an expression in a particular situation, this signifies that they feel successful in their actions at that particular time. When something goes wrong, on the other hand, people say that they misunderstand each other or that they attach different meanings to the words they use. Our use of the word "meaning" is thus related to an infinite number of things that "may go wrong". It is related to the whole contingent context of use and to culturally determined linguistic skills. This, according to Wittgenstein, is nothing that can be fully described with words. Searle, on the other hand, believes that social use of language

can be fully described by a finite set of rules constituting the social institutions that make certain speech acts, like promising, possible and meaningful. From a Wittgensteinian perspective, speech act theory focuses on certain standard ways in which communication can fail. Such a theory can be useful for several purposes, but it can never be a solution to philosophical problems. It can never function as a complete theory of meaning.

Wittgenstein saw philosophy as a kind of therapy. Many philosophical problems arise because we become confused when we face formulations of constitutive elements of a language game. These philosophical problems, such as the problem of meaning, can be *dissolved* (not solved) if we reconsider obvious and overlooked aspects of our language usage. According to Wittgenstein, philosophy should not construct new systematic theories. His philosophy is *anti-theoretical* in this respect. His "theory" of meaning consists of the view that there can be no theories of meaning.

A philosophy with many similarities with Wittgenstein's is that of Derrida (see (Staten 1984) for a comparison). Derrida explicitly discusses speech act theory in (Derrida 1988), in which he focuses on the impossibility of making a strict separation between normal and non-normal forms of language usage.

Even accepting Wittgenstein's view of philosophy (which of course is open to criticism) and of meaning, where does this leave us when creating a theoretical basis for the design and development of IT-artifacts? Will our research questions dissolve by means of a Wittgensteinian therapy, or could we benefit from having systematic theories about work and communication? That work (and linguistic

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actions in general) is contingent and situated in character does not necessarily lead to the conclusion that speech act theory is useless in designing IT-artifacts. It may lead to a renewed insight that speech act theory is only an abstraction focusing on certain aspects of language and disregarding others. This, in turn, may lead to a renewed examination of speech act theory and how it can be applied.

As mentioned above, it is important to be clear about how speech act theory is used to solve new problems in its new field. In this new context, people are not concerned with abstract philosophical problems of meaning. One major difference is that linguists and philosophers are *passive observers*, describing social interaction, while IT-developers are *active designers* of such interaction.

From a Wittgensteinian perspective, any attempt to produce a theory of meaning fails, simply because it is a theory. This is, however, not applicable to the use of speech act theory in IT-design. It is a reasonable criticism against speech act theory as a philosophical theory, but not as a practical theory to be used in a design situation. On the contrary, this type of philosophical consideration can be used to question the relevance of linguistics and philosophy to IT-design, in the first place. Our task is not to search for an ultimate "true" philosophy or linguistic theory about communication or social interaction. Instead, we should turn our focus to the concrete and unique problems in our own field. The crucial question concerns what needs to be articulated about work and communication to improve current praxis in the development and usage of IT. We also need to distinguish between the needs for articu-

lation among researchers, systems developers and users.

However, there are situations in which we believe appealing to the situated character of communication and work is a relevant way to problematize the role of theories as such in our field. We will here give three examples of such situations. *Firstly*, the argument is relevant whenever a theory claims to give an objective, absolute, and final account of human interaction. As such the argument concerns our attitude towards theoretical issues in information systems (IS) research. Is there a positivistic truth about work and communication, or are all theories sufficient and useful only for certain purposes? Unfortunately the IS-field is dominated by commercial interests tending to strengthen and popularize such positivistic claims. This, in turn, reverberates in academic debates. It would be disappointing, however, if the discussion about the applicability of speech act theory were to become dominated by commercial exaggerations. *Secondly*, there is the problem of a rationalistic design of work, which is discussed below. To what extent is it possible and desirable to design work? For whom is it desirable? Who should be the designer? This is one of the major concerns of Suchman (1994). *Thirdly*, if there exists a need to design and to plan work, how should such a design be achieved? Through formal requirements analysis, abstract modeling, and theoretical analysis or through practical tests and a continuous design-use iteration? In what respect do we need to theorize about work? There are approaches within the IT-field that are directly or indirectly influenced by the philosophy of Wittgenstein, such that Ehn's tools approach (Ehn 1988). Here the em-

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phasis lies on practical involvement in work during IT design and development. In this respect Ehn and others share an anti-theoretical attitude with Wittgenstein, but from a more practical point of view. Of course, the need for a particular development method varies with different kinds of work settings. A major problem when designing IT artifacts is finding a balance between theoretical reflection and practical involvement in work.

Note that none of the points raised above are specifically about speech act theory. They can be applied to many development methods that use formal and abstract description techniques to describe work activities, such as petri-nets, flow-charts, state-transition diagrams, and information-flow diagrams. The usage of these methods tacitly assumes that work should be designed, and performed under a set of constraints.

To conclude, observe that an appeal to the situated character of work (and of human actions in general) is related to all three themes presented in this paper: it has been an inspiration to search for new theories; it can be used to problematize the role of theories as such; and it is related to the problems associated with a rationalistic design of work.

3.2. *The Insufficiency of Speech Act Theory*

In this subsection, we will give an overview of the concrete shortcomings of speech act theory and present extensions and alternative approaches. As mentioned above, the situated character of work may play a role here as well. It can be viewed as one of several phenomena a theory of work should capture. One such example is the discussion about the articulation of work that incorporates a notion of how work articulation is needed to aid situated work activities. Another example is Suchman (1987), who sets out to investigate interactional competencies and their social and material foundations.

Articulation work

The concept of articulation work (Gerson & Star 1986, Schmidt 1993) was developed to handle the fact that cooperating actors, have to articulate (divide, allocate, coordinate, schedule, mesh, interrelate et cetera) who is doing what, where, when, how, by means of what, and under which constraints. The dimensions of articulation work include actors, responsibilities, tasks, activities, conceptual structures, information resources, material resources, technical resources and infra-structural resources.

Articulation work goes beyond a communicative approach. In several respects it has a broader scope than speech act theory. However, there is not necessarily a conflict between the two, if the latter is viewed as one of many ways in which we can articulate communicative aspects of work.

Discourse versus Conversation

Much of the sharper critique of the speech act approach in IT-design emanates from an ethnomethodological tradition. Even if there is some common theoretical ground of the language/action perspective and ethnomethodological approaches, at least if we refer to the original hermeneutic arguments developed by Winograd & Flores (1986), they are emanating from fundamentally different traditions in the study of pragmatics. These traditions, *discourse analysis* and *conversation analysis*,[1] represent

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two different approaches to the study of language usage in linguistic research (Levinson 1983), but when speech act theory is adopted for IT-design, the terms "discourse" and "conversation" are used as synonyms. According to linguistic terminology, the conversation-for-action schema would be called the "discourse-for-action schema."

Discourse analysis applies traditional methods and theoretical principles of formal linguistics as rules and well-formed formulas to larger units than the sentence. By isolating a set of basic units of discourse (e.g. speech act types), and formulating concatenation rules over these, well-formed sequences of these basic units are defined as coherent discourses. Discourse is, in this tradition, just a larger unit than the sentence, on which the same techniques can be used to delimit well-formed sequences of constituents from ill-formed ones (Levinson 1979). This approach covers both work on text grammars (which is outside the scope of this paper) and various works on speech acts.

A discourse may (in the sense it is most commonly used in work on IT-design by Flores *et al.* and Lyytinen *et al.*) be viewed as a generic, goal-oriented office task. It is a globally managed sequence of communicative actions (speech acts), forming a coherent and predetermined course of action leading to a goal.

Conversation analysis, on the other hand, emerged with an approach to sequence in social interaction avoiding the restricted formalisms that constrict the speech act notion of interaction. Conversation analysis is an empirical approach, rooted in ethnomethodology, contrary to the more schematic theory construction of speech act theory. The conversational paradigm denotes a more or less informal way of talking, where two or more co-present participants freely alternate in speaking as in face-to-face communication. However, many studies have also been undertaken in formal or institutional settings, where the course of turns in the interaction is more predetermined and rule governed, e.g. courts, churches, schools, hospitals (see for example (Drew & Heritage 1992)). This tradition has also been used as a foundation for IT-design, as in human-computer interaction (Suchman 1987), and Computer supported cooperative work (Bowers 1993, Bowers & Churcher 1988).

According to work in conversation analysis, conversational sequences are rarely structured in the way indicated by the conversation-for-action schema, i.e. request - promise - assertion - declaration. Instead, certain kinds of utterances seem to go together in pairs, like question-answer, greeting-greeting, offer-acceptance et cetera (Levinson 1983). This kind of pairing, *adjacency pairs*, is an important characteristic of conversation. Utterances that go together with *requests* to form adjacency pairs, are not promises, but compliances or rejections. In many situations the most natural response to a request is complying with it (or rejecting it) without any promising taking place in between. Furthermore in real conversations it is common to issue a pre-request before a request is uttered. The pre-request functions as an initial check whether certain preconditions obtain. A pre-request could also function as an indirect request.

A conversation is guided by turn taking conventions which regulates when one person stops talking and another

starts, i.e. who may speak when. While the course of action in a discourse is globally managed, by means of the constituting rules of a well-formed discourse, the course of action in a conversation is locally managed by the participants. Local control is maximized for both the distribution of turns and the selection of topic, that is "who talks and what gets talked about is decided then and there, by the participants in the conversation, through their collaborative construction of the conversation course" (Suchman 1987).

In contrast to a globally managed system, turn taking conventions organize just the transition from one speaker to the next. There is no predetermined order in which the turns should be issued. A locally managed conversation is thus a highly interactive phenomenon. The opposite of free conversation is found in rituals or ceremonies, where almost every move and every utterance is pre-allocated (e.g. a wedding ceremony). Here both content, speaker and turns of utterances are determined beforehand.

An office procedure may well be anywhere in the scale between strict globally controlled discourses and free unrestricted conversations. The contact with a customer may follow a strict predefined format (as a kind of generic discourse), or there may be room for creativity and improvization. In designing work procedures and IT-support for contracting and negotiation with customers we need to handle both situations. Arguably, the conversation-for-action schema can handle only strict predetermined sequences of speech acts.

The multi-functional nature of communicative acts

Another line of criticism against the Searlian speech act theory concerns multi-functionality. According to Allwood (1980), our common-sense classification of communicative actions shows systematic ambiguities. These can be seen as instances of a general ambiguity in our ordinary conception of action. Allwood lists four factors commonly used as criteria for classification:

i. The intentional phenomena governing the behavior

ii. The form of the behavior

iii. The result which is achieved through the behavior

iv. The context in which the behavior occurs

The ambiguity arises in two ways. Firstly, we could classify an utterance from several different points of view, i.e. as regards (i) - (iv). Secondly, as regards (i), Allwood considers a communicative act to be a parcel of communicative intentions. He claims that multi-intentionality is the normal case in communication. Further discussion on how Searle's classification of speech acts fails, can be found in (Allwood 1977, 1980).

To this we may add that the interpretation and classification of a specific speech act in a specific situation could result from negotiations among the involved parties. The speaker's intention may be vague and open to how the listener responds. This phenomenon has been studied in conversation analysis (mentioned above).

In the conversation-for-action schema, a one-to-one mapping between specific utterances and illocutionary acts is

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taken for granted. A message will either count as a request, a counter offer, a rejection, a promise, a declaration, et cetera. In this context, however, the one-to-one mapping is *designed*. People adhere to a predefined schema. In a specific sense it is decided on beforehand how the actions should be interpreted. (This is, of course, true only to the extent that people use the system in the intended way.) Once again we must consider the difference between describing and designing social interaction. In a way the problems inherent in the one-to-one mapping *per se* disappear. However, the discussion about multi-functionality is now turned into the question of what specific classification of speech acts is needed in a design situation? Is it reasonable to have only one classification? If so, which one should be chosen?

The taxonomy in the conversation-for-action schema is not motivated with an explicit theoretical discussion about alternative classification criteria. Rather different speech act types are presented as self evident. In other approaches, such as the Sampo method (Auramäki 1988, Auramäki *et al.* 1988, 1992a, 1992b), the Searlian classification is largely adopted as is. Little is added or changed to the theory to make it fit the context of IT-design. Practical experience with the Sampo method, has lead to the conclusion that concrete classification of particular speech acts depends on the perspectives one may have in different situations.

All in all, we conclude that a theoretical discussion about the most reasonable classification criteria of speech acts for a design situation has not yet been sufficiently addressed.

The limited notion of context

The Searlian speech act theory is also criticized for its limited possibilities of referring to the wider social context in which the conversation is embedded. In speech act theory one focuses on the performer of an idealized utterance. It has a sender perspective, rather than a receiver or social-interactional perspective. The illocutionary act is constituting the core of meaning. Meaning is fundamentally emergent from the utterance, and speech act theory is therefore claimed by some authors to be drastically decontextualized (Drew & Heritage 1992).

A theory of speech acts is basically concerned with mapping utterances into speech act categories. This mapping may rely on complex contextual cues, related to socially or culturally constituted activities where language plays a specialized role. Examples of such culturally identified activity types, or speech events, are teaching, job interviews and conferences. The notion of context may be quite complex and how many and which variables that should be taken into account is an open question (see for example (Levinson 1979, 1983, Lyons 1977)). The conversation-for-action schema, can be seen as representing *one* such activity type, i.e. the contracting speech event between customer and supplier.

Social roles

According to Flores *et al.* the typical office comprises a structure of recurrent conversation patterns associated with formally declared roles: group manager, assistant, programmer et cetera (Flores *et al.* 1988). The role structure is assumed to be stable and not under negotiation or change. Positions and power relations among the users are also assumed to be

stable. This view leads us back to a notion of organizations as bureaucracies, and away from the powerful view of organizations as networks of commitments, also put forth by Flores *et al.*

Should we design for stable structures, or should we design for change? If we consider language to be social, inter-subjective, and a means through which we create our social reality, a language oriented view on design should have a more dynamic and nuanced concept of roles. New roles emerge that mature and institutionalize and old ones are re-shaped continuously. Just by intervening in work with computer artifacts new roles are formed. This formation of roles must be taken into account in designing work and IT-support, since computer mediated communication will obviously play an important role in this formation process.

Cognitivism and individualism

A classical problem within philosophy of language concerns the relation between the private and the socially public world. Beliefs and intentions belong to the private realm. Conventions belong to the social and public realm. The problem is: How can we talk about intentions in the first place? What do we mean by that? In speech act theory, both intentions and social conventions play crucial roles. In philosophy of language it is often claimed that we should only refer to public items, when explaining our use of language. Language, according to this view, is an inherently social phenomenon. Wittgenstein's private language argument is held by many to be conclusive on this point.

However, many people find it counter-intuitive not to take intentionality

into account. Maybe Wittgenstein can guide us further on this point, in illustrating why it feels counter-intuitive *both* to eliminate references to the mental and to take these references as literally refering to something behind, within, or beyond the body. He says the body is a mirror of the soul. We can not talk about either one of them, without the other. The concept of body and the concept of soul are mutually dependent on each other. References to mental events can not be understood properly, without bodily manifestations. At the same time, we can not understand these bodily manifestations, unless we interpret them as manifestations of something mental.

While the philosophical problem of mental vocabulary is too complex to address here, a question that is relevant to consider, is whether appealing to intentions is crucial when using speech act theory in the design of IT-artifacts. This usage may very well unite with the currently popular cognitivistic tendency in many branches of computer science. However, we believe social and conventional aspects of communication must be more relevant to consider in the design of IT support for organizational communication. (This is also stressed by Winograd & Flores (1986).) A heavy focus on intentionality may lead to a narrow individualistic perspective.

Organizational agents

The Searlian speech act theory can be criticized for having a too individualistic focus also in another sense. In IT-design it is relevant to consider social groups and organizations as responsible agents. A promise may create a commitment for an organization or a department, and not for the individual performing the speech

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act. We thus need to introduce a notion of "representatives", in the sense that a sales person is a representative for an organization. This means that the sales person acts "on behalf of" the organization. When this person accepts a customer order, a commitment is made for the whole organization. This commitment may, in turn, be administered by creating "sub commitments" internally within the organization, where one department is committed to another.

In a way, this adaptation of speech act theory has already begun. In the Action Workflow approach, a workflow may have several sub flows. Some of these sub flows correspond to sub commitments (Medina-Mora *et al.* 1992). In addition to this, the Sampo method attempts to illustrate the relationship between different commitments in the notion of "coordination of commitments" (Auramäki *et al.* 1988). However, we believe that this needs further elaboration. In both methods the notions of commissives and workflow commitments, respectively, are primarily based on Searle's individualistic perspective.

Propositional content

In the conversation-for-action approach, the information content of speech acts is ignored (Schmidt 1993). The schema focuses on *who* is communicating *when*, and not on what is communicated. The method does not, for instance, include ready-made schemas or templates for documents or databases to be used. In the Searlian speech act theory, on the other hand, the notion of propositional content plays a crucial role. It is, for example pointed out that the information content of a threat must not describe something beneficial for the hearer. (That is why the

utterance "Watch out, or I'll give you 1000 dollars." may function well as a joke, but not as a sincere threat.)

This separation of the concern for information content and information context is related to a set of modeling-administrative problems. If we combine the two, there would be redundancy problems. Consider for example a process model specifying that secretaries send invoices to customers. Consider then a model of invoice documents. The latter model would probably reduplicate parts of the former, since an invoice typically contains information about its sender and its receiver. In (Holm 1996) it is pointed out that any approach combining models of information content with models of information context demands a non-conventional formalization of, e.g., ER-models. It is also pointed out that we need an analogous expressiveness regarding processes. We should be able to relate support functions in the IT-system in various ways to user behavior. In (Holm 1994, 1996, Holm & Ljungberg 1996) a modeling framework is presented that meets these requirements.

3.3. Problems with a Rationalistic Design of Work

We now turn to the second major theme in the criticism of speech act theory, namely problems with a rationalistic design of work. This notion needs some clarification. In a way, all social activities are designed. We are always affected by a set of social conventions and rules in our actions. In another sense, all activities are situated and performed with a certain freedom and responsibility. However, what we aim at here is a practical characterization of work situations, relevant for IT-design. We build on the intu-

itive notion that work is routinized, planned, and structured to different degrees in different situations. What is more important is that an organizational change process introducing new IT-artifacts, often calls for new decisions regarding the degree and character of the structure, plans, and control of work, i.e. how work is designed. Our concern in this section has to do with the problems if, how, and for whom it is desirable to design work, and how such issues affect the aptness of using speech act theory.

A control-oriented way of working

It has been claimed that the conversation-for-action approach leads to a control-oriented way of viewing work. It has been criticized for being a rigid form of controlling the workflow, forcing users to perform their work in a certain way, with no possibility of changin or editing the sequence of speech acts. Criticism by Suchman (1994) concludes that: "the adoption of speech act theory as a foundation for system design carries with it an agenda of discipline and control over organization members' actions". In the light of this critique, the hermeneutic argument developed in (Winograd & Flores 1986) turns out to be a traditional control-oriented positivist perspective in practice. The implication of this criticism is that the conversation-for-action metaphor is unable to articulate work in other terms than obligations. It is only valid in work domains characterized by explicit command and control structures (Schmidt 1993).

In this context, it is worth noting that a certain confusion exists as to how the conversation-for-action schema should be interpreted and on what grounds it should be evaluated. It is claimed to rep-

resent a universal structure "implicit in all interactions where actions are being coordinated among people" (Winograd 1994, p. 192). This seems to imply that using the schema is neutral. It does not essentially change the way coordination takes place. However, the reference to the universal character of the schema is problematic in several ways. All coordination may be theorizable in these terms, but in what sense are we dealing with an "implicitly existing phenomena"? Even if this is accepted, there is a need to discuss the effects of making it explicit (Suchman 1994, Lynch 1995). Again we must make a clearer separation between a descriptive and a normative use of the schema, or as Lynch puts it, "between naturalistic and instrumental justifications" of the schema (Lynch 1995).

Despite the resort to the universal character of the schema, we find many examples of an instrumental perspective in (Winograd 1994), where Winograd states that the schema should be viewed as a practical building block in design and not as the ultimate theory about human coordination. He also admits that the explicit representation of such coordination is appropriate only in some situations. Moreover, when the schema is used in industry, it is accompanied with a set of very specific claims concerning the organizational effects of using it. It is claimed that introducing one responsible person for every workflow leads to better customer service. It is also claimed, in the area of Business process re-engineering, that it increases organizational effectiveness to impose customer and performer roles also in situations where these labels are not naturally employed. An example of this would be to view the relation between a student and his/her

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supervisor as a customer-performer relation (in any direction). One of the most debated claims is perhaps that the usage of explicitly identified, clear and unambiguous speech acts are generally preferable and leads to more effective coordination.

We believe the issues raised by Suchman are important and relevant when we discuss the design and usage of IT. However, it is important to separate the very process of articulation, categorization and work design in general, which addresses the usage of speech act theory, from the usage of the conversation-for-action schema. The schema is more narrowly applicable than speech act theory, in the sense that it assumes two specific social roles—that of a performer and a customer, and one generic purpose of communication—to administer commitments. It may be claimed that Searle's theory is also applicable in situations with other social roles, for example that of a tutor and student, or in situations with other purposes of communication, such as when describing a discussion between a customer and a performer during work performance. The schema is something new and unique. The claim that it is a central coordinating structure for human organizations rests on theoretical assumptions that go beyond original speech act theory.

The criticism also needs to be more precise as to what it is in the use of the language/action approach that aligns with a managerial perspective (as Suchman claims it does) and in what respects certain interests can be classified as managerial. Exactly what is it in the usage of the conversation-for-action schema that leads to a control-oriented way of viewing work? Is it related to general problems of creating categorizations of some sort, or is it related to the particular categories in the schema? Is it the very idea of structuring the communication process or is it the use of this particular structure? Is it how the schema is used by practitioners or how it is intended to be used by the original authors (Winograd 1994)? Is it how it is used in the Coordinator or in the Action Workflow system? Is it the usage of Searle's theoretical concepts? We believe the problem at hand is related to all of the above mentioned issues, but in different ways. To some extent it concerns concrete technical details regarding how the schema is implemented and used in contemporary Workflow management tools. Here are some reflections: as regards the use of the schema in the Action Workflow system, it is based on an assumption that there should exist predefined roles with strictly defined responsibilities. The course of actions is strictly defined according to a fixed schema. Everything people do is supposed to be initiated by a request from someone else. The schema is assumed to be globally managed. A potential defence of the schema, in this context, is that it is only the course of actions that is predefined. The particular decisions are not necessarily controlled by strict rules. Since it is easy to change the schema, it can also be used with flexibility as regards changes of the communication structure.

To a certain extent, the above criticism of the schema has a narrow focus on how it is used today, and fails to discuss other potential uses of it. Even if the schema is not regarded as generally applicable to all coordination in organizations, this does not mean it is worthless. Moreover, the schema needs not to be

applied restrictively. For example, it can be used as a reference model in a design situation. This approach is taken in (Holm 1994) where an extended version of the schema is applied to routinized ordering procedures. Many traditional database applications mirror a communication structure similar to this schema. These databases typically contain information about customer orders, order verifications, deliveries, invoices, payments, et cetera. In traditional modeling methods all this would be described in terms of entities and relations. In such situations the generic schema can be used to reveal a recurring structure regarding relations between organizational speech acts, the information content in a database, and the dynamic behavior of IT-artifacts. This is perfectly doable, without applying the schema to *all* organizational coordination. One can also argue that this would not be to impose a new and foreign categorization of the organizational actions. Rather the schema is used to make explicit certain relationships between already existing concepts and categories.

As mentioned above, a part of this discussion is not specific to speech act theory *per se*. It concerns the general problem of knowing when and why work should be designed in the first place, e.g. whether certain activities need to be planned, structured, explicitly categorized, and defined, at all. The following list contains a set of work characteristics making a strict rationalistic design of work less desirable. The more desirable these characteristics are, the more people must work with a certain amount of freedom and flexibility.

- Rich utilization and development of human skills and continuous learning.
- Rich utilization and development of social competence and responsibility.
- Rich and diversified human interaction.

We believe most organizations contain a set of activities that are desirable to routinize and control. There is, for instance, a huge difference between the task of sending invoices and that of portfolio management in a bank. In many situations there are also conflicts between management perspectives and worker perspectives regarding these issues. However, even though global control and planning is a typical example of a managerial interest, managers are not the only ones having such interests. To a certain degree it comes with the very idea of organizing work in organizations. A certain conformity in practice is also a prerequisite for using language and taking part in social activities in general. Increased global conformity in categorization is not necessarily only a managerial concern. Nor is there necessarily a conflict between increased global conformity and a need for autonomy and flexibility. We can of course always theorize about political conflicts in the process of articulation, but in what situations is this really important?

One part of the discussion about the applicability of speech act theory concerns situations where routinization and control are more generally desirable and less politically loaded, such as in ordering procedures in large organizations. The application of speech act theory in this realm is something different from an

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attempt to describe and design all kinds of organizational communication in terms of speech acts.

Another crucial question is how a particular design of work should be viewed: as a social contract, a management directive, or a suggestion and a resource for a situated action? How should it be used in the concrete work practice? Finally, but not least: Who should be the designer? However, these questions are of a more general character and can be raised in relation to any and all types of development method.

Reshaping power and authority relations

A related criticism of Searlian speech act theory is that of Habermas (1984). He presents a theory of communicative actions, where each action is viewed as containing three claims: a claim to truth, a claim to justice, and a claim to sincerity. An action succeeds if the hearer accepts all three claims. If this is not the case, the participants may enter a negotiation about the validity of a claim. Besides communicative actions, there are strategic actions. When involved in strategic actions, participants strive for their own private goals. When involved in communicative actions, on the other hand, they are oriented towards mutual agreement.

This theory is claimed to be superior to Searle's theory in several respects, and consequences for the design of IT-artifacts are discussed by Dietz & Widdershoven (1992). It is suggested that the conversation-for-action schema should be extended with an account of strategic action and negotiation of validity claims.

Habermas apparently considers more functions of language than does Searle.

However, the question is how Habermas' insights should be used in the design of IT artifacts. Here we face again the problem of importing ideas and concepts from a passive descriptive theory into an active design situation. As mentioned above, the contemporary use of the conversation-for-action schema has been criticized for not considering the effects of making things explicit, (Lynch 1995, Suchman 1994). The argument that the schema is a "true" theory about human coordination is insufficient to justify its use in design. When discussing Habermas, there is a risk that we make the same mistake all over again, but with another theory. The basic argument in (Dietz & Widdershoven 1992) is that since Habermas' theory is "truer" than Searle's, the latter is also more preferable as a foundation for IT design. But this is obviously not true as a general statement. When it comes to strategic actions and negotiation about validity claims, the benefits of being explicit about one's communicative intentions are even more questionable. What would the effects be? Should we stimulate people to question each other's work roles and formal positions? When is this fruitful? Is it good to structure and formalize such communication? To what extent, when, and in what ways should conflicting goals be made more visible? Should you explicitly classify your statements so that other persons know when you are striving towards your own private goals? Is this doable? If you are about to cheat someone, will this be done more effectively if you utter the formula "I hereby cheat you"?

An alternative approach, which we would like to suggest, is applying Habermas' theory as a vehicle for reflection, rather than using his taxonomy in con-

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crete design. In this context, insights regarding the nature of strategic and communicative actions could be used to understand if, why, and how communication at work should be designed at all. If we expect conflicts among work groups, is it reasonable to strive for consensus regarding a specific design of work and communication, or is it more reasonable to leave this issue open? On the other hand, it may be preferable in such situations to introduce formal relations in order to avoid unnecessary and reoccurring disputes.

4. Conclusions

In this paper we have discussed the applicability of using speech act theory as a foundation for the design of IT-artifacts for work and communication. We have elaborated on two themes to which various criticisms and needs for extensions are related: firstly the problems with theoretical abstractions in general and in particular, and secondly the problems with a rationalistic design of work.

The following list is a *framework for understanding the various short-comings* of the current use of the conversation-for-action schema in the CSCW-area. It may serve as a guide to which situations the schema should be applied.

- Is there a need for a rationalistic design of work?
  - Is there a need for flexibility in work performance?
  - Is there a need for flexibility as regards social roles and authority relations?

- To what degree do we expect cooperation or conflicts among different work groups?
- What specific social roles exist?
- What is the general purpose of communication?

The first point in the framework concerns the general problem of design, as discussed above. The problem of work design versus flexibility is related to certain characteristics of work situations: rich utilization and development of human skills and continuous learning, rich utilization and development of social competence and responsibility, and rich and diversified human interaction. If these characteristics are desirable, people must work and communicate with a certain amount of freedom and flexibility concerning work procedures as well as social roles and authority relations. As the conversation-for-action schema is currently used, it results in a restriction on communication structure. This is also true for the current use of speech act theory in IT-design in general. Hence the need for *not* having a rationalistic design of work, in the above sense, leads to a failure for both the conversation-for-action schema and the use of speech act theory in general. It also leads to a questioning of the assumption that there should be fixed social roles with clearly defined responsibilities. Moreover, if people are not striving for mutual understanding in communication, if there are conflicts and people attempt to manipulate each other, then Searle's taxonomy is insufficient. Here we may also ask why, and how this type of communication should be structured and designed, if it should be so at all?

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The design, structure, planning, and control of work is not a one-dimensional problem. Many things may be structured, such as work and communication procedures, social roles, responsibilities, work and communication content. The conversation-for-action schema focuses on the communication structure. Searle had a more explicit focus also on the propositional (information) content of speech acts.

We have also discussed the questions: how shall the design be achieved, through abstract analysis or through practical test and design-use iteration? Who should be the designer? In many tools based on the conversation-for-action schema it is easy to change the schema and the behavior of the system. We believe this purely technical feature plays an important role for the acceptance of these tools, since it allows for a continuous reflection and re-design of existing work practices. This feature has, of course, nothing to do with speech act theory *per se*. Moreover, the current use of the conversation-for-action schema assumes that the communication should be globally managed, which is another type of restriction.

In addition to the above, the conversation-for-action schema rests upon a set of specific assumptions about the social roles (customer and performer) and the purpose of communication (to administrate organizational commitments). The schema will hence also fail if there are (and should be) other social roles or other purposes of communication. The Searlian speech act theory is more general in this respect. Finally, the schema can be criticized also in situations where customers and performers communicate in order to administer commitments. Peo-ple may want to edit the sequence of speech acts. This criticism may be remedied by using the schema less restrictively. It may, for example be used as an editable reference model in a design situation.

In the discussion about the applicability of speech act theory as a foundation for IT-design, it is important to be aware of the *adaptations* the original speech act theory has undergone, when applied in its new field. In this paper we have mentioned the following existing changes and needs for further adaptations: (1) A new focus on relations between organizational commitments. (2) The need for further elaboration of the notion of organizational commitments, as opposed to commitments of individuals. (3) The need for further discussions about alternative classification criteria for design. (In the conversation-for-action schema the speech act types are treated as primitives, and the Searlian classification is abandoned.) We have also mentioned, (4) the possibility of extending the speech act concept with a notion of situation types, where "customer-supplier communication for action", is but one example.

Current work on using theories of communicative action as a foundation for IT-design is, in our opinion, only in its initial phases. What has hitherto been explored is only a small portion of its full potential.

Notes

[1]Note that this is a simplification. There are several approaches within or related to these traditions, e.g. interactional social linguistics and ethnography of communication are closely related to Conversation analysis (see for example (Schiffrin 1994)).

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