Speech Acts On Trial

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ABSTRACT
In this document we discuss the general applicability of the speech act theory, as a theoretical foundation in the design of information technology (IT). We pay special attention to the acclimatization that speech act theory has undergone when applied in the IT-field. One of the questions 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 the speech act theory may be useful, if you are aware of its shortcomings. By surveying the various criticisms directed towards speech act based design, together with extensions and alternative approaches, we try to pinpoint these shortcomings. Our aim is to interpret the breakdowns of speech act based methods and discuss the need for further adaptation. This is done by means of a framework, also presented in the paper.

KEY WORDS: Speech act theory, IT design, IT development.

INTRODUCTION
In the field of IT-design the dominating perspective on IT-artifacts has been an information storage paradigm. In course of time, the social and communicative aspects of IT-usage have become more stressed. In this context, speech act theory has played an important role. However, the more widespread the use of speech act theory has become, the more it has also been debated and criticized in the literature. A part of this criticism is not specifically about the speech act theory, but concerns general issues about the design and usage of IT in an organizational context. Hence there exists a need to create an overview of this criticism. Exactly what is wrong with the 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 dealed with language only as a means to assert propositions about the world was attacked. Austin recognized that truth conditional semantics were troublesome for certain kind of utterances that were not descriptive, but rather constituted actions. The saying of certain words rather changes the world, than describes 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.„ [7]

Austin called these special kinds of utterances for *performatives* (e.g. baptising, marrying). Related to the 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 certain sense and reference. Whenever we perform a locutionary act, we also perform an illocutionary act, according to the conventional function 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, and bringing about these effects is to perform a perlocutionary act, e.g. persuade, alarm et cetera. According to Austin, the nature of the illocutionary act is conventional, but the perlocutionary act is not. That is, the former could be made explicit by a performative formula, but the latter could not. „I argue„ and „I warn you„ is 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 [28-30].

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 the analysis of illocutionary acts must capture intentional as well as conventional aspects [31] and also the relation between them.

Communicative Aspects of IT-Usage
In the field of IT-design, the prevailing language perspective is a referential one, i.e. 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 have been attacked by Lyytinen [24, 25], and the limitations of the same assumptions (also founding the prevailing views of artificial intelligence) to generate new designs, were put forth by Winograd and Flores [37]. 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„ [37]. A way to state this impact of speech act theory is found in [34]:

„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 [16]. The speech act based approach to design has been explored, discussed, and criticized in a number of papers. Pioneering work was made by Winograd, Flores et al. [16, 26, 36, 37] and Auramäki, Lyytinen et al. [3-6].

Several broader views of IT and its role in the context of work, collaboration and communication naturally also exist, e.g. theories of decision making, group process theories, institutional theories, co-ordination theory et cetera [8]. One easily could imagine theories in the future covering emotional or affective aspects, moral dimensions and questions of freedom and power. A pure communicative view of IT-design may have severe shortcomings in dealing with some of the above mentioned aspects of a complex reality.

Taking a communicative or language oriented view, may still be rewarding, especially since a large part of work is performed through language, and since IT is used to support communicative activities to a considerable extent. In this context speech act theory has played an important role. At the same time it seems as if it needs to be used with caution and that it needs adjustments. Consequently we have set out to investigate how far it may guide us in design, and reflect upon what the consequences of using it will be.

To investigate the applicability of speech acts as a foundation for design, we must address the boundaries and potential breakdowns speech act theory may posit in its new context, i.e. the realm of IT-design. When we want to interpret and understand these limits, we need a framework that goes beyond the communicative perspective, giving hints to the other aspects listed above. This paper discusses such a framework, i.e. the dimensions that is covered and not covered by speech act based design. The problem at hand concerns how we can articulate the 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".

Conversation for Action

The generic schema of basic *conversation for action* presented by Winograd, Flores, et al [36, 37] have widely influenced the areas of Work flow management, Computer supported collaborative work (CSCW), and Business process re-engineering. A conversation is in this approach a co-ordinated, 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, reports completion which in turn either may be declined or declared complete by the customer. According to this schema, a discourse (or work flow) is a predefined course of action. The possible choices and decision points are predictable, and a discourse may thus be defined in a state transition diagram (figure 1), where each state transition corresponds to a speech act. Conversations of this kind are claimed to be the central co-ordinating structure for human organizations [36].

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 work flow, which includes the communication with the customer, according to the schema in figure 1. This is illustrated as a basic action work flow loop with four phases (figure 2) [26]. A work activity is in this view the fulfilment of commitments by a performer (supplier) to the satisfaction of a customer.

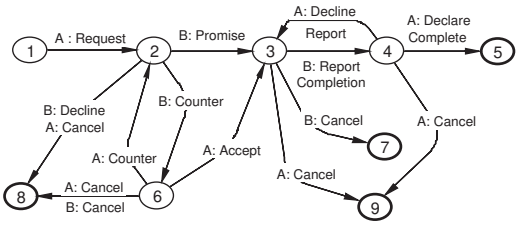

Figure 1: State transition diagram for a work flow

Any work activity is in this view possible to sequence in four basic steps: *proposal*, i.e. the customer makes a request, or the supplier makes an offer; *agreement*, i.e. the parties establish a mutual agreement of conditions of satisfaction; *performance*, i.e. the supplier declares that the undertaking is complete, and *satisfaction*, i.e. the customer declares satisfaction. Several circles can be interconnected with links. The idea is that a speech act in one work flow may trigger a speech act in another work flow, and one work flow can be viewed as a sub flow to another work flow. This basic 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. The loop deals with 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, and that is what Flores et al. propose, that all work activities are describable in these terms.

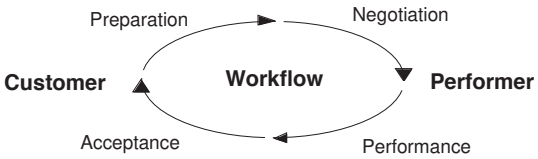

Figure 2: Graphical representation of a basic work flow loop

THEMES IN THE CRITICISM OF SPEECH ACTS

Speech act theory in the shape of „conversation-for-action„ and the basic work flow loop, seem simple and attractive, but what is the prize we have to pay for this simplification of complex organizational reality? What is actually happening when speech act theory according to Searle is

imported to the field of IT-design? Which objections may 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 and fundamental, concerning the very nature of theoretical abstractions *per se*. Related to this is the question of how abstractions could be used in IT-design.

Other arguments concern the limitations of the particular abstraction comprized by means of speech act theory. These arguments are mainly matters of expressiveness, and what important phenomena one may evidently 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. These arguments are generally of the form „if we abstract by means of theory X, we miss the important phenomenon Y„.

Together these two lines in criticisms form a theme related to different means of theoretical abstractions, in general, and in particular.

It is also possible to identify a set of criticism related to issues of power, control and rational design of work, organizations and their IT-support. These issues concern rigid work design versus flexibility, power relations like authority and control versus autonomy. Designing for change and flexibility will entail possibilities of skilling and learning, while routinization may lead to deskilling and alienation. This will raise questions like „To what extent is it possible (desirable) to achieve a rational design of action and work?„. The need for skill, flexibility, and social responsibility may prevent the possibility to achieve a rationalistic work design.

These sets of criticisms or themes, form a framework in which we could discuss and interpret the breakdowns and limitations of speech act based design in particular, but also IT-design in general:

1) The problem of theoretical abstractions
   1a The insufficiancy of any theoretical abstraction;
   1b The insufficiancy of particular abstractions, i.e. 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)

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Sorting out the diverse portions of criticism, we start out with the criticism directed towards speech act theory *per se*, i.e. as a 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 [34].

However, this criticism 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 adaptation that speech act theory has undergone, when applied in its new field. We will discuss some of these changes in detail below. As we will see, several critics fail to see the implications of this acclimatization. (By this we do not mean to say, that it is irrelevant to critical examine the background of imported theories. Rather we want to qualify such reflections by considering also the changes that the theories undergo.)

The Insufficiancy of Any Theoretical Abstraction

One line of criticism against the speech act theory departures from the fact that human action is situated to its character [33]. Suchman [32] writes that a set of criticisms against speech act theory is based on insights about the „circumstantially contingent character of meaning and intention„. The argument concerns the (im)possibility to classify the world in an Aristotelian way. Is it possible at all to make a strict delimitation of a finite set of speech acts in terms of necessary and sufficient conditions in the way Searle does?

This discussion gives echoes from the area of philosophy of language. It is related to the philosophical claims made by Searle. The core of the argument can be brought to light by contrasting the philosophy of Searle with the philosophy of the later Wittgenstein [38]. Both Searle and Wittgenstein addressed meaning theoretical issues. Wittgenstein claimed that meaning is not a thing, such as the referent or the mental ideas of the speaker. The meaning of an expression has to do with how it is used in a *language game*. A language game is a practical social activity. It is something wider than just a linguistic activity. The meaning of the word „pain„ has to do with, e.g. the activity of comforting each other. This, in turn, is nothing that can be fully described with words. Searle, on the other hand, believed that the social usage of language can be fully described by a finite set of rules that constitute the social institutions that make certain speech acts, like promising, possible and meaningful.

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, e.g. the problem of meaning, can be *dissolved* (not solved) if we reconsider obvious and overlooked aspects of the language games. According to Wittgenstein, philosophy should not construct new systematic theories. His philosophy is *anti-theoretical* in this respect, e.g. his theory of meaning consists of the view that there can be no theories of meaning.

Even if we accept the view of Wittgenstein as regards philosophy (which may be criticized *per se*) and theories of meaning, where does this leave us when creating a theoretical basis for the design and development of IT-artifacts? Are our research questions such that they will dissolve by means of a Wittgensteinian therapy, or could we benefit from having systematic theories about work and communication? The fact that work (and linguistic actions in general) is contingent and situated to its character does not lead to the conclusion that speech act theory is useless in the design of IT-artifacts. It may lead to a renewed insight that speech act theory is only an abstraction, that focuses on certain aspects of a language game, and that disregards

others. This, in turn, may lead to a renewed examination of the particular limitations of speech act theory and a critical examination of when 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. We are not concerned with abstract philosophical problems of meaning. One of the major differences is perhaps that the linguist and the philosopher are *passive observers*, describing social interaction, while the IT-developers are *active designers* of such interaction. As regards the usage of the conversation-for-action schema there is yet another essential difference. People are indirectly forced to explicate their illocutionary intentions when performing speech acts. The effect of doing this is a question that goes beyond the original speech act theory.

The appeal to the situated character of work could be based on philosophical considerations about the insufficiancy of any theoretical abstraction. As such it is a criticism of the philosophical claims raised by Searle. We have illustrated this by considering the philosophy of Wittgenstein. From a Wittgensteinian perspective, any theory of meaning fails solely by virtue of it being an abstraction. However, this is not applicable to the usage of Speech act theory in IT-design. This criticism can thus be criticized for using philosophical arguments where they are not applicable. It is a reasonable criticism against speech act theory as a philosophical theory about meaning and communication, but not as a practical theory to be used in a design situation.

However, there are situations where the appeal to the situated character of work is relevant. We believe, though, that this discussion could benefit from a clearer structure, e.g. as we have suggested with the different themes. We will here give three examples of situations, where the problems at hand concern general „meta-theoretical„ aspects of IT-design. *Firstly*, there is the problem with a rigid work design and needs for flexibility, discussed below. *Secondly*, the arguments are relevant whenever a theory claims to give an objective, absolute, and final account of human interaction. As such they will lead to a discussion of how we should relate to theories as such. Is there a positivistic truth about work and communication to be captured, or should we view all theories as sufficient and useful only for certain purposes? Unfortunately the IT-field is much dominated by commercial interests that tends to strengthen and popularize such positivistic claims. This, in turn, gives echoes in academic debates. It would be sad, however, if the discussion about the applicability of Speech act theory would be dominated by commercial exaggerations. *Thirdly*, there is the question of how a specific design of work and IT should 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 exists a set of approaches within the IT-field that are directly or indirectly influenced by the philosophy of Wittgenstein, e.g. Ehn's tools approach [15]. Here the emphasis 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. We would like to stress, in this context, that the need for a certain form of development method varies with different kinds of work settings. The problem is to find a reasonable mixture and a balance between theoretical reflection about work and practical involvement in work, during the design and development of new IT-artifacts.

It is also important to notice that the discussion about the insufficiancy of any theoretical abstraction as well as the discussion about the problems with a rationalistic design of work is not specific to the usage of speech act theory. It can be applied to a whole family of development methods that use formal and abstract description techniques to describe work activities, such as petri-nets, flow-charts, state-transition diagrams, information-flow diagrams, et cetera. The usage of these methods tacitly assumes that work is and should be designed and performed under a set of constraints.

The Insufficiancy 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. Also in this context, the situated character of work may play a role. It can be viewed as one out of several phenomena that a theory of work should capture, e.g. the discussion about articulation work incorporates a notion of how work articulation is needed to aid situated work activities. Another example is Suchman, when she sets out to investigate how our social and cultural background plays a role as communicative resources [33]. In this context the situated character of work is not invoked for philosophical reasons. Rather it has become the subject of empirical investigations.

Articulation work

The concept of articulation work ([17] and further described in [27]) was developed in order to handle the fact that co-operating actors, being mutually dependent in their work, have to articulate (divide, allocate, co-ordinate, schedule, mesh, interrelate et cetera) who is doing what, where, when and how, by means of what, under which constraints. The dimensions of articulation work include actors, responsibilities, tasks, activities, conceptual structures, information resources, material resources, technical resources and infrastructural resources.

It is clear that articulation work goes beyond a communicative approach. In several respects it has a broader scope than speech act theory. However, it is also clear that a limited usage of speech act theory is *compatible* with the articulation work discussion, as long as one does not view it as an absolute and final account of all kinds of communication at work.

Discourse versus Conversation

Much of the sharper critique of the speech act approach in IT-design has emanated from an ethnomethodological tradition [11]. Even if there is some common theoretical ground of the language/action perspective and the ethnomethodological approaches, at least if we see to the original hermeneutic arguments developed by Winograd and Flores [37], they are fundamentally emanating from different traditions in the study of pragmatics. These traditions, *discourse analysis* and *conversation analysis*, represents two different approaches to the study of language usage in linguistic research [22], but when speech act theory has been adopted for IT-design, the terms *discourse* and *conversation* have been used inter-mixed or as synonyms. According to the linguistic terminology, the conversation-

for-action schema would be called the "discourse-for-action schema".

Discourse analysis employs traditional methods and theoretical principles of formal linguistics as rules and well-formed formulas, but applied to larger units than the sentence. By isolating a set of basic units of discourse (e.g. speech act types), and then formulate a set of concatenation rules over these, well-formed sequences of these basic units may be 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 [21]. This approach to pragmatics covers both the work on text grammars (not to be discussed here) and the 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 globally managed, i.e. it is a sequence of communicative actions (speech acts), forming a coherent, predetermined course of action leading to the goal of the task.

Conversational analysis on the other hand, emerged with an approach to sequence in social interaction that avoids the restricted and sterile formalisms that constrict the speech act notion of interaction. Conversational analysis is an empirical approach, rooted in ethnomethodology, contrary to the premature theory construction of speech act theory. The paradigm case of *conversation* denotes a more or less informal way of talk, where two (or more) co-present participants freely alternate in speaking (e.g. 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 et cetera). See for example [14].

There are several examples on how also this tradition has been used as a foundation for IT-design, e.g. in human-computer interaction [33], and Computer Supported Collaborative Work [9-10].

According to work in conversational analysis, conversational sequences are almost never structured in the way indicated by the basic work flow loop or 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 [22]. This kind of pairing, *adjacency pairs*, is an important characteristic of conversation. The utterance that goes together with *request* to form an adjacency pair, is not a *promise*, but *compliance* or *rejection*. In many situations the most natural response to a request is to comply with it (or reject 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 occur. A pre-request could also function as an indirect request, which is directly responded to.

A conversation is guided by turn taking conventions regulating when one person stops talking and another person starts, i.e. who may speak when, rather than pre-allocated schemas. 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 (i.e. who may speak when) and the selection of topic, i.e. „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„ [33].

In contrast to a globally managed system, it organizes 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 this scale, 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 the ability to do both. In the conversation-for-action schema, only the notion of a strict predetermined sequence of speech acts is possible in a generic discourse.

The multi-functional nature of communicative acts

Another line of criticism concerns multi-functionality. According to Allwood [1], our common-sense classification of communicative actions, shows a systematic ambiguity. This can be seen as an instance of a general ambiguity in our ordinary conception of action. Allwood lists four factors which seems to be used most commonly 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 examples of how Searle,s Aristotelian classification of speech acts fails, can be found in [1].

To this we may add the fact that the interpretation and classification of a specific speech act in a specific situation could be negotiated by 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, it is supposed that there is a one-to-one mapping, between specific utterances and illocutionary acts, i.e. the transmission of 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* disappears. However, the discussion about multi-functionality is now turned into the question, 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 classification of speech acts in the conversation-for-action schema, is not motivated with an explicit theoretical discussion about alternative classification criteria. Rather the different speech act types are presented as primitives. In other approaches, such as the Sampo method, the Searlian classification is adopted without adaptation. Very little is added or changed to the theory, to make it fit the context of IT-design. The practical experience with the Sampo method, has lead to the conclusion that the concrete classification of particular speech acts is dependent on the perspective adopted in a specific situation.

All in all, we can conclude that a theoretical discussion about the most reasonable classification criteria of speech acts for a design situation, is not yet sufficiently addressed in the IT-field.

The limited notion of context
The Searlian speech act theory is also criticized for having limited possibilities to refer to the wider social context embedding the conversation. In speech act theory one focuses on the performer of an idealized utterance, i.e. it has a sender perspective, rather than a receiver or social-interactional perspective. The illocutionary act is constituting the core of meaning and the goal of communication. Meaning is fundamentally emergent from the utterance, and speech act theory is therefore by some authors claimed to be drastically decontextualized [14].

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, conferences et cetera. 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 [21-23] for these matters. 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 patterns of conversations associated with formally declared roles as group manager, assistant, programmer et cetera [16]. The role structure is assumed to be stable and not under negotiation or change. Positions and power relations among the users are 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 and 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 are created that matures and institutionalizes, and old ones are reshaped continuously. Just by intervening work with computer artifacts new roles are formed. This formation of roles must be taken into account in design of 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 the area of 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 the development of speech act theory, both intentions and social conventions have played a crucial role. In philosophy of language it is often claimed that we should only refer to public items, when explaining language behavior, which is an inherent social phenomenon. Wittgenstein,s private language argument is hold 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 how direct reference to intentional or mental phenomenon can be criticized. He says that the body is the mirror of the soul. References to mental events can not be understood properly unless they also have a bodily manifestation. At the same time, we can not understand these bodily manifestations, unless we interpret them as manifestations of something mental.

The philosophical problem of mental vocabulary is too complex to address in this context. A question that *is* relevant to consider, is whether the appeal to intentions is crucial when using the speech act theory in the design of IT-artifacts. Speech act theory may very well unite with the nowadays popular cognitivistic tendency in many branches of computer science. However, we believe that it is the social and conventional aspects of communication that are most relevant to consider in the design of IT support for organizational communication. (This is also stressed by Winograd and Flores [37].) There is a risk that 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 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, e.g. by accepting a customer order, which creates a commitment for the whole organization. This commitment may, in turn, be administered by creating „sub-commitments„ internally within the organization, where one department may be committed towards another department.

In a way, this adaptation of the Searlian speech act theory has already begun. In the Action workflow approach, a work-flow may have several sub flows. Some of these sub-flows corresponds to the sub commitments mentioned above [26]. Also in the Sampo method we find an attempt to illustrate the relationship between different commitments in the notion of „Co-ordination of commitments„ [6]. However, we believe that this needs further elaboration. In both methods the notions of a commissive and a work-flow commitment, 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 [27]. In the Searlian speech act theory, on the other hand, the notion of propositional content plays a crucial role.

In this context we want to mention that this is related to a set of modeling-administrative problems. On the one hand we need models of the information content. On the other hand we need models of the information usage context. There will be problems of redundancy, since organizational information often denotes the information usage context. In [19] it is pointed out that this approach demands a non-conventional formalization of, e.g., an ER-model used to describe the information content in a document or in a database. It is also pointed out that we need an analogous expressiveness in the process models. We should be able to relate support functions in the IT-system in various ways to the behavior of its human users. In [20] a modeling frame-work is presented that meets these requirements.

The Problems with a Rationalistic Design of Work
We will now turn to the second theme in the criticism, i.e. the problems with a rationalistic design of work. This notion may need some clarification. In one 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 under a certain freedom and responsibility. However, what we aim at here is a practical characterization of a work situation, relevant for the task of IT-design. We lean on the intuitive notion that work is routinized, planned, and structured to different degrees in different situations. What is more important is that an organizational change process, e.g. an introduction of new IT-artifacts, often prompts for new decisions as regards the degree and character of the structure, plans, and control of work, i.e. how work is designed. The concern in this section is hence the problem if and in what respect it is reasonable to design work, and how this affects the aptness of using speech act theory.

A control oriented way of working
One criticism against the conversation-for-action approach claims that it leads to a control oriented way of viewing work. It has been criticized for a rigid form of controling the work flow, forcing users to perform their work in a certain way, with no possibility to change or edit the sequence of speech acts. Criticism by Suchman [32] 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 member,s actions„. In the light of Suchman,s critique, the hermeneutic argument developed in [37] turns out to be a traditional control oriented positivist perspective when it comes to 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 [27].

In this context it is important to treat apart, what has to do with the speech act theory *per se*, and what has to do with the conversation-for-action schema. The schema is more narrow 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. Searle,s theory can claim to be more apt also in situations with other social roles, e.g. that of a tutor and student, or in situations with other purposes of communication, e.g. when describing a discussion between the customer and the performer during work performance. The schema is some-thing new and unique in comparison. The claim that it is a central co-ordinating structure for human organizations rests on theoretical assumptions beyond the original speech act theory. On the one hand it is claimed to be so general that its usage will not change the communication structure at all. This is how people co-ordinate their activities any way. On the other hand, there are arguments as regards the effect of imposing this structure on situations that otherwise may have had another structure or no predictable structure at all. It is, e.g., claimed that the introduction of one responsible person for every work flow leads to better customer service. It is also claimed, e.g. in the area of Business process re-engineering, that it increases organizational effectiveness to impose the roles of customer and performer also in situations where these labels are not naturally employed.

In this context it seems reasonable to investigate, exactly what it is, in the usage of the conversation-for-action schema, that leads (or may lead) to a control oriented way of working? Is it the very idea of creating categorizations of some sort, or is it the particular categories suggested by this theory? Is it the very idea of structuring the communication process or is it the usage of this particular structure? Is it how the schema is used by practitioners (confer [35])? Is it how it is used in the Co-ordinator or in the Action workflow system? Is it the usage of Searle's theoretical concepts? There are several potential answers to this. 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 always exist predefined roles with strictly defined responsibilitites. The course of actions is strictly defined according to a fixed schema and that 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 controled 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, at least to a certain degree.

To a certain extent, the above criticism against the schema has a narrow focus on how the schema is used to day, and fails to discuss other potential uses of it. Even if the schema is not regarded as generally applicable to all co-ordination in organizations, this does not mean that it is useless. Moreover, the schema needs not to be applied restrictively. It can be used as a resource, a reference model, in a design situation. This approach is taken in [19] where an extended version of the schema is applied to routinized ordering

procedures. It is easy to verify that a numerous set of traditional database applications mirrors 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, e.g. entities and relations. In such situations the generic schema can be used to reveal a reoccuring structure as regards 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 co-ordination. It is hence nothing inherently wrong with the idea of structuring work according to the suggested schema. The problem is to understand when it is desirable to create exactly these structures, when to create other structures, and when to refrain from creating any explicit structures at all.

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. The following list contains a set of characteristics of a work setting that makes the need for 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.

- 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 that 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 the task of portfolio management in a bank. In many situations there are also conflicts between a management perspective and the perspective of the workers, as regards the above mentioned issues.

One part of the discussion about the applicability of speech act theory concerns situations where routinization and control are desirable, e.g. in ordering procedures in large organizations. The application of speech act theory in this realm is something different from an attempt to describe and design all kinds of organizational communication in terms of speech acts.

The most crucial question, in this context, is perhaps how the design should be viewed: as a social contract, a management directive, or as 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?

Reshaping power and authority relations

A related criticism of the Searlian speech act theory is that of Habermas [18]. He has presented 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, the 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 [12]. It is suggested that the conversation-for-action schema should be extended with an account for strategic action and the negotiation of validity claims.

It is clear that Habermas considers more functions of language than Searle. However, the question is how his insights should be used in the design of IT artifacts. Here we are again facing the problem of importing ideas and concepts from a passive descriptive theory into an active design situation. The conversation-for-action schema makes use of the speech act theory in such a way that people are indirectly forced to explicate (and conform) their illocutionary intentions when performing speech acts. It is claimed that this results in a more effective co-ordination. When it comes to strategic actions and negotiation about validity claims, the benefits of require that people should be explicit about their communicative intentions are perhaps even less intuitive. What are the effects of doing this? Should we, e.g., stimulate people to question each other's work roles and formal positions? When is this good or bad? Is it good to structure and formalize such a communication? To what extent, when, and in what way should conflicting goals be made more visible? Is it good to explicitly classify your statements, so that other persons know when you are striving towards your own private goals? Is this doable?

An alternative approach, which we would like to suggest, is to apply Habermas theory as a vehicle for reflection, rather than using his taxonomy in concrete design. In this context, insights as regards 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 different work groups, is it then reasonable to strive for consensus as regards a specific design of work and communication, or is it more reasonable to leave the issue open? On the other hand, under such circumstances it may be preferable with formal relations to avoid unnecessary reoccuring disputes.

CONCLUSIONS

In this paper we have discussed the applicability of using speech act theory as a foundation for design of IT-artifacts for work and communication. We have elaborated on two themes to which various criticisms and needs for extensions may be related.

The following list is a *framework for understanding the various shortcomings* of the current use of the conversation-for-action schema in the CSCW-area. It may serve as a guide in what 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 co-operation or conflicts among different work groups?
- What specific social roles exist?
- What is the general purpose of communication?

The first issue concerns the general problem of design, as discussed above. The problem of work design versus flexibility is related to the following characteristics of a work situation: rich utilization and development of human skills and continuous learning, rich utilization and development of social competence and responsibility, rich and diversified human interaction. If these characteristics are desirable, people must work and communicate with a certain amount of freedom. It concerns flexibility both as regards 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 of *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 failure as regards 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 manipulate each other, then Searle,s taxonomy is insufficient. Here we also face the problem if, why, and how this type of communication should be structured and designed at all?

The design, structure, planning, and control of work is not a one-dimensional problem. Many things may be structured, e.g. the work procedures, the 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 that 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 on 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 administrate commitments. People may want to edit the sequence of speech acts. This criticism may be remedied by using the schema in a less restrictive way. It may, e.g., 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 notice what *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 of further elaboration on the notion of organizational commitments, as opposed to commitments of individuals. 3) The need for a further theoretical discussion about alternative classification criteria for design. (In the conversation for action schema the speech act types are treated as primitives. The Searlian classification is abandoned.) We have also mentioned, 4) the possibility to extend the speech act concept with a notion of situation types, where „customer-supplier communication for action„, is only one example.

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

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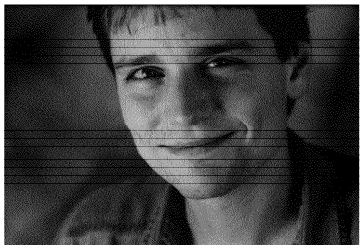

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