

USING A LANGUAGE ACTION FRAMEWORK TO EXTEND ORGANIZATIONAL PROCESS MODELLING

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ABSTRACT

In this paper we explore the possibility of using a language action perspective to extend an analysis of organizational processes based on role activity diagramming (RAD). We have previously used role activity diagramming to show the large scale communication flows in an organizational domain and wanted to apply a language action approach to arrive at a finer level of detail for particular interaction sequences. An analytical and modelling approach derived from Winograd & Flores's ideas about 'conversations for action' (CfA) is used to reveal and consider some of the inner dynamics of interaction. The CfA approach could be beneficially re-founded on a Habermasian base to bring out better the participative nature of interaction. This kind of modelling will be a useful supplement to RAD modelling and could perhaps form part of a more generalized exchange model for organizational processes.

1. INTRODUCTION

In a recent paper (Beeson et al., 2002), we discussed the question of how connections were made between corporate strategy formulation and the provision of working information systems in organizations. We concluded that these connections were substantially made through an ongoing pattern of interactions, including regular meetings, which occurred in different parts of the organization and at a variety of management levels. The production of working information systems useful to the organization was achieved less by some formal process of translation from a high-level strategy statement, or by a gradual realization of a pre-formulated IS architecture, than through continuous processes of communication and decision making spread across the organization. Though these processes are partly routine and regular, and though they may well occur - in the general case - against a background in which IS architectures and strategies exist as reference points, they are also happening *in the moment*: decisions made in formal meetings, and even more those taken *ad hoc* or impromptu, must reflect the interests presented and the issues at hand in the particular situation. Because in any sizeable organization knowledge, power and interests are variously distributed, there can be no single comprehensive understanding of the entire organization, nor any single direction to it. Nevertheless, a certain level of coherence can be achieved, not only because there *are* some common reference points, but also because overlapping membership of the groups and encounters in which decisions are made provide threads of continuity weaving dynamically across the organization.

Examining the pattern of these interactions in an international insurance company (AXA Sun Life - ASL) as a case study, we elicited and modelled a number of relevant processes, including the overall annual cycle for funding, selecting, prioritizing and carrying through IT projects. This large scale process model, expressed in Role Activity Diagram (RAD) notation (Ould, 1995), is reproduced below as Figure 1.

The figure shows five basic roles and their interrelations: Senior Executive Board (SEB), Development Committee (DC), Programme Manager, Business Sponsor, Project Manager, and IS Unit. Two of these are single permanent (and powerful) committees (SEB and DC); one is a permanent Department (IS Unit); one represents a strategic long-term position held by a small number of separate individuals (Programme Manager); and the remaining two (Business Sponsor and Project Manager) represent shorter-term leadership roles instantiated many times. The diagram shows, in outline, the complex pattern of activities and interactions which connect a high level funding allocation in SEB, through a negotiation process between DC and Programme Managers, to appointment and pairing of business sponsors and project managers, and finally to the completion of IT projects. The scenario is replete with decisions, interactions and communications, but these are, operationally speaking, *local* rather than organization-wide, taking place as they do in specific settings or in established channels of communication between adjacent roles. Members of the SEB do not sit in the project teams, but there are definite threads of communication connecting the two. As information and decisions are communicated within and between roles, they are naturally re-interpreted and re-presented according to the competences, interests, priorities and responsibilities of those involved. This is how the IS strategy comes to life in an organization: through a chain of communication and interpretation, strung from one end of it to the other, reaching backwards and forwards, and leading to informed action in every part.

Because of our emphasis in this analysis on the importance of communication as fundamental to the realization of IS strategy - because we see the process as *saturated* with communication, as it were, in that meaning and motivation are constantly having to be re-found, and cannot be simply be transmitted from on high - we recognised ourselves (and reviewers of our earlier paper also suggested it), that a *language action* approach might extend or improve our study. The remainder of this paper makes a start in that direction.

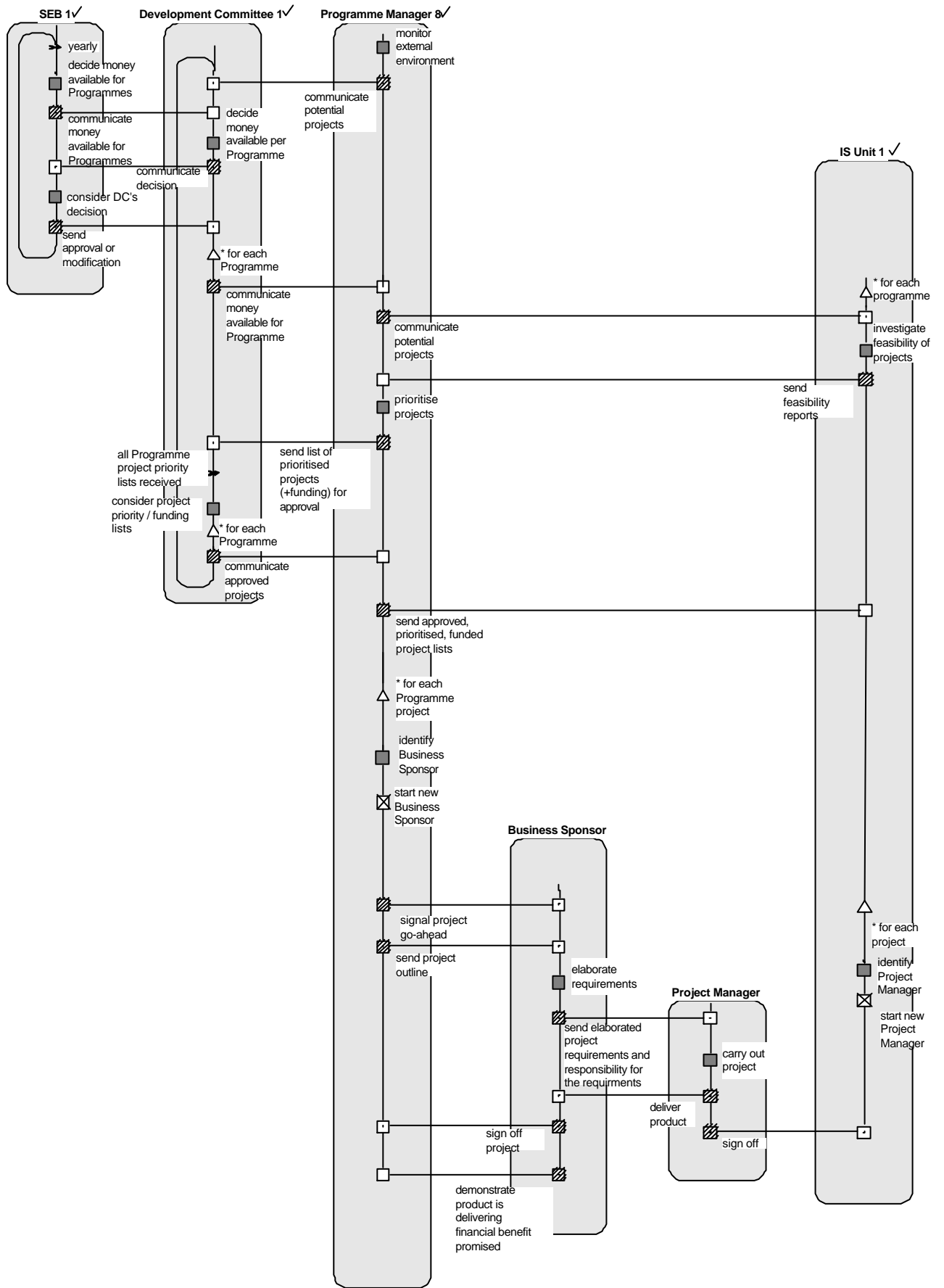


Fig. 1. Process for selecting and completing a project in ASL
(from Beeson et al., 2002).

2. CONVERSATIONS FOR ACTION

The Language Action perspective, which derives from the branch of linguistics known as *pragmatics*, as well as from philosophies of language and communication, has been brought into the computing arena particularly by Winograd and Flores (1986; Winograd, 1987; Flores et al., 1988), who drew on the earlier work of Austin (1976), Searle (1969), and Habermas (1991/1984). There is a developing research tradition in the area (eg, Van Reijswoud & Dietz, 1999; IWLAPCM7, 2002). In addition, the Language Action perspective has had some influence in the domain of business modelling; for example, Eriksson and Penker (2000) propose an ‘action-workflow’ process pattern, for use in UML business modelling, which is based upon the Flores et al. (1988) framework.

“In most work environments the coordination of action is of central importance” (Winograd and Flores, 1986, p.158). Observation persuades us that the conversational dimension permeates every realm of coordinated activity. For instance, consider the following scenario. A manager asks an employee to do something by a specific date. The employee says yes, they will do it. Later the manager asks the employee about progress and the employee reports the current status of the task. Finally the employee announces that the job is completed. The manager then examines the work and may accept it as a job well done. Sometimes the manager may reject the “finished” work and ask the employee to redo it.

Winograd and Flores have named interactions like the one above “*conversations for action* – those in which an interplay of requests and commissives are directed towards explicit cooperative action” (Winograd and Flores, 1986, p.64). They have formalized such conversations for action into a sequence (or ‘dance’) of permissible speech acts using the concepts of illocutionary point, illocutionary force, direction of fit, and propositional content introduced by Searle (1969).

Searle classified all speech acts as embodying one of five illocutionary points, as follows:

- Assertives, committing a speaker to the truth of the expressed propositions
- Directives, by which a speaker attempts to get a hearer to do something
- Commissives, which commit a speaker to a future course of action
- Expressives, expressing a speaker’s psychological state
- Declaratives, which by being uttered make something the case

Illocutionary force may be weaker or stronger: for instance, among directives, a command carries more force than a request. ‘Direction of fit’ refers to the relationship between propositional content and world referred to: speech acts which try to make propositional content match the world (eg, assertives) have a word-to-world direction of fit, while those which try to make the world match the words (eg, directives and commissives) have a world-to-word direction. Expressives have no direction of fit, while declaratives fit both ways.

To plot the course of a simple conversation for action, Winograd and Flores devised the diagram shown as Fig. 2. In it, each numbered circle represents a possible state of

the conversation and each line represents a speech act. At the start of the conversation, A makes a request to B, specifying certain conditions of satisfaction. B can now refuse or agree to comply, or make an alternative offer (which A may reject or accept). Subsequently, B can assert the task is completed, which A may or may not accept. B might renege on the promise, or A may withdraw the request prior to B's response. Each action leads to a new state with its own space of possibilities for further actions. The conversation is considered ended either at successful conclusion (state 5) or at one of the withdrawal states (7,8,9).

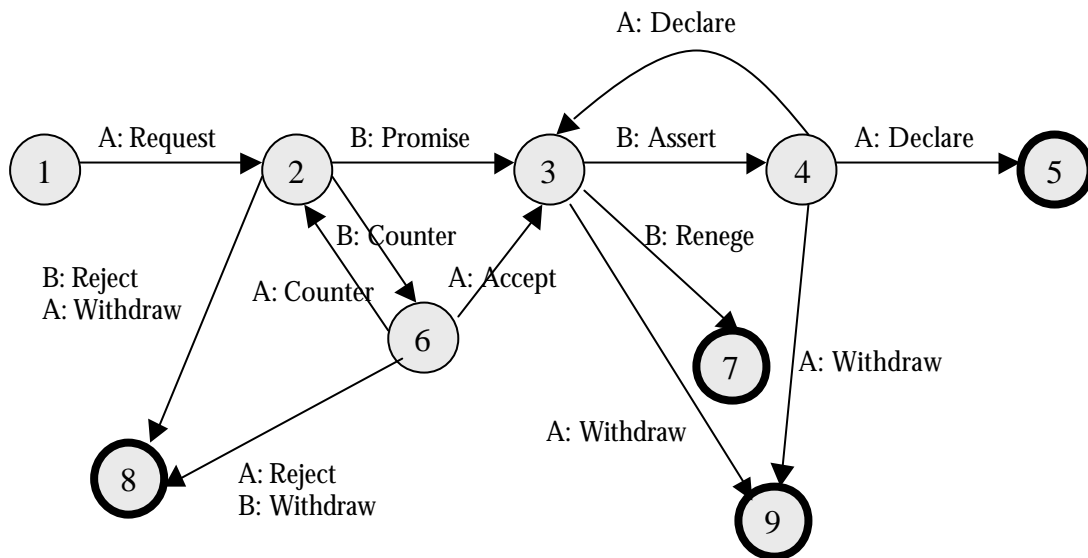


Fig. 2. The basic conversation for action
(from fig. 5.1 in Winograd & Flores, 1986, p. 65)

In the same way that Searle wanted to show that the great variety of human utterances could be comprehended under a very economic taxonomy of types of speech act, so Winograd and Flores (1986, p. 159) insist that “There are a surprisingly few basic conversational building-blocks (such as request/promise, offer/acceptance, and report/acknowledgement) that frequently recur in conversations for action.” They went on to design and produce a software tool, called the Coordinator, whose explicit purpose would be to track and support conversations for action in organizational settings.

Leaving software tools aside, the promising economy of the conversations-for-action (CfA) theoretical apparatus suggests that analysis and notation based on it might prove a beneficial complement to use with RAD, which itself uses a very compact notation. The thought arises that perhaps RAD could be retained to show the outline structure of the flow of actions and interactions in an organizational process, while CfA diagrams could be added - where necessary - to reveal the finer communication structure of selected interactions (and indeed the finer structure of an activity within a role, if the activity is carried out by a group of people).

3. ANALYSIS AND DISCUSSION

One approach to applying a CfA approach to extend a RAD model is to take sections of the model which show successive interactions across two roles - perhaps even the whole sequence of interactions - and represent them as a conversation for action between the roles. It seems unlikely that a complex and extended pattern of activity and interaction such as that represented in Fig. 1 can be profitably be represented as a single conversation for action (not least because of the changes in the parties involved and the sometimes long lapses of time between successive events). Therefore, we see a CfA analysis being deployed at a micro level, as a series of annotations to the macro structure of the RAD. But there are plenty of sequences in a typical RAD to which a CfA analysis seems applicable.

Fig. 3 presents a simple section taken out of our original RAD (in Fig. 1) - showing the bones of the interaction between Business Sponsor and Project Manager: could this be rendered as a conversation for action, or could a conversation for action be usefully modelled around it?

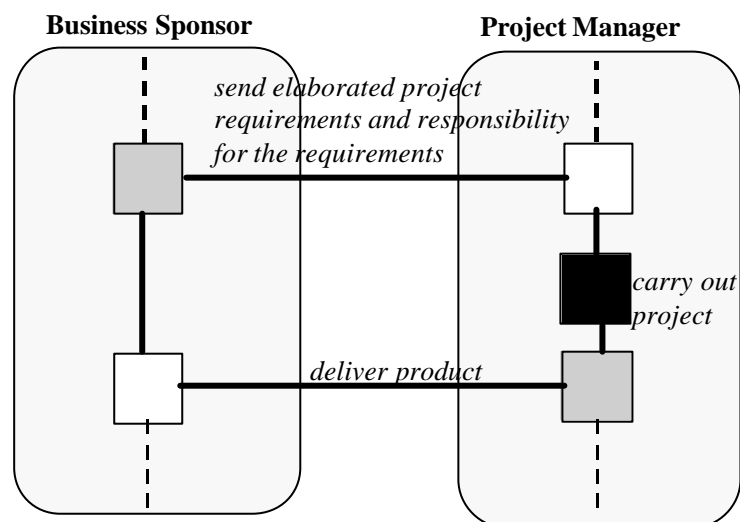


Fig. 3. An interaction sequence from the RAD

One might first observe that the “send elaborated project...” interaction corresponds to the “A: Request” activity between states 1 and 2 in the specimen CfA shown as Fig. 2, and that the “deliver product” interaction corresponds to the “B: Assert” activity between states 3 and 4. However, it is important to note the following:-

- i) ‘Send’ and ‘Deliver’ do not denote acts which are entirely or even mainly ‘speech acts’.
- ii) ‘Carry out project’ is an activity of Project Manager, not (at least not as modelled in the RAD) part of a CfA between the two parties.

The immediate upshot of these observations is that, to continue with a CfA analysis, we must generalize the notion of speech act to include a more general idea of interaction. This fits with the recommendation from Dietz and Widdershoven (1991) that a Habermasian theory of communicative action (Habermas, 1991) would serve as a better basis for supporting communication in organizations than speech act theory can. This is partly a matter of recognizing that communication involves other forms

of interaction than just speech, but more importantly of distinguishing *communicative* from *strategic* action and understanding the former as rooted in the orientation of the participants towards mutual agreement. It is furthermore necessary, if allying a CfA analysis with RAD, to remember that, in developing RAD, Ould was specifically concerned to take process modelling away from the narrow concentration on information flows characteristic of established forms of systems analysis. What seems to be needed, to gain benefit from a CfA type of analysis in alliance with RAD modelling, is a more general theory and model of *exchange*, which incorporates the insights of speech act theory but in which communication is generalized towards cooperation and which perhaps can encompass actions as well as communications about action.

All that being said, however, we can still gain some insight from applying a CfA analysis to interaction fragments such as the one shown in Fig. 3. We can ask, for instance, whether the Project Manager ever seeks to negotiate requirements with the Business Sponsor (cf. Fig. 2 - B: Counter, 2-6), or to reject them outright (B: Reject, 2-8)? Again, should the process model explicitly feature an acceptance of the requirements? Winograd and Flores note that “There are many cases where acts are ‘listened to’ without being explicit” (Winograd and Flores, 1986, p.66), so an explicit acceptance is not deemed mandatory; but still, might there be some benefit in modelling Project Manager’s acceptance of the requirements (cf. B: Promise, 2-3), or indeed Business Sponsor’s acceptance of satisfactory completion (cf. A: Declare, 4-5)?

The fact that none of this microstructure is shown in the RAD might reflect only a pragmatic prime interest in modelling the main steps needed to move business objectives and projects forward. But it may also hide elements of action and interaction which are vital to continuing cooperation which if understood and handled better could improve process quality. A CfA analysis at least of problematic or critical interactions could well deepen insight into what the problem might be or how an interaction could be beneficially redesigned.

Fig. 4 gives a possible CfA version of the interaction sequence in Fig. 3, using the template from Fig. 2 for convenience (and with S=Business Sponsor and M=Project Manager). To verify that this is indeed a typical conversation structure in the company in question would of course require observation. Nevertheless, we can imagine it would be something like this; and we can see it would give us a closer view of the particular interaction. Note however that the activity ‘carry out project’ is ‘buried’ within state 3.

Similar patterns of interaction to the one we have focused on can be discerned in many places in our specimen RAD. - for instance in the sequence from ‘send project outline’ to ‘sign off project’ between Program Manager and Business Sponsor; in the sequence between ‘communicate money available...’ and ‘communicate approved projects’ between DC and Programme Managers; or, more generally, in any sequence of interactions between two roles. In all these cases, modelling the interaction sequence as a conversation for action will bring out the interchange of requests, commitments, and assertions and may thereby reveal more exactly the dynamics of the interaction.

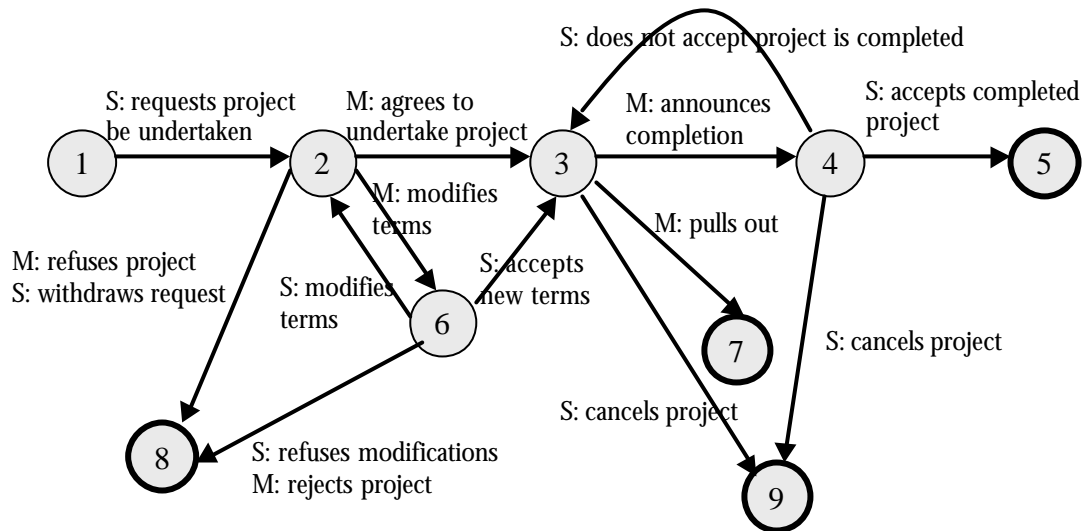


Fig. 4. CfA diagram of the same interaction sequence

Looking at the example RAD as a whole, and applying a (generalized) conversation-for-action perspective to it, one notices that what are represented - among the interactions - are principally *directives* and *assertives* (with some assertives which close conversations perhaps better understood as *declaratives*). The omission of *expressives* is understandable given the operational focus of a modelling exercise. The omission of *commissives* is more striking, given that, in an interaction, a request from one party normally has to be met by an agreement to comply from the other. This omission has been noted above for a particular interaction fragment, but appears to be a feature of the entire diagram, and therefore also a feature either of our use of the RAD technique or of the RAD approach itself. One benefit of supplementing a RAD with CfA diagrams, then, will be to bring out more clearly the ‘receiving’ end in an interaction - to show that an interaction involves two parties in mutual agreement rather than one party simply dictating to the other.

This blindness to commissives relates to Dietz and Widdershoven’s (1991) critique of speech act theory, mentioned above. Accepting Habermas’s distinction between strategic and communicative action, they say that only the latter can be a basis for effective coordination. Whereas in strategic action one party gets another party to do something by an exercise of power (whether or not the second party regards the request as reasonable), in communicative action the participants are oriented towards mutual agreement and will try to achieve a consensus about the validity of a request. Because Searle’s theory (and therefore the development of it by Winograd and Flores) does not make this distinction, a confusion arises between what Habermas calls *imperatives* and what he calls *regulatives*: whereas imperatives are exercises of power and so not communicative acts at all, regulatives - including requests and commands - depend upon the agreement of the participants that requests and commands are justified and legitimate. Searle does not distinguish between regulatives and imperatives but calls them all *directives*. Dietz and Widdershoven go on to observe, still following Habermas, that what Searle calls *commissives* are sometimes best understood as regulatives also (eg, promises) and sometimes as expressives (eg, intentions).

Under a Habermasian perspective, therefore, a more obviously balanced, two-way regulative flow would characterize an interaction, replacing the Searlian

directive/commissive distinction, which has an unbalanced relation between speaker (dominant) and hearer (subordinate). This imbalance at the heart of speech act theory is probably at the base of some of the negative responses to attempts to implement the Coordinator and similar communication support software. Thus Armenise and Dottarelli (1991), reporting on experimental use of the Coordinator in an R&D software laboratory for project management, concluded, among other things, that use of the Coordinator had a negative impact on informal organization, made communication too explicit for comfort, and did not effectively support any negotiation on commitments; in short, although the theory promises communication support, the software realization is experienced as another control tool.

4. CONCLUSIONS

We have tried to show that a modelling of interaction as a 'conversation for action' usefully extends an organizational process model based on role activity diagramming. At this stage, such additional modelling will take the form, not of a lower level in the RAD, but rather of a set of annotations to the RAD. This will enable the deeper structure of interactions of interest to be shown.

Viewing the RAD from a CfA perspective has also enabled us to see that there might be a tendency in role activity diagramming (and more generally in business process modelling?) to suppress the commissive aspect of interactions. This in turn has produced a suspicion that a confusion between imperatives and regulatives in speech act theory, carried through into CfA analysis, has produced an unbalanced model of interaction which overemphasizes the role of the initiator of the interaction and underemphasizes the role of the partner at the other end.

Whether this suggested flaw in speech act theory is embedded also in RAD (or only in our use of RAD) we cannot say without further analysis. We hazard a guess, though, that the overemphasis on directives and assertives reflects a fundamental error common across the fields of business modelling and systems analysis, namely a systematic overplay of direction and management at the expense of agreement and interpretation - an idea that once decisions are made and instructions are given their meanings are clear and uncontestable and their execution unproblematic. Whereas the real achievement of organizations lies in their ability to carry out complex tasks intelligently even though meanings and priorities shift continuously and execution and operation present constant challenges.

A reconstruction of the CfA approach is called for which would take it towards a more general exchange model, and root it more truly in a participative model of organizations. We speculate that such a model, viewing the organization as a whole as a field of cooperative action, might be able to incorporate representations of action as well as of communications about or for action.

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