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PLAYING IN REALITY: A Paradigm Case

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PLAYING IN REALITY
A Paradigm Case

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Abstract

This is a paper about ‘design-by-playing’. As our paradigm case of this approach we will refer to a game played at Konsumentverket, the national Swedish board for consumer policies, in 1988. The main reason for us to construct such an organisational design game was the shortcomings we had encountered in our earlier use of traditional systems description methods in participatory design processes. No matter how suitable the traditional methods may have been for making requirement specifications for technical implementation, they did not support participatory and involved acting. To many users systems development is a boring activity, and key issues to them, like work organization, skill requirements, division of labour and cooperation in the work process are treated superficially. Inspired by the arts and the humanities a narrative language utilizing game and play metaphors for setting up participatory dramatic contexts, is suggested to replace or at least supplement a science based language of true pictures of reality in systems development. As a background for the seriousness of the ‘design-by-playing’ approach a conceptual framework grounded in the language-games philosophy of the later Wittgenstein is outlined.

Keywords: systems description, design, organisation, change, game, play, metaphor, script, role, commitment.
1 Introduction

1.1 Games and Systems Development

"You are at a restaurant. At a corner table you happen to see your best friends wife/husband in an intimate scene with another man/woman. Would you tell your best friend what you have seen?"

This could be a situation card which you have drawn in the family game Scruples. According to the rules of the game you are supposed to answer: "yes", "no" or "may be". The other participants will then judge if they believe you. You are allowed to argue for your answer. These are some of the explicit rules of this family game on moral and ethics. But playing the game also involve following unwritten rules. If your best friend and his/her wife/husband are participating in the game your answer and arguments may be different from if they were not present. Here it is your social competence rather than your knowledge about the explicit rules of the family game Scruples that helps you to make a socially acceptable move in the game. In playing this family game you may even decide to change the rules. You may for example agree with each other that the answer "may be" is forbidden, or that you can refuse to answer a question if you find it boring. You change the rules as you play along.

To us this game situation has a family resemblance with the social activity of systems development or design of computer artifacts. This is (1) a normative, (2) a methodological, and (3) a philosophical position we take in this paper.

1. As a normative position we suggest that the idea of design as playful engagement may be a creative way of transcending the boredom of traditional design. We strongly favour the idea of participatory design, and take the position that successful participation requires that design is meaningful to all participants and preferably pleasurable to them as well. We suggest that homo ludens should be taken seriously, playing the main role that earlier has been dedicated to homo sapiens and homo faber.

2. Methodologically we suggest that game and play metaphors may be a creative way of introducing the design process to users, and for organizing participatory design. In design methods linguistic artifacts to support social interaction and creativity come into focus rather than e.g. construction of correct data flows based on interviews of data.

3. Philosophically we find inspiration for our position in the ordinary language philosophy by Ludwig Wittgenstein, and the shift of focus from language as description towards language as action. Concepts like language-games, family resemblance, rules, moves, speech acts, linguistic and other artifacts, paradigm cases and reminders rather than systems, data, information and descriptions become central in our way of doing design and in our detached reflections on this activity.
In this paper these ideas of design-by-playing are discussed with reference to a paradigm case we carried out at the national Swedish board for consumer policies Konsumentverket during the fall of 1988. Design should here be understood as a broad concept. We think of design as “a concerned social and historical activity in which artifacts and their use are anticipated; an activity and form of knowledge that is both planned and creative, and that deals with the contradiction between tradition and transcendence.” (Ehn 1988, p. 161)

We see systems development as such a design activity. In the design case we present in this paper we are concerned with the contextual use of computer artifacts. We focus on issues like work organisation, skill requirements, division of labour and cooperation. From our design perspective this is not in contrast to, but a necessary complement to issues of technical implementation.

1.2 Outline of the Paper

For philosophical reasons, what we present in this paper is more of a narrative than of a traditional theory. We are not really testing thesis after thesis. All we are offering researchers and practitioners is a vocabulary for design-by-playing and our experiences of using it in a real case. We outline a play-oriented design philosophy based on a detailed example. Hence, in Section 2 we point at the background for this narrative language in terms of a pragmatic application of the kind of philosophy that has inspired it. In Section 3 we put our paradigm case of design-by-playing into perspective by relating it to approaches with family resemblance. The basic concepts of the organizational design game applied to the desktop publishing domain and the story of how the game was played at Konsumentverket is told in Section 4. Finally, in Section 5, the game is reviewed and possible improvements are discussed.

2 Playing the Language-Games of Design and Use

2.1 “Try thinking of it this way”

“Interesting philosophy is rarely an examination of the pros and cons of a thesis. Usually it is, implicitly or explicitly, a contest between an entrenched vocabulary which has become a nuisance and a half-formed new vocabulary which vaguely promises great things.

The latter ‘method’ of philosophy is the same as the ‘method’ of utopian politics or revolutionary science (as opposed to parliamentary politics, or normal science). The method is to redescribe lots and lots of things in new ways, until you have created a pattern of linguistic behavior which will tempt the rising generation to adopt it, thereby causing them to look for appropriate new forms of nonlinguistic behavior, for example, the adoption of new scientific equipment or new social institutions. This sort of philosophy does not work piece by
piece, analyzing concept after concept, or testing thesis after thesis.
Rather, it works holistically and pragmatically.” (Rorty 1989, p. 9)

The quotation above is from *Contingency, Irony and Solidarity*, one of the latest books by the philosopher Richard Rorty (1989). Rorty’s philosophy represents the kind of Wittgenstein inspired pragmatic and non-scientific language-games we think has a great deal to offer the field of systems development. Based on *Philosophical Investigations* (Wittgenstein 1953) and other works by the ‘second’ Wittgenstein a new vocabulary for thinking about computer artifacts emerged in the 1980s. Wittgenstein oriented philosophers, e.g. Allan Janek, Tore Nordsten and Kjell S. Johannessen inspired a rethinking of our understanding of the human use of computers. For an overview see (Göransson & Florin 1990). Hence, our suggestion is that you try to think of systems development, or the language-games of design and use, in the following way as suggested in (Ehn 1988).

### 2.2 Language-Games

To use language is to participate in *language-games*, the Wittgensteinian notion of practice. In discussing how we in practice follow (and sometimes break) rules as a social activity Wittgenstein asks us to think of games, how they are made up and played. Why games?

We often think of games in terms of *playful, pleasurable engagement*. As mentioned above we do not think that this aspect should be denied, but a more important aspect of the games children play is that these games are *most concerned activities*, as are most of the common language-games we play in our ordinary language. Even professional language-games of e.g. designers, carpenters or typographers, complicated as they may be, are grounded in our everyday ordinary language.

We do not understand what counts as a game because we have an explicit definition, but because we are already familiar with other games. There is a kind of *family resemblance* between games. Similarly, professional language-games can be learned and understood because of their family resemblance with other language-games which we know how to play.

Language-games, like the games we play as children, are social activities. To be able to play these games we have to learn to follow rules, rules that are socially created, but far from always explicitly existing. The rule-following behaviour of being able to play *together with others* is more fundamental to a game than explicit regulative rules. Playing is interaction and cooperation. It is intersubjective practice. To follow the rules in practice means to be able to act in a way that others in the game can understand. These rules are ‘embedded’ in a given practice from which they cannot be distinguished. To know them is to ‘embody’ them, to be able to practically apply them to a principally open class of cases.
Language-games are performed both as speech acts and as other activities, as practice with ‘embodied’ meaning within societal and cultural institutional frameworks. This seems to make us prisoners of language and tradition, which is not really the case. Being socially created, the rules of language-games, as those of other games, can also be altered. There are, according to Wittgenstein, even games in which we make up and alter the rules according to which we play, as we go along. Think of design and future use as language-games. The very idea with the interventionistic design language-game is to change the rules of the language-game of use in a proper way. We change the rules as we go along.

Actually, the creative transcendence of traditional behaviour is what is typical for skilful human behaviour, and exactly what defies formalization. By mastery of the rules comes the freedom to extend them. This creativity depends on the Wittgensteinian emphasis on the open-textured character of human rule-following behaviour. To begin with, we learn to follow a rule as a kind of dressage, but in the end we do it as a creative activity. To be able to follow a rule is to have learned how to in practice continue an example we have been given. Mastery of the rules put us in position to invent new ways of carrying on. There is always the possibility that we can follow a rule in a wholly unforeseen way, and still it will be accepted by others as a correct move.

The idea of language-games entails and emphasis how we linguistically discover and construct our world. However, language is understood as our use of it, as our social, historic, and inter-subjective application of linguistic artifacts. As we see it, this is not a neglect of how we also come to understand the world by use of other artifacts. Artifacts and objects also play a fundamental role in a given language-game. A hammer is in itself a sign of what you can do with it in a certain language-game. And so is a computer artifact. The same goes for design artifacts. These signs remind you of what you can do with it as discussed below.

2.3 From Description to Reminder

In a Wittgensteinian approach, focus is not on the ‘correctness’ of systems descriptions in design, on how well they mirror the desires in the mind of the users, or on how ‘correctly’ they describe existing and future artifacts and their use. Systems descriptions are design artifacts, typically linguistic artifacts. The crucial question is how we use them, what role they play in a design language-game. The new orientation suggested in a Wittgensteinian approach is that we see these linguistic artifacts as a special kind of artifacts that we refer to as ‘typical examples’ or ‘paradigm cases’ when we describe something, or when we ‘inform’ each other. In the language-game of design we use these artifacts as reminders and as paradigm cases for our reflections on future computer artifacts and their use. The use of design artifacts brings earlier experiences to our mind and it ‘bends’ our way of thinking of the past and the future. This is how we should understand them as representations. And this is how they ‘inform’ our practice. If
they are good design artifacts, they support good moves within a specific design language-game.

2.4 Creating Design Language-Games

As designers we are involved in reforming practice, in our case typically computer artifacts and the way people use them. Hence, the language-games of design changes the rules for other language-games—that of use of the artifacts. To possess the competence required to participate in a language-game requires a lot of learning within that practice. But in the beginning all you can understand, is what you have already understood in another language-game. You understand because of the family resemblance between the two language-games. However, by understanding design as a process of creating new language-games that have family resemblance with the language-games of both users and designers we have an orientation for really doing design as skill based participation. This approach offers a way of playing and doing design that may help us to transcend some of the limits of system descriptions and formalization. Our paradigm case of a desktop publishing game in this paper we refer to as such a new design language-game. This language-game has family resemblance with our own earlier design efforts and with design approaches developed by others.

3 Design Language-Games with Family Resemblance

3.1 Games We Played Before

The basic ideas behind the design game presented in this paper stems from our experiences from two research projects carried out in the first part of the 1980s. The UTOPIA project concerned the design of tools for skill enhancement in the high tech domain of newspaper pre-press production (Ehn 1988). The Carpentry Shop project concerned technological and organizational alternatives in the 'low tech' domain of small and medium scale carpentry shop production (Ehn & Sjögren 1986). Though the application domains and level of technology were very different in the two projects there were many common features.

Some of the main features were the participatory design approach and the understanding of the design process as a process of mutual learning between professional designers and skilled users within the application domain, and as a process where future or alternative technology and work organization were envisioned and experienced rather than described. The design approaches included mock-up simulations, prototyping, organizational games supporting investigation work and designs in study circles or other user discussions and design groups. The use of mock-ups and prototyping as well as the organizational design games were a reaction to the shortcomings we had encountered in our earlier use of traditional systems description methods in a participatory design process. No matter how suitable the traditional methods may have been for making requirement speci-
fications for technical implementation, they did not support participatory and involved acting. Hence, the move away from the safe ground of correct systems descriptions to the open-ended games of participatory action.

The use of mock-ups and of prototypes opens up possibilities for 'design-by-doing'—for getting hands-on experiences with future technological alternatives (Ehn and Kyng, in press). In this paper we focus on the use of organizational games and how they may open up for 'design-by-playing'—for getting involved design discussions also of the overall work organization, skill requirements, division of labour and cooperation in the work process.

The basic ideas behind the organizational design games in UTOPIA and the Carpentry Shop Project were:

- they should be fast and easy for a group of people to work with,
- they should be cheap and flexible to use allowing several alternatives to be tested during discussions, and
- they should be based on concepts relevant to the actual type of production and support design discussions of existing and future work and technology.

The design tools used in the games consisted of boxes of cards, each card representing a work or a machine function. The cards were used to build up large layouts of the organizations in different carpentry shops or newspapers. These layouts could easily be changed and alternative organizational design could be mapped out quick and cheap.

The design games in both projects were built up around a production flow metaphor. However, differences in type of production and level type of technology were reflected in the design games. In carpentry production the machine-tools are still tangible and visible and an icon is a good reminder of the work activity. The layouts become a physical type of reminder of a factory or a shop. For pre-press newspapers production the functions of the machines are no longer quite visible and tangible. Icons of computers do not express very much of what is going on. The design game in this case was more oriented towards work functions represented by icons.

The carpentry layout design game has been used in the development work to outline demands on quality of work and products. In education the game was used as part of a trade union strategy by workers at individual shops to discuss the present organization and to work out alternatives. The work with the layout design game was complemented by playing the 'Carpentryopoly Game'—a game of Monopoly type for experiments with different business strategies on investment policy and work qualifications.

The newspaper organization design game has been used for vocational education and in preparations for local and central negotiations on 'demarcation problems' and in connection with purchase and use of new technology (and organizational changes in general).
3.2 Other Design Games

The experiences from the UTOPIA project and the Carpentry Shop Project point in a direction away from the main road in systems development of understanding systems design as a matter of constructing true pictures of reality. Instead, a direction towards understanding design as a game of intervention into practice is suggested. This new orientation is by no means exceptional. It can e.g. be found both in the 'soft system methodologies' and in more linguistically oriented approaches.

Russell Ackoff as a representative of the 'social systems approaches' has concluded that for participation in design to be successful it requires that:

- it makes a difference for the participants,

- implementation of the results are likely, and

- it is fun to participate.

The two first points concern the political side of participation in design, the users must have a guarantee that their design efforts are taken seriously. The last point concerns the design process. No matter how much influence participation may give, it has to transcend the boredom of traditional design meetings to really support design as meaningful and involved action. According to Ackoff the principles of idealized design (Ackoff 1974) leads to a design process that is both liberating and fun. The design work is treated as a play. The approach we have taken has a family resemblance with participatory idealized design.

But it also resembles some of the features of Peter Checkland’s Soft Systems Methodology (Checkland 1981). For example, the syntax and semantics of our design games are as in the case of Checkland’s rich pictures situation dependant and open for changes all the time. Furthermore, the linguistic design artifacts being used in our design games resemble Checkland’s understanding of his conceptual models as systemic artifacts for reflection and action. If the word system has a meaning it is as systemic human activity.

As a final example of approaches with family resemblance we will mention the one taken by Winograd & Flores and their theory of language as social action (Winograd & Flores 1986). They think of design in terms of fundamental linguistic actions, i.e. requests, promises, assertions and declarations. The idea of design as a linguistic game in which the participants make linguistic actions and commit themselves to future actions is also a basic idea in our design game. However, as outlined above, our understanding of language as action is based on a more general interpretation of the Wittgensteinian ordinary language philosophy.
4 The Design Game at Konsumentverket

4.1 Systems Development as a Game of Desktop Publishing

The design game we present in this paper we will refer to as the *desktop publishing game*. This design game means a shift of environment from the shop floors of the Carpentry Shop and UTOPIA projects to work in an office environment.

Certainly many different activities are going on in offices. We have chosen to concentrate on changes related to the introduction of new technology for publication work, on *Desktop Publishing*. One obvious reason for this is the fact that we had some earlier experiences within a domain with family resemblance—typographic work. Another reason is the vast investments in this technology in offices today, and the increasing demands on communicative competence on individuals and organizations.

If we compare the desktop publishing game with the design games from UTOPIA and the Carpentry shop project there are not only similarities, but also clear changes. The participatory language as action approach is still fundamental. Concreteness and ease of use are still basic principles. However, the flow oriented production metaphor used in the earlier games did not make sense in the office environment of desktop publishing. Hence, the shift of metaphor towards a game based on linguistic actions leading to commitments. Social interaction and cooperation come into focus rather than the physical artifacts used (Wynn 1979). Furthermore, the play metaphor is used much more explicit and the philosophical motivation for this is more elaborated.

Another difference that is striking is the design focus. Existing hardware and software are more or less taken for granted. This is based on the assumption that the basic problem in the domain not is technology driven, but a question of organizational change, education and re-qualification. The technology is good enough. The game takes as point of departure that the users are experts on their situated work, but that the professional designers as well have relevant and useful competence in the application domain. Hence, in this specific design game it is suggested that design basically concerns organizational design and not software development, and that the professional designers to some extent know more about the application domain than the participating users. Neither of these assumptions seem at first to be justifiable compared with earlier experiences and basic assumptions. By presenting the game we hope to be able to demonstrate that these are relevant moves we have done in establishing the desktop publishing game.

The desktop publishing game makes use of tools for making *graphical reminders* like notice boards, cards and personal scripts. It is *language oriented* in its use of professional and situated concepts from the tradition and the application domain. It is *concrete* in its use of critical situations and events in the actual organization. It is *dramatic* not only in its use of the game metaphor, but more specifically in its use of a theatrical play metaphor.
4.2 Basic Concepts

We have played the desktop publishing game in a few offices in the public administration in Sweden. However, our main case is the consumers agency Konsumentverket. The dramatic design context the game offered at Konsumentverket was based on six concepts.

The playground is a subjective but collectively negotiated interpretation of the work organisation in question. The professional roles are the union of individual professional ambitions and the need for qualifications from an organisational perspective. The situation cards introduce prototypical examples of breakdown situations. Commitments are made by individual role players as actions related to a situation card. Conditions for these commitments are negotiated, and an action plan for negotiations with the surrounding organisation is formulated. These concepts were used throughout four development steps.

The game started with the prologue, a session were the rules of the game are introduced, the proposed playground was redesigned, and the role cast was chosen. The first act was a session in which based on situation cards situations were simulated and commitments made under certain conditions. The second act was based on an updated playground where the work with real publications was simulated. In the third act the game was turned back to reality and an action plan for negotiations with the surrounding organisation was formulated. The use of these concepts and the structure of the game will be explained as the story of the game at Konsumentverket is being told. To facilitate that reading, the basic concepts and the development steps are summarized in the figures below (Figure 1 and Figure 2).

4.3 Konsumentverket and the Desktop Publishing Game

In the work with information for consumers Konsumentverket has an educational department. The 25 employees at the department produce books, reports, educational material, and brochures. The background for the project using the desktop publishing game was the following: The department had invested in desktop publishing technology. However, the lack of competence to master this technology caused uncertainty about professional roles and inability to raise the typographical quality. To really use the technology required development of the professional roles, changed professional relations, education and a redesign of the work organization. In this situation the management of Konsumentverket contacted The National Fund for Administrative Development and Training for Government Employees and asked for support. This is how we entered the stage in a project financed by the governmental initiative for development and education in the public sector, and this is how user participation was financed as well. The formal objectives of trying the desktop publishing game were “to clarify the present work organisation and the present professional relations and to design new professional roles and investigate the need for training and education. The work should result in a well functioning publication work process for the produc-
Figure 1: Basic concepts in the play situation. A situation card is drawn by a player. Given her professional role as identified by her role script she makes a commitment under certain conditions that are negotiated with the other players. Her commitments and conditions are written down in her role script and is also placed in a proper situation on the playground. Other players too may make commitments and state conditions in order to resolve the situation triggered by the situation card.

<table>
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<td>Preparation of play-ground and role cast</td>
<td>Simulation of situations using situation cards</td>
<td>Simulation of real work based on earlier commitments</td>
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Figure 2: The prologue and the three acts of the desktop publishing game played at Konsumentverket during seven and a half days.
tion of the educational material from the department.” (Konsumentverket 1988, p. 1, our translation)

4.4 Setting the Stage at Konsumentverket

At the first meeting between us (the designers) and the participants from Konsumentverket we introduced the ideas of the game as a way of developing professional roles and the work organization. The basic rules of the game were explained using examples from another case. The participants from Konsumentverket gave examples of problems they have had in their practice and showed examples of products they had made. This was the first step in establishing a common design language-game. This design language-game was played by us and eight employees at the education department of Konsumentverket. They were secretaries, case handlers, a technical support person, a marketing person, and the head of the department. As resource persons an information consultant and a typographer also participated occasionally.

4.5 The Prologue

When the stage was set we started to work on the prologue which meant preparing the playground and the cast.

The playground was a crude reminder of work situations that publication work normally consists of. It consisted of twelve sheets of paper each referring to a specific work situation. These situations ranged from publication ideas to marketing. The situations were taken from typographical as well as editorial professional traditions.

At the prologue meeting the playground was put on the wall. We discussed the work situations and how they were labelled. The playground was revised and clarified until it worked as a reminder for the participants situated experience and consensus was reached on the interpretation. For example the proposed situation ‘investigation’ was replaced by ‘gathering of facts’.

We had prepared the cast for traditional roles e.g. the editor, the executive editor, the graphic designer, and the author. But there were new roles too, e.g. the technology coordinator, the publication administrator, and the ‘formatting person’. These are extensions of the secretary role. The roles were partly taken from the situated practice at Konsumentverket and partly from roles we had met or created in an earlier case. To each role a role script was prepared.

At the prologue meeting, however, also the cast was revised. For example the role of a ‘picture editor’ was suggested by the participants to be integrated into the role of the editor, and a marketing role was added after discussion. The role scripts were distributed and studied by the participants who chose at least one role each. The roles were chosen according to realistic professional ambitions of the participants and organizational demands. For example a secretary chose to play the role of the ‘formatting person’ and another choose the role of the
publication administrator.

The actors prepared for Act I by studying and revising their role scripts, and by writing situation cards for the plot.

Each role script consists of the following parts: qualifications, tools, and work situations to participate in. Qualifications had a crude default pattern. During the preparation more details were added to the role scripts.

The situation cards are what drives the plot forward. Each card reminds of a critical event, a breakdown situation or a daily triviality which sooner or later is likely to occur. There are three types of situation cards: paradigm cases from other organizations using desktop publishing technology, role oriented cards, and cards specific for the actual organization. The organization specific cards on problems at the education department were the cards the actors prepared. The other cards were prepared by the designers.

4.6 Act I

The actors meet with the designers on the stage. The playground is placed on the wall. 81 situation cards have been made and are put in a stack on the table. The actors have put their individual role scripts on the table. The designers give a short introduction to Act I. The play can begin.

One of the participants picks a card. It reads:

“Printing of camera ready original on laser printer is still in progress. It must be delivered to the print shop before 4 p.m. today. The toner cartridge is suddenly empty, and no one has bothered to order new ones. Who takes responsibility to solve the problem now? And what should be done to avoid similar breakdowns in the future?”

This certainly reminds the participants of a familiar situation that typically “falls between the chairs.” After a discussion the secretary that had chosen the role of the publication administrator makes a commitment. This commitment means that she takes the responsibility to solve the problem under certain conditions. For example she may state: “In my role as publication administrator I commit myself to solve the immediate problem by ordering a new cartridge and have it sent by taxi. In the long run I will establish a routine for the maintenance of the laser printer. My condition is that I get a appropriate training in maintenance of the printer.” The group actively support her commitment. The commitment is written down on the situation card. The card is placed on the playground in the work situation labelled “printing”. She make a similar note in her own role script.

The game continues with more cards in the same way. The group at Konsumtverket got on well and had no problems with the cards even if some situations were really tricky. However, on some situations the participants agreed that the problem was irrelevant. If no commitment or agreement on condition was reached in a situation the designers were prepared to intervene and try to
reinterpret the situation to reach consensus. Such an intervention did, however, not occur during this game.

As preparation for the second day we update and print a new version of the playground and all the role scripts with all the commitments and conditions that have been agreed upon during the day.

The second day starts with a review and a discussion of the updated playground and the new role scripts. The rest of the day the group work with the remaining situation cards in the stack. To get some variation and more involved participation the group split up into smaller groups in between.

By the end of the day Act II is prepared. The group is now asked to select three different publications that are typical for their present production. At Konsumentverket the group choose a catalogue with a complicated layout, a book, and a newsletter. As preparation for the next act both each participant and the designers write five new situation cards related to experiences of working with these publications.

4.7 Act II

A new gathering on the stage. The scene has changed. Now the play comes closer to the situated work at Konsumentverket. The new publication related cards reminds the participants of earlier breakdown situations. However the task in the game is now to ‘replay’ the chosen publications in the light of roles, commitments and conditions agreed upon in Act I.

During the first day the playground is adjusted for each of the publications and the new relevant situation cards are played. At Konsumentverket this turned out to be much more complicated for the participants than the work in Act I. For example one of the new cards on the publication ‘the catalogue’ read: “The catalogue was scheduled for the annual education fair, but due to production problems the catalogue was delivered to late to be printed in time for presentation at the fair.” This situation card led to an animated discussion on who’s responsibility it was, rather than commitments on how to solve the problem given the new roles.

Given this breakdown the designers decided to introduce a change of the rules of the game as they played along. Hence, on the second day a new type of cards labelled ‘development cards’ was introduced by the designers. The development cards were formulated as a response to problems that arose during the ‘replay’ of the publications. For example the development card “How can we improve proof reading of our publications?” was generated as a response to a qualification, and a task, that seemed to be underestimated in the organization. The discussion of the card led to an acknowledgement of this problem, a person that committed her to solve it, and an agreement from the group that this was an essential task.
4.8 Act III

By the end of Act II about 150 commitments and conditions have been formulated and agreed upon. As preparation for Act III, the playground was updated with these agreements by the designers. In Act III the players prepare to meet their audience, and earlier commitments and conditions are tied together in an action plan for negotiations with the surrounding organisation.

The designers introduced six headlines for refining the commitments and the conditions into demands in the action plan. The demands concerned:

- publication program—how to develop the products,
- professional support—ideas and proposals for competence which must be, "imported" into the organization, e.g. typographical competence,
- development of qualifications within professional roles,
- technology support on assessment, investments, and maintenance of the technology,
- organizational support concerning relations to the surrounding organization and management, and
- internal work practices—new routines, quality control stations, and team work the participants can implement themselves.

This structure for the action plan was based on the designers earlier experiences with making action plans with users. The structure was a suggestion to the participants, a suggestion that could be changed and modified. At Konsumentverket, however, the participants accepted the six headlines.

For every single work situation on the playground commitments and conditions are cut out and pasted into the action plan under the demand headline the group finds appropriate. For example in the work situation "formatting" the technical support person had committed her to continuously update all desktop publishing software if she was offered appropriate training and time to do the job. This commitment was pasted under the demand headline "technology support" and "development of qualifications".

The last day was dedicated to scrutinizing and refining the demands in the action plan. Every single commitment and condition under each demand headline was evaluated, given a priority, and debated to find good arguments. Only demands on which group consensus could be reached were kept in the action program. For the five first demand headlines these demands were the groups requirement specifications to Konsumentverket for changes. For example, the group demanded that the technical support person should get proper training on desktop publishing software, and software support as part of her job description. The last demand headline "internal work practices" was treated differently. These were the demands the group could realize without external support. For
example a new ‘playground’ with concrete guide-lines to support planning of the new work practices was developed as a planning tool by the participants.

When the playground had been transformed into a script for action in reality it contained 38 suggestions for improvements, which all had been debated, evaluated and refined during the game. The designers were now made redundant. At least in that sense the game was a success.

5 Review of the Game

Looking at the game in retrospective these are some of our detached reflections:

5.1 The Design-by-Playing Approach

Did the design work at Konsumentverket benefit from the design-by-playing approach?

No doubt there was a playful engagement from the participants. The participants were very engaged and active through the process. The normative point of departure was well supported by the game.

The methodological game and play metaphor was appreciated by the participants, but playing-in-reality often meant that reality rather than play set the conditions for the design work, the design work oscillated between play and reality. The play situation created a distance to the everyday situations. At the same time it had a strong family resemblance. The rules of the game were all the time at stake and changed during the game. Was this a failure or the way these games should be played?

For us as designers the language-game vocabulary has been fundamental in creating the desktop publishing game, and in our reflections about what it meant. The design game was created as a game that had family resemblance with the ordinary work of the users and with their experience with games and plays as well as with our practice as designers. Reflecting about the design process in terms of e.g language-games, speech acts, linguistic artifacts and reminders made sense to us as designers.

5.2 Words of Critique

The design-by-playing approach we have used is very subjective. This is both a strength and a problem. The strength is that both designers and users become visible and responsible in the design process. No one can hide behind a formal description.

On the other hand this subjectivity makes the approach very work intensive for the designers, especially in the preparation work between the acts, since the quality of the play is totally dependant on these preparations.

To support the designers in this preparation work some computer support for making and updating playgrounds and role scripts was developed. The idea
was actually to support on the spot updates during the meetings. The developed computer support was, however, too slow and complicated for this.

The approach is also subjective in the sense that the outcome is very dependent on the personalities of the participating individuals, and their social relations, not only their professional ones. In fact, one of the problems for the designers is to distinguish between the two, and guide the game towards professional commitments.

If we look at the methodological aspects of the design-by-playing approach we can conclude that the generality is restricted. Every new case is not only a new application, but the form and content of the game as such must be reconsidered. For the designer this means a challenge. The only methodological ground for the designer is experiences from past games, the practical understanding of the concepts, and the social ability to ‘read’ the situations as the game goes on.

Another aspect of the restricted generality is the question of how the experiences of the game can be diffused in the organization. The design game is most engaging for the participants, the new insights are ‘embedded’ in the group. Diffusion does not occur through written documentation and oral presentation. It seems that ‘replaying’ the game with new participants is a necessary condition. But at these replays the professional designers have long ago left the scene and lay designers carry on the new games.

The design-by-playing approach is time consuming. Hence, in words of critique it is valid to ask if the game is worth its price. We estimate the time spent by us as professional designers to 30 days including all preparations, where half of the time spent on preparations probably was due to the fact that this was our first full scale application of the game approach. The participants from Konsumentverket spent all together approximately 60 days with the game. In costs this can be estimated to about one-third of the investments at Konsumentverket in desktop publishing technology. In addition there will be substantial costs to conduct the suggested education program. We are not able to say if the price is too high, but compared with real organisational and educational costs in traditional systems development the cost does not sound alarming to us.

5.3 Konsumentverket Today and Other Applications

After the design game ended in October 1988 we have had a follow-up meeting in December 1988, and discussions with individual participants during the spring of 1989. But we have not ourselves made any formal evaluation. Our impression from these meetings are, however, in line with the positive conclusions in the official evaluation report from Konsumentverket. Under the headline “Effects and experiences” Konsumentverket concludes that:

“the group has reached a clear view on how to organize their work. They have managed to refine a great number of ideas into new robust routines. These are being used in the publication work. A planning
process including routines for inhouse publishing as well as external publishing is established. The routines are used actively with a project planning wall graph where control situations and personal commitments are written down for every active production, and where it is monitored where in the publication process an actual publication is situated.

The project has made an open discussion of everyday situations possible, sorted out misunderstandings related to work tasks, and pointed out difficulties in the publication process. The educational department has strengthened its ability to collectively and directly solve (professional) problems. Analyzes, problem-solving and education have been integrated. The work roles and the potentials for developing them have become clearer. The development project has lead to a new "work style" which the participants can argue for and which they can teach colleagues not involved in the project. The new work style is more clear and has improved internal and external communicative competence. The contacts with the print shop and the publishing company have improved, which will lead to cost reductions. The result is positive and the group works according to the new methodology.

The new works style must go on for a longer period before a final judgement can be done, but it is already obvious that this design work has resulted in a change which will have positive effects on Konsumentverket." (Konsumentverket 1988, p. 5, our translation)

So far the official evaluation. It seems to be the case that the costs related to the game are paid off by improvements in practice and by reductions of time consuming and cost intensive breakdowns.

As for the designers there have been new design games and practical situations to participate in. In one case a new desktop publishing game has been played. A game with family resemblance with the old one, but certainly a new and different situation, requiring new rules of the game.

However, we have also entered new application domains, domains in which we have very little competence as opposed to publication work. One of these games concern the development of organizational alternatives in a police precinct. In another case the game approach with playground and situation cards is used as a general methodology to improve professional roles and relations in the organization and to the customers. As designers we instruct participants from the organization in the design-by-playing approach, and they are the ones that initiate and guide the actual design games in the organization. To the results of these new games we will have to return in another paper. No doubt, there will be surprises as we play along.

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5.4 Redesigning the game

In a workshop at a conference on "creativity and systems development" the ideas of the game were presented to researchers in the field. A game played at the workshop had as its theme the editorial work of the Scandinavian Journal of Information Systems. Among the many suggestions for improving the game we found the following ones particularly interesting.

We were criticized for the rigid structure imposed by the playground. As a remedy it was discussed to extend the prologue by active user participation in the construction of the playground. Furthermore, the game was found to be much too time consuming for many practical design situations.

It is true that the approach is time consuming. Now we are, however, able to carry through a game like the one at Konsumentverket in less than half the time. One reason is simply that we have become more experienced, hence better to improve and change a game as we play along, being more supportive and instructive to the participants, but also stopping interactions that are not focused enough, skipping parts of the game when appropriate, and adopting to the situation and invent "local rules" etc. But there has also been changes to the game.

To overcome the rigid structure imposed by the playground we are experimenting with integrating techniques from two other methodologies — Future Workshops (Jungk and Mültert 1987) and Soft Systems Methodology (Checkland 1981).

Future Workshops is a widely used participatory and proactive methodology for small groups of people to dream up and implement creative ideas and projects. The process of a Future Workshop is divided in four phases—preparation, critique, phantasy and implementation. In a new case we are working to improve the social construction of the playground by using techniques from the critique phase and the formulation of themes for positive phantasy alternatives (Ehn and Sjögren, in press).

Soft Systems Methodology is a general phenomenological design approach focusing on the dialectics between the many and different world views involved. Basic concepts of Checkland's methodology are: Rich Pictures, Weltanschauungen, Root Definitions, and Conceptual Models. To improve the use of the playground we are with our students trying to make use of the techniques for making 'rich pictures'. The designers support the participants themselves to draw a 'rich picture' playground identifying slow-to-change structures and continuously-changing processes and how these interplay and form the climate of the situation.

Other possible improvements that we have tried out in student projects include some computer-based tools for administration and analysis of the game. A 'hypertext' of situation cards, commitments, conditions, role scripts and playground situations is incrementally updated as the game goes on. In administration it can be used for faster updating of the role scripts and the playground. As a tool for analysis it is possible to search for patterns that can be hard to 'see' from just looking at updated versions of role scripts and playgrounds. Au-
dio and video recordings of game sessions have also been tried out as means to support the designers analysis of the dynamic evolution of a game as preparation for useful moves.

We are actively trying out possibilities of transforming such redesign work of the game into reality. And we would be more than happy if others socially construct new design games that have a family resemblance with the ones that we have played—more cases forming a paradigm of pleasurable engagement and serious playing in the reality of systems development.

6 Postscript on the Game of Scruples

Finally, we would like to present the reader with a situation card: “Who will win the desktop publishing game, the manager or the secretary?” This is certainly an ethical dilemma that gives us scruples. Is design-by-playing a game of seduction rather than one of liberation?

References