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The Development of Design Strategies that Promote the Engagement of Users in the Authorship Process

**A thesis submitted to Middlesex University in partial
fulfilment of the requirements for the degree of
Doctor of Philosophy**

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March 2006

**Thesis contains many
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copy.**

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the University.**

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Abstract

The Development of Design Strategies that Promote the Engagement of Users in the Authorship Process.

Underlying all the ideas articulated in this thesis is a political challenge to the designer's innate right to occupy a hierarchical position in the designer/user relationship. Equally, where these relationships have been superseded (in for example Desktop Publishing and web page design) the designer still has an important, but quite different, role to play.

In contrast to some community design-led initiatives, the aim here is not necessarily to welcome users into an aspect of the conventional design process on terms determined by the designer by helping users conform to practices established by the designer. The aim is the development of strategies in which the designer and user can influence each other without dominating, going beyond conventional strategies of consultancy or feedback.

My determination is not to turn everyday users into mouthpieces of surrogate design sensibility, in the way that 'makeover' TV programs, and their DIY predecessors, promote a particular aesthetic as good design, leading to a rejection of direct communication between designer and user. This places the designer in a position of power; users will skew their responses towards what they think the designer is looking for. Also designers could never work so inexpensively as to engage in bespoke design activity for more than a fraction of the population.

This view has been achieved through the interplay of my own design practice and a spectrum of theoretical (broadly post-structural) influences, although most individuals referenced here would reject this (or any category), including Derrida, Deleuze and Guattari, and the Situationists.

My responses to these ideas influence and are influenced by the production of a range of design proposals, and the promotion of the colonisation, modification and even hijacking by others, including designers, users and educators. These have developed in a number of phases:

- 1 Modular/Adaptive proposals for office furniture, and product design;
- 2 CAD/CAM proposals in which users select and modify 'design methods' to help them exploit the more technical expert systems available to help them create their own artefacts;
- 3 Flexible communication systems, which are designs populated and modified by users in ways beyond the control or knowledge of the designer.

These stages show an evolution in my creative responses from producing designed artefacts that promote interaction with users, to systems in which the designer and user have to contribute jointly for the systems to function. It is organic, uncontrolled development by the user that determines the development and configuration of these systems guided by the initial conditions and processes determined by the designer. This allows the interrelationship of designers and truly user-led creative activities.

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Chapter 1 Introduction

My personal background has had a profound impact on this PhD project. I started with a degree in Three-Dimensional Design with a very broad curriculum including ceramics, jewellery, furniture, plastics, electronics, mechanical systems, CAD/CAM. My two final year projects were in robot design and surrealist furniture.

On graduation I ran my own practice for a short time, designing furniture and later worked freelance in the multimedia arena (interactive CD-ROM, also graphic design, branding/corporate identity). For me conventional media categories are not a restriction. Of course many (most?) designers cross these boundaries (e.g. Starck, Antrom, Sottsass, Frank Lloyd Wright, Gropius, le Corbusier, Graves et al) but with the advent of digital media there has been an erosion of proprietary processes and so discipline boundaries not protected legally are becoming more porous.

This position is recognised by stalwarts of institutions like the Design Research Society such as Ken Friedman when he declares '*Design is becoming a generalizable discipline*' (Friedman 2003: 519). This inclusive view is the basis of the multidisciplinary subject area Design Studies. This has two leading academic journals, *Design Issues-History Theory Criticism* published by the design Research Society and *Design Studies* (MIT press). *Design Studies* covers a very broad spectrum in one issue the subjects covered range from interior design to branding to web design to research methods to product design (chosen at random Winter 2002), other issues include interdisciplinary studies, history of design education, fashion, urbanism, but noticeably little comment on architecture directly. *Design Issues* is less theoretical, looking more closely at design method and process but still covers issues including use of mood boards in architectural design, magazine design, design methods, furniture design, amongst others.

My overriding interest within design studies are meta-level concepts used in and using practice, adopting a problem-led rather than media-led development, this has been reflected in my teaching career ranging from product design, to graphic design to multimedia. This shift was precipitated by an MA in Visual Culture (it would be more accurate to call my studies design philosophy) where I approached the problem of trying to get to grips with 'postmodern' theory/practice from a number of directions, irrespective of disciplines.

The most important idea that has stayed with me throughout this research is the rejection of hierarchies and especially the rejection of hierarchies of authorship with a design context are natural and uncontroversial. The essence of this PhD thesis is to challenge hierarchies. It does not reject the design profession as a whole but contests that, in many instances, the hierarchical positions adopted by design(ers) are susceptible to challenge and that a more cooperative symbiotic design process could be more productive, appropriate and fun. 'User' involvement within a conventional design process is not new. It is part of movements such as community design but as I argue below these are very much part of conventional design practice. I am interested in a broader reappraisal of the way designers and users can inter-relate.

In order to understand structures of dominance, the determining natures of discourse and the effects of binary thinking all of which tend to support the conventional voice of the designer, I have drawn on theories often developed in contexts generally described as philosophical and theoretical. An analysis of these areas of 'theory' has revealed a number of approaches developed with the aim of empowerment for the user.

Using the challenging of hierarchies as a criterion for theoretical investigations has resulted in the appropriation of ideas across a broad field of thinking. This is not without its dangers. The selection and use of specific approaches and conjectures without adopting bodies of theory as a whole can (and has) led to the establishment of a group of tactical responses from thinkers who have quite different positions from each other.

The danger of this decontextualisation is warranted on two different levels. Firstly, this sort of appropriation is openly invited by writers such as Deleuze and Guattari (1996). We shall see when looking more closely at Derrida that the subscription to a neat, unproblematic canon of theory in this area is deeply problematic. Secondly, pulling together diverse areas of thinking and design practice will inevitably mean leaving some things out, this intelligent cherry picking, pragmatic approach is a feature that runs through design, at least since the activities of the Arts and Crafts movement.

While the breadth of my inspiration is discussed in more detail in the following literature review there is also a history of attempting to engage with power relationships between designer and user using a variety of strategies, some within design studies but there is also a strong tradition of this sort of project within architectural discourse.

I am occupying a position of tension with regard to architecture; I have to be outside architecture both in terms of legally not being able to practice architecture (and practice is a key element of this PhD thesis) but also in not being immersed in that discourse, I'm appropriating ideas from architecture here rather than creating a complete taxonomy of architectural engagement with the power relationships between user and designer.

This raises the question, why look at architecture at all? There are several reasons for this, explored in more detail below, but the essence of this decision to use architecture as an extension to design studies was made by considering a number of different factors. The most obvious reason for looking at architecture is that it has traditionally been a central part of design theory, Nicolas Pevsners' *Pioneers of Modern Design*, a core text in design history, concentrates almost exclusively on architects. Architecture is presented as the pinnacle of design achievement, with legal protection to maintain its position.

There is also the pragmatic point that there is a greater body of architectural theory to choose from and in a sense it is natural for design to appropriate or plunder other bodies of knowledge. In the case of this project I draw on the explicit influence of Deleuze and Guattari in their invitation to free appropriation of ideas in the introduction to *A Thousand Plateaux* (Deleuze and Guattari 1996) but this approach is something common to design activities and is implicit in many designers' work. Explicitly it can also be seen in Jencks' linking of the way Archigram applied the strategy of 'clip-on' not just to their building plans but also to their underlying philosophy because they 'clip-on (steal) ideas from every possible source' (Jencks 1971: 96). This is not a pejorative description, as Peter Cook says 'architecture could and must extend its territories-devouring from others if necessary' (Cook 1996: 68). Appropriation in design can be seen in the graphic design curriculum of the Cranbrook academy in the 90s. This design school is well known for its full embracement of post-structural ideas to the point of sending many of the staff to France for a fact-finding summer. Within the curriculum they developed they co-opted the architect Daniel Libeskind to give a series of seminars to the design students on literary theory (Lupton 1996(2): 7), a graphic example of Kant's hierarchy of creative respectability in action (he placed architecture at the bottom, below literature, without registering any other design activity).

Within architecture there is a heritage of deferring the architects position of authority when conceded from the position of the (Town and Country) planner, described in Peter Hall's *Cities of Tomorrow* (2002). Here Hall describes John Turner in mid the 1950s working as a planner in the slums of Peru as he changed his self perception from the expert there to

instruct the self builders to the realisation that 'when dwellers control the major decisions and are free to make their own contributions...this process and the environment produced stimulate individual and social well being' (Turner in Hall 2002: 275).

This realisation was reinforced by the later activities of people like Christopher Alexander facilitating self-build projects in Berkley and Mexico in the 70's to the writings of Jane Jacob to Richard Senuvell's *Uses of Disorder* arguing that 'In extracting the city from pre-planned control, men will become more in control of themselves and more aware of each other' (Senuvell in Hall 2002: 283). This led to the development of community design championed by people like Rod Hackney, stressing the needs of the client and working as closely with them as possible to provide a solution to their needs.

A further example of the role of the planner can be seen in the late 60s proposal of *Non-Plan*, this was first published in 1969 as *Non-Plan: An experiment in freedom* by R Banham P Barker P Hall C Price in *New Society* 20 March 1969 (3 years before Venturi et al.'s *Learning from Las Vegas*). As Paul Barker, one of the authors of *Non-Plan* explains, 'Non-Plan was essentially a very humble idea: that it is very difficult to decide what is best for other people' (Barker 2000: 6). Fundamentally their proposal was that urban planning was generally only successful through serendipity and that removing any planning controls would increase the possibility of serendipity and could hardly be worse than the results of contemporary planning. This was not a conventionally partisan left-wing proposal (Ben Franks argued in *New Right/New Left* (2000) that squatter groups were much more effective as a social tool) as the removal of restrictions would allow wholesale commercial property development as well as domestic or user-led building, with the establishment of enterprise zones in 1979 by the government such as London docklands. Canary Dwarf is a product of a Non-Plan like experiment.

It is an interesting aside here that the position of the planner is an instance of difference between architecture and the broader design canon. There is no real comparison in terms of a position of overarching control, one could possibly argue that a fashion strategist could be related in the determining of next season's themes but this is still quite distant from the structural long-term view taken (and imposed on the landscape) in architectural planning.

When looking more directly at building, there are examples of unprofessional or vernacular guides to architecture such as the *Dome Book*, *Whole Earth Catalogue*-encouraging community self-building. Exhibitions like 'Architecture Without Architects' (Rudofsky 1973) celebrate 'non-architectural' urbanism.

There is also a history of architects being interested in the relationship of users and architects and questioning the conventional hierarchical relationship between the two. Historically one of the most significant of these was the largely theoretical practice Archigram.

This group (at its core Warren Chalk, Peter Cook, Dennis Crompton, David Green, Ron Herron and Michael Webb), through a series of detailed proposals from the 60s through 70s and to a lesser extent up to the 90s, were heavily influenced by pop culture (artistic and vernacular), the possibilities of new technology and the reluctance of mainstream architecture to take advantage of these. They proposed 'an architecture that would express its inhabitants supposed desire for continuous change' (Sadler 1999: 138). The mechanism for this provocation was a series of very detailed proposals for architectural interventions that invoked the spirit of Captin Nemo

since it seemed to embody the idea of the architect as a mad scientist, as musician and romantic, as possessor of both the mysterious cathedral and the ultimate world encompassing vehicle. (Cook 1996: 67)

This exuberance also saw them move from thinking about architecture as a fixed, determined construction (hardware) to something much more dynamic, something responsive to user and context to 'software' environments-systems of environmental control that aid personal choice and are responsive to individual whim and desire' (Jencks 1971: 69). This move into thinking about architecture in terms of software de-privileges the architect and indeed in a manifesto published by the group in 1968 there is a graphical description of the development of the urban landscape to a point where architecture as hardware is something to be indulged in, something nostalgic (Cook 2002: 232).

As Archigram's David Green stated, their proposal 'provides a new agenda where nomadism is the dominant social force; where time, exchange and metamorphosis replace stasis; where consumption, lifestyle and transience become the program and where the public realm is an electronic surface enclosing the globe' (Green 1999 unpagged prologue).

The proposals tabled by Archigram, including the Walking City (Ron Herron), the modular Plug in City (Peter Cook), the Suitaloon, wearable inflatable architecture (Michael Web), were based on the idea that mobility of architecture could set people free. The success of these ideas are based on a number of assertions: that the latest technology would be implemented; that we would all be independent economically; and that there would an explosion of the

amount of free time. These are similar assumptions to those made by Constant in the following chapter. These ideas and those of Archigram have had a large impact on proposals here such as C Space in Chapter 6. The practical impact or realisation of Constant's and Archigram's ideas has been curtailed by the fact that although there has been a steady increase in the mechanisation of manufacture this has not been translated into an expansion of free time.

There are also cases of architectural discourse exploring the power relationships between users and architects that are not predicated on the assumptions made by architects such as Archigram and Constant. The concept of the Illegal Architect posited by Jonathan Hill is an example of such a discourse.

The Illegal Architect is a proposal for rethinking the conventional position that architects occupy in their relationship with users. As Hill says,

The designer and user both make architecture, the role of the latter is as important as that of the former. Between the perceived opposition of the didactic, prescriptive architect within the institution and passive receptive user without is a third entity, the illegal architect who is also a user' (Hill 1998: 34).

He calls for a '*new type of architectural provider, one unrestrained by professionalism* (Hill 1998:36).

This position is adopted as an attack on the institutions that police the architectural profession: the Royal Institute of British Architects (RIBA) and Architects Registration Board (ARB). The proposal includes a physical centre for illegal architect activity (the Institute of Illegal Architects (IIA)), provocatively placed directly in front of RIBA and the adjacent RIA in what is now Portland Place, London.

The Illegal Architect is interesting as a proposal to destabilise the infrastructure of architectural provision and provide a new model for architectural activity. The documentation of this proposal, *The Illegal Architect* (Hill 1998) is also interesting inasmuch as Hill draws his design process into the debate and specifically develops design processes that reflect the concerns of the IIA. By exploiting the Surrealist processes of the Exquisite Corpse and the Paranoid Critical Method he 'questions the conventions of authorship because the author of an idea becomes the servant of that idea' (Hill 1998: 46).

It is relatively rare for designers or architects to not only articulate their design process but to shape those processes in a conscious part of the dialogue they are entering into with the user. Other examples would be Eisenman's dis-, trans- and cross-programming (see the following chapter), Tschumi's use of algorithms to help generate the follies of Parc de la Villette.

Outside the discipline of architecture investigation of power structures between users and designers operates in a very different context. The profession is open to all and in many instances commercial projects are completed in a very short amount of time (in some cases in graphic design less than a day in total); this reduces the incentive (and time) for reflection. The open market also places a premium on the particular creative skills of the individual reducing further the incentive to self-challenge the designer's position in relation to the user. As we shall see below and in subsequent chapters there is some very interesting research in the design area that exploits the low cost, high turnover nature of many non-architectural projects.

One of the projects that take advantage of the possibilities of wider design activity is Charles Jencks' and Nathan Silver's proposal for ad hoc design. This proposed 'A new mode of direct action is emerging, the rebirth of a democratic mode and style, where everyone can create his personal environment out of impersonal subsystems...by combining ad hoc parts the individual creates, sustains and transcends' (Jencks 1971: 15). In practical terms they were promoting the user-led 'bricolage' of disparate industrial components or modules to create domestic products in an attempt to promote 'contrived spontaneity'.

The ad hoc system is relatively straightforward to conceive of in terms of product design but harder to sustain as a practical proposition for the creation of architecture, although salvage yards permit an 'ad hoc' decoration of conventional structures. The problems with modularity are discussed in more detail in Chapter 4 but, briefly, the challenges to ad hocism are as follows. How do you encourage users to engage with this process? How do you create enough viable options to allow individual serendipity? And how do you demonstrate these ideas without imposing a 'designer' aesthetic and an accompanying set of values on the exemplars produced to demonstrate the concept?

There are a few cases of wider design engagement in the area of power relationships between designer and user, noticeably in radical Italian design groups such as Superstudio and Archizoom but it is noticeable that there are a significant number of designers experimenting in practical terms without a significant amount of academic theorising within these areas. These include do/droog, Ron Arad, and David Crow, all discussed in the next chapter.

There seem to be a number of reasons for this lack of engagement in an academic context beyond those general points outlined above. The practical restrictions on architectural experimentation (of actually building proposals) are not so pressing for many areas of design. It is easier to explore in terms of small run/prototype rather than having to work on paper (or screen) than find a theoretical outlet for these ideas in the way that architecture has to.

The orthodoxy of design studies promotes theory in a particular way that is not easily compatible with an examination of the power relationships between designer and user. This orthodoxy declares that 'good design solutions are *always* based on and embedded in specific problems' (Friedman 2003: 511) my emphasis. This determinist position is reflected in the projected evolution of the design process in 'transition from art and craft practice to a form of technical and social science' (Friedman 2003: 515).

This position draws on the development of design methods and in particular Mark Rittel's categorisation of methodological development in generations. These are

First generation (or the 60`s were based on the application of systemic, rational, scientific methods. Second generation (of the early 1970s) moved away from attempts to optimize and form the omnipotence of the designer (especially for wicked problems (Cross 2000: 17).

A third generation is posited that will take a more communicative stance in achieving an optimum solution to problems, epitomising the user-centred approach discussed in the following chapter.

There is a tension here between the design orthodoxy with its scientific categorisation of design method championed by people such as Friedman who say that 'sound theory requires an engagement with empirical reality' (Friedman 2003:515) and people such as Richard Coyne who attack the promotion 'design-science' by people such as Cross (2000) and Friedman (2003). Coyne criticises this approach as a preoccupation with problems that (to him seem) 'unproductive, irrelevant or even quaint' (Coyne 2005: 13), countering with the argument that such positions only shift the debate to questions of definition. He says;

If a researcher is wedded to an authority inherent within a particular instrumental view of rationality, as resident in common sense logic, then the contingent and contested nature of professional authority may appear irrelevant. For such a researcher the question of how authority is derived or promulgated in design is not a matter for discussion

(Coyne 2005:14)

He goes on to acknowledge that the inverse of an overtly theoretical (hermeneutic/post-structural) approach is that such positions may not 'operationalise an intellectual position'. In a sense this is the core aim of this PhD thesis: to 'operationalise' ideas, to have a utility value to practical design in a way that recognises that the authority of the designer is an issue in a way that is not immersed in architectural practice but that engages with and challenges the border design establishment.

My position as a designer is also evident in the way this information is analysed and represented here. As a theoretical practitioner, I understand concepts in a spatial or dimensional way; this understanding is different to the linear understanding of conventional 'academic' interpretations. Relationships are fluid, negotiable and determined by readers as well as writers. This is seen in this thesis by diagrammatic representation or mapping of relationships between ideas that are not susceptible to a non-negotiable linear representation.

While some of the diagrammatic explorations included here are not within the conventions of academic exploration, they are appropriate representations of the labyrinthine ideas being explored and may be an example of the symbiotic relationship between theory and practice I am looking for, where design gives something to predominantly text-based theoretical traditions as well as drawing ideas from it.

Overview

Before using the title of this thesis as a portal or an access point into the project itself, it seems necessary to articulate in general how my view through this portal is coloured by the personal and professional context in which this project operates.

Design is a term that is quickly becoming ubiquitous in contemporary society. The term has its genesis in the Renaissance term 'disegno' meaning something more than drawing (Walker in Julier 2000: 32). Here drawing (disegno) is not a simple reference to a mechanical process. This term was used to communicate a meaning closer to planning; frescos would be drawn by masters and then painted by apprentices. At this time drawing connoted the separation of conceptualisation and implementation.

Henry Cole seized upon this distinction between ideas and execution in the industrial revolution in the UK when terms like 'Industrial Designer' were used to denote creative practices for industrial applications where the designer would only have a limited connection with the actual processes of fabrication (Julier 2000: 32). While this differentiation has established an underlying relationship for design and industry in the UK since the industrial revolution,

some fields such as Graphic Design have only relatively recently been termed as such, with Dwiggin credited with starting the redefinition of graphic artist into graphic designer in 1922 (Bayley 1985).

The establishment of the different categories of design was not backed up with legal protection (with the exception of architecture). This has resulted in a profession without fixed boundaries or accepted membership criteria. A definition based on self-labelling is problematic not only because there are activities such as illustration that, while rejecting design as a label, resonate strongly with the underlying ethos of design activity, but also because it gives authority to anyone who chooses to call their activity 'design'. The result of such a classification renders the understanding of design and designers as a discrete, hard-defined group untenable. This of course is the real-life position of the discipline of contemporary design, which in a sense can have no defined constituency.

The contemporary position of web designer is a good example of the broad spectrum of practitioners both with and without formal qualifications that call themselves designers. There have been a number of responses to the porosity of the design profession. One is to shore up the discipline, to attempt to introduce notions of scientific procedures and practices as both a basis of a research culture and barrier to casual entry into design. An alternative to this approach is to start to question the role of the designer and the need to privilege the position of designers in all forms of 'professional' design endeavour. Unsurprisingly it is science that forms the orthodox position within design studies, and it the argument against this which this research is contributing, (with many others' work) rejecting the notion of an orthodoxy built on hierarchy.

The establishment of this design orthodoxy is rooted in versions of 'design studies' at least as far back as Christopher Jones' work on design methodologies in 1968 and 1970. At that time he produced a number of definitions of design including:

'a goal directed problem-solving activity'

'the imaginative jump from present facts to future possibilities'

'initiating change in man-made things'

(Jones 1970: 3).

Jones recognises the last of these three definitions to be the most accurate but at the same time of little use as a way of discriminating, evaluating or progressing design studies. It is very difficult to think of any activity that does not fit into this definition of design. Jones modifies this in his subsequent description of designers as being in control or the instigator of 'the making of a long chain of interrelated predictions and specifications' (Jones 1970: 6).

This places the designer in an almost omniscient position of manipulating chains of predictions to achieve their desired outcomes and locates them as an 'auteur'. Conventional art-school education establishes this cult of the individual (an interpretation taken up by almost every branch of commerce to indicate difference and so desirability). Here the studio system encourages the adoption of design as a lifestyle rather than a professional activity with established working hours.

The characterisation of the designer as a lone outsider, a romantic figure able to channel creativity, is something recognised by Lawson in the appearance of designers:

their dress, demeanour and behaviour may be unusual and eccentric. In a way, this is understandable since it offers a way of claiming authority. What else is a designer selling if not his or her creativity (Lawson 2000: 261).

This results in the designer relying on selling him or herself as a brand to be associated with rather than necessarily the provider of a service. For example, a client gets the Philippe Starck experience rather than just one of his designs; his use of fax as a medium of communication is clever in this respect—the client builds up an archive of 'eye candy' throughout the process. Julier and Lawson have identified this exploitation of branding or affectation as a reaction to the lack of legal protection offered to the designer (excepting the architect).

The conventional identity of the designer as a romantic individual is under attack. The art-school studio system is not viable when regarded in comparison with other academic disciplines. The space and equipment required for design students is expensive. This resource-hungry activity requires design students to access resources such as workshops, computer labs, CAD and the new market-based attitudes of contemporary students, conscious of the resources available to them and the debts they are incurring, are all placing this system under pressure.

In some realms of design education, the romantic designer as artist is being replaced by the designer as scientist. In a literal sense, this is the case with the proliferation of Bachelor of

Science courses with a design orientation (with an element of chagrin I administer a BSc in Multimedia Technology and Design), but there is also a design orthodoxy that is increasingly building boundaries around an empirical, science-based approach to design and design research.

Institutions like the Design Research Society, the journal *Design Issues* and international conferences organised by the DRS, promoting the views of people like Nigel Cross, Victor Margolin, Richard Buchanan, and Ken Friedman, perpetuate this orthodoxy. The approach promoted by this orthodoxy is bent at all costs on establishing a defensible profession of design through the establishment of hierarchical structures of authority.

Anecdotally this can be seen in Ken Friedman's rejection of the relevance of promoting design theory for the readers of *The Sun* or that it would be possible to think of design methods and processes as something that could be accessible to the general population. This arises from a series of informal conversations with Dr Friedman at DRS Common Ground Conference, London 2003. This predication for a 'closed shop' over open participation is evidenced more formally in Richard Buchanan's warning to students not to discuss their methods of designing in his paper 'Wicked Problems of Design Thinking' (Buchanan: 1998). This article suggests that the complex nature of design procedures places the designer in a position of unassailable authority.

Lawson's *How Designers Think* (2000) demonstrates another aspect of this attempt to locate design within an exclusive professional identity. In this book, the chapter on working with others concentrates almost exclusively on how other designers can co-work in teams and even within a section, on participative design. He sees the role of the non-designer as being limited to

comment on alternative courses of action devised by the architect (Lawson 2000: 3).

As Lawson says later in his book:

one cannot help but see the designer at the centre of the design process. (ibid.)

One could agree wholeheartedly with this, but perhaps by changing the emphasis of the original. The assertion here is that some designers and certainly the design orthodoxy cannot help but place themselves at the centre of the creative process.

While for some activities this may be appropriate, the assertion in my thesis is that such a 'guild' mentality will come under increasing pressure in practical terms as the means of production become more accessible to the everyday user. More importantly, it misses the opportunity for designers to engage with users over the full spectrum of human activity rather than those limited situations where economics and social circumstance place the designer at the centre of the creative process.

Underlying the argument of this thesis is a political engagement with the interplay of democracy and personal freedom, the communal will set against an individual one. These issues clearly interrelate but as Simone de Beauvoir points out in her essay 'Must We Burn Sade?' (de Beauvoir 1991), personal expression taken to extremes leads us to the Marquis de Sade, while alternatively an adherence to a world democracy would necessitate a grey-goo of conformity and consensus. The philosophical underpinnings of Sade are not uninteresting with respect to Sade's McLuhan-like message influencing the medium (Sade's texts are an act of torture perpetrated against the reader) (see Airaksinen 1995) and taking an opposing position there can be great comfort in conformity. The route taken between these two extremes is personal, but has profound implications for the designer.

The apparently oppositional, binary relationship of individual freedom and common consensus is disrupted by their common problematization of hierarchical structures; questioning hierarchy is a very important facet of this work. It is worth here taking the time to establish how hierarchy is defined in this context. Hierarchy derives from the Latin 'hierarchia' and from the Greek 'hierarkhia' meaning 'rule of high priest'. Contemporary definitions describe hierarchy as

A body of officials dispersed organically in ranks and orders each subordinate to the one above it. A body of persons having authority

(Webster's Revised Unabridged Dictionary 1996).

These definitions indicate hierarchy as describing both an elite body (originally angels or priests) and a more distributed arrangement of authority. It is also perhaps significant that hierarchy derives from ecclesiastical origins where authority (at least of God) is unquestioned and omnipresent. The perceived universality of hierarchy is evident beyond theology in Herb Simon's research in the 1950s in business structures; his analysis resulted in a claim that *all complex systems are hierarchical* (cited in Agre 2003).

Stepping outside the design-centric academy for a moment, conventional marketing frames its discourses between producers and consumers in hierarchical terms. Vance Packard's *The Hidden Persuaders* (1981) first published in 1957 was groundbreaking because it articulated these hierarchical relationships. He demonstrated that people willingly obey commands because they see the exercise of power as legitimate (R Keat *et al.* 1994: 45) establishing systems where people 'naturally' slot into their hierarchical position.

The assumed necessity of hierarchies and indeed the hierarchy–non-hierarchy binary relationship is open for reassessment in design as in other related disciplines such as Consumer Studies. In consumption and advertising, the buyer/user is now seldom seen as someone subordinate to the wishes of the advertiser, going beyond Packard. Buyers are increasingly seen as someone in a negotiated relationship with a brand. This knowing relationship acknowledged by people like Myers and Keat in the advertising industries moves away from hard selling to building brand relationships (Myers 1999, Keat *et al.* 1994).

The branding of designers can result in an excess of image over substance but it has also resulted in more participative approaches. As consumers are more desensitised to hard selling techniques or promotion, outlets such as Ikea promote a more participative brand/product. Customers are involved (in a spectator capacity) in the decision to charge for delivery and Ikea's flat pack distribution through information in stores, catalogues and online. Advertising campaigns offer the potential of an individual changing their living spaces in a multitude of options using Ikea products. The noticeable thing about these campaigns is that these options are very much within the grammar of use (and good taste) determined by the shop. Spaces remain light and airy, and 'sound' compositional values are upheld. Like Lawson's approach to participative architecture Ikea are asking customers to select from a small number of pre-packaged options (identities/product lines) rather than any substantive participation or engagement with creating individual environments.

Ideas developed in the work of Foucault (1991) and Lyotard (1984) mirror this negotiation of power relationships (or authority contexts as Abercrombie (1994) calls them). For Foucault authority is seen as part of an interrelationship of forces equally dependent on each other rather than a linear or pyramid structure with force flowing from the top down. For Lyotard authority is shifting from conventional locations (the nation state) to more flexible organisations (the multinational) and is symptomatic of a fragmentation of hierarchical relationships. He classifies this shift as a move from meta-narratives to mini-narratives. Heidegger's challenging of hierarchies takes a complementary track to these views of power and hierarchy; he attacks the overt hierarchy of artistic endeavour created by Kant in his *Critique of Judgment*

(with poetry first and architecture, tainted by commerce, last).

This underscores Derrida's constant challenging of hierarchies, binary relationships and assumed dominances. This PhD thesis attempts to follow a similar program inasmuch as it is seeking to challenge hierarchies not in the sense of rejection, but with the aim of testing their validity and possibly reframing the debate in such a way that neither designer nor user is hierarchically dominant or indeed in a hierarchical relationship.

In reflecting on the challenging of hierarchical relationships, the notion of undertaking a PhD itself becomes potentially problematic. A traditional PhD thesis is an articulation of the centred voice and of an individual being the master of their subject, of occupying a dominant position in the existing scholarly activity in their selected area of interest. As my thesis focuses on analysing ways in which 'theory' has entered into design practice, and conversely where practice has influenced theoretical understandings, a deep appreciation of these processes necessitates an approach that neither privileges, or seeks to dominate 'theory' or practice. One of the aims of this PhD is to seek ways of contributing to the extant body of design knowledge without assuming a hierarchic position.

This section examines the adoption and development of research strategies and methods that facilitate research through design practice, as well as through theoretical investigation in order to generate an inclusive rather than defensive approach to research. It welcomes into the project other (undefined) knowledges, understandings and activities rather than drawing a hard, impenetrable boundary-wall around this project intended only to allow access from a limited, predefined direction and to repel all other advances.

Such an open approach seems inevitable if one is to take the exploration of the questioning of hierarchy seriously. Particularly important in this structural respect are the ideas of Deleuze and Guattari and their championing of the virtues of 'sidling' or moving obliquely into problematic areas and creating porous boundaries for the specific purpose of infiltration by unknown influences beyond the control of the original explorer.

Such a flexible, hospitable approach to research has to be balanced by its location within the academic discipline. While reflection on research methodologies is important and may be a topic of further study at another time, this dissertation is still more exercised by the *actual* exploration of the topic than an exploration of how such an exploration could be framed. As such, it is important to determine how this project fits within established research methodologies.

The role of practice in design research also demands attention. While in many more established academic arenas (often with prescribed didactic research methods (such as physics or chemistry) the distinction between theory and practice is not an issue, the exploitation of theory within design research and the position of theory is still a contentious issue.

One of the problems of regarding design practice as 'scientific' is that while the scientific method is predicated on the principles of repeatability and objectivity, design in general is *dependent* on neither and indeed through the valuation of creativity and fitness for purpose, it favours subjectivity and specificity over objectivity and repeatability. There are a number of research methods from the social sciences that seem to be more appropriate for this study.

One research methodology considered was Grounded Theory. This is a research methodology devised specifically to address and contribute to subjective situations or specific contexts that do not necessarily lead to broader universal conclusions. Grounded Theory is problem finding rather than problem-solving and is characterised by an open search for theoretical explanations rather than an engagement with specific pre-existing theoretical models (Robinson 1993: 60). This has advantages in that it has clear resonances with the specificity often crucial to design practice, but there are problems in that this PhD thesis is starting from a polemic position both in terms of theoretical standpoint and further development (more of this below). This research is also in tension with grounded theory in that it is seeking wider application beyond a specific situation. This is a strategic decision to attempt to position the project as something that has a positive wider impact rather than remaining so specific that it loses relevance to almost everyone.

An alternative approach to Grounded Theory in a different branch of post-positivistic research is Action Research. This was developed in the first instance in the 1930s by Gestalt psychologist Kurt Lewin. This approach accepts that the researcher cannot stay aloof from research that is subjective in nature and that the researcher should examine the research and reflect further developments in the continuing research. These dual aspects of a rejection of the researcher as objective, superior, observer and the iterative basis of the methodology made action research an object of further study for this research project. Lewin's perception of Action Research processes as being inherent to the promotion of democratic processes in wider society mark action research as the natural research method for this PhD. Action Research is accomplished through a cycle of

reflection –planning-action – observing – reflecting...

This cycle, involving reflection and further planning, enables the research to develop in response to initial findings, reflecting the changes of priorities within a research project rather than imposing a pattern on the research project and only evaluating its effectiveness at the end of a study. This process is conventionally collaborative in nature and leads to dual outcomes of research (relevant to academia) and applications that are relevant to the members of the collaboration and the wider society in which the Action Research is taking place.

While there is clearly the potential for a relationship between design processes and Action Research, the nature of this relationship is open to debate, as is the specific role of design practice in the action research process. Some academics such as Mike Press argue that design is research: 'A designed object is a researched proposition for changing reality' (Press 1995: 234). Carl Swan unambiguously declares that 'the design process is a research process' (Swan 2002: 55). The book *Action Research* by Boyarsky and Murphy (1998) assumes a series of architectural projects are examples of Action Research without regarding this at all. There are dangers in designating all design activity as research, as we have seen it is difficult to define design and so the term 'research' in turn would become almost meaningless.

Geoffrey Caban distinguishes between the intentions of the designer and the use of design practice to develop new knowledge as well as new products in the process distinguishing research as either part of the practice of design or knowledge that would have wider applications.

What is needed for effective translation [of design practice into knowledge building research] is a higher order of design-knowing which helps to convert the situation-limited action research into strategic of applied knowledge

(Cited in Swan 2002: 60).

In essence, Caban is recalling that the dual outcomes of something with utility values to the contributors to the research and the generation of more widely applicable knowledge-based outcomes are equally important. This more rigorous position is more sustainable in the light of sceptical attitudes towards designers as romantic individual creating wholly subjective research accessible only to themselves. This underscoring of dual research outcomes, practical and knowledge bases, leads to the questioning of design practice itself as research. As Bob Dick says

Action Research and some forms of practice are in some ways similar...however, most forms of action research are more deliberate in their pursuit of understanding.

The process of action research (reflection – planning – action – observing – reflecting...) is evident in the structure of this PhD on a number of different levels. This process occurs within the chapters of this project and is especially evident in the design development / reflection of Chapter 4 'Deconstruction and Design'. The iterative, modifying cycle is also clearly represented in this research project as a whole, in the development from early interpretations of philosophy to the challenging and reappraisal of these early interpretations through practice and more formal published research papers.²

With my research methods established, the title of this dissertation invites closer inspection. It is worth taking time here to unpick some of the issues woven through the words used for the title 'The Development of Design Strategies that Promote the Engagement of Users in the Authorship Process'.

'The Development of Design Strategies that Promote the Engagement of Users in the Authorship Process'

This is a part of the conventional design process; this would normally result in the proposal of a wide range of different ideas that would condense down into one or two ideal solutions. In this respect, it places this thesis clearly in the creative realm.

'The Development of Design Strategies that Promote the Engagement of Users in the Authorship Process'

Taken from design studies (e.g. there is an MA in Design Strategy and Innovation at Brunel University) here this phrase denotes a metamorphosis in the understanding of the boundaries and aims of the PhD project. Initial proposals took a strategic approach to designing specific artefacts. I was trying to develop and apply general principles to the design and use of objects. My priorities became more tactical (in de Certeauian terms) that is, developing specific examples that challenge hierarchy in specific instances. This development continued until finally I have adopted a more strategic view, exploring the flexibility of the frameworks in which creation takes place rather than looking at specific artefacts. To qualify this, my current work involves developing design through the creation of systems that promote the design of 'things' initiated and controlled by others. It further suggests that this system is also subject to mutation/modification. It is a tactical response to the process of designing rather than to the creation of specific artefacts. In essence, this is analogous to the Situationist activist as an 'explosive detonator', as a catalyst for reactions of unknown dimensions and magnitude.

² Looking on a larger scale this cycle of action, observing, perfection, planning can be seen in my academic development, from a first degree in 3D Design to a reflective, theoretical Masters in Visual Culture to this PhD and onwards to (probably) more action/practice based activities in the future.

Most importantly, frequent critical reflection is a formal and central part of most action research'

(Cited in Swan 2002: 60).

The crucial aspect here is critical reflection beyond the (often extensive, erudite and sophisticated) reflection concerning the objectives of the design that is crucial in my conceptualisation of design as research. My position is that I am consciously not a 'pure' industrial practitioner; I consciously direct my design activity to solve problems that are both practical and theoretical in nature. This has resulted in cases where designs have split into two strands of activity: one to please industry but the other to engage with the conceptual / theoretical issues at hand.¹

Bruce Archer has proposed a series of criteria for the categorisation of design practice as research. He claimed the project must be able to answer the following questions:

Was the activity directed to the acquisition of knowledge?

Was it systematically conducted?

Were the findings explicit?

[Could someone] replicate the procedures; rehearse the argument concluded and come up with the same conclusions?

Were the findings knowledge rather than information?

Was the knowledge transmittable to others?'

(taken from Archer 1994: 10)

Following these distinctions (which seem a sensible definition of research with utility value), the preoccupations of industrial design (solving a specific problem) becomes problematic as Archer's requirement for research to involve the creation and dissemination of knowledge is not something that a conventional designed artefact can or would necessarily want to achieve. The advantage of Action Research is that it facilitates the dual creation of designed artefacts and accompanying research that explore the same ideas and have the same conceptual depth, but in the case of design, this depth can be implicit. Users certainly do not need to realise that they are engaging in a post-structuralist debate to use the products described here. Importantly this lack of exposition in the use of artefacts is not a 'dumbing down' it is simply an acknowledgement that the Action Research has different preoccupations. Formal research outcomes have a utility in influencing subsequent design projects (either my own or others) or other theoretical constructions.

¹ An example of this can be seen in the C Space project described in length in chapter 7

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Taken at face value, promotion (and the implied tension with relativism or pluralism) is problematic for a project exploring post-structuralist ideas. From Heidegger's assertion that fundamentally all principles are, in fact, unprincipled, to Derrida's 'undecidables' (1997), 'taking a position' can be seen as a target to undermine rather than something to propose. Indeed one of the aims of Roland Barthes' proposal for 'writerly writing' (1977) was to specifically preclude unambiguous textual arguments.

There are counter voices to these established theoretical positions, Zygmunt Bauman in *Liquid Modernity* (2000) argues that consumers now have too much freedom and that a mediated position between individuality and direction should be adopted.

There are no autonomous individuals without an autonomous society, and the autonomy of society requires deliberate and perpetually deliberate self-constitution, something that may only be a shared accomplishment of its members (Bauman 2000: 40)

Users are both encouraged and provoked to get involved, to exercise their options and move into a more interactive mode of operation. In this context, the interaction is ultimately between designer and user but a more sophisticated view would include designers, problem authors, problem-solvers and users. Chapter 2 explores some of these complex interrelationships.

Selecting 'user' rather than 'reader' or 'owner' indicates the utility of the material 'things' that form the interface between creator and recipient. The use of the term 'interface' has evolved during the development of this research, now users are more likely to take advantage of a structure to create their own 'things' rather than interfacing with a final artefact.

Sony's Go Create branding exercise and Apple Computer's shift of emphasis towards home creation with the production (and free distribution) of a suite of film editing, image manipulation / archiving, DVD authoring and sound applications, all integrated to give users (in theory) the power to publish very easily their own multimedia artefacts exemplifies this

notion in a commercial context. One could argue that this move into 'user led' approaches is driven by the fact that an outcome of the predictions of Moore's Law is production of home computers with spare capacity, and to exploit this capacity software developers are increasingly promoting the creation of users.

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This indicates the transformation from concept to thing; partly this is in resonance with Barthes' 'death of the author, birth of the reader' but also because the notion of reading 'things' even if they are architectural or furniture was very important in the inception of this title. The idea that meaning is a central part of use, of sitting, of getting on with your work, is a legacy of the philosophical roots of this work.

'The Development of Design Strategies that Promote the Engagement of Users in the Authorship Process'

This research and the interaction of users and designers is part of a process. It is a living dynamic iterative course of action that must inevitably be seen as something punctuated by the process of writing up rather than being something that can be neatly concluded.

The dynamism of the picture presented here is also evident in the strategies in play and in many cases the technology that enables these strategies. For example, War Chalking (2004) mixing vernacular graffiti notation with illicit access to commercial wireless networks is a contemporary phenomenon, even though conceptually it draws on hacking activities as far back as John Draper and Steve Wozniak's phone phreaking in the 1970's and the iconic notation used by Hobos in the USA.

Similarly, contemporary communication strategies (especially within telecommunications and the Internet) now use ideas published in 2000 (Cruickshank and Barfield 2000) as part of this research. These papers did not directly precipitate these technical developments; rather they are evidence that this was part of a groundswell movement. These strategic, time-sensitive contributions continue with papers presented on telecommunications possibilities that will form part of the industrial body of knowledge informing future developments, while at the same time forming part of an overarching philosophical investigation.

My chosen response to this changing context is to map these changes and the context in which my particular investigation operates, which documents my literature review and some

of the research that has arisen out of this investigation. This draws on a number of specialist disciplines including philosophy, design theory, politics, product design, information / communication design, social activism and DIY. While this thesis contributes to and exploits the ideas of these disciplines, it does not seek to encompass or represent any one discipline in its entirety.

Chapter 2 Literature Review

With the overarching aims of this research project established, this chapter develops these concerns by exploring the context in which such a project is situated. This context consists of conventional literature (books, journals, web resources) but also includes designed artefacts, workshops and other activities that establish a critical dialogue between user and designer. It is important to stress here that the text below is *a* context (the one I have used or constructed) rather than *the* context for this project an attempt at a non-subjective approach, construction or self-evident structure. Such a definitive, exhaustive contextualisation is counter to the open, anti-determinist, polysemic approach adopted here.

In addition to this inherent flexibility, a project such as this, ranging across philosophy, design theory, radical politics, design practice and consumer studies has to exploit these in a selective manner. This process of selection, starting from a set of broad criteria, can be thought of as a series of filters isolating a number of different approaches to the problematisation and exploration of the user \ designer relationship. The first section of this chapter explores these filters, their derivation, their relationship with each other and their use in focusing the very broad thesis title into a manageable project, albeit with many interesting, yet-to-be explored, offshoots.

This framework of investigation evolved with the project and my understanding of the subject, as described in the introduction. This started with an interest in the different understandings and processes of challenging hierarchical relationships and specifically the application of these understandings to the designer \ user relationship.

As my research continued, four interrelating responses to hierarchical relationships began to come into focus. As with any categorisation, a certain amount of violence has had to be done to the subjects of categorisation. As Wigley (1997) points out this violence can be used as a positive force. The tension between categorisation and the 'real' meaning of the ideas represented (arbitrated by you the reader) should be seen as a provocation. These ideas are taken further later in this chapter. To mitigate the tension of categorisation, the contents of the four categories or filters are not mutually exclusive; ideas, projects, topics, people, can appear in more than one category and often straddle categories. There is also the potential for influences to be outside these constructed categories while still being associated with a particular mode of engagement with hierarchical relationships. The categories used here are:

User-Centred

Taking its title from Jorge Frascara's *User-Centred Graphic Design* (1997), this approach is where the debate around the relationship between designer and user enters the realm of mainstream commercial design. The user's requirements and needs are accounted for in the design process. This is the predominant ideology in design journals such as *Eye*, *Design Studies* and *Design Issues*. In this approach, the creator orchestrates and ultimately dictates the process accommodating the user's desires where they decide it is appropriate.

User-Led

In this category, the designer is not in control of the outcome of the design process. Their role is to work with the user but not to dominate them. The outcome of the process is the joint responsibility of the user and the designer, but of course in most commercial instances there is also a problem-initiator or client involved. There are complicated issues relating to power and authority attached to this approach.

Vernacular

This celebrates the activities of the non-professional designer. These are creative processes and outcomes not controlled by a professional designer or anyone who has progressed through the art school academy. This could be spontaneous creation of graffiti, the occupation of and use of printing presses in 1968, the 15-year project of Constant's *New Babylon* (Wigley 1999), or the self-painted signs in Uganda, or movements including Adhocism, Non-Plan and Arte Povera. The distinction between professional and non-professional designer is often a grey area especially within non-western societies (Stairs 2001: 70). This categorisation explores the production of artefacts outside professional design activity.

Obscuring

This final category may be a somewhat contentious classification, as it reflects my understanding (reinforced by others including Broadbent (1991), Culler (1994), de Certeau (1988)) that there is an area of activity that chooses to highlight the problematic nature of the user \ creator binary by problematising the interface between these two. This could be the reading of a text or the sitting on the chair. It is through this difficulty that the user (or reader) is provoked into thinking about the relationship of creator to user. The explicit, enforced negotiation of meaning obscures the surface or physicality of the text or building or image. This has its roots in the more overtly philosophical approach to this investigation and in some design, artefacts following this line of thinking are seen in the works of Peter Eisenman, Bernhard Tschumi, Zaha Hadid and Daniel Libeskind (Papadakis 1989).

This post-structuralist approach argues that meaning is negotiated, not implicit within the text (text here can be a building as easily as a sample of writing). One way to make this act of negotiation explicit is to exasperate the negotiation, to produce a text that is immune from an unconsidered generation of meaning in a user. The argument is, in effect, that the clearest, most honest way to communicate is to acknowledge the opacity of meaning by overtly obscuring the apparently obvious first reading one has of a text, and implied within this that the obscurity or lack of it is determined at the point of creation. This leads to the creation of texts that have to be wrestled with, sentences lasting pages, arcane foreign words used in a text, Peter Eisenman's House VI splitting the living space in half with a 20 cm slot running through the house (and furniture, including the bed). This category has attracted this classification not because of the complexity of the ideas represented but because of the recognition of the negotiated nature of meaning and its strategy of 'writerly writing' into the form of the construction of the argument as well as its content.

The intention of the authors of 'obscuring texts' is that the act of overcoming these obstacles forces the user to think about the text and develop their own interpretation of it. The problem with this aim is that these hurdles exclude people who may not be able to understand that the text is a provocation. Uninformed readers may consider it simply bad writing/architecture/design or might choose not to be provoked and leave the text unread. An obfusca-tional approach establishes a binary opposition: those who can pass into the text and those excluded by it, undermining the empowering aspirations seen throughout this area of thought.

While the text below describes the content of these categories, graphic representations demonstrate the relationships between categories and their contents. These graphics can show not only the categories but also their relationship to each other and how the contents of each category relate to, and differ, from each other both within and across categories. While a lengthy conventional text could accomplish this, there are a number of reasons why a hybrid approach is more appropriate. Not least of these reasons for a graphic representation is that as a theoretically aware designer I conceive of the relationships between the contents of this literature survey in visual terms.

There are also less personal reasons for the use of a spatial representation of the foundations of this thesis. As Wigley (1997) draws to our attention, the very notion of a 'foundation' or 'basis for further study' is inherently spatial (and he argues, reasonably convincingly, architectural) in nature. Deleuze and Guattari use the spatial as a vehicle for describing complex,

abstract ideas (1996). In their writing, there is a continual use of spatial frames of reference (itself a diagrammatic allusion) in the use of plateau, trajectories, planes, and conjunctions, diagramming, mapping or straddling. In this respect, the thinking of Deleuze and Guattari has had perhaps the most impact of any of the research undertaken here on the structure or form of this PhD project rather than its contents.

Within design, graphic descriptions of theoretical contexts exist in several instances of Charles Jencks' work, notably in *Architecture 2000* (1971: 46), but also in the *Language of post-modern Architecture* (1987: 80). It is worth raising these examples, especially the former, as they were 'specific predictions'. The graphic elements described below are not statements of how I think these factors should relate to each other, or even necessarily objectively the most important factors. They are the factors that have stimulated my understanding of the area.

Here I have followed Vidler's *Diagrams of Utopia* (2001) and called this graphic representation a diagram. In this essay, he describes the use of the diagram as a 'map machine' which Deleuze uses to specify the conjunction of the visible (space) with the invisible (language) (Vidler 2001: 86). This analysis, drawing on Foucault (1980), in addition to Deleuze and Guattari, is promoting a Utopian construct. This PhD thesis has aims that are more pragmatic; as such, it could be argued that 'plan' would be a more appropriate term.

While there are deterministic overtones to the word 'plan' and especially 'Plan', the soviet Five Year Plan, town planning, especially in Highmore's *The Death of the Planner*¹ (2000) it is a useful concept here. Plan is a strategic (or literal) overview but also a projection into the future, which in this case is a group of associations that I have established, but may or may not match other perceptions.

The 'plan' is also associated with the orthographic projection of the design of physical artefacts. This physical aspect of design has been very important in the research of this PhD project. As we have briefly mentioned, Mark Wigley has argued that philosophy and architecture have an often-unacknowledged interdependence (Wigley 1997). While the 'violence' Wigley applies to texts to get them to fit his thesis is evident, it is undeniable that many (all?) of the theorists discussed below rely on spatial concepts.

A graphic representation, whether a diagram, plan or map, raises some issues. There is a danger that the representation of this topology could be regarded as an ideal, fixed abstraction of the ideas under examination. This explicitly structuralist notion of the fixed structure

¹ As he says, do not say town planning, say preventative policing (Highmore 1971 : 162).

seen, for example, in Lévi-Strauss` diagrams in *The Raw and The Cooked* (1978) is the antithesis of the aims of this research. Similarly, Michel de Certeau (1988) criticises mapping in relation to human activity (and all representation) as erasing the real by missing, on a tactical level, the human element of passing by.

In this instance, play is important in combatting these potential problems. Play in terms of

Flickering – the light played around the room

Flexibility – The joint has too much play in it

Interaction – ‘Mum, Paul will not play with me’

The plan presented here is playful inasmuch as its meaning intentionally flickers. This flexibility accepts and welcomes interpretation, and even physical modification.

This play between meaning and artefact is facilitated by the non-linear nature of the plan, and graphic information in general: unlike most word-based descriptions, the plan has multiple entry points and a multitude of paths through it. The diagram includes a very small number of these paths and invites additional connections. The plan also offers a complementary method of navigating around this PhD project as a whole. As an alternative to the linear structure used in the textual component of this project, it can be used to construct individual progress through this research.

The graphic nature of this description can also clearly demonstrate some of the irregularities and inconsistencies of classification that would be more convoluted using a textual description. Here it is relatively straightforward to show incursions, concepts straddling categories, ideas outside categorization or existing in different categories at the same time. This visualisation is an invitation to interrogate and express your understanding rather than an imposition of the relationships between the materials investigated here.

The diagram starts like Deleuze and Guattari’s *What is Philosophy* (1994) with a plane taken.² This plane is the filter described above, it is a receptacle for ideas that engage with the challenging of hierarchical relationships. A circle (fig. 2.1) establishes the scope of this PhD project within this infinite plane. This sets up a binary, inside/outside and establishes a locus—a circle is defined by its centre. This hierarchy is balanced inasmuch as primary interest is focused on the boundaries of this representation, on the straddling or passing between boundaries.

Plain of engagement with designer\user hierarchies beyond this PhD.

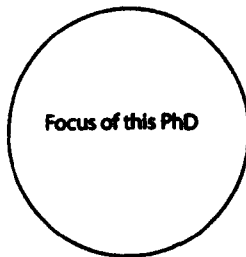


Fig. 2.1 The initial ground/focus relationship

² Actually, in their terms, an individualising persona, my selection, regulation and realisation of this project prefigures the plane.

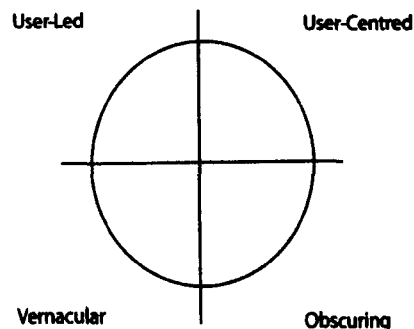


Fig. 2.2 Categories of interest

This porosity of boundaries is complemented by a rejection of the centre as the top of the hierarchy. Here the centre denotes the ideas that challenge hierarchy in a less interesting way or weaker way, and the closer content is to the centre the more it is directed by a hierarchical author in the author (designer)/user relationship. In this sense, there is a desire for the content of this diagram to move away from the centre, through the artificial boundaries established by this diagram, outside this diagram, beyond my documentation or classification.

Within the plane, centred on the circle but also extending beyond it, are the four categories described above (fig. 2.2). Each of these has a spatial relationship with the other. While they are not opposite each other (they all challenge hierarchy), they are contrary to each other in that they take different, occasionally violently opposing, approaches to how hierarchy should be challenged.

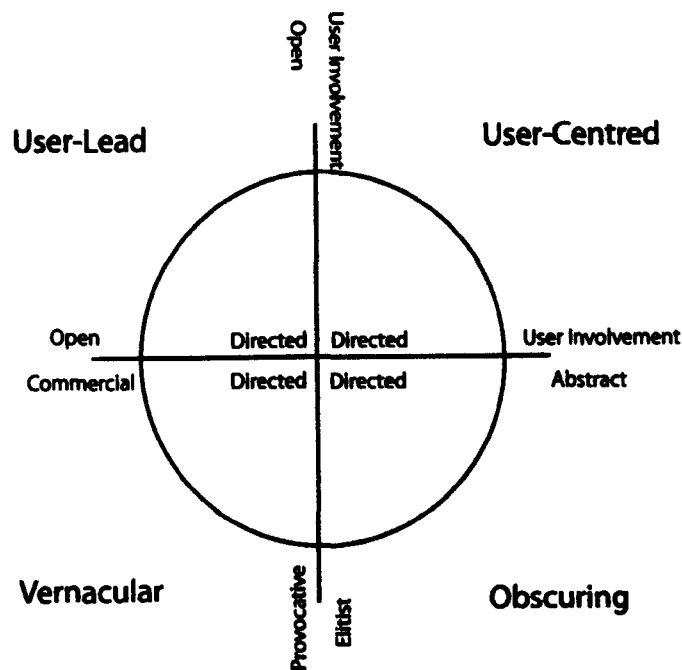


Fig. 2.3 Axes of variation

While each of these quadrants vary, more directed at the centre and less directed at its boundaries and beyond they have axes of variation that overlap with and compliment this overarching field of influence (fig. 2.3). The combination of these locates the ideas, projects and people within the plan, establishing a context for this research.

Two of these quadrants (user-led and user-centred) have axes that correspond very closely to the overall open-to-directed variation seen across the plan. These categories contain the more mainstream responses to hierarchical relationships. The two other categorisations, Vernacular and Obscuring, represent more radical responses to the question of user \ designer relationships. These categories have axes of interest that not only differ from the overall open-to-directed axis as there is also variation throughout the radius of the quadrant. Each arm of the quadrant has a contrasting axis of interest.

Vernacular

This looks at the undermining of designer \ user relationships through the removal of the professional designers input altogether. This quadrant has two axes peculiar to it; one axis shows an engagement with the commercial world, with commerce having a decreasing influence with distance from the centre. The second axis indicates the degree to which the user-as-designer adopts a provocative stance, of not using professional means of production as part of a wider (anti-) political agenda. The further away from the centre the less directed by professional conventions the projects are, and the more provocative their aims.

Obscuring, in problematising the relationships between user (reader) and author (designer) makes the interface between these two obvious through making passage between the two difficult. Ideas in this quadrant can be located using two axes: abstraction and elitism. It is entirely fitting that much of this description and categorisation of obfuscating is contentious, open to counter-argument and contrary to some of the literature contained within it.

Differentiated here are elitist and abstract approaches. In elitist approaches, the field of contestation (the challenging of hierarchies) is contained within academia and does not engage with wider audiences.³ Abstract approaches, while remaining 'obscure', do so in a way intended to include and stimulate beyond academia.

With the basic framework of the structure established, the diagrams below describe how the disparate elements of this project fit together in a coherent way. A number of conventions have guided the placing of content within the diagram.

The more important the idea, movement, person or concept in the diagram, generally the thicker is the border surrounding it. White text on a coloured background denotes a personal design project discussed in more detail in subsequent chapters. Some links between content that are not topographically close to each other have been included. Content that crosses axes is generally more interesting than those fully within category boundaries.

With the structure of the diagram defined, the fully populated diagram (fig. 2.4 overleaf) becomes more straightforward to navigate around and interpret. There is a need to address briefly the temporal nature of the diagram. The plan here is an overview of influences and context from today, back to the start of this research project. The influences on this PhD thesis changed throughout this project and obviously the weight of influence for each piece of content changes over such a period. For example Derrida shown in the diagram fig. 2.4, here was, at the beginning of the project, a very important influence. He became less influential in the middle of the project only to re-emerge with a different appreciation and so in a modified position. Similarly I started the major component of one of the chapters below (C Space) twelve months ago, changing the components in the diagram and the subsequent interconnections between its components.

³ The implicit danger with this approach is that hierarchies are reinforced by investigations meant to question them.

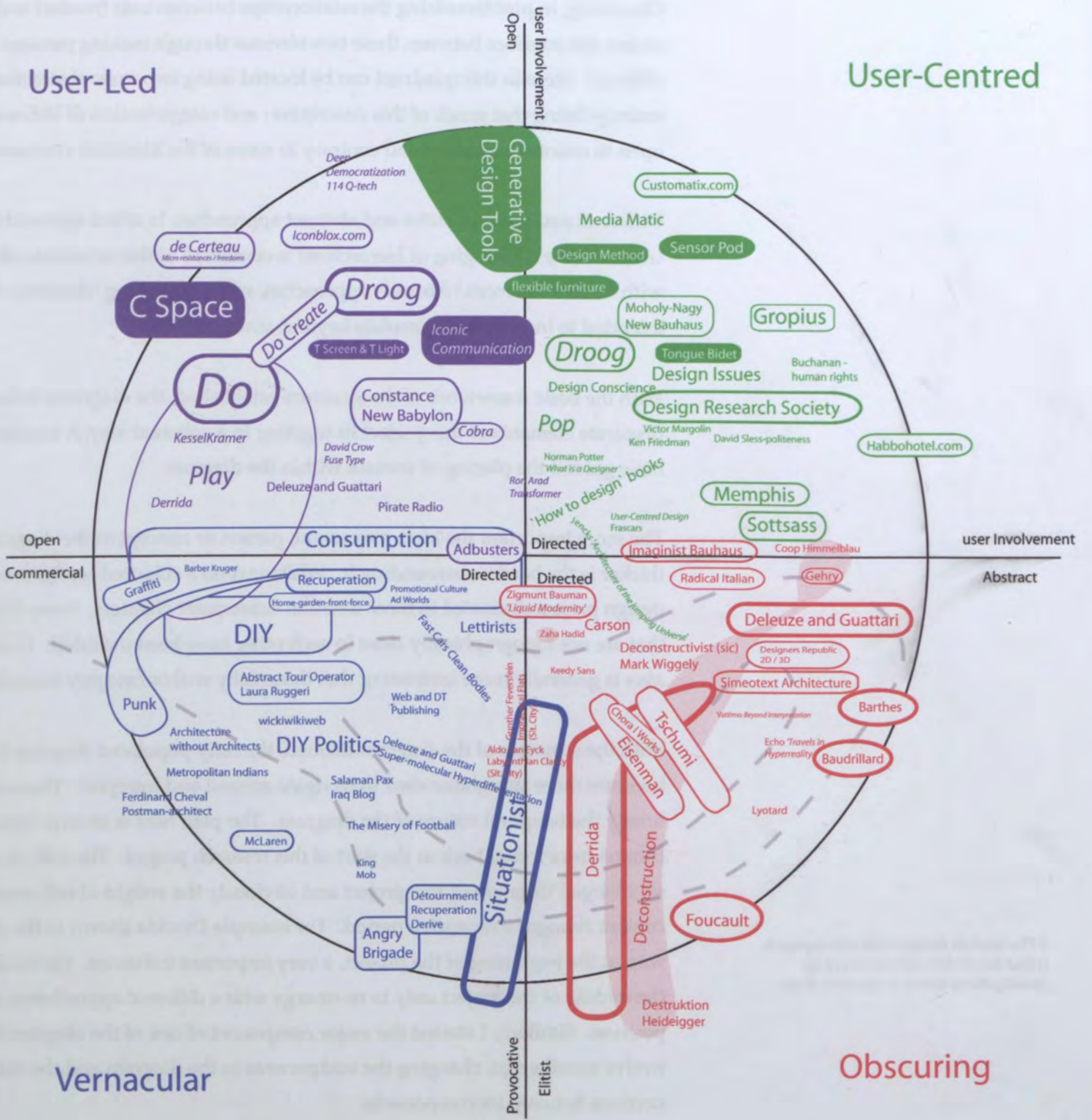
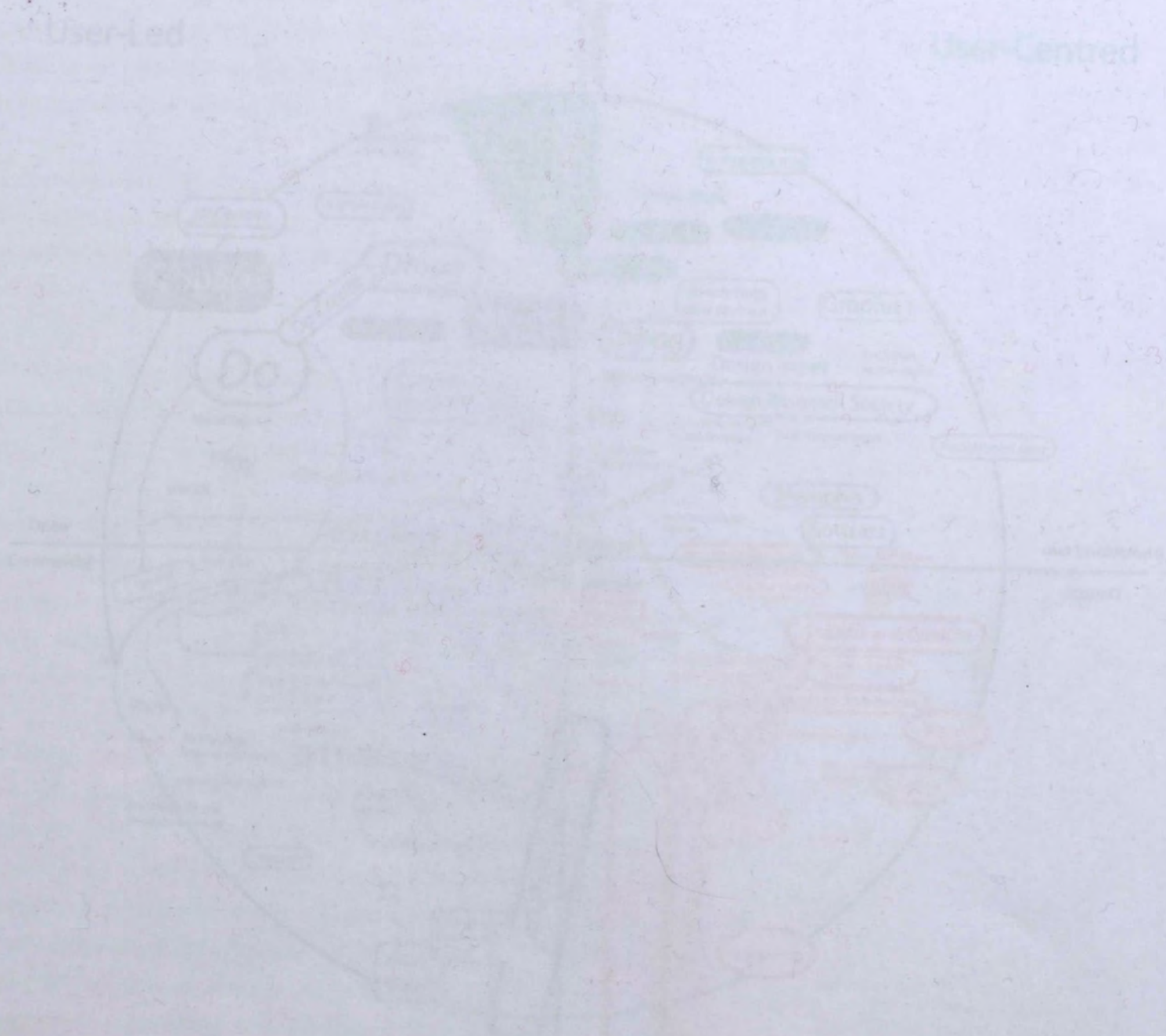


Fig. 2.4 Fully populated contextual diagram



This base layer of this diagram (shown on this page) is described in some detail in this chapter. This however is not a full description of the nuances of this diagram. The series of overlays on the facing pages give an indication of the different ways in which this diagram can be read, each one showing a different aspect of the diagram beyond the text descriptions included in this chapter.

11st2

Fig. 2.1 Early populated conceptual diagram

Play here is playfulness rather than necessarily 'gaming' (which stretches right through consumption into very directed territories. User-Led Play includes the playfulness of Derrida's undecidable. Playfulness extends into consumption, funding shops like the Gadget Shop and Accessorise

Vernacular play sees graffiti turning from play into a commodity, and Kruger playing with consumption, the textural and visual language of consumption, explicitly through artworks but also through *The Economist* aesthetic she developed in an act of détournement of her earlier commercial work.

The sweep of deconstruction flows from the ideas of Martin Heidegger (outside my interests at the moment) into Derrida and contemporary continental philosophy. Deconstruction is intimately associated with Derrida in a sweep of obscuring texts from elitist articulations of deconstruction towards more dogmatic (directed) interpretations that signal the junction with deconstructive architects that are less elitist, in that more people have access to their creations but also more dogmatic in their interpretations of deconstruction. There is evidence (described in Ch. 3) that Derrida's ideas extend beyond the agendas of these architects, towards more underground sensibilities of groups like Semiotext Architecture. As Deconstruction becomes more abstract it crossed one of Deleuze and Guattari areas of influence moving across into user centred interpretations of deconstruction with Coop Himmelblau where issues of specific context and society socioeconomics have an effect on design as well as the (post-) structural concerns with form and space.

These websites are placed on the boundary of this diagram because while they are commercial products the degree of choice offered by them almost allows users enough freedom for them to not be led but to create something ostensibly independent of the design team responsible for the website. Habbohotel achieves this to a greater extent.

This shows the span of the impact of digital technology. Here e-commerce sites like customatix and the habbohotel (an environment in which your avatar can buy virtual goods and services) are linked to useried physical / virtual sculpture (Iconoblox) to vernacular activity outside the influence of designers such as blogging andboth physical and web DTP.

Chronographically this connects my practical design work contributing to this PhD. This starts with the playful, provocative semantically charged tongue bidet. Over time, narrative flexibility moves into physically modifiable products (sensor pod) and into the dual outcomes of proto-products (in T Light and T Screen) and moving beyond population to structural modification to C Space.

This is a cyclic link. It documents a relationship between the key points of the situationists, Punk and consumerism. It is the concepts of D etournement and Recuperation that move between and bind these concepts together.

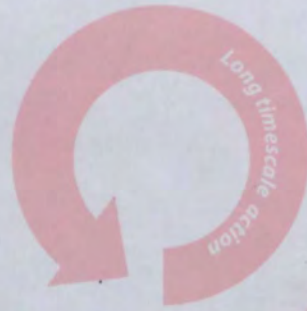
Rhizomic Connections
While the text that forms the majority of this chapter articulates the rationale for the position of the components of this diagram, this is only one interpretation of their possible connections. This overlay demonstrates some other links I see as being interesting or relevant. It is possible to construct a multiplicity of shifting, flickering connections both within the components listed here and with external references. The more links are in play the more the organised structure of the diagram is short circuited and it starts to reveal its rhizomic qualities.

Please add your own links and understandings of the connections not stated in the diagram.

There is a distinct division, a symmetry between my philosophical inspirations (especially Derrida and Deleuze and Guattari) and my practical design projects. This reflects my desire to exploit the ideas developed by philosophy without engaging in the creation of pure academic theory itself. In rejecting the obscuring strategies of some of the

post-structuralists, my design work is distanced from them while retaining a strong resonance with their aims. This relationship is reciprocal in that understandings achieved through practice modify my understanding of more conventionally theoretical areas of activity.





The general empathy of my design projects and post-structuralist ideas is complimented by stronger, direct connection between ideas and projects. As my investigations shifted from obscuring towards user-centred theory, so my practical work shifted from user-centred to user-led.

This diagram resonates on many different levels and relies on these resonances both within my own interpretations but also in the interpretations of other readers. This helps to defuse the tensions caused by an individual academic work (this PhD) challenging ideas of the sole institutional voice.

Conclusion
 Deconstruction & Design 2
 Deconstruction & Design 3
 Deconstruction & Design 1
 Rhizomic Connections
 Boundaries

There is a dis symmetry be philosophical (especially Derrida and Deleuze and practical design projects. This reflects my desire to exploit the ideas developed by philosophy without engaging in the creation of pure academic theory. Play here is playfulness rather than necessarily 'gaming' (which stretches right through consumption into very directed territories. User-Led Play includes the playfulness of Derrida's undecidable. Playfulness extends into consumption, funding shops like the Gadget Shop and Accessorise Open Commercial Vernacular play sees graffiti turning from play into a commodity, and Kruger playing with consumption, the textural and visual language of artworks but also through *The Economist* aesthetic she developed in an act of détournement of her earlier commercial work. post-structuralists, my design work is distanced from them while retaining a strong resonance with their aims. This relationship is reciprocal in that understandings achieved through practice modify my understanding of more conventionally of this diagram (shown on this page) is described in some detail in this chapter. This however is not a different ways in which this diagram can be read, each one showing a different aspect of the diagram beyond the text descriptions included in this chapter.

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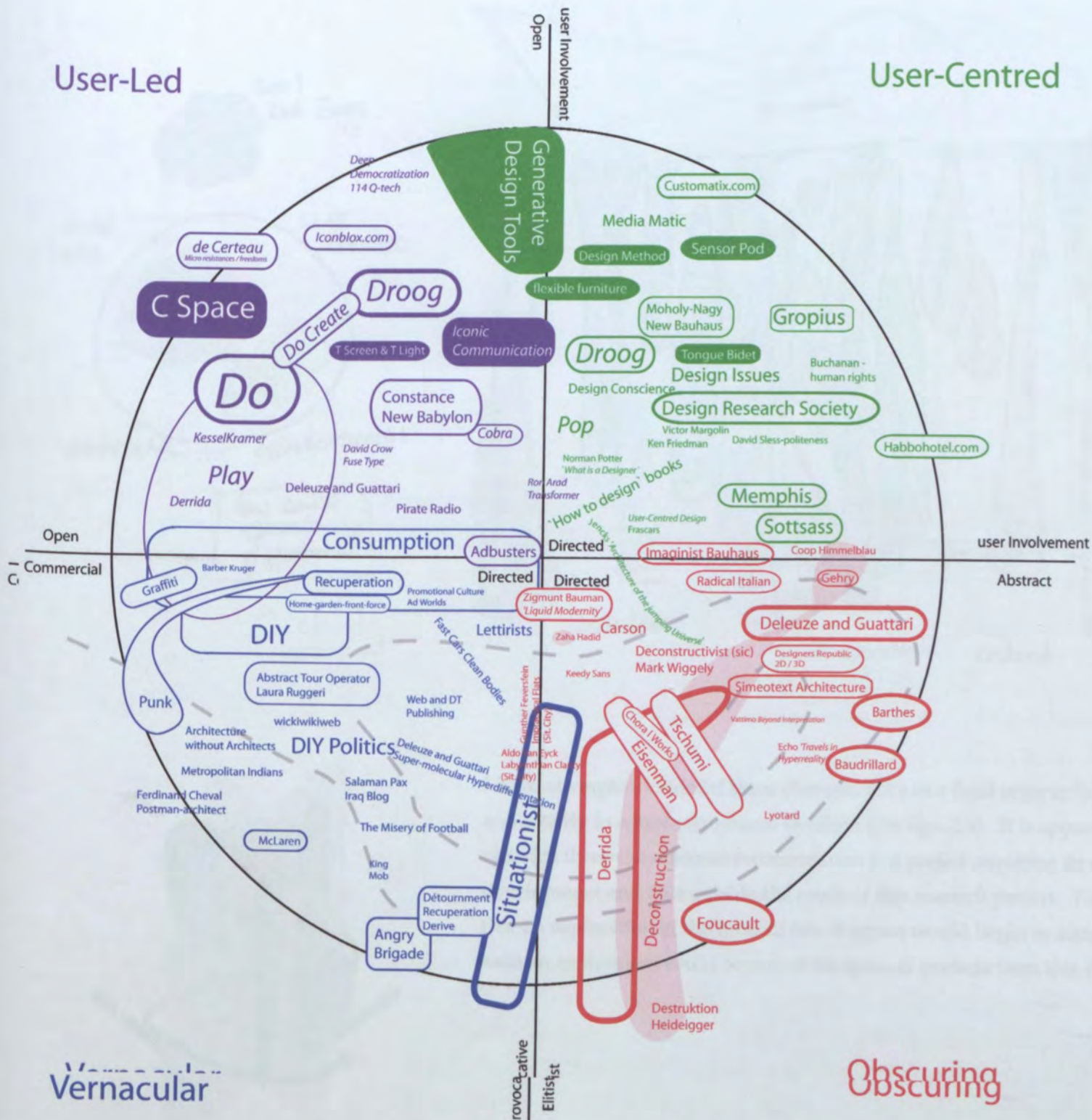
The general empathy of my design projects and stronger direct connection with people and my introductions shifted from obscuring towards user-centred theory, so my practical work shifted from user-centred to user-led.

These websites are placed on the boundary of this diagram because while they are commercial products the degree of choice offered by them almost allows users enough freedom for them to not be led but to create something ostensibly independent of the design team responsible for the website. Habbhotel achieves this to a greater extent.



Please add your own links and understandings of the connections not obscured by this diagram. This however is not a different ways in which this diagram can be read, each one showing a different aspect of the diagram beyond the text descriptions included in this chapter.

Fig. 2.4 Fully populated contextual diagram



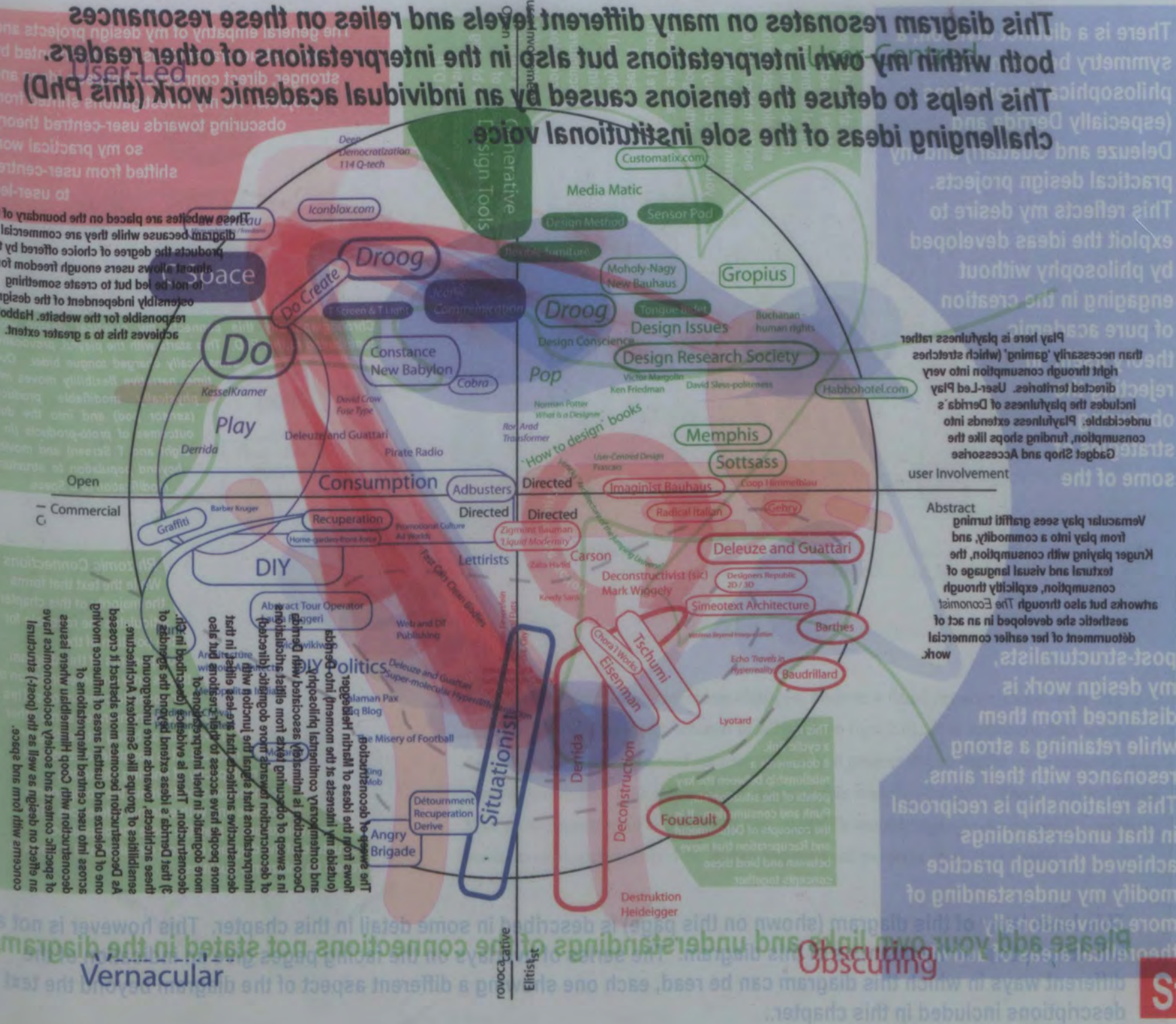
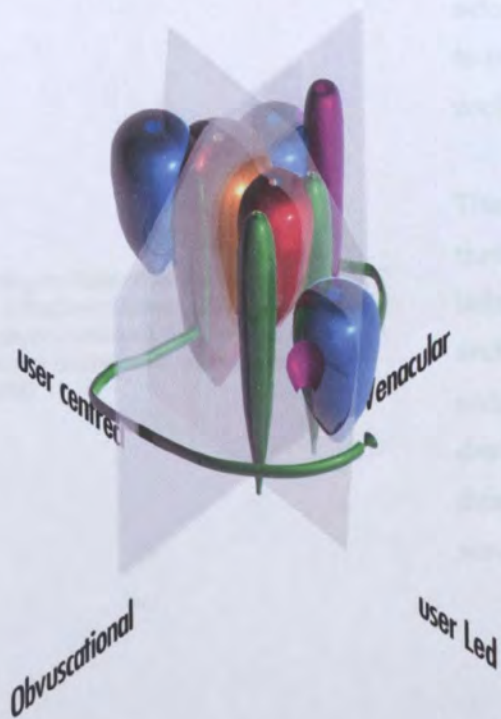
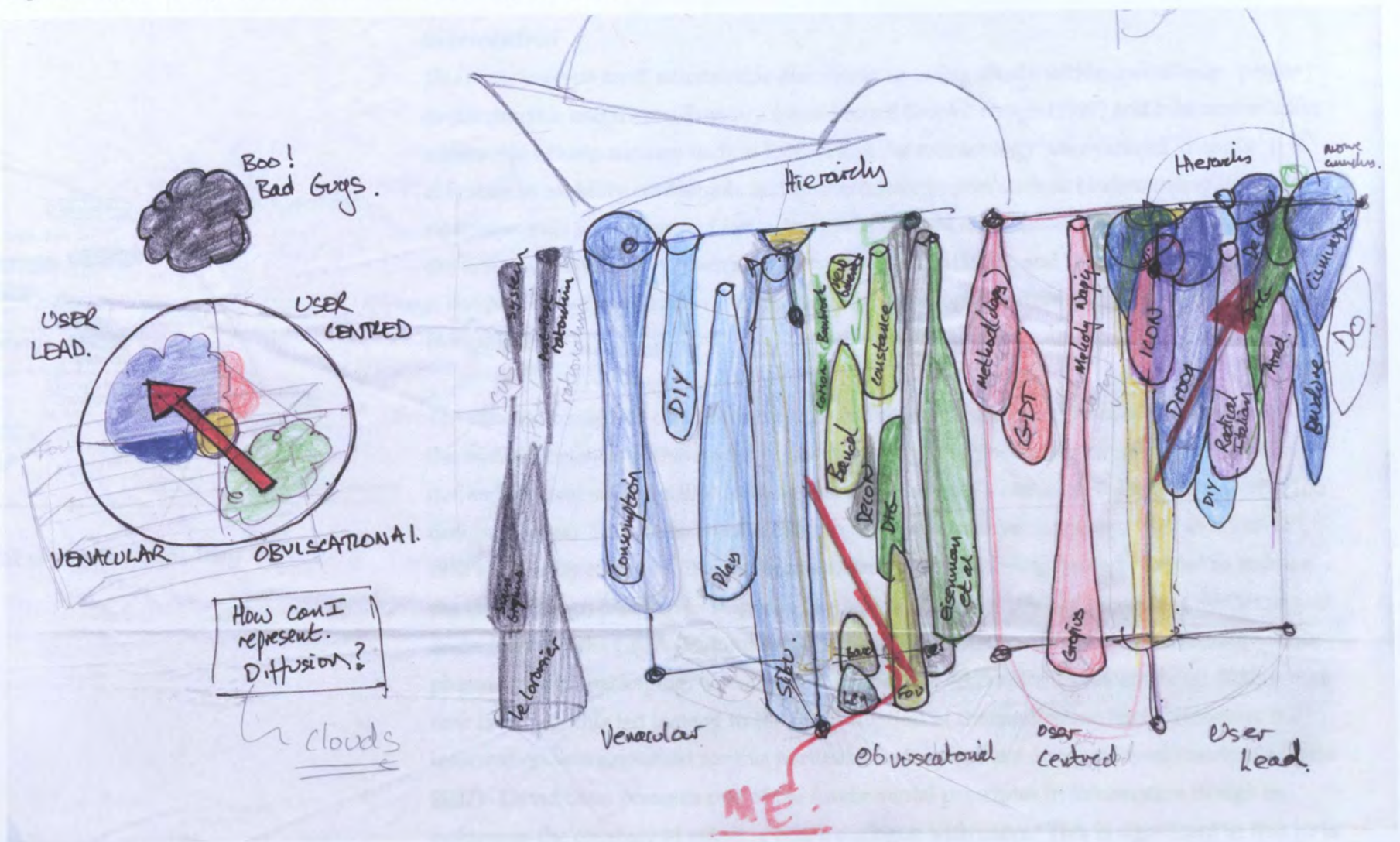


Fig. 2.5 A loose description of the evolution of the diagram over time



I have attempted to model these changes, both in a fluid organic 'loose' way (fig. 2.5) and latterly in a more structured medium (see figs. 2.6). It is apparent that such a text-rich three-dimensional representation is a project requiring its own research and development and falls outside the remit of this research project. There was a danger that an exploration of the form of this diagram would begin to dominate its contents. such an exploration could be one of the spin-off projects from this thesis.

Fig. 2.6 A more structured attempt at representation
Note, this 3D model has ten elements in it the figure 2.4 has over one hundred.

user-centred

The term 'user-centred' situates this discussion unambiguously within mainstream, professional practice and theory. Frascara's *user-centred Graphic Design* (1997) and business mission statements of corporations such as IBM, adopt the terminology 'user-centred' directly. It is also seen in usability consultants and in conference papers such as *Understanding the user experience: tools for user-centred interactive media* (Knight and Jefsioutine 2002) and in multimedia with such books as Nielsen's *Usability Engineering* (1993), and Brink's *Usability for the Web*. The phrase is also common in less academic, vocational sources such as *Creative Review* and *Design Week*.

The illustration fig. 2.7 demonstrates how activities within this approach to design relate to the overall concerns of this research. As we have already seen, this classification can be defined (at least superficially) by its response to the user's needs as an important part of the design process. This inclusiveness can range from a notional 'keeping a user in mind' to IBM's explicitly stated UCD (user-centred Design) Principles, to being prepared to reshape the entire design problem in response to users needs. In this latter example, a design project undertaken by the CRIA (Communication Research Institute of Australia) to redesign some pharmaceutical packaging, warning of side effects associated with the contents. Rather than new labelling, this led instead to the reformulation of the medication itself. However the information was presented for this particular user-base the side effects were inevitable (Sless 2002). David Sless presents one of the fundamental principles in information design as politeness-the courtesy of entering into a dialogue with users.⁴ This is significant in that he is acknowledging the importance of the user, not solely in functional terms of using their input to make the design better but in social/political terms. User involvement is a necessity of social decency in addition to greater efficiency or effectiveness.

The importance of the needs of the user is unsurprisingly nearly universally accepted throughout design. However, these needs are interpreted by the designer in a context established by conventions in the design academe or profession, in an overarching systemic way and by individual designers in particular. There is a great deal of variation in the type of accommodation given to users' needs by the designer but this is always (in user-centred design) controlled, mediated, nuanced, and spun by the designer. In user-centred design, the designer examines many influences on the possible outcomes of a project but not their personal influence or authority in the process.

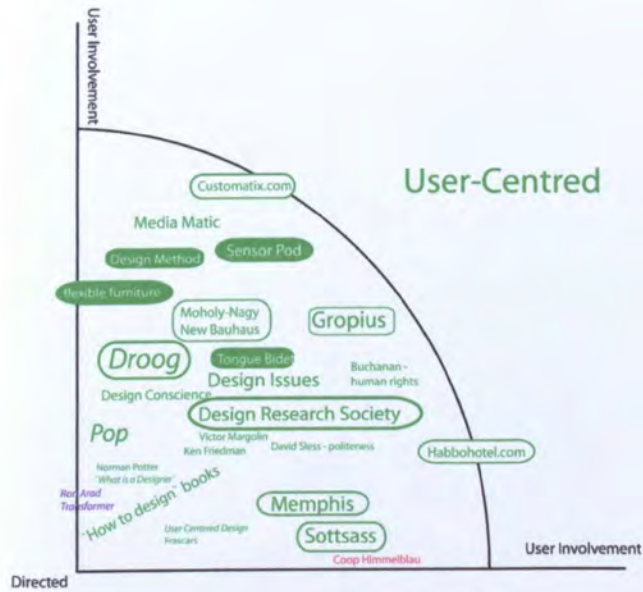


Fig. 2.7 user-centred Quadrant

⁴ The five principles Sless uses are; 1 Politics, 2 Position (context), 3 Parsimony (least complex solution), 4 Politeness, 5 Performance (measurable effectiveness) (Sless 2002).

The institution of Design, and Designer in their broader aspect are formalised, propagated and to a certain extent policed within academic design by bodies such as the Design Research Society (DRS), with mode media specific groups such as ICOGRADA⁵ feeding into and out of this accepted ground. Journals such as *Design Issues* and *Design Studies* are important methods of dissemination in addition to online discussion groups such as Design Research and PhD-Design (www.jiscmail.ac.uk/lists/phd-design.html). This approach sits comfortably with the traditions of design established at least in the inter-war periods of the Bauhaus (arguably this extends as far back as the Arts and Crafts movement) and with Gropius call for Architects to be both servants as well as leaders (Busignani 1973: 16), the persistence of a user-centred approach is established.

The idea of an interrelationship between designer and user developed further away from the tensions of the National Socialists with the New Bauhaus in Chicago (this later became the Illinois Institute for Technology (IIT)) under Moholy-Nagy. He believed that individuality had to be the basis of a new society, in stark contrast to the ideas of Mies van de Rohe working at IIT at the same time. As part of this belief in the value of the individual, he promoted the idea that 'quality of design is dependent not alone on function, science and technical processes but also upon social consciousness' (Findeli 1998: 36).

Following the educationalist Dewey, Moholy-Nagy regarded an understanding of the individual context in which a design will operate as vital to good design (Findelli 1998: 30). These principles are common to most contemporary design education courses but especially to Carnegie Mellon University with its strong emphasis on the importance of social sciences. While this describes the centre of the mainstream, the middle point between divided and open, the other elements shown in fig. 2.7 illustrate very different approaches to user-centred design. These approaches are often the 'professional design' versions of activities with more radical aspirations that extend beyond user-centred design, into other parts of this diagram.

⁵ International Council of Graphic Design Associations

The most visible of these (certainly at its peak in the late 80s) was Memphis. This loose grouping of architects and designers, centred around Ettore Sottsass, can be thought of as a commercial incarnation of more radical Italian design groups such as Superstudio, Global Tools, Studio Alchymia and Archizoom (Branzi 1984). These groups' ideas were more challenging than convenient, often proposing processes demanding participation but also demanding radical changes to society, and consequently few of their ideas came to fruition. Memphis differs from these groups (which often had overlapping membership) inasmuch as it had financial backing from the Italian furniture industry for its design of furniture, table-

ware and ceramics (among other things). Through this financial support and hitting markets at a time when the postmodern 'toy box' aesthetic, and with their promotion in exhibitions in Milan, London and New York, Memphis became 'the worlds most popular Avant Garde movement' (Ramakers in Ramakers & Bakker 1998: 33).

As a group, Memphis rejected mass production and the associated design-for-the-masses approach as the only way to think about contemporary design production in favour of a hybrid industrial/craft approach. This is user centred inasmuch as it celebrated the individual both in terms of promoting the idiosyncratic personal responses of designers and producing designed objects with a particular personality. Sottsass saw no contradiction between the personal expression of the designer and the role of the user.

'Industry...is faced with having to devise a production strategy that relies not on the drastic semantic reduction that typified classical design but rather on a new and violent acculturation of the product; the product that is must actively select its own user, promote itself to a particular social group and must avoid apparently objective but substantially anonymous qualities'

(Branzi 1984: 137-138)

Here we can see an approach that promotes a marriage of distinct personalities, one in the designer, the other in the user(s), while rejecting homogeneity. This user-centred approach to design is adopted as part of a wider philosophy of specifically trying to undermine hierarchies. Memphis', use of materials, of mixing high-prestige materials such as marble with low prestige materials such as fiberglass. They also problematised domestic spaces: *Carlton* (fig. 2.8) designed by Sottsass for Memphis, is a sideboard too big for most rooms (particularly as such a room would need more storage to make up for the small amount available in the piece itself).

The repeated strategy of making problematic has resulted in the positioning of Memphis and Sottsass in particular, close to the border with obscuring strategies. Memphis products generally do not function passively in the conventional sense, in a group as interested in engaging semantically as ergonomically Sottsass claims that 'function is the final possibility of connection between object and life' (Horn 1985: 24). Their projects demand an engagement on many levels. Sottsass makes this challenging approach explicit when he says 'it's up to each one of us to decide whether we are intense enough to undertake the re-evaluations Memphis demands' (Horn 1985: 24), placing Memphis in contact with obfuscatonal approaches.

Playfulness offsets this challenging approach. The name 'Memphis' is a play between ancient



Fig. 2.8 'Carlton' sideboard designed by Sottsass for Memphis

Egypt, the home of Elvis and a Bob Dylan lyric, and an exuberance of form and materials that is remarkable even for the uninitiated. Ron Arad's work also demonstrates this playfulness. His exploitation of solid-state electronics in the creation of working, cast in concrete, stereos and in his *Horns* chair (fig. 2.9) is evidence of this semantic playfulness. Here the chair is designed to flex in such a way that the sitter appears to be in danger of being impaled on the rear spiked support for the chair. This approach is user-centred in that it requires the user to be a crucial part of the narrative. Without intervention (the flexing caused by their sitting down) there is no narrative to the *Horns* chair, and no mock impalement on the horn.

Fig. 2.9 *Horns* chair, Ron Arad



Fig. 2.10 Tongue Bidet (author)

This use of furniture to communicate small narratives led me to the production of a number of pieces of furniture in an attempt to connect with users on levels other than aesthetical and functional. The most exuberant of these was the design (shown here in model form) (and one of the projects I'm aiming to develop into a working artifact) is the *Tongue Bidet* (fig. 2.10). Here with the lips forming a seat a hydraulic, articulating tongue administers the appropriate water jets and cleaning agents. Despite first impressions, this is a conventional product, its form and use are fixed, and through anthropomorphism, it opens a dialogue with users in a very direct, physical/semantic way.

This effective but rather sledgehammer approach in engaging the user in a dialogue or interactive process is reminiscent of some pop furniture, especially Alan Jones tables, and like this type of furniture is narrative in its provocation. Other strategies engage in more active ways, such as products like Jonathan De Pas' *Inflatable Divan*, inflatable furniture and Peter Murdoch's paper *cup* chair (all Bayley 1985). Here the user's participation is an integral part of the construction of the product, determining factors like the angle of the seat for the *cup* chair and the firmness of the inflatable furniture.

Arad's *Transformer* chair extends this sort of product interaction. Here effectively a beanbag in an airtight bag can be molded around a person and then be locked in position by sucking the air out of the bag with a domestic vacuum cleaner. With the air removed the polystyrene beads lock together (in much the same way as a vacuum-packed 'brick' of filter coffee). This flexibility of form determined by the user places this project on the border with more open user-led projects discussed later in this chapter.⁶

⁶ Arad is interesting in terms of this contextualization because his work appears in a number of different places in the plan but seemingly without a rational or unifying aim to tie these projects into a continuation. As we shall see the establishment of a style, or consistent response to a stimulus is theoretically problematic elevating the impact of Arad's work and to a certain extent counteracting the scattergun approach of his designs.



Fig. 2.11 *s(h)it on it*, Droog

The Dutch design group Droog have produced a number of products that are user-centred in terms of semantic play and user interaction. Most controversial of these was a bench created for an exhibition funded by Invar Kamperard (founder of IKEA). Hutton used Kamperard's past Nazi connections (now renounced) as the inspiration for the bench *s(h)it on it* (fig. 2.11). During the exhibition of this piece of work someone scratched 'never again' into its seat. Going beyond the provocative aspects of this piece and the fact that the designer decided to retain the graffiti *s(h)it on it* is interesting in that it plays between two meanings in a way that is only apparent in writing. This semantic activation, its implications of an engagement with documentation and so history, resonate with Derrida's exploitation of undecidables and specifically with his playful use of *différance/différence* (Broadbent 1991).

These activities and their collaboration with a Dutch branding experiment 'do'⁷ are more comprehensively discussed below. Similarly, subsequent chapters discuss personal projects exploring the potential for modularity in furniture and product design (sensor pod) and flexible furniture. These discussions highlight the potential of modular systems, but also its flaws, as fundamentally the designer retains control of many aspects of the design, even with extensive modular options.

An example of an extreme version of modularity and how, with advanced manufacturing techniques, the user can be made central to design is the e-commerce site www.Customatix.com. This website offers an automated custom trainer/shoe design and make service. For c. £90 anyone can create their own footwear using the Customatix website and 2-3 weeks after payment the shoes are delivered from the factory in China. While this retains a limitation of modular systems – there are only so many combinations offered to the user, so arguably the designer of the modular components has a controlling influence – in this case there are such a huge number of variations possible, 3 billion trillion (Wearable Business 1999) this argument is rendered impotent.

In many ways Customatix is the epitome of the ideal user-centred service in terms of offering a design solution that is mainstream, commercially viable and popular but also gives the user a genuine stake in their product with the help, but not the domination, of the designer. Here we can see technology facilitating the blending of craft or individual production with industry promoted by Memphis and Maholy-Nagy.

⁷ A research / activist project exploring consumption and branding initiated by the advertising agency Kestle Kramer.

This section has explored some of the ways mainstream professional design has 'centred' users in their designs. I am conscious that there are many other examples that could have been included, especially within architecture and graphic design. The trajectories presented here developed from a historical foundation, lead into approaches that attempt to involve the user by either giving them more responsibility (user-led approaches) or by prompting thoughtfulness through making things difficult (obscuring). The sections below explore these two trajectories.

Obscuring

The field explored here consists of designers, theorists and philosophers that have used difficulty or provocation as a tool to draw attention to the negotiation or subjectivity of meaning communicated by a text. The scope of this investigation ranges from the wholly conceptual to commercial design and from academic philosophy to radically anti-establishment activism.

The aim in this section is not to supply a potted history of each of the instances of obscuring hierarchical challenges shown here. The intention is to establish how the most important of these relate to each other, their axes and how they relate to wider issues within this research project.

Such an endeavour is not entirely unproblematic. A significant proportion of the contents of this quadrant of the diagram (seen in fig. 2.12) are fundamentally opposed to their categorisation. Jeffery Wolfreys comments on deconstruction are symptomatic of the reservations of many of the contributors to this section.

Any definition of deconstruction as a method or school is one which relies on the family atmosphere for the possibility of suppressing and denying difference and singularity, and as part of its identificatory, assimilatory project. It is precisely such gestures that Jacques Derrida's work mediates against.

(Wolfreys 1998: 8)

Further than this, in his book *On Deconstruction*, Jonathan Culler (1994) describes how he was attacked for his unproblematic description of deconstruction as he saw it. It was not his interpretation that was contested, but his attempt at clarity was seen as 'a tool of conservatism' (Broadbent 1991: 35). This is symptomatic of a problem with some interpretations of this area of thought that we shall return to below; a totalising rejection of clarity is as problematic as the conservatism that critics are attempting to avoid.

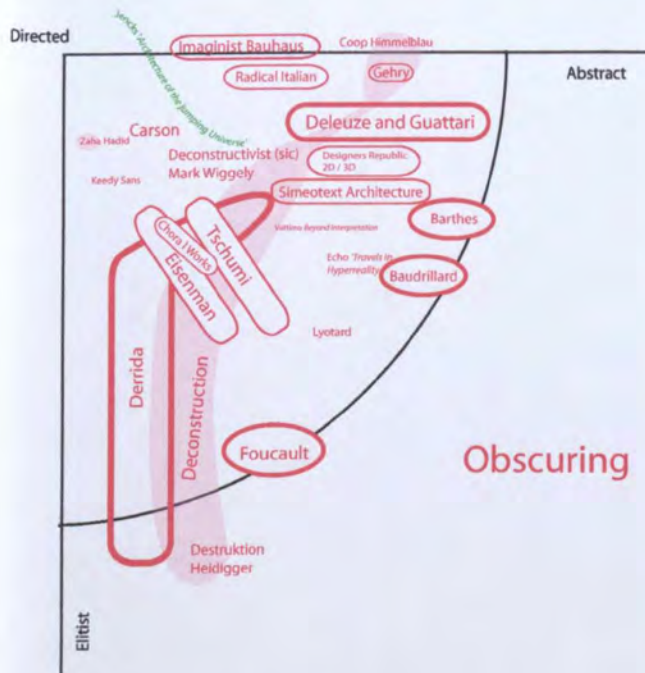


Fig. 2.12 Obscuring quadrant

8 This process of a defusing of radical ideas by society is discussed in more detail below in the exploration of situationist ideas

This rejection of categorization is partly an apprehension of the dangers of recuperation but these concerns can also be linked to a rejection of hierarchies inasmuch as a formal categorization creates a distinction between inside and outside, a binary relationship – the object of attack of this theoretical position. With this in mind, it must be acknowledged that ‘in toto’ each entry in this diagram (but particularly in this section) is distinctly different from each other and can be placed in other taxonomies with equal authority. Accepting this, there is an undeniable ‘family similarity’ between the thinkers in this section, and if one focuses primarily on hierarchy and obfuscation, they can (legitimately) be placed in proximity to each other.

The lengths to which these (and other) thinkers go to, to explore their largely post-structuralist ideas without definition, classification or unambiguous content can be used as a measure of their position within the quadrant shown here. As we have seen, definition is problematic especially for Derrida who relies heavily on multiple meanings in his texts- ‘one can never say what deconstruction is, because deconstruction does not allow for such statements’ (Wolfreys 1998: 14).

Jacques Derrida is a major influence on this section of the diagram. The challenging of assumptions and exposing the arbitrariness of hierarchical binary relationships within these assumptions, and more grandly in his desire to ‘dismantle western metaphysics’ (Derrida in Rotzer 1995: 48) are major preoccupations for Derrida. An example of such an analysis would be the book *Margins of Philosophy* (1986); here Derrida attacks (as he sees it) philosophy’s predication of speech over writing the so-called ‘metaphysics of presence’.

Through the manipulation of language, Derrida explores the questioning of binary relationships and hierarchies (with clear links to the concerns of this thesis). Derrida does not want to replace one dominant position with another supplied by him (or anyone). His aim is not to reverse binary relationships such as speech/text, words/grammar or even designer/user. Rather his aim is a double gesture of showing that such a reversal is possible but then using this to bring into question the very nature of the binary also dissolving the binaries, rather than simply reversing them.

This rejection of creating an unambiguous position is supported within Derrida’s texts as well as being apparent in their content. His texts talk about uncertainty of meaning using words that are themselves open to interpretation through the use of an obscure, almost a bespoke language. Devices for the propagation of this uncertainty include the use of words

that alternate between different meanings, such as trace, hymen, pharmakon, and arcane or foreign language words, all in an attempt to talk about something without unambiguously fixing the position of the author. With this aim, he also sometimes invokes the Heideggerian strategy of putting words under erasure, that is where using a particular word is unavoidable but equally problematic it is used under protest by striking through it (e.g. ~~truth~~).

With this rejection of a defined program or agenda beyond problematisation and questioning, it is a source of some frustration to Derrida that one of his short-term tactics for challenging hierarchies (deconstruction) has become classified by some as a defined method or agenda. Many people have seized upon deconstruction, attached it to a method, and applied it in many different fields of endeavour; especially in literary criticism and architecture. To reflect this in the diagram, deconstruction extends well beyond Derrida's influence.

Derrida, deconstruction and its users are discussed in more detail in Chapter 3 as are the architects that cross his substantial 'footprint' in the diagram, in a more directed mode than the free play of signs, or as Culler calls it the 'pleasure of infinite creation' in Derrida's texts. In this section Derrida's deliberately enigmatic, playful text places deconstruction squarely in the obscuring classification. His position in the diagram is also dictated by his engagement with hierarchical relationships divorced from everyday life. As his stated aim is the undermining of western metaphysics he must be adopting an elitist position, as an attack on 'western metaphysics' is a classification meaningful only to scholars.

An engagement and identification (as an Algerian Jew in France) with the outsider, tempers this elitist position, a mood which extends to his view of his own work, describing it as 'not philosophy, not literature but a kind of bastard writing' (Kipnis and Leeser 1997: 139). This tenuous position in mainstream philosophy is evidenced by the complaints raised by philosophers from twenty universities including Oxford, Yale and Harvard when Oxford University proposed to offer Derrida an honorary doctorate in philosophy (Derrida 1995: 399).

As an intellectual/outsider exploring parallel arguments of power relationships, Michel Foucault is positioned close to Derrida fig. 2.1. He also had his place in academia questioned even after becoming professor of Collège de France, the most prestigious University in France. His work cannot be limited to one genre. He engages with history, philosophy, psychiatry and clinical studies, although, unlike Derrida, his work tends to build on observation of aspects of the physical world recognisable to many non-academics, for example mental illness, law and punishment, and sexuality. While this opens the potential constituency of

Foucault's writings, some of these such as *Archaeology of Knowledge* (1994) are very abstract and difficult in nature. This density is explored and compounded by his writing style, described by John Protevi as having 'complex syntax, a love of paradox, elliptical phrasing, an assumption of familiarity with a vast and deep culture – all designed to produce an effortless brilliance' (Protevi 2002).

Within this web of often-opaque meanings, Foucault develops the idea that power (and in turn hierarchical position) is not something wielded by 'someone at the top over someone at the bottom'; it is part of a web of interrelations. In this web everyone is irrevocably and intimately bound and history is actually dependent on the way of thinking at that particular time, which he calls the episteme.⁹

Foucault's work indicates a much more sophisticated network of bidirectional interrelations, including issues like advertising, consumption and problem-owners as well as designers and users. A further implication of the idea of a web of relations, rather than the conventional power relation of dominated and dominating, is that, given that it is impossible to step out of these interwoven power relationships, it is more difficult to change them in a radical way. With the relationships all in tension – both pulling and being pulled – there may be a tendency to pull anomalies back into place under the tension caused by these interconnections. This is a graphic allusion to recuperation explored in more detail in the placement of the Situationists in the next section.

Some people think that the tension in these bonds is so great that they are beyond breaking and one should relax and enjoy the environment this creates. In his later writings Jean Baudrillard adopted this position. He claims that

it is useless to dream of a revolution through content or through form since the medium and the real are now a single nebulous state whose truth is undecipherable.

(Baudrillard 1983: 102).

⁹ In this respect, one could link these ideas with Thomas Kuhn's idea of paradigms in *The Structure of Scientific Revolutions*.

¹⁰ These sorts of approaches have been criticised by Chris Norris book '*Uncritical Theory: Postmodernism, Intellectuals and the Gulf War*' (1992).

This collapse of real and simulation into a 'hyperreality' led to the development of a series of newspaper articles culminating in a book published in 1991 entitled *The Gulf War Did Not Take Place* (1995). In this book, he claims that this was a simulated war with simulated defeat and simulated victory¹⁰. This apparently indefensible assertion, given piquancy here by the recent gulf conflict, is a barrier for most readers. Its very title is a provocation demanding a suspension and reappraisal) of 'common knowledge and common sense'. Baudrillard demands a reassessment of the meaning, truthfulness and reality of (at the time) new rolling news services such as CNN.

Although radically different in style and accessibility, there are links here to Derrida's project inasmuch as 'Derrida does not believe that self-evidently true propositions or axioms are to be found anywhere' (Sim 1992: 428). This willingness to question the texts, even those in the form of television pictures or soldiers in body bags, is symptomatic of a loss of optimism for the revolutionary political stance Baudrillard adopted in his youth. Baudrillard's book *America* demonstrates this resigned attitude when he advises, 'we should not discuss an artifact's value but merely experience them. Judgment is no longer even to be attempted by the commentator' (Sim 1992: 436). This cool, passive (one could argue, functionless) approach calls to mind Sadie Plant's definition of postmodern philosophers as '...sold out situationists who wander without purpose observing recuperations with a mild and dispassionate interest, enjoying the superficial glitter of everyday life' (Plant 1992: 150).

In terms of using a challenging of hierarchy as a guide to the authors explored in this PhD, Roland Barthes' views clearly qualify. He is particularly interesting as he specifically promotes the idea that an apparently clear unambiguous style of text should not be written. In some senses this is the 'smoking gun' for a categorisation based on obfuscation.

Barthes, in books like *S/Z* and *Mythologies*, rejected the idea that any text has a straightforward meaning¹¹. He argues that meaning is negotiated by both reader and writer, so leading to the idea of the death of the author and the corresponding birth of the reader. To acknowledge this inherent ambiguity in all texts, he promoted a form of writing described as writerly or scriptable. This deliberately difficult way of writing is intended to bring the negotiation of meaning explicit rather than implicit.

Gilles Deleuze and Felix Guattari defy classification more effectively than most of the entrants in this quadrant of the diagram. Their placement results from a high impact in this area (and in other sections of the overall diagram) with an approach that while directed away from traditional academia (making it more abstract than elitist) is still 'difficult', provoking conscious interpretation beyond a barrier of obfuscation.

Deleuze and Guattari wrote together in a collaborative process of negotiation, defusing the criticisms levelled by people like Stuart Sim (1992) against Barthes that their theories negate their own position as authors, which in turn negates the theory itself. Within Deleuze and Guattari's writing, conformity, hierarchical control and 'the model of models – capitalism' are attacked by a series of arguments in which the individual and the singularity are promoted

11 One has to be careful with Barthes' texts as he went through a series of conversions in his academic career, moving from existentialist to structuralist to post-structuralist to romantic.

while institutional views are destabilised, not in an effort to destroy them but to place them in a wider 'hyperdifferentiated' context. Concepts such as Rhizome demonstrate this as an alternative structure to the binary logic of the branching tree, as the Rhizome has multiple entry and exit points.

In contrast to centered (even polycentric) systems with hierarchical modes of communication and pre-established paths, the rhizome is an acentred nonhierarchical, no signifying system without a General and without an organizing memory or central automaton

(Deleuze and Guattari 1996: 21)

This is an attractive idea inasmuch as it is a description of the design relationships proposed here, but also the rhizome has entry points and relationships with other more conventional tree or hierarchical structures. This openness to engagement with conventional structures is important if one's aim is to have a wider influence.

Deleuze and Guattari's ideas are presented in ways that encourage the engagement of the non-academic. They invite readers of *A Thousand Plateaus – Schizophrenia and Capitalism* (1996) to treat the book's chapters like the tracks of a record, replaying some favourites, and skipping others. The pair also produced a book entitled *What is Philosophy?* (1994) promoting their non-conventional view of philosophy as the creation of concepts drawing the non-specialist into the specialist debate addressing the nature of philosophy.

While these details and the constant use of spatial / constructional metaphors are accessible, the writing also exploits a very broad range of references and concepts without explanatory exposition. It uses a blended lexicon both constructed and taken from different genres, making their texts difficult to read and (like a good episode of the Simpsons) impossible to be sure that you have noticed let alone understood all the nuances woven into the text. While this does effectively communicate the fact that there are nuances to every text that are not accessible to us, the writers are still in the position of constructing these layers of meaning for us to excavate. In their acknowledgement of their inability to fully comprehend all the nuances each author brings to one of their collaborative texts, Deleuze and Guattari soften this criticism.

Deleuze and Guattari's approach to and their engagement with structure as a whole is important for this PhD. In keeping with their desire to re-contextualise hierarchies, rather than erase them, structure is not the taboo that it is for Derrida. As we can see in the

Rhizome structure plays a very important part in the inclusive challenge of hierarchies¹². This can be seen to stem from their understanding of singularity not as something outside the system but as something that is part of a greater system that we may not be able to understand, to be hyperdifferentiated. And in Brian Massumi's assertion that 'Postmodernity is not nothing, it constitutes a limited becoming super molecular that can increase some bodies degrees of freedom beyond anything else seen before...A real concern is that it has done so in a framework that restricts mutation' (Massumi 1999: 136)¹³.

The notion of mutation is significant in developing ideas that evolve beyond an original construction of an author; mutation raises the possibility of an artifact (or idea) changing in response to use or environment. Further exploration of this idea of mutation leads to studies of artificial life, a very interesting area of endeavour for another time.

The theoretical sweep described above forms the flexible philosophical base of this quadrant and largely this research project as a whole, as described in the diagrammatic overlay above (in fig. 2.4). This area of response, questioning and challenging implicit perspectives and attitudes, with the aim of producing a climate of uncertainty, contains radically different modes of thinking and conclusions, in keeping with its rejection of unambiguous resolution. While philosophy looms large in obfuscatory approaches there are other activities (both practical and professional) that are exploiting or heavily influenced by theory which sit within this classification.

12 Challenges that may be met by some design relations, the stronger for having met this challenge.

13 Supermolecularisation is another concept explored by Deleuze and Guattari, taken from the work of Ilya Prigogine in his founding of the science of Non-equilibrium Thermodynamics (Massumi: 65).

14 As we shall see in more detail in the next chapter there are a number of different interpretations of deconstruction.

15 While the SI and letterists had much in common, the letterists were more interested in the creation of artefacts (using letters, unsurprisingly) but also in the creation of 'one true art' (Gere 2002: 88). This search for an absolute ideal is alien to the SI's approach.

By far the most influential of the theoretical aspects discussed so far has been Derrida and specifically the term 'deconstruction'. As is evident in fig. 2.12 deconstruction is not limited to Derrida's footprint in the diagram. It extends out towards Heidegger's term 'destruktion', which in translation means to take apart into structural layers (which the term *Abbau* or taking apart to see how something is constructed is drawn) (Wigley 1997: 41) and forms deconstruction in Derrida's senses of the word.¹⁴

Vernacular

Some of the most prominent proponents of this approach of activity were the members of the Situationist International (SI). They are emblematic of an approach to the perceived problems of post-war society, to such an extent that their influence either directly or indirectly can be traced throughout this thesis, and especially through this section of the diagram (fig. 2.13 overleaf). The group, formed in July 1957 and dissolved in 1972, consisted of a constantly changing group of activists. These people came from other radical groups such as COBRA or the precursors to the SI, the letterists.¹⁵

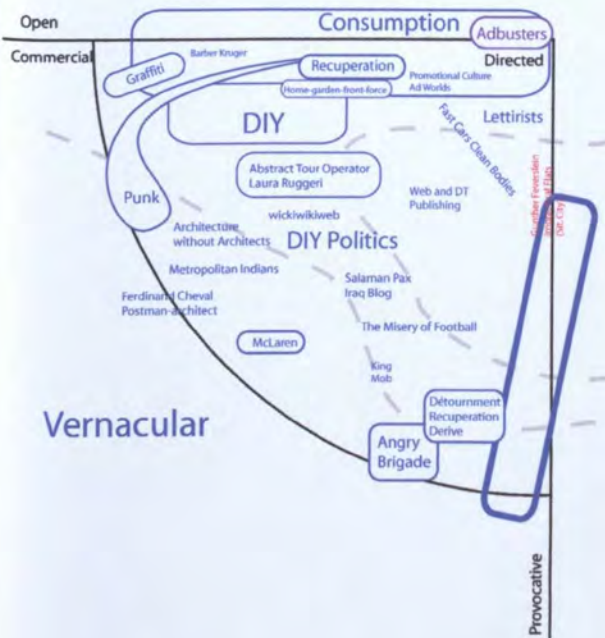


Fig. 2.13 Vernacular quadrant

We will be looking briefly here at the SI in terms of its specific rejection of hierarchy rather than other thematic possibilities such as their views on urbanism, commodity exchange, labour and politics. The SI explicitly rejects hierarchy throughout its writings, from Raoul Vaneigem's statement that 'All hierarchical power is different but performs equally oppressive functions' (Vaneigem 1994: 244) to the declaration by Guy Debord (paradoxically the leader of this group) that 'The SI can only be a Conspiracy of Equals, a general staff that does not want troops' (Knabb 1981: 113).

This rejection of hierarchies (which as we shall see does not really hold up to scrutiny within the practices of the SI) was applied within the loose organisation of the group and should be applied throughout wider society as Vaneigem says, post-spectacle life will have a 'rejection of all leaders and hierarchies' (Vaneigem 1994: 259). This quote introduces two things beyond a negation of hierarchies; the spectacle and the intention is to move (progress) beyond the spectacle. The key concept of the spectacle needs to be addressed before being able to locate the SI.

The spectacle is central to the SI's view of contemporary society. It develops from their view that real life is increasingly devoid of direct, real experience. They claimed real lives were being replaced by spectacular life, in which people are isolated from each other in an alienating cocoon of images. For Debord, all that was directly lived has become mere representation (Debord 1994: 1). People became increasingly part of a system whose ultimate and overriding aim was the perpetuation of that system through control of the environment, 'the spectacle is not a product of the technology of mass dissemination of images, rather it is a social relationship between people that is mediated by images' (Debord 1994: 2). The SI's influence on postmodern thinkers such as Baudrillard is apparent here.

The SI wanted to reverse this alienation and enable people to directly create their own experiences, environments and their own situations. As Asger Jorn, one of the founders of the SI puts it 'the sleeping creator must be awakened, and its waking state can be termed situationist' (Sadler 1998: 36). He saw this sleeping creator in everyone, and he, like Constant Nieuwenhuys, idealised the 'free artist as a professional amateur' (Sadler 1999 : 46).

One of the criticisms of the SI is that it was not at all clear how this would happen. The SI and writers such as Anthony Vidler argue that not being clear is the only way that individuals can escape the spectacle, as this necessitates not being led, even by the SI.

In relation to this context there are two mechanisms that are particularly relevant, one in which the spectacle defends itself and expands its impact, the other in which the influence of the spectacle can be undermined¹⁶.

Recuperation, a term used extensively throughout Situationist texts, is both a defence mechanism and a means by which the spectacle defuses ideas, concepts and arguments that could challenge it. Rather than just nurturing their radical potential recuperated ideas can be used as a vehicle for commodification of subsequent ideas that may be threatening to the spectacle. An example of recuperation in action is the fate of the Surrealists, as Lorenzo Romitolo indicates, 'in a world they had not changed they became a success' (Romitolo 2001: 21). The original radical juxtaposition of ideas seen in Breton's manifestos are now reduced to the staple source of inspiration of the advertising industry, further, anything seen to be 'odd' is safely categorised as being surreal.

Through the nom de plume Karen Elliot, the situationists sought a radical way to avoid recuperation, 'only total opposition, theoretical and practical (i.e. silence) is irrecoverable' (Plant 1992: 179). While extreme, this hints at a continuing problem for radical groups at least as far back as Dada. How can you affect a system without becoming part of it? The passive nihilism of silence is in tension with any sort of polemic position, of having an effect, of even getting people to notice you are being silent.

An alternative to silence, or Baudrillard's happy acceptance, is to engage in *détournement*. Translated directly as diversion, it also has connotations in the French of embezzling, hijacking, re-routing or corruption. It can in a sense be thought of as the opposite of recuperation, a reclamation of real life from the spectacle or 'the reversal of perspective entails a kind of anti-conditioning. This is not a new form of conditioning but a new game; the tactics of subversion (*Détournement*)' (Vaneigem 1994: 185). This relates to the concept highlighted by de Certeau, '*perruque*' or 'on work time' where workers are described using facilities available to them in work to create things for themselves, so playing the system for their own advantage.

The Paris riots of 1968 saw an energetic application of *détournement*. Here slogans were added to all manner of street signs and hoardings and even the art hung in the Sorbonne during its occupation. This sort of activity has become a common tactic of radical groups such as Adbusters (as we see below) and the feminist Gorilla Grrrls (sic) and those wanting to suborn established views.

¹⁶ There is a question here: the spectacle was described as being all-encompassing, making its transcendence doubly problematic. Similarly, as we have seen, the SI saw itself as being already outside the spectacle. This inconsistency is only partly defused by the SI's claim that the tools for defeating the SI were already present within the spectacle.

With this over-simplified version of the SI and its activities, sidestepping its pivotal and/or opportunistic role in the widespread rioting of 1968, the positioning of the SI in the diagram and so its relationship to other aspects of the thesis are easier to establish. The SI were almost the definitive *'agents provocateurs'*. As generals without foot soldiers, their aim was not to get their hands dirty in the actual rioting. They saw their role as 'pouring gasoline on the fire' or in the more famous quote of Debord: 'We will only organise the detonation: the free explosion must escape us and any other control forever' (Knabb 1981: 113). The position of the SI as provocative is uncontroversial; their position as elitist is emphasised less in the commentary literature of the SI, Sadler, Plant, Knabb and so on, and unsurprisingly is not evidenced directly in the SI's own texts. This is not to say that such an interpretation is not clear in the texts.

The SI take a position of exteriority to the spectacle- they *see* it. Inasmuch as everyone inside the spectacle is living a life through mediated environments, the situationists are waiting for us to transcend the spectacle. As Maurice Wychaert said in a presentation with Debord at the ICA in London, 'we are waiting for you at the turning' (Sadler 1998: 41).

The SI counteract the accusation of elitism by claiming that as it is 'almost impossible to become a member of the SI' (Knabb 1981: 296); it can not be elitist as its almost impossible to join the SI so cannot be considered a 'leadership'. One could argue that the same degree of exclusivity applies to Royal Family in the UK.

The SI were also elitist in their policy of regularly purging its membership of people it saw as having succumbed to recuperation by the spectacle. Debord presided over these expulsions, many of them over the debate over whether the SI should make things or concentrate on the detonation of revolution. Vaneigem was of the view that as the revolution would sweep everything away improving things before the revolution could make the revolution less likely. Nieuwenhuys Constant and Asger Jorn disagreed with this tactic of pessimism. They wanted to be more positive; to encourage people by giving a very general indication of what post-spectacular life could be like.

This argument resulted in Constant and Asger leaving the SI (Constant proudly claims in his conversation with Benjamin Buchloh that he and Asger were the only people to leave the SI voluntarily (Buchloh 2001: 23)).¹⁷ It is also symptomatic of the split between commenting on society (spectacular or not) and actively working for change. It is this working for change that distinguishes the contents of the diagram close to the provocative axis.

¹⁷ Asger Jorn went on set up the Scandinavian Institute for Comparative Vandalism (Vidler 2001: 45).

This direct challenging of hierarchies takes place in a number of spheres, some of which are described here, ranging from the explicitly political to being completely immersed in the commercial realities of day-to-day life, perhaps the only truly vernacular activities that are not following any agenda, not seeking any publicity-these are also represented. The Angry Brigade and other groups are on the extreme edge of a line of reasoning, exploring the practical implications of emancipation and the rejection of hierarchies in all relationships, not just the designer\user relationship addressed here. These sorts of anarchist groups represent the transition of the micro-politics of individual consumption and personal use of products and grander society-wide views of political activity that regard the design decisions of the user irrelevant.

The Angry Brigade were one of the most radical of the direct action groups (leaving aside those groups bent on direct terrorism, such as the Red Army Faction or Baader Meinhof). This group will be contrasted with the Metropolitan Indians (or autonomists) to show how similar aims but different methods correspond to different positions on the diagram.

Both groups share a number of commonalities:

- They were radical counter culture groups in the late 60's early 70's.
- They did not have a formal membership
- They were transitory lasting 2 – 3 years.

Both groups' rejection of the professional, the academy, and the specialist, supports their position within the vernacular quadrant. For example John Barker helped to set up the *Kim Philby Dining Club* at Cambridge University as part of this group's activities Barker tore up his final exam papers and embarked on an odyssey of activism as part of the Angry Brigade that culminated in a lengthy prison sentence. Their rejection of formal membership, unambiguous aims and the promotion of these aims place the two groups away from the 'directed' centre of the diagram, where one would see a closer degree of control of members and their aims in a more hierarchical structure.

The direct action against the establishment by the Angry Brigade also resulted in a number of bombings damaging minister's houses, police stations, and trade union leaders. The Angry Brigade proclaimed its existence through a series of communiqués promoting anonymous violence.

'THE ANGRY BRIGADE IS THE MAN OR WOMAN SITTING NEXT TO YOU.'

THEY HAVE GUNS IN THEIR POCKETS AND HATRED IN THEIR MINDS. WE ARE GETTING CLOSER. OFF THE SYSTEM AND ITS PROPERTY. POWER TO THE PEOPLE. COMINUCQUE 9. THE ANGRY BRIGADE.' (sic.) (Vague 1997: 52).

These communiqués and the willingness to back these up with real action pull the Angry Brigade close to the provocation axis in the diagram in proximity to some elements of Situationist activity.

In contrast to this the Metropolitan Indians, an Italian group inspired by the jailed sociology professor Toni Negri were more consumerist and playful in their approach to destabilising the 'system'. They attacked consumer culture by 'unilateral price fixing' (Plant 1992: 129), through the raiding of shops in the guise of Native Americans, stealing useless products or performing mass walkouts in high-class restaurants. Their position in the diagram reflects their engagement with consumption and the commercial axis; the lack of a border around the Metropolitan Indians label signifies a reduced significance to this project compared to the boldness of the Angry Brigade. These general political groups are complemented by more numerous, more focused groups, including anti-road protesters, animal rights, 'travellers', WOMBLES¹⁸ and so on. Sometimes these groups come together in 'anti-capitalist' demonstrations seen in Seattle, London, Mexico, Turin.

One of the most prolific areas of vernacular activity is communication on one level. This is unsurprising, as communication is the thing that everyone (excepting hermits) does everyday. In the context of this research, the term, vernacular communication, applies to communication that is more structured than conversation or even gossip (repeating the same information to different people). Here we are considering communication to many people without necessarily being face-to-face. In radical groups, this is very important - even the SI had a journal for communicating its ideas.

18 White Overalls Movement Building
Libertarian Effective Struggles.

For other groups the 'zine (underground or non-official magazine) is almost the only record of its existence, such is the *Misery of Football, considered in all its forms, and a few remedies offered*. This 1995 photocopied pamphlet by Kicker and Hat Trick Productions mixes scandal and political comment. These discussions range from why Howard Kendal sold Eric Cantona (because his wife swapping activities offended him), to a passing analysis of how QPR, are playing to ridiculing the *New Statesman* for bemoaning the fact that the situationists were not around to attack the Tories.

Other low cost productions include *Squall*, *Claremont Rd.*, *Aufheben* (this is a German word with both negative (to annul) and positive (supersede) connotations (McKay 1998: 101)). While these publications are still being illicitly photocopied or printed at work for physical distribution the worldwide web has developed into a very effective medium for the distribution of niche communication at very little cost (for those with access to a web-connected computer).

In some senses this was anticipated, certainly by the likes of Archizoom with their promotion of the 'non-Stop city', and Peter Cook's system for a distributed university in 1968 using the 'info-Gonk' headset (Sadler 1999) but also by Vaneigem in *The Revolution of Everyday Life* (1994) where he writes that 'if cybernetics were taken from its masters it might be able to free human groups from labour and social alienation' (Vaneigem 1994: 84). Even if Jeff Keedy's assertion in *Emigré* magazine that 'New Media is a practical embodiment of the theoretical paradigm established by poststructuralism' (Keedy 1998: 58) is problematic at best, naive at worst, there are significant possibilities for communication uniquely facilitated by the Internet.

One of these possibilities is the plethora of web logs (abbreviated to blog) now online. These are very easy to update web pages, usually in the form of a diary that can be created free of charge (at the moment) by anyone and are open for all to read. Many of these consist of adolescent Americans laying out their struggles with puberty in ghastly detail but there are examples where blogs give a different perspective that would not be available through other media.

A contemporary example of this phenomenon was the blog of someone writing under the pseudonym of Salaman Plax. He kept a daily, sometime hourly, update of conditions in Baghdad leading up to, during and after the occupation of the country by US and allied forces¹⁹. This provided a human, individual, funny, microcosmic view of Baghdad before during and after the US invasion, inaccessible in a three-minute TV slot or even an extended news article.

WikiWikiWeb (<http://c2.com/cgi/wiki?> - accessed November 2005) is an example of a less structured, organic form of vernacular communication. This is a website that not only allows you to add text to pages at the click of a button, you can also just as easily (with literally one click) alter the text other people have added. The first 'wiki' a particularly sprawling jumble of hypertext-linked text, hosted by the Portland Pattern Repository.²⁰ The wikiweb is an area

19 The blog generated such interest that in September 2003 the vendor for this service had to suspend Salamans blog. For a description of the phenomenon of the Baghdad Blog see the Wired article Iraq Blog: Hubbub Over a Headlock at <http://www.wired.com/news/culture/0,1284,58206,00.html> - accessed November 2005)

20 This is a group of unclear origins consisting of programmers and computer scientists that seem to represent itself only through the constantly edited texts of the wikiweb.

of computer science supported by written literature exploring the technical construction of these online facilities, but their real potential is exploring documents with totally open access evolving in this textual anarchy where anyone can change anything, add hyperlinks either within the wiki or to outside web pages.

The problem with wikis is that while anyone online can alter them, they are only publicised with a limited area of the programming community. Within the wiki texts, rather than the expected links to pornography or other advertising, there are oblique references even in the introductory section to the 'pattern community'. Despite the specialist inertia that places the wikiweb closer to obscurantism than one would expect for such an open idea, there are 'voluntary housekeepers' that do maintenance jobs such as indexing the wiki. Ideally a group should form and carve out a niche in this textual space for people not speaking 'programese'.

Electronic distribution is also replacing some forms of conventional paper-based communication. Radical groups, corporations and governments can now distribute extensive full colour documents in electronic form for interested parties to print out on demand. This worldwide distribution of information, most often in PDF²¹ format, it is compact, easy to view and cannot be altered by the recipient.

This method of distribution is finally bringing about the realisation of desktop printing, not only for niche groups and political activists but also for everyday users including small companies. The adoption of the PDF format by professional designers of print has facilitated the blurring between professional and vernacular design. The rise of PDF as a format for allowing global publishing for anyone with a computer, and the sort of innovative work that is being produced in this manner, is feeding back into graphic design through magazines such as *Creative Review* detailing downloadable magazines such as *Basso* (www.basso.art.br), *This is a Magazine* (www.thisisamagazine.com - accessed November 2005) or *Beast* (<http://ths.nu/beast/> - accessed November 2005) and in articles such as Desktop Publishing, in *Creative Review* (2003).

21 Portable Document Format

Other forms of mass communication traditionally within professional practice have also begun to be accessible to the non-professional designer. An interesting link (elaborated more comprehensively than there is space for here, in Greil Marcus' *Lipstick Traces* (1990) draws the relationship between radical groups like the SI, the letterists and Dada and Punk music. It is well documented (Marcus (1998) McKay (1998), Plant (1992) that Malcolm McLaren had links to a situ-inspired UK group called King Mob and that he distributed copies *Leaving the*

Twentieth Century, the first UK translation of the SI's texts. Most interesting for this project and the cause of their dynamic footprint in this corner of the diagram is their spectacular recuperation. The Sex Pistols started by impersonating support bands at concerts to trick their way on stage for a few minutes but even as they demonstrated that musical aptitude was not necessary for musical expression, they were being dressed in Vivian Westwood's clothes and were living adverts for McLaren's shop SEX.

Punk was at least symptomatic of a general dissatisfaction with the establishment vernacular. DIY music does not have to be predicated on these values. As Marcus points out, in the austerity of the post-war years music was made with improvised instruments by non-professional performers. In 1956 there were an estimated one thousand skiffle groups in London (McKay 1998: 25).

It is important to remember that promotion plays no part in vernacular design activity. It is often not documented and follows commercial, cultural and economic agendas that may be very specific to that particular context. There are examples of the documentation of this mode of design from the heavily interpreted *Learning from Las Vegas* (Venturi *et al.* 2001), to the documentation of club flyers Ackland-Snow (2002), to David Stairs' (2001) recent article in *Design Issues*. In the article 'The Persistent Vitality of the Vernacular', he documents the non-professional design solutions in Uganda, a culture of creative production of signs, furniture, footwear and jewellery without the influence of professional designers (Stairs 2001). Stepping back in history one could see the exhibition *Architecture without Architects* at the Museum of Modern Art in New York, 1964, as an important precursor to this investigation.

In examining these examples it is clear that although they may not have been produced by designers, their selection by the 'arts' as interesting, and their acceptance them into 'design consciousness' gives them the legitimacy of the almost good enough to be professional.²² The book associated with the *Architecture without Architects* exhibition has added the strap line 'a short introduction to Non-Pedigreed Architecture' (Rudofsky 1973) thus rendering the contents of the book illegitimate. This is architecture without recognised parents. While Deleuze and Guattari with their interest in *Kafka Toward a Minor Literature* (1986) would, one suspects wholeheartedly approve of this, there is a sense in all these examples of marvelling Jean-Jacques Rousseau-like at the 'noble design savage'. A further examination of Rousseau's analysis and its impact on the designer\user relationship falls outside the scope of this particular investigation.

²² This artistic recuperation is a process that has been a bone of contention as far back as Duchamps' Fountain.

It could be argued that true vernacular design is something that is irrepressible and by definition not subject to or even desiring professional design validation or approval. Having said this, personal expression and vernacular design is something that can be facilitated without taking a paternal, controlling approach. It is this approach, using the accumulated knowledge within the design profession, without dominating the user, that is explored in the final quadrant of the diagram user-led approaches.

User-Led

This section of the diagram (fig. 2.14) is an exploration of ideas in which the user and designer have a symbiotic relationship. It is a mid-point between the control of the designer in the user-centred approach and the superfluosity of the professional designer in the vernacular approach. In User-Led approaches, it is often the case that the professional aspect of the design establishes a framework in which users can operate in unpredictable ways. There are degrees of freedom and control in this diagram and one of the structures that most controlling in this section is the activities of Adbusters.

Adbusters are an international non-profit organisation originating in Toronto, Canada. They are a campaign group attacking over-consumption, corporate culture and ecological issues especially concerning consumption. They oppose the contemporary view expressed by Steven Kline that 'The marketplace is now a social institution that forcefully communicates about the nature of modern social relations and ultimately asserts its place in shaping those relations' (Kline 1995: 30). Adbusters' attitude resonates with the SI's conception of the spectacle as something that works as 'replacing the satisfaction of primary human needs with a ceaseless manufacture of pseudo-needs which can be reduced to one need – for the reign of an autonomous economy to continue' (Debord 1994: 34).

Adbusters attack this 'promotional culture' both directly and with the encouragement of others through their web and monthly magazine – *Adbusters – The Journal of the Mental Environment*. One of their primary aims is to use the money raised by their journal to pay for anti-advertising (subvertisements) attacking consumption. For instance, they ran an anti-car commercial in the commercial break of *Drivers Seat*, a Canadian motoring program.

They also promote more guerilla user-led activities, their website giving instructions for the construction of paint sticks. These simple devices allow 'culture jammers' to deface or write on large advertising hoardings using spray paint without needing ladders. Figures 2.15 and 2.16 demonstrate the results of these sorts of interventions. The first of these highlights the

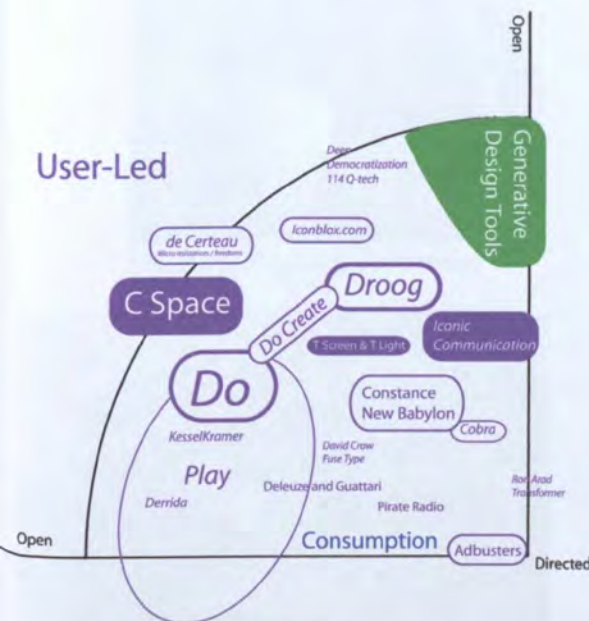


Fig. 2.14 User-Led Quadrant



Fig. 2.15 *Obsession*, Adbusters



Fig. 2.16 Feminist advertising *détournement*

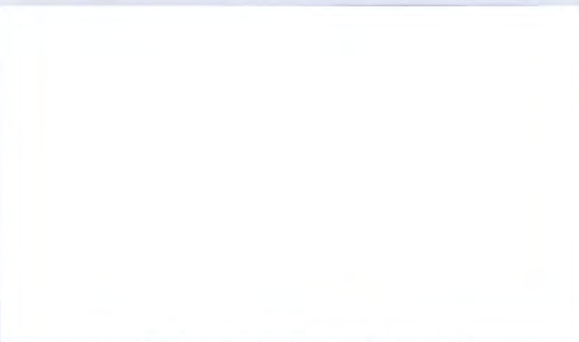


Fig. 2.17 'Suddenly everything sucks' advertising *détournement*

23 Massumi defines micro-fascism as the presence of fascistic tendencies within avidly revolutionary individuals or groups, a 'kind of mirror stage of politics in which one becomes what one hates' (Massumi 1999: 106)

representation of near anorexic looking models as ideal bodies, and an 'arty' Obsession ad is transformed into a political statement; the latter is a historical example of feminist activity. Taking a slightly different approach fig. 2.17 shows a slogan modified to attack its instigators, 'suddenly everything clicks' was changed to 'suddenly everything sucks'.

The group promotes 'buy nothing day' (every November 28th), for which their website provides posters and leaflets that can be printed and distributed. Adbusters are not alone in this sort of activity. Artist Fiona Jack ran an advertising campaign for Buy Nothingtm, an advertising brand with no associated product.

Adbusters have very clear views of right and wrong and while users are proactive and independent within the boundaries set up by Adbusters, their evangelical stance does cause problems. Only the fanatical can really do *everything* they can to avoid swelling the coffers of the multinationals or reducing waste, so there is always a higher moral ground occupied by the Adbusters editorial staff. Public denunciations are common in their magazine establishing an intensely hierararchical, still participative structure.

This 'enlightened despotism' as Ross calls it, or 'Micro-fascism'²³ in Deleuze and Guattari's terms (Massumi 1999: 106) has another problem in that fundamentally 'those who speak of the excesses of consumer society are really attacking the consumers' right to define his own needs' (Ross 1998: 65). Telling people how to live has never been a successful way of challenging public opinion.

The recuperation of everyday life was a major issue for the SI. From different perspectives, the problems of not being able to travel without being labelled as a tourist or put up a shelf without doing DIY (referring to a DIY book for help, going to a DIY shop for materials and so on) are concerns that echo throughout much of this section.

Playfulness is a way of escaping predetermined boundaries. Play takes us back to a time when we were not concerned with the wider cultural positions we occupied. The programming of societies, norms has not yet occurred (indeed one could argue that systems of play are the tools of this programming).

One activity that plays with the idea of crossing boundaries in a user-led way was the project 'Geometric Tours' run in Berlin by Laura Ruggeri (2001). In this activity a small hut was erected in a major square in the city centre, passers-by were invited to go on a free geometric tour of the city, which involved the individuals selecting a geometric shape and using this as a template to draw their route on a map of the city. Starting at the cabin, they were instructed to follow this geometric route as closely as possible. The results of these tours in terms of photographs, interviews and sketches formed an exhibition at the end of this extended workshop.

This activity has two important starting points. Firstly it relates to the SI's activity of *dérive*, defined by Debord as 'a calculated action determined by the absence of a proper locus' (Sadler 1998: 81). This was presented by the SI as an opening up to the psychogeographic nuances of the spectacle and as a sort of reconnaissance of the terrain in preparation for the coming revolution. Ruggeri rejects the idea of *dérive* as something now recuperated by mercenary psychogeographers to help design shopping malls.

Rather than providing a structure for *dérive*, Ruggeri chose to adopt a counter-recuperation stance, taking Le Corbusier's statement 'the transcendental forces of geometry must prevail' (Ruggeri 2001: 52) as a starting point for a user-led activity.

The result was that many people went to extraordinary lengths to keep to the lines drawn by them on the map, not being deterred by private property, factories or rivers. Some people came back for second or third tours, often armed with ropes and other paraphernalia to help them keep to their routes.

We can draw a number of points from this activity. Firstly this was a structure that helped willing everyday people see parts of the city they would never have seen ordinarily in a way that did not classify them as tourists. Similarly this was a popular activity, something that playfully stepped outside normal activities. The experience was a negotiation between an arbitrary map route (seen in the 'random placement of the geometric shape) the user and their willingness to step off the beaten track, over walls, through gardens or factories.

Playfulness is also one of the adjectives used to describe the industrial design group Droog. Droog is a loosely affiliated Dutch-based group, initially of new graduates set up by Renny Ramakers, editor of the industrial design magazine *Industrieel Ontwerpen*. Concerns over the increasing uniformity of contemporary furniture and commodification in general drew these

designers together. As Ramakers explains:

The grand narratives have fallen silent. It is now time for lesser tales. They speak of an involvement with the world around us, of passion and pleasure. These are not moralising fables, nor do they preach universal truths...They are modest tales that everyone can understand, tales worth passing on. They won't change the world but they do give meaning to our culture.

(Ramakers 2002: 10)

This rejection led to designs that celebrate the individual on many different levels, ranging from artefacts that are literal one-offs to objects that are sharply distinguished from the conventional products in the same category.

An example of this individuality and a willingness to relinquish control of the outcome of a design can be seen in Tejo Remy's *Rag Chair* (fig. 2.18), a chair made from old clothes (in part donated by the prospective user) bound together using steel bands. This is interesting because it binds the users, and their associations they have attached to their old clothes, into

Fig. 2.18 Tejo Remy's Rag Chair

the process of creation, with the chair incorporating the emotional resonances associated with the clothes used to make it.

In a different approach, Gijs Bakker produced *Peephole* wallpaper. This plain white wallpaper has large cup sized holes placed in it at regular intervals. When the wallpaper is hung it creates a new surface whose nature depends on the surface beneath it as much as the wallpaper itself. The wallpaper 're-authors' the previous surface as a series of polka dots.

This design experience of Droog combines with the ideas of the do campaign, 'do' is 'an ever-changing brand that depends on what you do' (<http://www.dosurf.com> - accessed January 2005). It is an initiative set up by the Dutch advertising agency Kestle Kramer. It is a series of initiatives that 'populate' the do brand, which initiatives include a promotion of 'do FC' - a promotion of real football, in parks with a few mates. In another guise, do change offers a forum for people to swap jobs ('do swap') for a set period of time (from one day to one year) and within a specified location.



Fig.2.19 do-affair, do-shirt

'do' is a brand with a series of brand values, though without a fixed set of artefacts or content attached to that brand. It is promoting a set of values that users can exploit to populate their own products. The do website articulates these brand values.

do is all about being active and involved in the way the world works. This means social responsibility, concern for the planet, ideas for change, and a willingness to take action. It also means that you want to have fun and are maybe a little tired of the way things are usually done. Why do we drive cars with only four doors, when it might be fun to drive with 20? Why can't we make recycling profitable? Why can't washing powders change the colors of our shirts each time we wash them so that we have instantly new wardrobes? The possibilities are endless. All we have to do is do something.

(<http://www.dosurf.com/index2.htm>)

'do' is an incitement to everyone to challenge conventions and assumptions through proactive engagement. As their promotional material goes onto say 'do is a brand that depends on the actions, ideas and initiatives of you and...do works with many people around the world to create products, services and ideas within the mentality of do' (ibid.).

In addition to 'do FC', these initiatives include 'do shirt', a conventional white cotton T-shirt but scaled up by a factor of ten. Users are invited to apply a product that is useless as an item of clothing to other user-led applications. These initiatives direct users towards a playful engagement with our environment. One of the suggestions for 'do shirt' is 'do affair' (fig. 2.19). This fact sheet also points out that 'it takes 12 people to make a do-shirt, the same as it takes to tame a wild grizzly bear'(ibid.).

All the initiatives are provocational but in a way that opens up horizons for users without restrictions by do. This is reminiscent of the SI inasmuch as they are attempting to catalyse user activity without a final aim or goal for users beyond engagement.

The most commercial of these initiatives to promote user interaction is a collaboration between Droog and 'do', called 'do create'.

'do create'

The inclusive anti-hierarchical aspirations of the do initiative are clear. As Joanna van der

Zanden says on the do website:

Like the do brand itself, do create products ask the consumer to interact, add their own interpretation and make the products come alive. A do create product will then become a one of a kind, beyond the control of the designer. The do create collection is not limited to a certain product range

or material. It can be a chair, a lamp, a plate or even a shirt. (<http://www.dosurf.com> - accessed January 2005)

Examples of the contents of 'do create', almost all of which are available to buy on the 'do' website, show a variation in the approach to user-led tactics that are mirrored throughout this section of the diagram. 'do hit' and 'do scratch' (figs. 2.20 and 2.21) use the approach of providing a base and inviting the user to mark their territory and make this base product their own by bashing the metal cube into the desired shape or scratching the plastic covering back to create the backlit pattern desired.

'do post' is a departure from the 'proto-products' provided to users for their idiosyncratic completion seen in previous do initiatives. Here 'do create' are supplying an empty framework into which users populate a system of information exchange, posting a message into the box results in the release of an earlier message with the content of these messages completely beyond the control of do-create. The final example of 'do create'

examined here is even more open-ended in terms of user application. 'do-design' (fig. 2.23) is simply raw materials (here a piece of board, while 'do design 2' uses a branded piece of fabric) with the encouragement to get on and make something without any guidance concerning the outcome of the user's actions.




Fig. 2.20 'do hit'




Fig. 2.21 'do scratch'




Fig. 2.22 'do post'

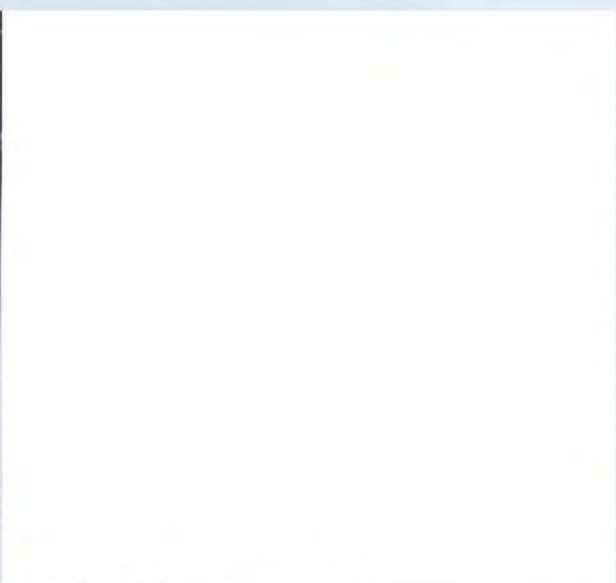


Fig. 2.23 'do design'

As Ramakers comments on the outcomes of the 'do create' collaboration, 'They only come to life when the user activates them. It is the experience of completing, of ones own creative input...Rather than being tacked on, the experience lies in the products' intrinsic quality...' (Ramakers 2002: 65).

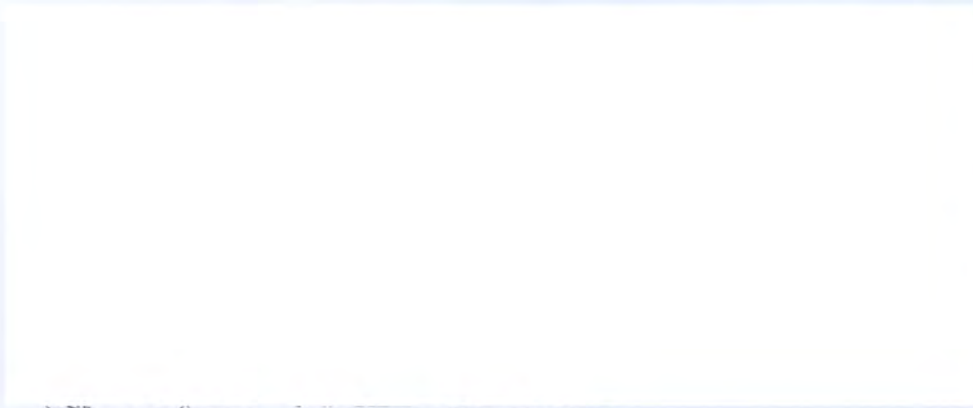


Fig. 2.24 Untitled modular house Ettore Sottsass

The aspiration for open designs seen in Droog's 'do create' can be seen in the context of activities of groups such as Archizoom in their quest for 'No single Utopia...but an infinity of utopias, as many as there are listeners. Not a single culture but one for each individual' (Ambasz 1972: 323) and that 'for us the problem is no longer that of trying to understand what kind of freedom man is seeking, or perhaps trying to foresee it in terms of current reality. The problem instead, is to give man the kind of freedom that will enable him to obtain it for himself' (Ambasz 1972: 238).

Ettore Sottsass' modular house design is an example of this freedom and was revisited by Droog designers Mark Wamble and Dawn Finley in the *Klip Binder* house through the exploitation of the mechanical construction techniques seen in the use of skis and snowboards (fig. 2.24 and fig. 2.25).

Fig. 2.25 *Klip Binder* house Mark Wamble and Dawn Finley

These designers display a great deal of ingenuity in their creation of flexible physical frameworks that led users into creation and (it is my intention) some of my practical

responses reflect this creativity in the desire to precipitate user-led activity. (See Chapter 4 for further descriptions of these.) The practicalities of physical production and ingrained responses to bought objects places friction on the process of user-led physical products. Society builds inhibitions in us in terms of the sort of physical interactions we are comfortable with. Have you started to modify the diagrams presented here yet?

Virtual/electronic options remove some of this friction, interactive electronic media does have a very well established set of conventions (although these are developing). The newness of new media results in an acceptance of experimentation, also radical changes in the form and distribution of electronic media deny a common baseline for conventions to develop. For example the introduction of interactive television has very different modes of operation and interaction to web-based applications, which are in turn different to DVD activities.

An example of the possibilities of virtual, user-led activities is demonstrated in the *Iconoblox* project. Funded by Cannon and designed by Simon Beales at the design group Think, this was an attempt to make the world's largest sculpture. The system consisted of two components. A three-dimensional shape was designed in a website, the next (the two dimensional shape this would make if the 'box' were to be unfolded) was printed out by the user. Users constructed the shape they designed in paper form. Users were encouraged to take their pieces of sculpture out with them to parties and submit photos. The corresponding virtual shapes designed by the user were placed in a virtual framework with all the other shapes designed by different users, creating a very large growing virtual sculpture. Users were e mailed asking them about the mood of their shape, and the results of these questions changed the virtual sculpture and its representation on-screen.

Over 6000 people participated in this project before it came to an end in December of 2002. While this is an example of users leading in the creation of this immense virtual sculpture (and a distributed physical one) the large number of people involved led to an averaging 'soup' of responses, with the individuals voice being drowned out.

A response to this homogenisation is to develop systems that are not aimed at being universal, but rather concentrate on the smaller scale, on promoting user-led systems that function on a more intimate, community-led scale, remembering that community is not necessarily a geographical descriptor.

This search for the user-led promotion of difference led to the development of a series of projects that promote community communication in a user-led way. These include Generative Design Tools, explored in more detail in Chapter 5 and the Iconic Project and C Space both of which form Chapter 7, looking directly at user-led communication tactics.

The entries in this quadrant of the diagram are predominantly concerned with user-led

24 One hesitates here to say legitimate here

approaches to designed artefacts. Michel de Certeau is distinctive (and very interesting) in that he was an exponent of user-led theory or more precisely the development of theory itself led by users. In a sense, this approach can be seen as the logical²⁴ outcome of the obfuscational theoretical strategies discussed above. In a rejection of the role of the Specialist (as opposed to someone who is acknowledged to know a great deal about something) he says, 'authority is indissociable from abuse of knowledge' (de Certeau 1988: 8). Following this assertion, he worked in an experimental group of students in Paris without being a leader. It is worth here taking some time for Certeau to state his own methodological position and the aims of this group in the landmark book the *Practice of Everyday Life* (1988).

Rather than remaining within the field of a discourse that upholds its privilege by inventing its content....one can try another path: one can analyse the microbe-like, singular and plural practices which an urbanistic system was supposed to administer or suppress, but which have outlived its decay; one can follow the swarming activity of these procedures that far from being regulated or eliminated by panoptic administration and insinuated themselves into the networks of surveillance, and combine in accord with unreadable but stable tactics to the point of constituting everyday regulations and surreptitious creativities that are merely concealed by the frantic mechanisms and discourses of the observational organisation.

(de Certeau 1988: 96)

There are many things that can be drawn from this; de Certeau (or more accurately the group de Certeau contributed to) did not see a way of creating content, of constructing discourses (in the way say Foucault did) without occupying a hierarchical position. They saw their role as highlighting and disseminating the tactics and surreptitious creativities that are already part of the everyday life of all people rather than instigating these tactical responses.

Their group were interested in the 'Brownian motion of micro resistances' (de Certeau 1988: xxi) that the dairy worker, the personal assistant, the hairdresser, the zoo keeper employ, 'the tactics of consumption, the ingenious ways in which the weak make use of the strong, thus lend a political dimension to everyday practices' (de Certeau 1988: 5). De Certeau made a differentiation between strategies and tactics. Strategies are something based on formal planning, backed up with resources and able to defend advances of a particular strategy; these are the devices of the strong, the establishment. Tactics are not part of an overarching goal. They are transitory and fragile. The results of tactical activity (which de Certeau sees in many day-to-day activities) are not defensible or part of a coordinated activity, and they are guerrilla in nature. The group is interested in 'the clandestine forms taken by the dispersed, tactical and the make-shift creativity of groups or individuals already caught in the

nets of 'discipline' (de Certeau 1988: xv).

On one level, this analysis sees the role of the theorist or designer as superfluous in the promotion of tactical responses. They are natural and already ever-present. They are also tenuous, and gains cannot be consolidated. There is no sense in de Certeau's analysis of a progression. This is problematic for someone occupying a polemic position without the belief that design can have a positive effect on the user's tactical responses to hierarchies. Baudrillard's spectacular apathy beckons. It may be possible to construct strategies that propagate tactical responses to hierarchical relationships, to create strategies that sidestep into hierarchies without the need to establish an opposing force and in doing so create opportunities for the infiltration of unknown others.

Constant Nieuwenhuys spent many years developing architectural proposals that provided a framework in which people could create their own environments, developing architectural strategies that enable people to develop their own tactics for living. He was one of the founders of the SI and his 20 year project, entitled 'New Babylon' was first published as 'another city, another life' (Dec. 1959 issue 3 SI), but the creation of suggestions for post-revolutionary life was a source of friction within the SI causing Constant and Asger Jorn to leave the SI in June 1960.

'New Babylon' is a proposal for 'emancipatory geography'. It is a series of modular blocks that form a city environment which can be extended infinitely across planes of the post-revolutionary landscape. Constant declares that 'the environment must first of all be flexible, changeable, open to any movement, change of place or mode and any mode of behaviour' (Constant 2001: 14). In the models and drawings Constant has created to illustrate these blocks, the detail of how people would construct their own environments is not clearly shown. Indeed as Buchloh (2001) says, 'All we are allowed to see is that we are not seeing very much. It is precisely the lack of a complete or even partial image that empowers the inhabitants...Constant simply designs the three-dimensional paper on which people will draw their lives' (Wigley 1999: 50).

Further significance of this work is that: 'Constant is the medium or to be more precise he designs the support on which the inhabitants play with the medium...he tells us each occupant of New Babylon will be an artist' (ibid.).

In many ways, this is the epitome of a Utopian view in which ordinary people with the free time, resources and desire to manipulate their own environment, to become artists. In some

respects this places Constant with groups like Archigram and Archizoom's habitable cupboards. Constant was happy with the utopian aspects of 'New Babylon', despite his departure from the SI. He did not believe that his 'New Babylon' project was moving society closer to revolution: 'let us be consciously imaginary architects, since as we know very well that only social transformation and political transformation can create the basis for actual work' (Buchloh 2001: 25). In the same light, members of the SI saw no difference in working in an advertising agency to working as an editor in a revolutionary magazine, it was all part of the spectacle would be swept away during the revolution.

User-led strategies are an important indicator of future developments beyond this thesis. The activities described here are beginning to move towards a balance between the influence of designer and user. It is this search for an equilibrium between the production of structures by designers and a user's ability and motivation to adapt these structures and populate them with content that is explored in the chapters beyond this contextual overview.

Chapter 3

Eisenman and Derrida, *Choral Works*

Building on the general survey of the context and inspirations detailed above, it is appropriate here to look more closely at deconstruction as an area of activity that has had a particularly significant impact on this thesis as a whole. This is not to say that deconstruction is a role model or an ideal interpretation; as we shall see, not only is this not the case but (paradoxically) the principles of a deconstructive approach almost demand a rejection of any such guiding principles.

This is only one of the dichotomies of deconstruction addressed here and in the wider literature. What is not in question is deconstruction's engagement with hierarchical relationships. This has a direct link to my investigation of relationships between designers and users. The term 'deconstruction' is also interesting in the way that it has been transformed from a supporting idea in Heidegger's and later Derrida's texts to a mainstream concept more implicit than explicit.¹

This 'taint' is apparent even at the height of the application of deconstruction in architecture in the 90s with J. Griffiths's assertion in his essay 'Deconstruction Deconstructed' that 'architects...appear to be scrambling onto the deconstructive bandwagon just at the moment when literary intellectuals are jumping off' (Griffiths 1989 : 90). This is interesting not just as an acknowledgement of the cyclical nature of design theory but more so as an indication of the subservient position design theory adopted towards literary theory².

The dissolution of deconstruction as a powerful force is resisted by literary theorists such as Norris and Wolfreys, who claim that for deconstruction to become passé, to die, it needed to have been a living, formed thing in the first instance – they contest this 'corporeal' interpretation of deconstruction. One could construct an argument (and elements of this pervade the text below) that deconstruction is rhizomic inasmuch as it is not a unified 'thing' and that it is only when it is pushed into a single style, conceptualisation or articulation that issues of fashion or adoption become relevant.

Whatever the use/lifespan/utility of deconstruction it is uncontentious to say that this term was at one point much referenced, used, abused, and now has moved out of the theoretical spotlight. This could be due to recuperation (which is certainly partially true) or effectiveness

¹ Even if this is not necessarily correlated with the influence, the ideas deconstruction stand for still have a role to play in design or wider culture.

² The dynamic between literary theory, design theory and philosophy is even more interesting and convoluted but is outside the scope of this work.

(it has become part of our understanding and so does not need to be explicitly referenced) or simply that it has become less relevant.

This chapter will argue for deconstruction but it will argue against many of the actions, practices and ideas associated with deconstruction in design and wider theory. This will be achieved through an exploration of the collaborative project undertaken by the architect Peter Eisenman and Jacques Derrida – *Choral Works* - and the theoretical micro-landscape on which the project sits.

The oblique nature of deconstruction has implications for the way that one writes about it. As we shall, see Millar states that by definition Deconstruction cannot be defined, Geoff Bennington in his 'Derrida Base' writes a book about Derrida (Wolfreys 1998: 5) while consciously avoiding any quotations of Derrida, because removing sections of text from a larger body of work changes their context and imposes a new voice on the person whose text is being quoted³.

Wolfreys accepts the validity of this approach but admits to being unable to meet these standards. He also has problems in producing an introduction inasmuch as he argues that it is not really an introduction but a 'constructed series of excuses' (Wolfreys 1998: 5). A symptom of these excuses is the assertion common to many texts on the subject of deconstruction, that 'what I'm attempting here is impossible but I'm going to try anyway'. This is a shield; a way of defending oneself against criticism of the writing by claiming writing is unable to contain the desired arguments. It also predicates the presence of the person to talk directly about these issues over the text, challenging Derrida's criticism of the metaphysics of presence.

The result of all this second-guessing and qualification is that it is very easy to find it impossible to say anything straightforward about deconstruction, since even using the term can be difficult to sustain. An example of this stuttering can be seen in the title and first heading for Stanley Trigerman's essay 'Construction (De)Construction (Re)Construction Architectural Antinomies and a (Re)newed Beginning, The (pre)text of American (Forget)fullness', italics in the original (Trigerman 1989).

³ Deleuze and Guattari approach this problem in a refreshing way by giving free reign for people to use their books (and especially *A Thousand 1000 Plateaus* (1996) as they wish without worrying about misrepresentation.

My aim in this thesis is to find ways of practising that have a utility beyond academic design theory; in light of this, I am attempting to avoid being seduced by post-structuralism. I am attempting to be direct and straightforward while acknowledging that even using the term 'deconstruction' establishes a binary relationship (inside/ outside deconstruction) that is potentially problematic and can be regarded as creating a deconstructive orthodoxy through categorization.

This direct but knowing approach mirrors that of Mark Wigley's *The Architecture of Desinstruction: Derrida's Haunt* (1997). Here he builds a case that architecture and philosophy (including deconstruction) are inherently mutually supporting. He goes on to conclude that, 'The question of architecture (and deconstruction) has been obsessively and violently extracted from Derrida's work' (Wigley 1997: 205). Having constructed a convincing, sophisticated argument, he then acknowledges the subjectiveness of his construction.

Given the problems associated with talking about deconstruction, the counter-intuitive nature of the subject and the density of the texts associated with deconstruction, the term has been applied to a wide range of disciplines including fashion, art, law, history, geography, religion, history and so on, in addition to architecture; graphic design product design fashion design and so on.

There is a rich tradition of design taking an overtly theoretical stance. In some cases the user is recognised in this process but often the actual use of the designed artefact is subservient to the physical expression of the theory. The archetypal expression of this dominance of theory over use is Gerrit Rietveld's *Red Blue Chair*. This construction of planes, primary colours and black lines fits perfectly into the frameworks established by van Doesburg and Mondrian in their exploitation of theosophy in the de Stijl movement. The point here is not that the Red/Blue chair is not usable (it is quite comfortable) but its physicality is controlled by theoretical abstractions.

Despite the problems associated with definition or even unambiguous explanation of the idea of deconstruction, there are a number of books that attempt to summarise, abstract or explain deconstruction. These range from books such as *What is Deconstruction?* (Norris and Benjamin 1989) *Structuralism and Post-structuralism for Beginners*' (Palmer 1997), to Cullers *On Deconstruction* (1994) to books specifically for architectural students *Deconstruction A Student Guide* (Broadbent 1991). While this section is not capable of covering the ground occupied by these (and many other) books it is appropriate after deciding to proceed directly without too much hand-wringing or second guessing, to attempt a description of the essence of deconstruction.

One approach by Jeff Bennington is to keep the question of defining deconstruction open but still placing it in question by disabusing the reader of some assumptions they may have formed in relation to deconstruction. He achieved this in his text *Deconstruction is Not What you Think* (Bennington 1989: 84). Taking a more positive approach (as Bennington went on to

do in the anthology cited above), Derrida provides us with a definition of sorts of deconstruction. He says

‘Through a double gesture, a double science, a double writing put into practice a *reversal* of the classical opposition *and* a general *displacement* of the system, it is on that condition alone that deconstruction will provide the means of intervening in the field of oppositions it criticises and which is also a field of non-discursive forces. (Derrida cited in Culler 1994: 86, Culler’s italics)

Although deconstruction is emphatically not a process or method (this interpretation is common to almost all texts addressing deconstruction), this definition/description by Derrida appears suggestive of process. In one description, binary relationships need to have their hierarchical relationships reversed, and as an outcome of this reversal, the very fact that factors that were classically assumed to be minor (if perceived at all) are proved in fact to be able to be dominant, resulting in a general loss of certainty and reassessment of the system as a whole.

While many understandings recognise a reversal of binaries and some go on to recognise that the aim of deconstruction is not a reversal of binaries, not the empowerment of the dominated but to use this as a ‘tool’ to provoke a general reassessment of the system. It is clear in Derrida’s quote that this binary reversal and re-evaluation of the system is a *prerequisite* to deconstruction, not deconstruction itself.

After this reappraisal of relationships, deconstruction offers the opportunity of *intervening* in the field it is criticising. Wigley describes this as the tracing of the boundaries between factors, but in allusions to fractal geometries, this boundary is so convoluted that it is the boundary that is the very structure of the system under investigation. Further, exposing and exploring this boundary state reveals the structures that are essential to that system but unknowable by that system.

‘*Deconstruction is that which is necessary to structure but evades structural analysis (and analysis is invariably structural). It is the breakdown of structure that is the very possibility of structure*’ (Wigley 1997: 29).

This breakdown of structure can be seen as a ‘teasing apart’ but this is not a destructive action, it is not a case of reducing a structure to its constituent parts, but as Kipnis and Leiser describe it, ‘a soliciting of the text, a shaking of the wholeness of the text to see what falls out’ (Kipnis and Leiser 1997: 160). The deconstructivist assertion is that the things that ‘fall out’

of a text may be vital to the structure but invisible to it.

These descriptions involve a 'text' or as I have used here a 'system'. Leaving aside the difference between these for a moment, it is clear that deconstruction is acting on something (the text or system); it is uncovering aspects present but not apparent to the casual gaze. It is a critical activity rather than a creative one.

In this sense deconstruction can be seen as a sort of reading. Indeed J. Hillis Millar, a deconstructivist literary critic, strongly asserts that deconstruction is unambiguously 'good reading' (Wolfreys 1998: 9) and that when we read texts we should all be looking beyond the casual, to the structural subtexts that are vital in their support of the text.

The architect Peter Eisenman reinforces this literary view of deconstruction, acknowledging that he responds to texts outside his practice rather than creating from new. In this light, he uses devices (concepts) like 'palimpsest'. Palimpsest is a document that has had the original writing on it erased and is then reinscribed with further text(s). Using this device Eisenman treats the sites of his buildings as texts uncovering previous inscriptions, exploring the boundaries between different versions of the constructed multi-layered space-as-text.

A view of the literature could lead one to the conclusion that deconstruction is applicable to almost any situation. The breadth of application of deconstruction and the fact that some architects/designers/critics only engage in deconstructive practices seems to support this, but in a lecture in Australia Derrida clarifies this position and establishes the social/political nature of deconstruction when asked when you should use deconstruction.

'What you need Deconstruction for is to undo a number of presuppositions, prejudices and so on and so forth. But where you don't need to undo such things you don't need Deconstruction.' (Derrida in Patton and Smith 2001: 110)

Here we see that deconstruction is about exposing prejudice and highlighting assumptions that would not normally have been addressed; where there are no unexamined assumptions, deconstruction has no utility.

Choral Works, Chora I Works, Chora(l) Works⁴

Choral Works was a collaborative architectural project principally involving Derrida and Peter Eisenman. This project is part of a much bigger project called *Parc de la Villette*, coordinated by the architect Bernard Tschumi. The attraction of working with Derrida for Peter Eisenman is clearly understood. Beyond the fact that at the time (and still to a certain extent) Derrida was the darling of critical theory, Eisenman already explicitly applied Derrida's ideas in his projects, seeing them as being 'animated by the spirit of Deconstruction' (Eisenman 1989: 147). While we shall be returning to some problems with the application of Derrida's ideas later, Derrida did look at Eisenman's previous work and proceeded with the collaboration. In essence, this gave an implicit approval of Eisenman's interpretations and if taken at face value confirms his support for Eisenman in the essay 'Why Peter Eisenman Writes Such Good Books' (Derrida 1997: 2).

Derrida's desire to collaborate with Eisenman stems from an acknowledgement that architecture has (according to Wigley) a special relationship with philosophy beyond simple analogy, that there were fundamental connections between philosophy and architecture concerning the idea of foundation and structure that were not present in (for example) art or photography. Derrida accepted these links and appeared happy to enter into collaboration. As we will see, the degree of actual collaboration is debatable⁵.

Choral Works was selected for a more in-depth investigation because of this collaboration, as there can be no doubt that this was a legitimate and explicit attempt to explore architectural deconstruction while at the same time being an example of a conspicuously 'authored' work. There was another candidate for further investigation. That is Parc de la Villette itself, the larger project in which the choral garden was to be placed.

Bernard Tschumi won a major international competition in 1982 to build La Villette. It was a very large site with the opportunity to create a significant building, a contemporary multi-use Pompidou centre. Rather than this, Tschumi conceived of a distributed series of buildings (or follies) whose location was determined by the overlaying of existing grids, archaeology and networks (exploiting the site as a palimpsest). The follies are semi-computer generated and were to have un-fixed, flexible or changeable uses on completion.

This de-hierarchised, flexible, context-dependent approach originated in earlier projects and as Tschumi claims, 'the first deconstruction superposition work was my Manhattan transcripts

4 Such are the layers of ambiguity woven around this project that its exact, correct name is not immediately clear. The book publicising this project places a small gap (smaller than a normal letter space) between Chora and I so playing between the interpretations of Choral explored in the text and Derrida's essay Chora. This can also be presented as Chora(l) introducing a flickering between these two meanings. This chapter takes to heart the comments of Peter Eisenman in an interview with Charles Jencks when he says 'They are called Choral Works' (Eisenman 1989: 145)

5 As an interesting aside to this Lupton starts to build an argument (Lupton and Miller 1999) for a similar special relationship between Deconstruction and typography. In this, she argues that as letter-form and layout are at the edges of language they share a relationship with deconstruction beyond simple analogy. Wigley's assertion that Derrida's work consistently addresses the ornamental (the outside, the apparently peripheral) could be seen to support this and may (at some future date) enable a challenge of Wigley's assertion that structure has to be architectural in nature.

(1976-1981)' (Tschumi 1989: 174). While the idea of a first, original deconstructive application is fraught with tension, the compositional grids and the construction of the follies of La Villette are described as 'rejecting the "symbolic" repertory of architecture as a refuge of humanist thought' and 'La Villette, then, aims to be an architecture that means nothing, an architecture of the signifier rather than the signified' (Tschumi 1989: 181) are interesting. The explicit rejection of authorship of meaning generated by the follies with 'each observer projecting his own meaning', looking to produce stimulation rather than closure, resonates strongly with Barthes' ideas of writerly writing (Barthes 1997).

The problem with Tschumi's (and Eisenman's) exploration of issues around authorship is that Eisenman's claim that the grids Tschumi used for *La Villette* were 'superpositioned' from an earlier project of Eisenman's in Venice called *Caravaggio*, sparked a public argument about who exactly was the author of the grid. In an emotional letter to Eisenman (copied to Derrida and five other people) Tschumi claimed that Eisenman's insinuations were 'regressive' and looking back to the idea of defined authorship when other areas were moving away from this concept (Kipnis and Leeser 1997: 82). In the same document, however, he robustly claims the grid to be his own work and that in fact Eisenman intellectually and practically borrows from him. This double play not in the Derridian terms of reversal and dissolution but the more conventional counterattack and entrenchment, undermines claims of openness and the transcendence of a literal view of authorship on the part of both architects. On one level this is simply friction between egos but it is evidence also that deconstructive architects may not *really* be interested in readdressing the role of the designer in the authorship process and that there may be some (many?) assumptions that are not up for re-examination.

One of the first actions of the collaboration between Eisenman and Derrida was to consider how Derrida could contribute to the process while acknowledging that he is not an architect or designer. The solution was to explore his analysis of Plato's *Timaeus*, looking specifically at the idea of Chora.

Chora, like hymen, trace, pharmakon or any other of Derrida's 'undecidables' does not have a fixed meaning. Derrida describes it as between the sensible and the insensible; Chora is 'a difference with no opposition' (Derrida in Kipnis and Leeser 1997: 109). As a spacing or boundary without a form, it is not so dissimilar from deconstruction. Derrida also likens it to sand. Sand on a beach is the shifting record of moving water. When one walks on the sand an imprint is left behind but a trace is also imparted on the foot (grains of sand). This conceptual trace/boundary is not a physical entity in the way that sand is. In fact, 'Chora is not,

is above all not, is anything but a support or a subject which would give place by receiving or by conceiving, or indeed letting itself be conceived' (Derrida in Kipnis and Leeser 1997: 17-18).

Chora is a receptacle (proposed by Plato in a text called *Timaeus*) that can shape contents and imprint on surfaces without itself having a physical form. It cannot be represented. It is the 'spacing, which is the condition for everything to take place, for everything to be inscribed' (Derrida in Kipnis and Leeser 1997: 10). In this sense, 'Chora' could be thought of as the existence that was in place before the cosmological moment of inflation- the space into which space emerged. The idea that Chora requires creation, the receptacle has to contain something for it to exist, led Derrida and Eisenman to spend time thinking about how users could create something at the same time exploring the agenda Eisenman brought to the collaborative process.

This process involved a series of seven meetings and, in support of these, a number of letters, drawings and other supplemental texts were exchanged. The roles adopted by the protagonists of this collaboration are interesting. Kipnis is introduced to Derrida as someone theoretical with a good knowledge of Derrida's and Eisenman's work. At the outset of this project Derrida makes it clear that working in a foreign field (architecture) and a foreign language (English) was going to be very difficult for him and that collaboration was improbable.

This unease is compounded by Eisenman later in the process by asking Derrida if he can draw a Chora. Derrida clearly has problems with this and with Eisenman's statement that 'what I am searching for is a way to turn deconstruction from a mode of analysis into one of synthesis' (Kipnis and Leeser 1997: 8). This desire to turn deconstruction into a creative activity is something Eisenman sees in his previous projects, *Caravaggio* and *Romeo and Juliet*. There is a sense (supported by Kipnis' comments in the documentation of this project (Kipnis and Leeser 1997: 141)) that Eisenman is looking for Derrida's approval, his signature as he puts it on these earlier projects, by reconstituting them here in a theoretical form with Derrida in attendance.

This play leads to an interesting dynamic where Eisenman is primarily concerned with the conceptual/ philosophical implications of the *Choral Work*, often more so than Derrida. Eisenman encourages Derrida to be *more* conceptual, *more* abstract and to worry less about practical constraints (not, one suspects, an everyday occurrence for Derrida).

While Eisenman was happy to concentrate on the conceptual with little regard for the practicalities or budget of the garden, Derrida becomes increasingly the voice of the practical; while Eisenman is conceiving large very thick walls of Onyx, it is Derrida that raises cost issues.

During this, interplay is also stimulated by the other participants of the meetings. A design emerged that, while very rich texturally, demonstrated an unexpected conservatism in the relationship between creators and prospective users. After a number of discussions exploring the possibilities of facilitating the creation of Chora through public writing or mark making or even moving small components around the site (from a 'quarry' to other areas), Derrida and Eisenman decided that such openness was too problematic both in terms of practical constraints but also surprisingly, conceptually.

On a practical level, Derrida and Eisenman decided that it would be chaos if the public could write on their own 'texts' in their garden. This is problematic from two perspectives, firstly the practical problems of user manipulation do not seem to be insurmountable, but further if you are interested in a physical manifestation of the unexpected, things 'falling out of the structure', of questioning authorship and hierarchies, you have to accept unpredictability even if this involves a degree of chaos. It seems reasonable to argue that the practical concerns were a screen for a conceptual unwillingness to put theory into practice and address 'presuppositions and prejudices'. As Eisenman says in the discussions for the project, 'We must be sensible or it will not be architecture' (Kipnis and Leeser 1997: 72).

The fact that the first submission of the project was double the allotted budget and, having been asked to re-design and trim costs, the second submission was six times the original budget is an indication that at least Eisenman did not place a high priority on physically realising the Choral Works. This raises the question of the nature of the outcome of the project and the text Derrida and Eisenman (with others) produced. The real outcome of this project could be said to be the documentation of the project (this accusation is levelled at the contributors to the collaboration in the project documentation). The book documenting this process operates as graphic and literary text; it is obviously a series of two-dimensional representations but also operates in part as an architectural model combined in a Barthes-like writerly description that is ambiguous and provocative.

The interplay between architecture and text was always going to be significant in the collaboration and output. Eisenman's explicit drawing out, not only of theoretical ideas but *textual*



Fig. 3.1 Cover of Chora L Works/Choral Works. The eight red squares on the cover are holes cut into the centre of the book.



Fig. 3.2 A sentence disrupted by holes cut into the text (Kipnis and Leeser 1997: 163)

analogies such as the palimpsest, coupled with Derrida's expression through writing, created a predictable weighting towards written or graphic expression. This is reinforced by the inclusion of Eisenman's essay 'Separate Tricks' (Kipnis and Leeser 1997) in which he explores the 'separatrix', a word that means a place holder before the development of the decimal point, a boundary between adjacent areas, especially if they have different (magnetic) configurations, and the slash used to separate words and/or elements of fractions (e.g. 1/6).

The overlapping of literary and spatial meaning here is perused more extensively by Wigley, leading him to the conclusion that 'Writing is a form of architecture as much as architecture is a form of text' (Wigley 1997: 80). Placing intention and the interplay of Architecture/Philosophy and textual expression aside for another project, it is clear that the documentation of the process of this collaboration is significant and is the primary mode of stimulation/provocation/communication for this project.

The book itself (like Choral Works) bears the hallmarks of an obfuscatory approach, supporting the interpretation by Plato that Chora requires a form that is 'neither sensible nor intelligible [but] a form "difficult and obscure"' (Kipnis and Leeser 1997: 150). This difficulty is evident in the documentation of the creation of the Choral Works.

The ambiguities woven into the fabric of the documentation of Choral Works are evident from its cover and in particular its title (fig. 3.1). Here the Chora and the L are separated from each other enough to make this separation distinct but not enough to signify a letter space. The L is in tension—is the title Choral or Chora L? The play between these two meanings sets the tone for the rest of the book. Inside the book, two things are immediately apparent. There are a series of eight square holes cut into the book to almost half way through the book. These holes correspond to pits in the design for the Choral Works shown on the front cover, cutting through the text and images of the book. Secondly the book false starts, beginning with some illustrations and then on page 7 Transcript One, but the Title

page and introduction and copyright information are deep inside the book on page 115.

The holes cut in the text introduce a physical ambiguity in the texts; a reader is placed in the position of literally having to fill in the blanks, of putting their words in the mouth of the authors. For example on page 167 the sentence shown in figure 3.2 (previous page) illustrate how the removal of squares from the back of the book renders the text open to multiple interpretations (or total incomprehension). It also has another function, it turns the 'text' into a three-dimensional model of the proposed 'garden', where the holes in the book correspond in the plan shown to pits proposed in the final realisation of the design.

The ambiguity introduced by the holes is a sharp contrast to much of the writing in the book. Many of these texts are transcripts of meetings held by the collaborators where conversations, while still sophisticated arguments, are not woven into impenetrable masses of reflection and second-guessing. The arguments and discussions are more direct and productive than one would expect from Derrida. As such, reading these texts one could imagine being at the meetings. An automatic text reader could give the impression of really being there, as the authors seem present in the text.

Cutting holes in the text emphasises not only that this is a representation in a book, the absences introduced by the holes evoke or emphasise the nuances (or perhaps even quite significant) differences between the actual meetings and their documentation. While these holes work in many ways, they can, in the light of this analysis, reinforce the dominance of the metaphysics of presence, the primacy of the spoken word-thought over the written word-thought.

The result of these design decisions and the inclusion of a large number of drawings mostly in plan and really disrupted by the overlapping of the series of 'pit-holes' on them, result in a document that does leave space for the user to fabricate their own imaginative Choral garden whilst retaining the academic signature of the philosophical Derrida.

While Eisenman has indicated in subsequent interviews that he felt he dominated Derrida in the creative process of *Choral Works* (Eisenman 1989: 145), and as far as the outcome is described, it forms continuity with Eisenman's previous work and his concerns of the palimpsest and scaling (another design process, or series of preoccupations Eisenman uses in his architecture). In essence it is difficult to see Derrida's impact on the design and similarly Derrida has rejected any impact on his theoretical position. Indeed Derrida has described the process not as a collaboration or exchange but a 'double parasitic laziness' (Kipnis and

Lesser 1997: 136), so removing his signature from the design.

The issue of signature has been not been addressed so far in this chapter but it raises some serious issues in relation to deconstruction. The aspects of design that have engaged with deconstruction all have their own distinct styles-their visual signatures. This development of a style is alien to an engagement with deconstruction because it either necessitates an overt set of rules or approaches or more subliminal, unrecognised influences. If the designer has a particular conscious approach to design solutions, this dogma has established a hierarchy of compliance to those rules. Essentially those ideas that conform to this style are valued and those that do not are less valued. If there is an unconscious adoption of a style then the problems of stylistic hierarchy are compounded by a series of controlling unexamined assumptions (the very thing that deconstruction aims to expose).

The problems with designers/architects having a distinct style when espousing deconstruction are magnified by the fact that there is a deconstructive 'style' that is common to most (all?) deconstructive designers/architects, including Eisenman and Tschumi but also Hadid, Coop Himmelblau, Libeskind and Gehry. *The way some graphic designs regard deconstruction is exemplified in the stylistic consistence described here.*

Lupton and Miller (1996) describes the way that graphic design has adopted the 'formal vocabulary from [deconstructive] architecture', in this sense the common visual language of deconstruction found in architecture has been adopted by people like Jeff Keedy. She goes on to say that 'the term 'deconstruction' is used casually to label any work that favours complexity over simplicity and dramatises the formal possibilities of digital production' (Lupton and Miller 1996: 9).

It is possible to argue that this interpretation is peculiar to a particular understanding of deconstruction by Lupton and possibly the wider Graphic Design community but it is striking that a drive for complexity and exploitation of digital production could be used in an overarching description of Gehry's approach. He is on record as saying on many occasions that his complex (wonderful) forms simply could not be created without sophisticated CAD/CAM processes (Gehry in Sudjic 1994: 38).

One could also argue that deconstruction is a title thrust upon a number of designers/architects when they have no allegiance to these ideas; indeed few architects are explicitly 'hard-core' Derrida users (Eisenman and Tschumi are his most notable proponents). The architects listed here were all involved in one or both of the keynote expressions of design and decon-

struction, the first of these being a symposium held by Andreas Papadakis in the Tate Museum in London entitled 'Deconstruction', an accompanying Art and Design publication (Papadakis 1989) and later the same year an exhibition at the Museum of Modern Art on *Deconstructivist Architecture*. Although the deconstructivist exhibition was originally going to be called 'violated perfection', it seems reasonable to assume that on some level the speakers/ exhibitors were happy to be associated with some definition of the term 'deconstruction'. The critical point here is that both the Derridian version of deconstruction and the more independent version that Wigley has proposed (paradoxically bringing him closer to Derrida than those designer/ architects who explicitly reference him) promoted the torturing of conceptual structures rather than physical structures.

This is not to place Derrida in the position of an ideal articulation of deconstruction. The idea of an archetypal deconstructive influence is a dichotomy, and one could build a case for Deleuze and Guattari being more effective in their exploration of deconstruction because they have never signed up to the term. However such a discussion falls out of the scope of this thesis.

What is clear is that in a similar vein to deconstructive design, Derrida has a philosophy of rhetorical style that is similarly problematic. David Wood describes this as Derrida's 'strong reading' and goes on to say that 'the paradox of strong reading is that it is strong precisely to the extent that it is not a reading, but the use of a sacrificial victim to exhibit ones own position' (Wood 1992: 2).

Strong readings seen as gospel (with all the connotations this term implies) can be seen in otherwise very non-committal, 'deconstructively correct' writers like Wolfreys⁶. He describes his 'attempt to be faithful to what Derrida has said on the subject of Deconstruction' (Wolfreys 1998: 50) but seems to miss the point that as soon as one is a faithful follower by definition one takes on faith a series of values that are not challenged critically.

This lack of critical perspective is evidenced in an almost absolutist defence of Derrida by Wolfreys. He maintains that, 'the terminology within which accusations are made concerning Derrida's work is generated from conceptual frameworks which do not have the where-withal or the inclination to give Derrida a patient enough reading' (Wolfreys 1998: 188). In addition to unabashedly placing Derrida on a pedestal this assertion is also problematic in its demand for a 'patient reading'. This seems perilously close to saying, 'keep thinking until you come up with the correct interpretation', that is, Wolfreys' /Derrida's interpretation.

⁶ Deconstructively correct in the way that one might be politically correct. In this instance this leads in Wolfreys book to a great deal of energy being expended explaining why introductions are problematic and not really introductions, leading to three separate introductions or approaches to the introduction.

Looking beyond the protection of these Deleuzo-Guattarian micro-fascisms, there appears to be some problems with deconstruction. The most basic of these is that in following Barthes' ideas of writerly writing and the death of the author, Derrida writes in ways that promote the free play of signs or the 'pleasure of infinite creation' as Culler calls it (1994: 248), but the words used by Derrida, even 'undecidables', have quite-well defined meanings. Even if some words have two or three definitions attached to them, for a genuine exploration of the free play of signs a more deregulated language, perhaps a visual language', could be more productive in the creation of texts that escape the hierarchy of author/reader.

Taking the political aspects of deconstruction further and the argument that something hidden but vital in the structure of Derrida's work is the user, it is noticeable that the person reading Derrida's texts is not considered, accommodated or acknowledged as a partner in the relationship Derrida has with them through his writing. In essence, this is problematic in all obfuscatory approaches, where the reader/user is challenged rather than valued.

With this rather downbeat analysis of deconstruction, design and Derrida, it would be easy to question the need to examine deconstruction in the first place. The fact that there are few role models for deconstructive design is not problematic if one accepts that such a lack of 'heroes' is inevitable if assumptions are to be constantly questioned and an established style avoided.

It is this provocation - the asking of impertinent questions - that gives deconstruction its value, as does the understanding that the results of these normally unasked questions reveal strengths as much as hidden structural weaknesses. To make explicitly deconstructivist 'things' (buildings, shoes, posters...) is to add to the textual resources of deconstruction, not to the canon of practical design.

This over-generalisation can be justified if one accepts that deconstruction rejects the exemplar, the ideal model to follow. Deconstructive design is not an inspiration of the potential physical application of these ideas, of some sort of method, process or design aesthetic. Deconstructive design can be seen as evidence of the conceptual/theoretical investigations undertaken that could (and should) be capable of producing unpredictable outcomes not confined to a set of stylistic frameworks.

Explicitly deconstructive design should be read in the same way as other deconstructive texts

are read, and 'applied' or used in the development of our own personal design philosophy, our own design methodology, not to form didactic deconstructive design methods. Chapter 5 - Generative Design Tools - explores this distinction between methodology and method more comprehensively, but here the differentiation is made between something that is a useful influence on the designer (and will enrich their personal design philosophy) and something that should influence the user and will affect the process of creation of the design method. My personal approach to deconstruction is that it is very stimulating provocation when I am thinking about design and establishing the parameters and trajectories of design solutions. In this respect, I subscribe to Miller's view of Deconstruction as a form of 'good reading' (Wolfreys 1998: 9). The philosophical underpinnings of the products/systems/even curricula do not need to be visible to their users. Rather the aim is for philosophy (or more precisely Derrida's comments on philosophy) to help to influence the aims of a project not the nature of its outcomes. The understandings gained from engaging with philosophy help in my identification and structuring of design problems rather than necessarily being obvious or even apparent in the outcomes of these processes.

The welcoming of the influence of deconstruction, coupled with the belief that provocation of users through obfuscation or difficulty is inherently hierarchical, has profoundly affected my design practice. Fundamentally, obfuscation sets up a binary relationship between those willing and able to meet the challenge and engage with texts and those who are not. This (often stylistically defined) approach is in tension with the deconstructive ideals of questioning assumptions, not settling into a style, looking for the dominated or unseen. It is these challenging aspirations which guide me and are close to a definition of good design. This process of welcoming the challenging of assumptions and the laziness of style was instrumental in the development of the design proposals in Chapter 4, a mirror to this chapter, representing my practical response to deconstructive ideas.

Chapter 4 Deconstruction and Design

This chapter explores some of the developmental design work undertaken as part of this dissertation. While in some respects the designs represented here are very disparate, they are all part of a concerted effort to explore a polemic theoretical position *through* a process of design rather than using design to illustrate or evidence a theoretical position. As a result of this the chapter contains graphics that are not intended to function as illustrations to a (typographic) text, but rather they *are* the text. As such all the information held within the design illustrations (some duplicated here, some in the book attached) is not replicated in the text accompanying them.

Other chapters of this thesis (especially Chapter 2) document the polemic position underpinning this research project more fully. To restate the argument in an oversimplified way, politically in some instances there is a problematic relationship between designer and user. This tension is a result of the designer occupying the dominant position in this binary hierarchy with the user being regarded as occupying the subservient role of receiver or simply consumer.

In addition to this broad philosophical position, some of the design proposals documented here have a complementary preoccupation with the power relationships that (designed) objects help to precipitate in day-to-day operation. They are exploring the tensions created and exploited (for example) by the office desk in power relationships between supervisor and the supervised. This interest in a Foucauldian interpretation of the workplace in addition to the designer-user relationship results in regarding the workplace as a node of interconnections between the power relations that bind us and empower us rather than a conventional domination/subjugation relationship. These ideas can also be seen in de Certeau's analysis of communities in terms of propriety as a regulating mechanism (de Certeau et al. 1998: 89).

This suite of design proposals has been collected into a book, seen here as fig. 4.1. The intention is that, as a special case, this book will be examined in more detail after this case study has been digested. The form of this book is significant, as it is consciously described here as a designer's book echoing the rich tradition of both artists' books and other design-led books where the form of the text is

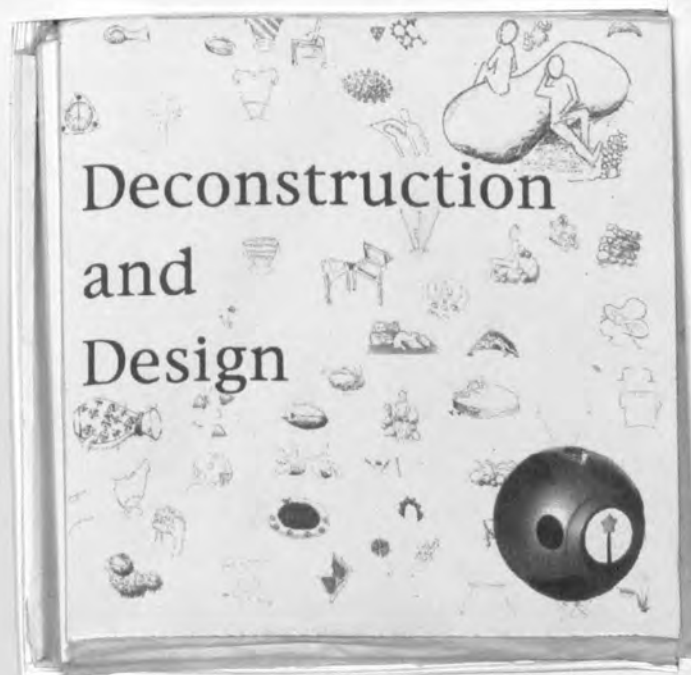


fig. 4.1 Designer Book

dictated by the ideas contained within it, rather than literary convention. Examples of this approach have been discussed in detail in the previous chapter but include *3D/2D* by Designers Republic (2001) and *Glas* by Derrida (1974). While the projects presented in this chapter are not presented in a dogmatic chronological order they do represent a broad movement in my thinking/designing over a period of approximately twelve months. They can be loosely collected into the topics: the office, Sensor Pod, T Series and Conceptual framework, each one of these containing one or more interrelated design proposals.

The Office

These proposals (figs 4.3-7) explore product and furniture design in the office environment. They are conceived as both giving the user a creative input in the way they organise their physical environment and with the impact this organisation has on the power relationships between people in that environment. Designed elements enable and (arguably) create hierarchical relationships in the office environment.

One of the most obvious objects in the office that engages with interpersonal power relationships is the desk. As a marker of territory, desks provide a substantial physical barrier; they are also a graphic indication of status. An advertisement for a series of desks designed by Robin Day clearly demonstrates the way status and hierarchy seem to correlate to size (fig. 4.2). The bigger the desk, the higher up the corporate ladder the desk is aimed at and the greater the degree of concealment provided. The interview techniques of Osato Chemicals Corporation (as seen in the James Bond film *You Only Live Twice*) offer a dramatic example of this; here the desk (considerably higher than the almost recumbent interviewee) hides X-ray machines and lie detectors. A more playful exploration of the desk as personal territory is the desk by Hans Schabus. This bespoke item includes an integral record player, speakers, bottle of schnapps and a train set (Banger 2003). While these are not mainstream examples, in the 1960s the Ministry of Public Buildings and Works (controlling at that time the largest area of office space in London) supplied desks with wire baskets rather than conventional desk drawers to stop things being hidden (Forty 1986: 151) or papers lost, thus retaining institutional control over this personal space.

Fig. 4.2 Office Furniture Advert 1961

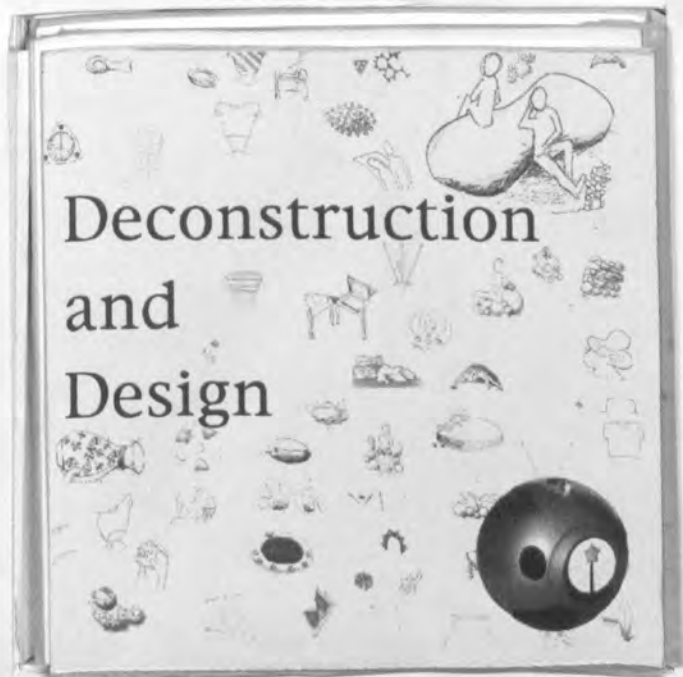


Fig. 4.1 Designer Book



Office / Desk

This series of designs explores the social hierarchy within office furniture and the possibility of getting users to challenge these positions. In particular I have been addressing the desk as a symbol of power and segregation.

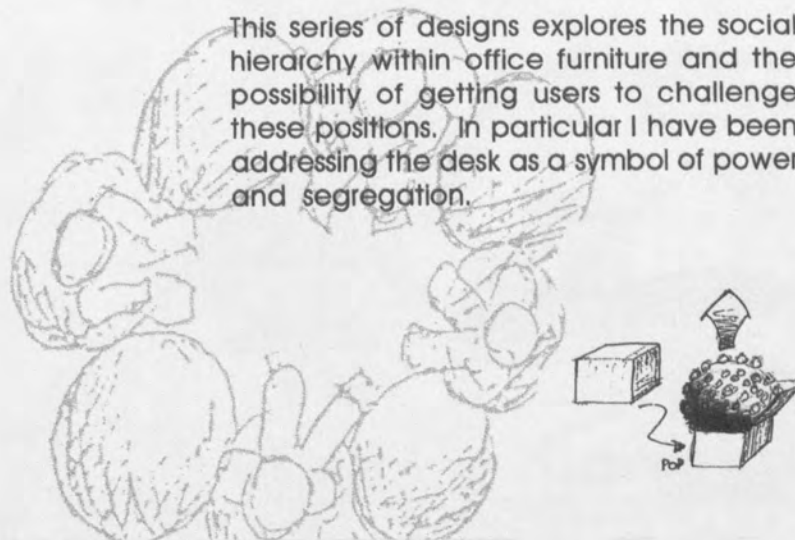


Fig. 4.3 Office Desk Introduction

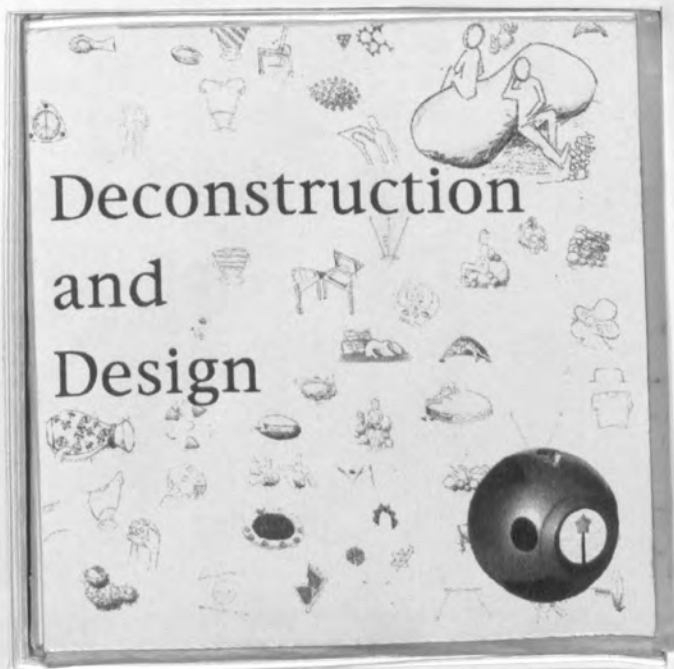


Fig. 4.1 Designer Book

Exploring the desk as an area of interaction rather than a barrier, led to the idea that the desk could facilitate rather than restrict interaction. In these ideas, (figs 4.4–4.8) the desk becomes a place to sit, lounge, work or 'schlep' as Ikea would say. The interim conclusion of this investigation is a central mound on which you sit, work, and interact. On reflection, the idea of the mound is problematic for two people to share a desk and remain looking at each other. Ideas within the development of this idea (documented in fig. 4.4) invert the mound, providing a bowl shape as a site of interaction and work. While this addresses some hierarchical issues, including who sits at the top of the mound, it does not address the cultural and physiological difficulties of working and interacting with strangers in a reclined position.

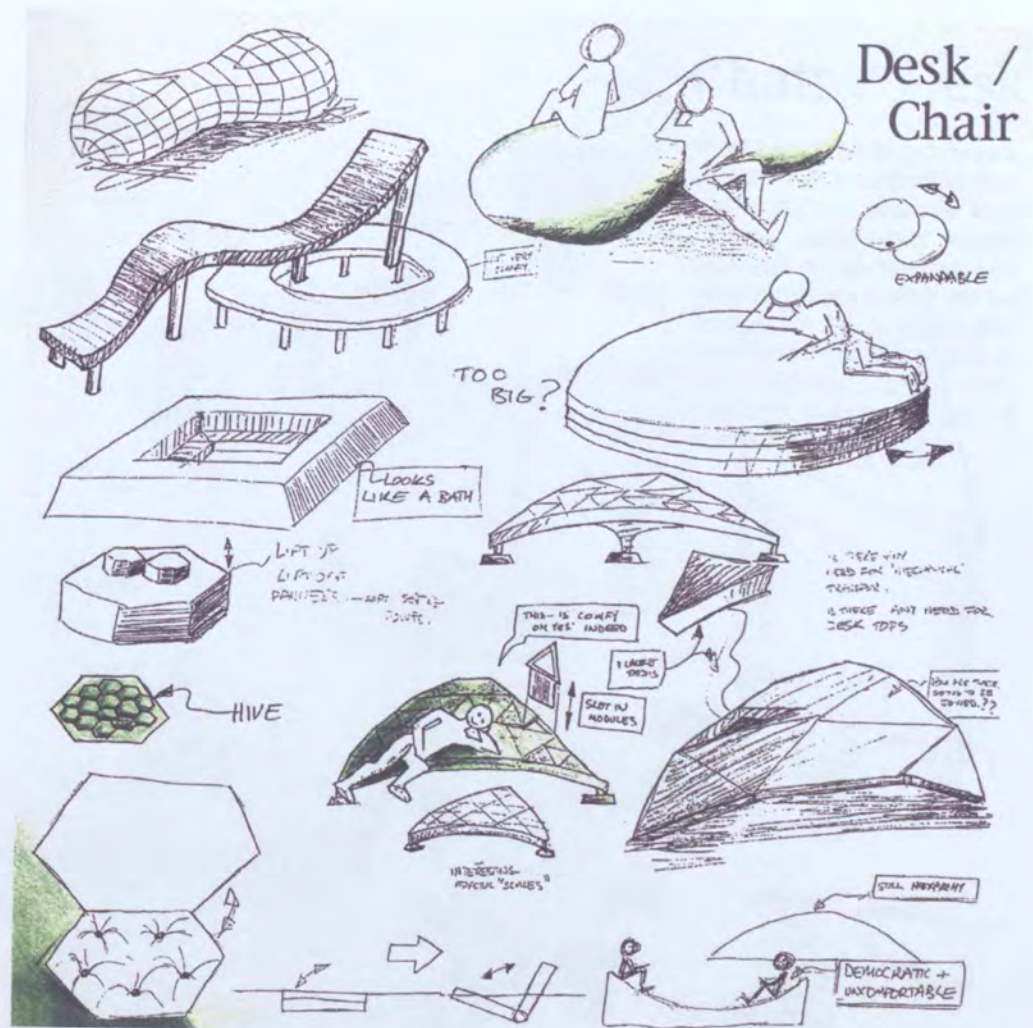


Fig. 4.4 Desk/Chair 1

The interconnection of flexible, mobile and modular workstations further explored the possibilities of non-hierarchical working arrangements. These workstations shown in figure 4.5 consist of a pair of triangular section units on legs with castors. The top of one of these triangles folds up forming a seat. The other half of the triangle houses a computer and general work-related storage. When folded flat these workstations form twin table-like units, for use either grouped with other workstations or distributed throughout the office.

While the computer/chair system can be used in isolation using a conventional plug-in power supply, these workstations are intended primarily for collaborative working in groups. Each double unit can connect to other units and this connection provides electrical power for the computer and any peripheral equipment the workstation might have, a data link for information transfer, and a physical connection. The distribution of power throughout the work units solves a problem in a highly mobile system.



Fig. 4.1 Designer Book

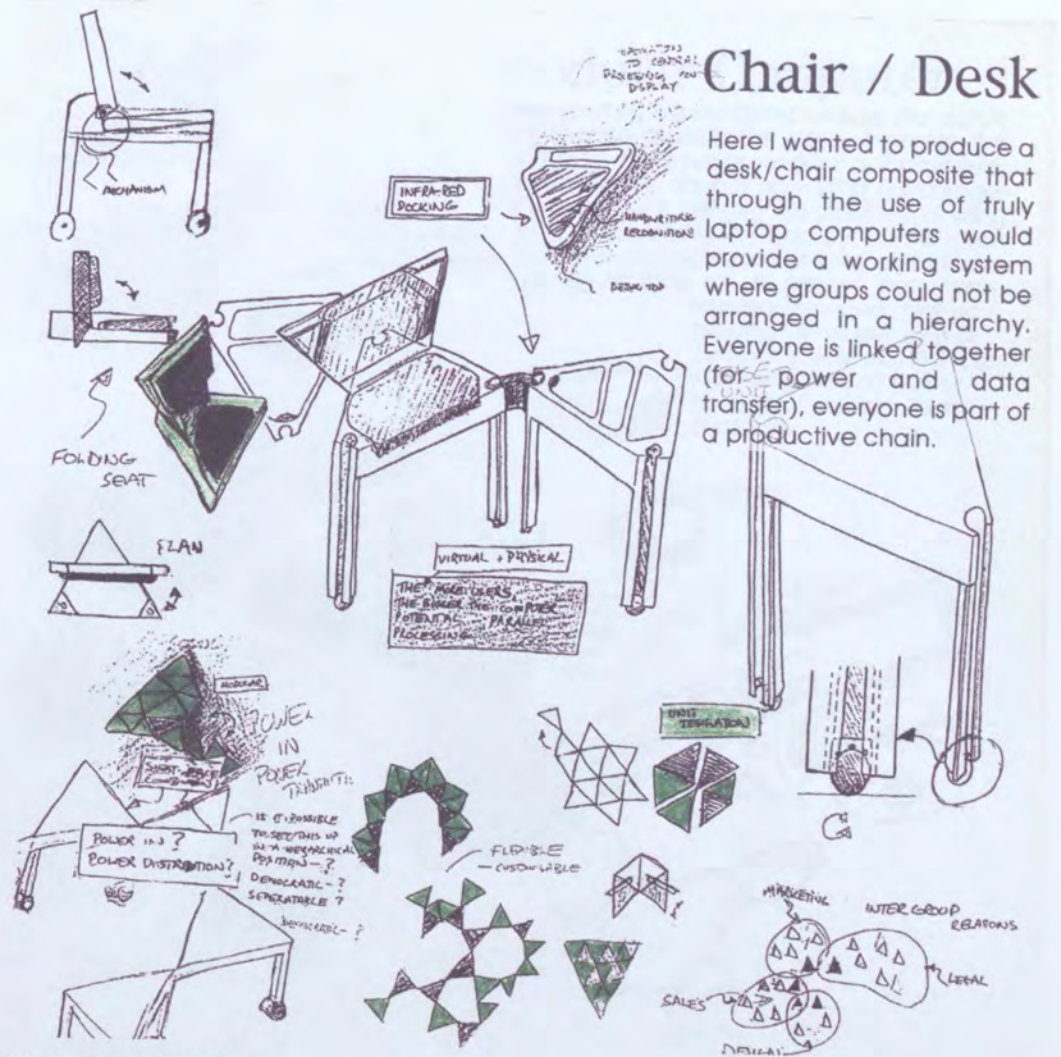


Fig. 4.5 Desk/Chair 2

An area could be quickly transformed from a coffee area for relaxing or for a brainstorming session into a high intensity collaborative work area without the need for power cables to be connected to each unit.

The data transfer aspects of this proposal are less prescient now with the advent of wireless protocols such as Wi-Fi (IEEE 802.11g wireless standard) and Bluetooth. This enables the transmission of digital information without the need for a physical connection.

It is the physical connection that carries the most significance for this project. The creation of chains of workstations rather than regimented ranks means that it is much more difficult for someone to use the layout of the furniture to occupy a hierarchical position in the group, so as to place themselves outside, and

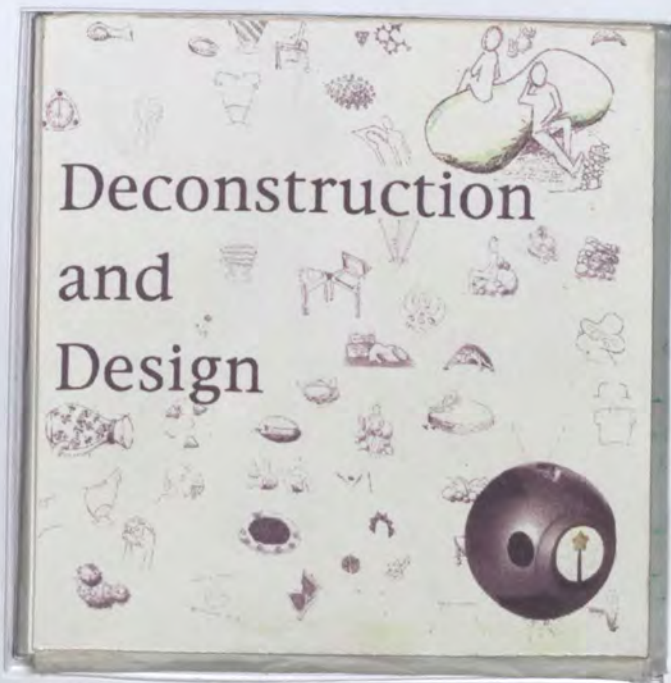


Fig. 4.1 Designer Book

Modular Computer

This is an early idea to blend furniture that can fit together like 'stickle bricks' with a computer. The computer becomes as modular as the furniture. As well as the obvious upgrading advantages here there is (I believe) the possibility of using parallel processing to affect social interaction between computer users. It is envisaged that a group working on a project can come together to work on problems, bringing critical elements of their computers with them, so increasing the computing potential / memory / data available.

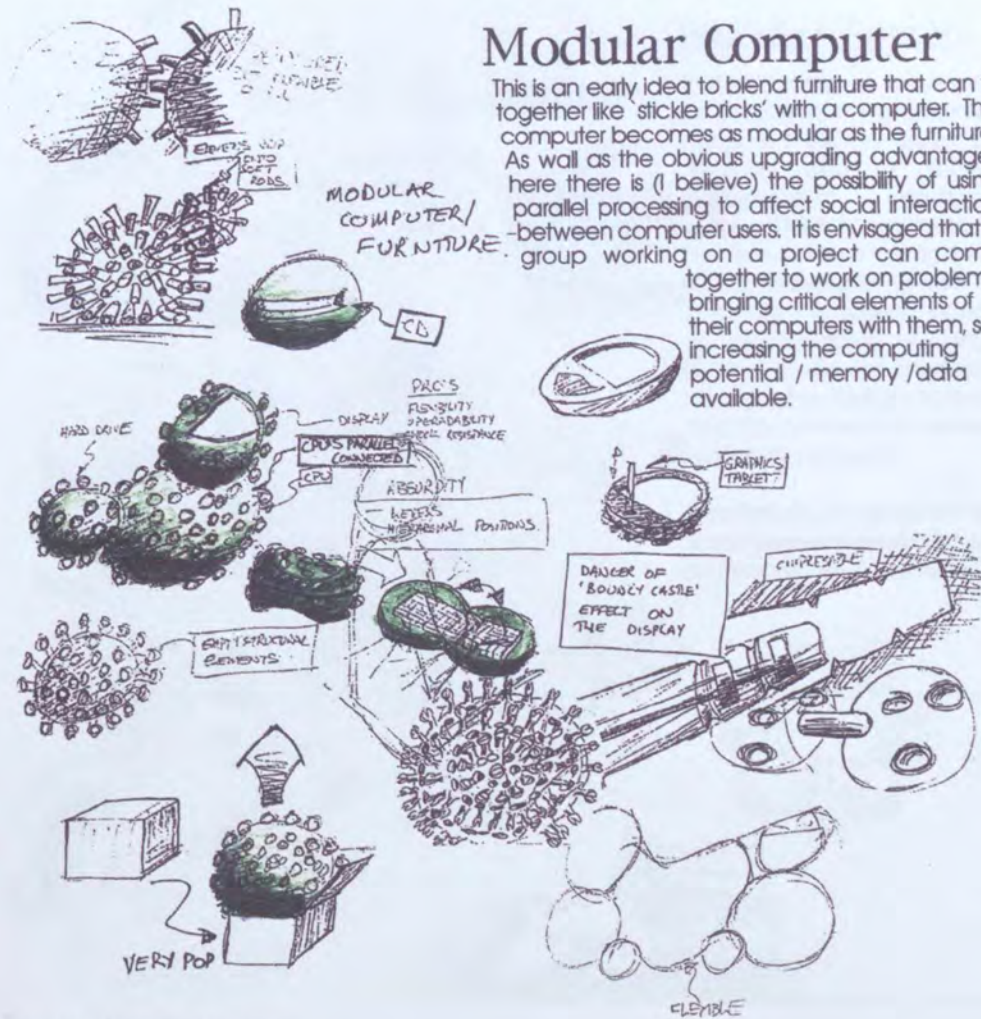


Fig. 4.6 Modular Systems

above the rest of the group. People working in such a collaborative framework are part of a continuum of activity, with data, creativity and effort flowing through this continuum.

The furniture proposals presented so far engage with the application of designed objects and their facilitation/negation of power structures and their attendant authority contexts. The following proposals look more directly at the designer-user relationship and at how the creation of an artefact could be a site for engagement between these two. The aim here is not user-centred design in the conventional sense or more bespoke situations where a designer and user work closely together. It is the development of ideas where a 'space' is left in the creation process, which is not coloured or at least is not dominated by the designer's sensibilities of good design, and in which users can express themselves.

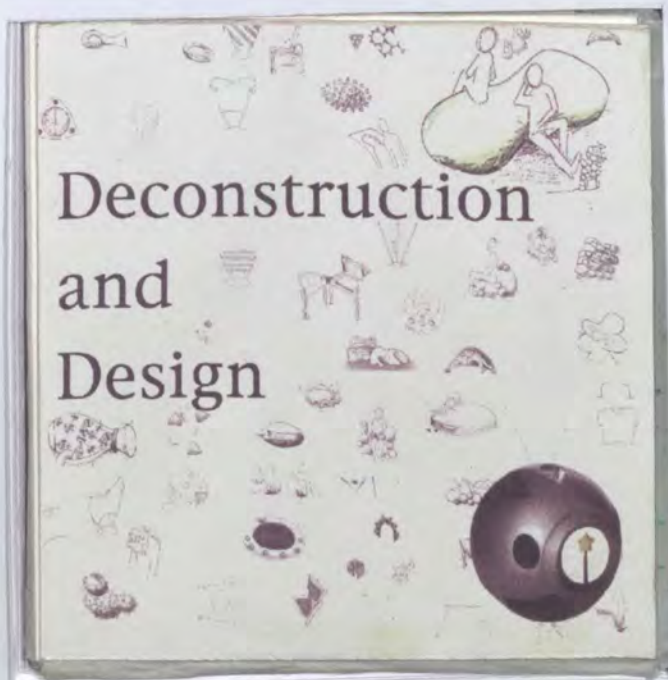


Fig. 4.1 Designer Book

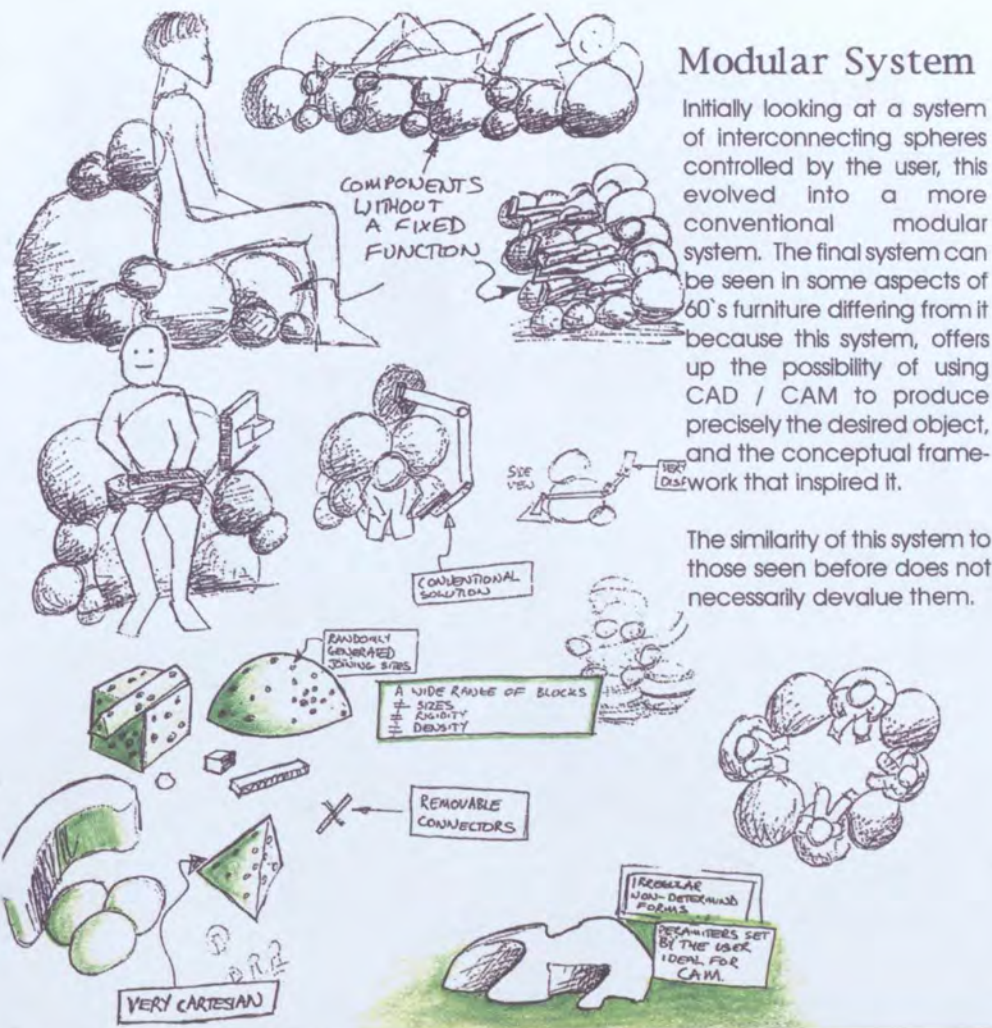


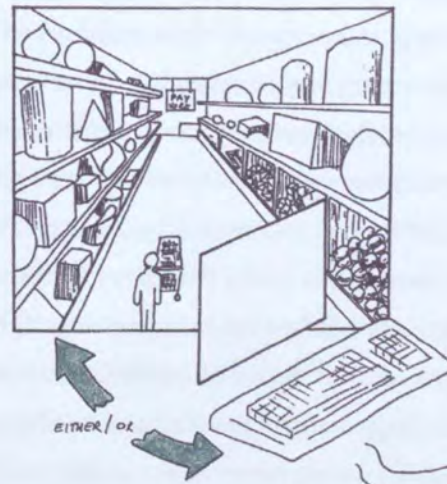
Fig. 4.7 Modular Systems

One way to address these issues is through modularity. Modularity has a very rich heritage that spans the political design spectrum from the (arguably) fascist or at least Vichy leanings of Le Corbusier's Domino Housing and the debacle of Chandigarh to the social modernism of Charles and Ray Eames. It also has a as in the Archigram's habitable cupboard (the neutral surface) as well as Sottsass's *living modules* presented at the *Italy: The New Domestic Landscape* exhibition (Ambasz (ed.) (1972). In this project a modular soft computer was conceived (figs. 4.6 and 4.7) with a form of super-Velcro that operated across a number of scales, providing a physical as well as a power and data link.

This soft system facilitates not only the interchange and even the user construction of components for this computer; it also allows elements of the computer to spill over into structural elements of furniture. The interconnectability of the components also promotes group working. If someone is helping someone else



Fig. 4.1 Designer Book



Conclusion ?

Although unexpected the logical conclusion for furniture without predetermined function or shape seems to me to be self design / self construct. I feel that although designs with multi-functions are not uninteresting it still only addresses half the problem. It appears to be domination through two (or more) options rather than one.

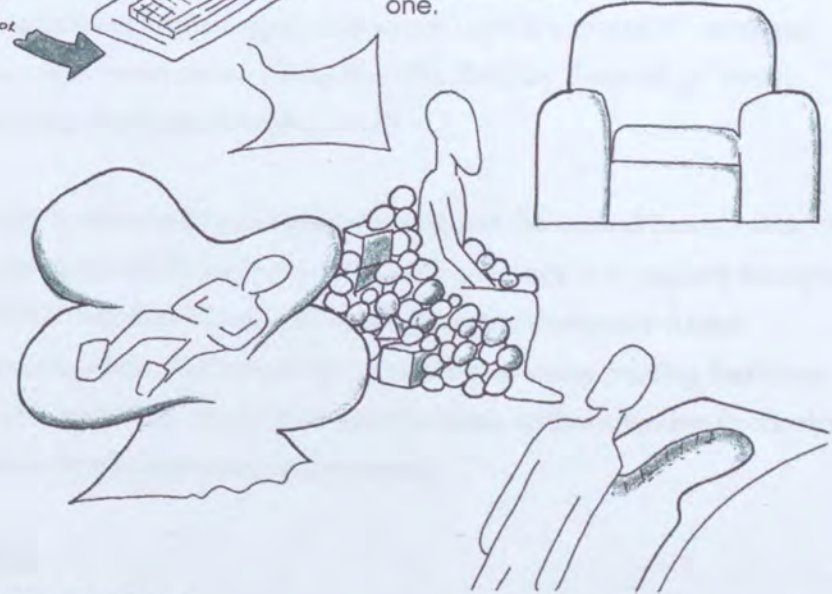


Fig. 4.8 Modular CAD/CAM

with a problem they can bring their processor with them to add computational 'grunt'. This scenario replaces the computer as a monolithic entity by a distributed, flexible connection of capabilities. Projects looking at distributed computing, such as the GRID¹ are moving towards this in terms of flexible collaboration through the flexible application of computational power but using networks rather than a physical connection.

The migration of modular components from the computer system into structural elements, furniture, led to an investigation of modular furniture production without computers. This reassessment of modularity led to a branch of the development of the projects in this suite of design proposals that involved user-designer hybrid products. One branch leads to the use of geometric components that couple to form the desired furniture shape (fig. 4.8). The closer a user wants to get to their ideal furniture shape, the smaller these constituent geometric shapes tend to become. One sphere makes for an uncomfortable

1 The GRID is an evolution of the principles of the conventional Internet, it further devolves communication control of the network from servers to individual machines. This opens up possibilities of using distributed computing techniques to harness the computational power of computers across its network. The idea is that computational power could become a resource in the same way as electricity is available 'on tap' at the moment.



Fig. 4.1 Designer Book

seat, 200 spheres can make something very comfortable for a specific user. The problem with this granular approach is that this increase in resolution (the number of components in a given volume) leads to a corresponding increase in the number of connections between components. This makes the properties of the interface between components increasingly important; the strength, the ease of connection/disconnection and the tactile properties of the connections raise practical problems in the creation of such a system. The strength characteristics of the jointing system and the inevitability of a degree of 'play' in these connections necessitate furniture formed from solid masses of components rather than constructions that are more elegant and which exploit a material's strength. This system could never create chairs like ZIG ZAG by Rietveld or Verner Panton's sinuous stackable fibreglass chair.

An alternative to the use of small components and the second branch of development to get closer to fitting the user's needs precisely is to explore the option of a CAD/CAM solution (Computer-Aided Design/Computer-Aided Manufacture) (fig. 4.6). This raises the possibility of users creating furniture (and other products) that meets their specifications without having to construct products from small constituent components.

Sensor Pod

Exploring modularity in a different context led to an investigation of the video camera and the cultural and design assumptions that shape its use. The conventional camcorder places itself between the user and the object of interest, the landscape, the beach or the child. The user sees the world through the product and has to spend much of their time considering the technical requirements of the product, the lighting, the focus, sound quality, composition and so on.

All these things divert the user from a full experience of the moment and, while the real landscape is not fully experienced, it is familiar enough; or rather, the facsimile seen through the viewfinder is familiar enough to preclude the viewing or enjoyment of the recorded material in the future. The experience is of a badly made TV program seen outdoors; 'reality' television programs reinforce this perception.

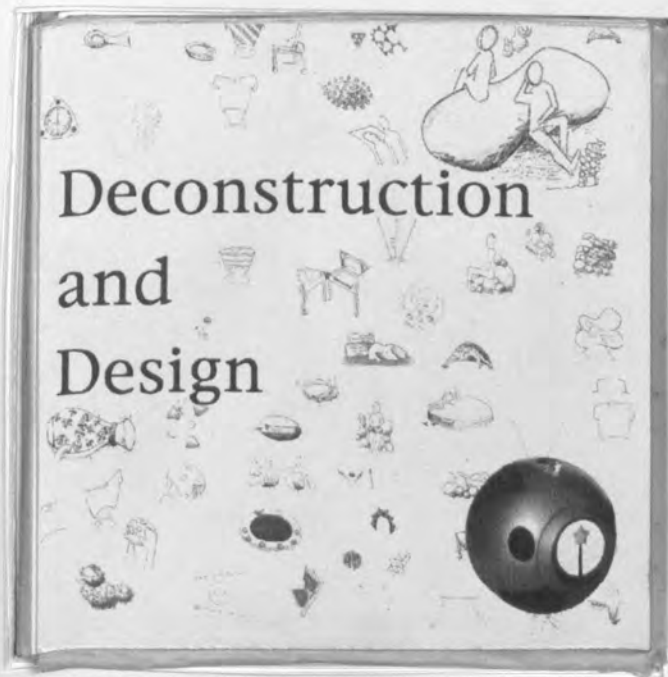


Fig. 4.1 Designer Book

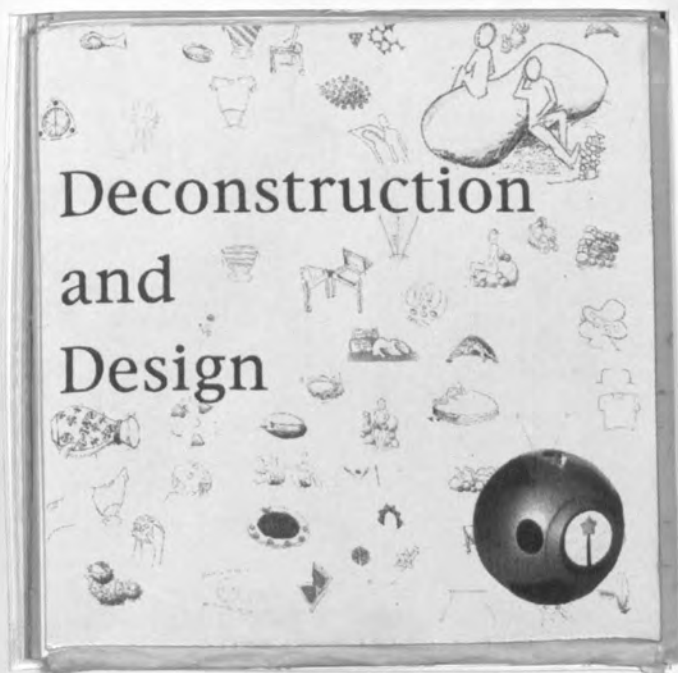


Fig. 4.1 Designer Book



Fig. 4.9 Sensor Pod Introduction

In an effort to combat this double insulation from direct experience, not seeing the thing live, not wanting to see the thing recorded, a number of design proposals were developed (figs. 4.8-4.13). One of the things that was also identified as a supplementary problem with the camcorder and its ergonomic development, in reducing the size of the products, was that the ways they can be held become limited and the number of people whose hands really fit in the prescribed position is restricted. The current styling conventions identified necessitate the imposition of the camera in the viewers' eyeline.

In response to this and after wearable computers were rejected as being impractical or insecure, other ergonomic options were explored, resulting in a return to absolute basic non-designed Euclidian shapes. The sphere provides the basis for a new camera design. This sphere has the advantage that, through our universal exposure, holding a sphere is a natural act for most of us.

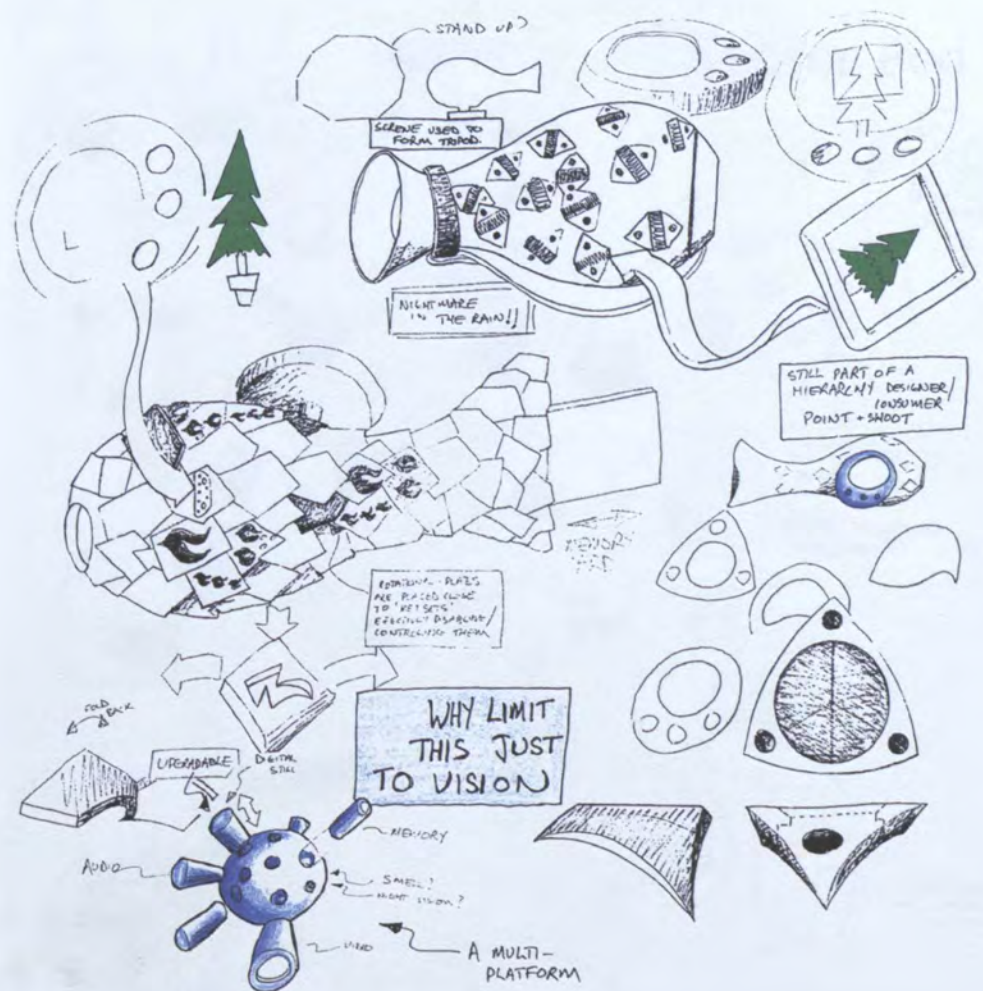


Fig. 4.10 Evolution of Sensor Pod

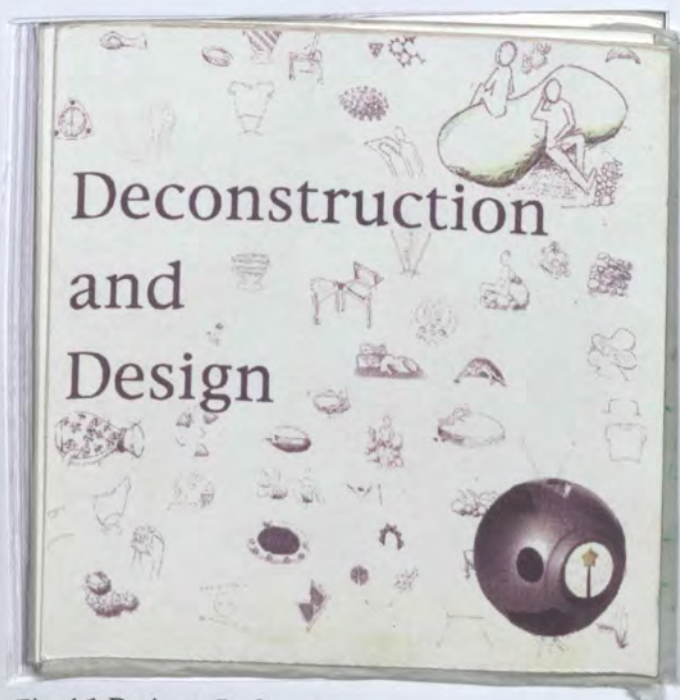


Fig. 4.1 Designer Book

Similarly, as we are used to handling spheres of many different sizes, natural anthropometric variation of hand sizes has a smaller impact, and it also offers the most flexibility in terms of orientation in use, as it has no right way up.

The sphere also facilitates actions like throwing, rolling, swinging and catching that one would never feel able to (or actually achieve) with a conventional camera but are quite attainable with solid state electronics. The shape of the chassis of the camera facilitates playful handling beyond its physical and semantic references to the ball; the spherical shape is much better at absorbing impacts than other shapes with their tighter corners. The gentle curve of the sphere provides maximum dissipation of the impact energy while in products with sharp corners the impact energy is concentrated in a small area.

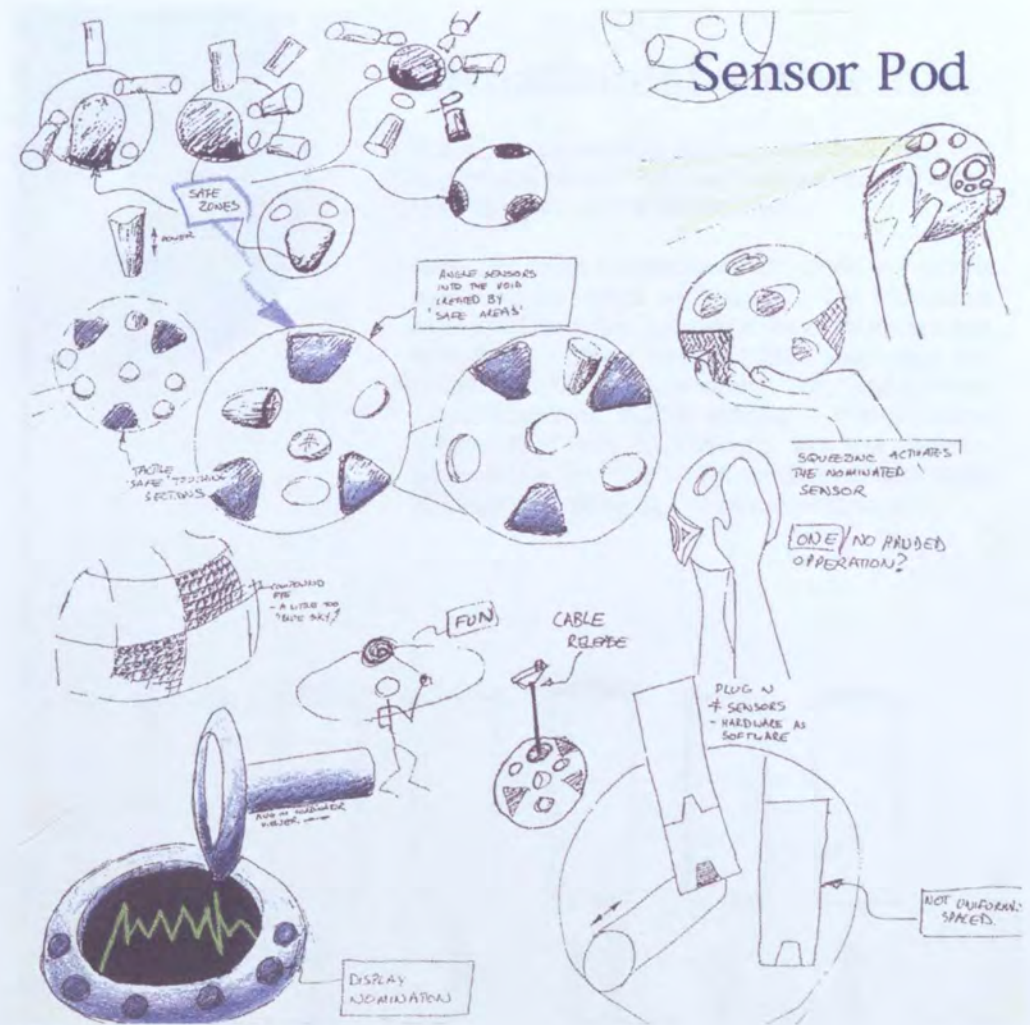


Fig. 4.11 Sensor Pod Modules

As the design for the camera developed, it moved beyond a direct replacement for the conventional video camera into a modular sensory array. This device could perform many different operations depending on the modules included. These modules could include capturing video, sound, still images, smell, infrared images, climate and texture (possibly). Other modules would provide memory storage, power supplies, lights and playback facilities.

All modules are interchangeable, giving maximum flexibility. For example a person could decide to travel light with many of the modules slots empty or alternatively they could add a lot of memory and power modules to give the pod greater capacity and endurance. A different person may want to get a really rich documentation of an environment by recording moving images, high quality sound, smells and the climate. This configuration would leave less space for power and memory, reducing the capacity and endurance of the Pod; the user could of course carry additional memory and power modules.



Fig. 4.1 Designer Book

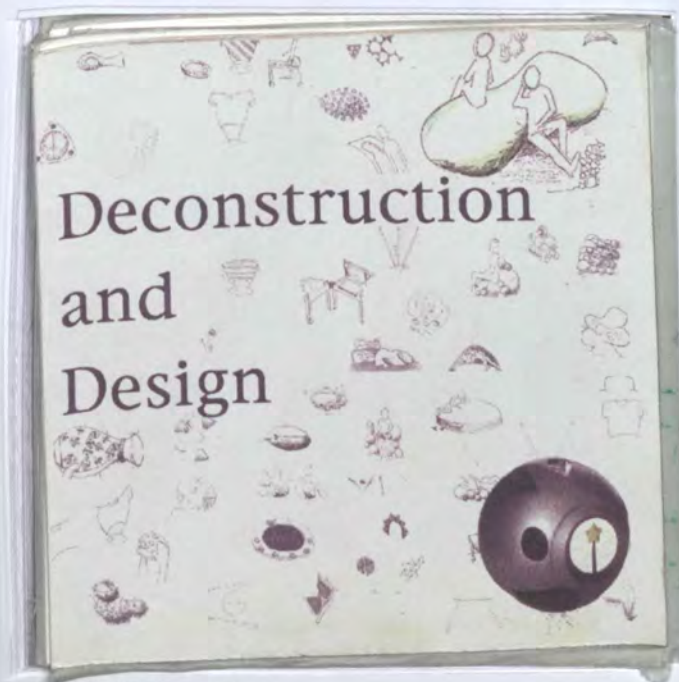


Fig. 4.1 Designer Book

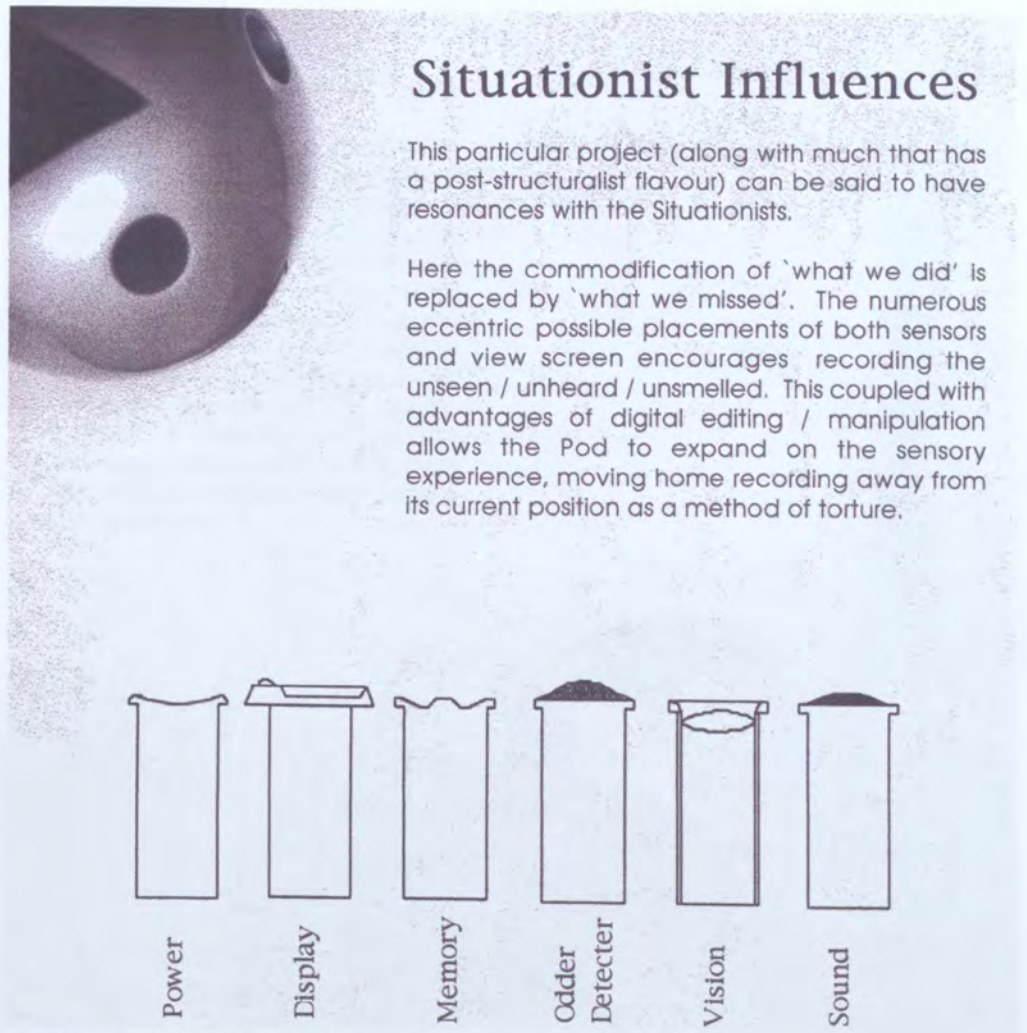


Fig. 4.12 Situationist Influences

The sphere can hold seven interchangeable modules at one time; the modules are cylinders that slide in and out of holes in the spherical casing. An important aspect of the design of the sensor pod is that the holes that receive the individual modules do not all radiate from the centre of the sphere. The orientation of each cylindrical module is different relative to the centre of the sphere.

This arrangement serves two purposes. Firstly the nature of the chassis of the pod and its viewfinder make the pod comfortable to use in almost any position, except holding the camera directly in front of the face, so there is a disincentive for the user to dilute their direct experience. Secondly, the range of different orientations will inevitably lead to the documentation of events not experienced by the user at the time of recording. It is possible and hoped that the sensor pod will expand a user's experience of an environment, contrasting with the tendency of cameras presently to restrict or dilute a user's experience of their environment.

Sensor Pod Issues

This arrangement provides flexibility and modularity. It gives control of the units configuration to the user and through an examination of assumptions provides ergonomic and shock resistance advantages. As an exposition of deconstruction it still has problems. The Pod can still be seen as a preservation of the designer / user hierarchy. The user can only use the modules a designer decides to develop, a way around this problem using today's production techniques is not apparent.



Fig. 4.13 Sensor Pod

Since the production of these designs and accompanying presentation models, solid-state electronics and particularly data storage have made this proposal more practical in a consumer product.

In terms of replacing the hierarchical relationship between user and designer, modularity is an imperfect solution. The problem is that while the user has increased choice, in this instance the choice between modules and arrangements of these modules, the relationship between user and designer is still one of provider and receiver. Modularity gives the 'rat' a bigger maze to play in rather than giving it a say still less control of the configuration of the maze. In an ideal world, many people would have the ability to create sensors for their pods, but logistically this is problematic.



Fig. 4.1 Designer Book

For users to emerge from the shadow of the designer they need to not just exercise the options given to them (although this is essential) but also need to be part of the process that generates these options. This realisation led to a range of design proposals in which without the user's creative input the product in question could not move from concept to actuality.

T Series

T Light (fig. 4.14) and T Screen (fig. 4.15) are related proposals in which the user's participation is integral to the formation of the product. This engagement should 'breath life' into the products from the users perspective. This 'life' shows in the physical idiosyncrasies that individual users will introduce and because of this introduction of personal semantic meanings, which would not be possible through the creation of conventional products even if they were part of a hugely modular system.

These two proposals depend on the combination of relatively simple industrially produced components and elements supplied by the user. T-shirts were selected as something almost everyone could add to a designed component. T-Shirts have the advantage that they are often overtly emblematic. They are used by people to express themselves. From Katherine Hamnett's Slogan T-shirts in the 1980s to branded T-shirts to tour T-shirts celebrating concerts, T-shirts carry considerable semantic resonance.

One of the reasons for the semantically loaded nature of T-Shirts is that they have a short lifespan; much loved T-shirt become associated with a particular time because they quickly get holes in them, limiting their working life and so the timeframe that associations can be attached to them.

For the reasons outlined above, the T-shirt could be seen as an explicit invitation to détournment without changing its context or encouraging the user. This could be through cutting, drawing, through the application of iron-on transfers, through tie-die, through layering. T-Shirts are already used as blank canvases for people to engage with.

The user purchases a simple arrangement of light system and frame. The user provides a T-shirt (or shirts) to turn the frame into an up lighter, exploiting the

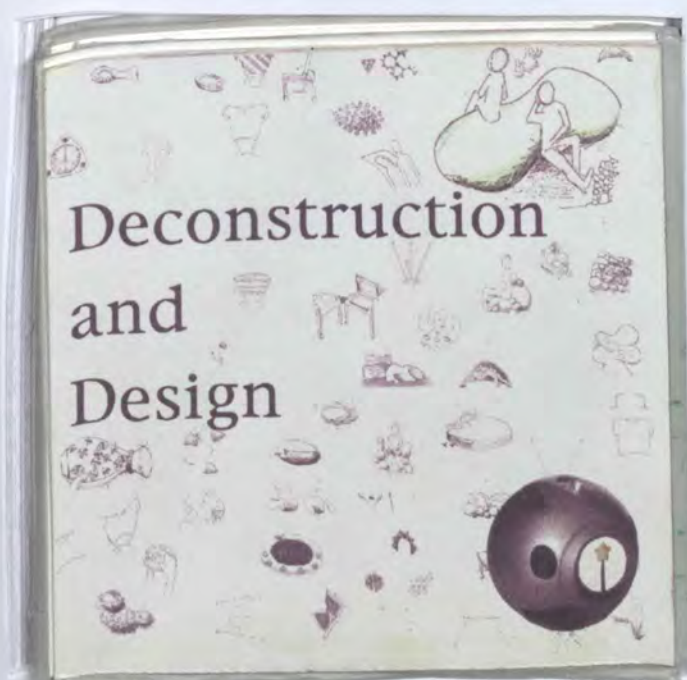
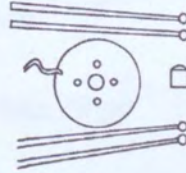
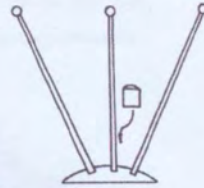


Fig. 4.1 Designer Book

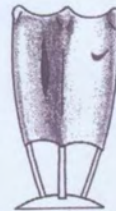
tLight



Make / Buy



Do



Colonise

Users provide their own T Shirts to complete the light (or the screen over leaf)

This simply and inexpensively allows the object to be changed at will.

Importantly this endows the object with a whole raft of memories and associations unique to the individual that the designer could never have access to.

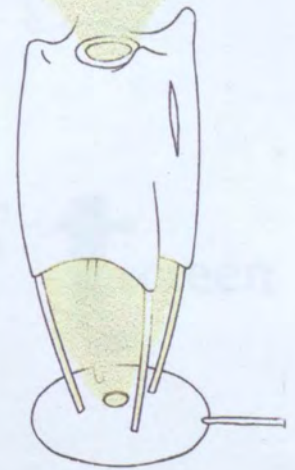


Fig. 4.14 T Light

translucent colour-casting properties of the thin cotton to light the room. This design also allows holes in the T-shirt (accidental or manufactured) to give additional supplemental spotlighting in the room. It is trivial to exchange T-shirts changing the mood of lighting in the room.

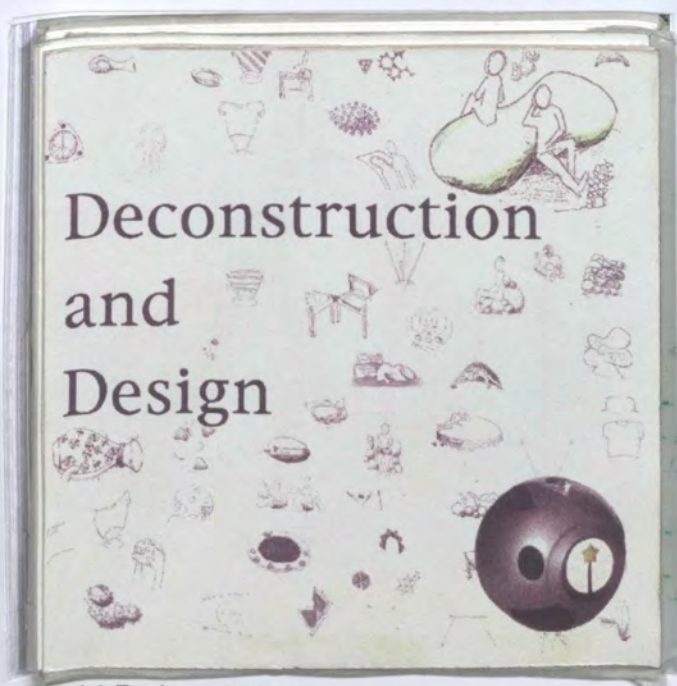


Fig. 4.1 Designer Book

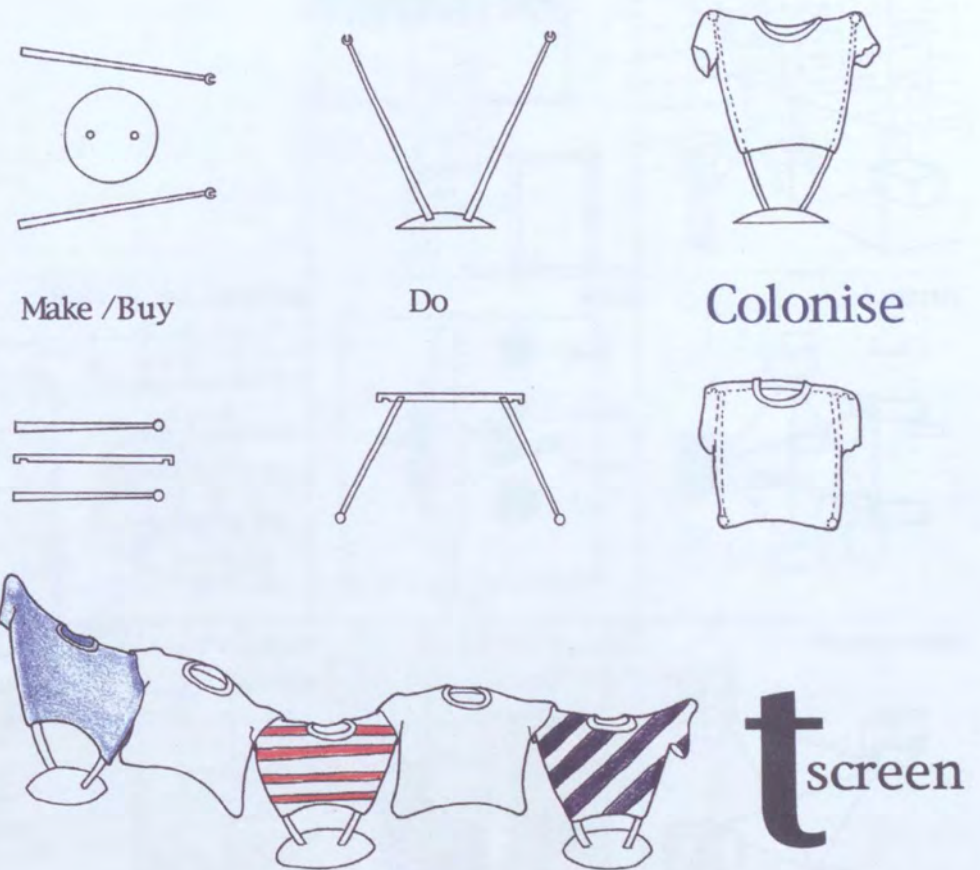


Fig. 4.15 T Screen

T Screen uses a similar principle but with two separate frames that connect together to form a mobile screen; again holes in the T-shirts alter the privacy offered.

The commercial applicability of these two proposals has not been rigorously determined. It seems feasible that with the development of low heat halogen bulbs, outlets such as IKEA could sell T light frames. Although in some respects this is an interesting proposal, conceptually the T products were a stepping-stone into more substantial ideas exploring the relationship between user and designer.

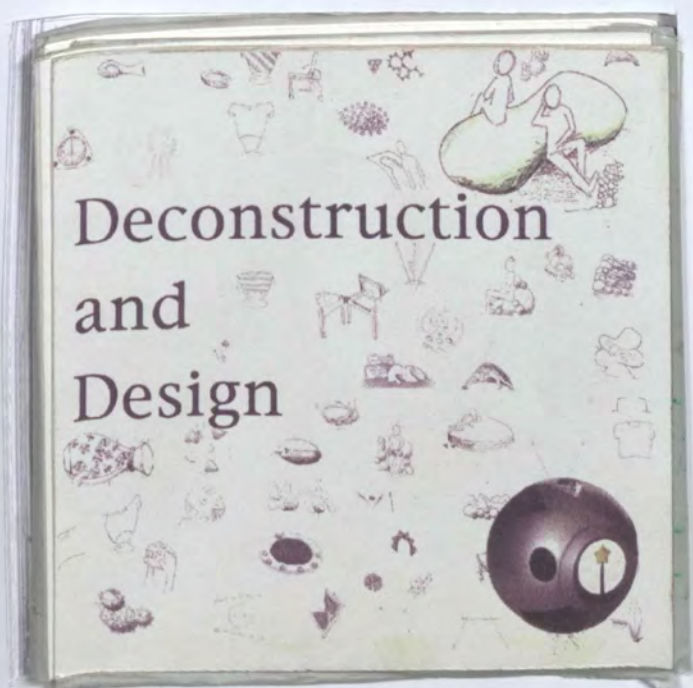


Fig. 4.1 Designer Book

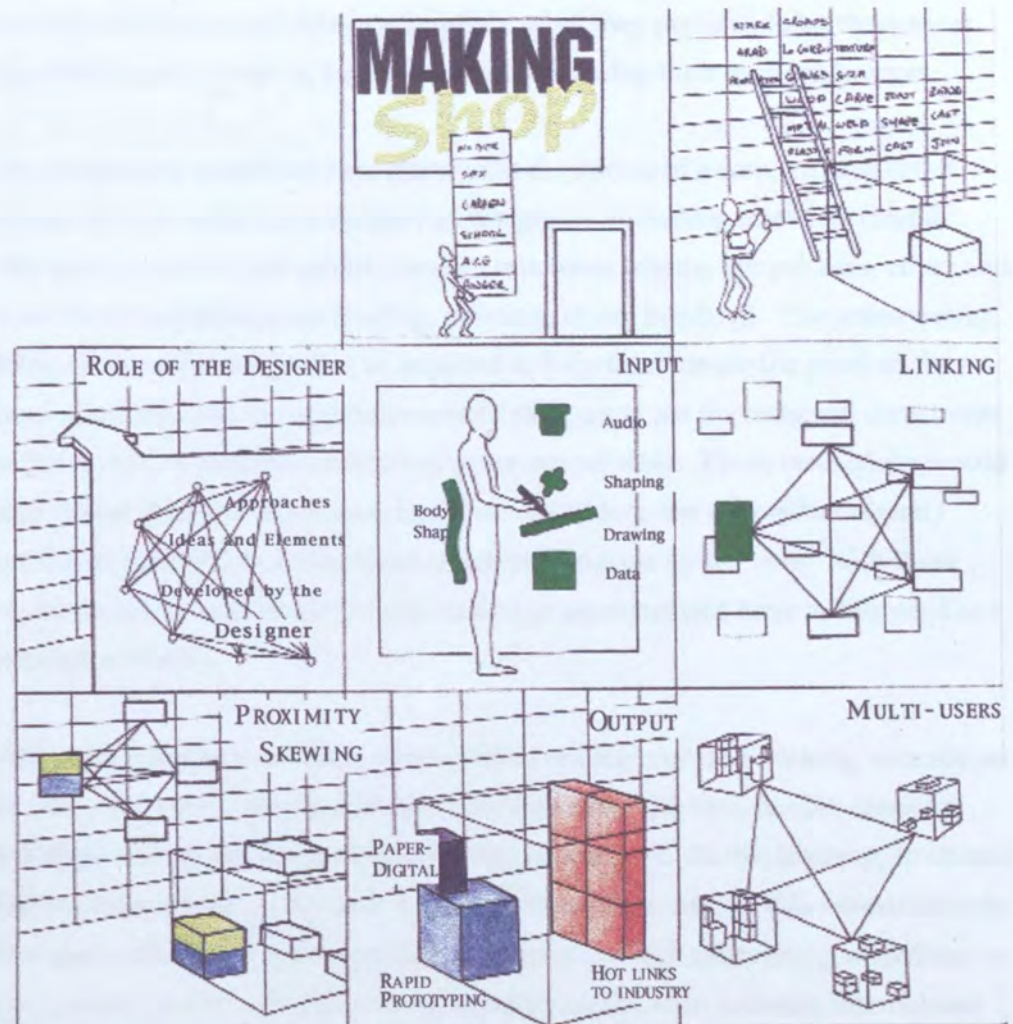


Fig. 4.16 Conceptual Framework

Conceptual Framework

The conceptual framework presented in the book (fig. 4.16) has had a profound impact on much of the subsequent activity for this thesis. These two pages are the link between conventional ideas of modular construction and user-led product design to an engagement with the design of the creative process *in its own right* rather than the outcomes of the creative process.

Drawing from the conclusions reached during the design of the office products (above) and the role of CAD/CAM led to the development of the idea using expert systems to help people with this CAD/CAM creation of products in a non-hierarchical, non-deterministic way. The realisation that face-to-face collaboration between a specific user and a specific designer was likely to be impractical in many cases reinforced this decision. Also the presence of the designer could establish an authority context, where the user could see the designer as



Fig. 4.1 Designer Book

an authority figure and attempt to satisfy what they perceive to be the answer that that figure is looking for, rather than expressing their own preferences.

The framework described here starts with the notion of a conventional set of expert systems split into a number of categories, including materials (metal, fibreglass, concrete and so on), product outcomes (chairs, lampshades, cups) and manufacturing techniques (casting, welding, steam bending). The users would bring these systems together as required to help them create the product they need. Guiding, and in certain cases restricting users are the technical constraints of the materials and manufacturing processes selected. These restrictions would also 'liaise' with the fabrication facilities available to the user either directly on-site or remotely to create these artefacts designed by the user. With these restrictions the user would be able to design an object and have it delivered in x number of days².

2 Implicit in this is the technical ability for one-off automated manufacture; having said this, this proposal does not preclude human manufacture although it would be prohibitively expensive.

3 This (fabricated) term sums up the play between expert systems, non-experts using systems, and being inside expert systems.

Although creating a working sensor pod is not a trivial undertaking, conceptually this is not controversial and sits squarely within the structuralist canon in which outcomes are the product of a rational rule set. In this instance, irrational factors determined by the user, by in-expert systems, extend this rationalist rule. In-expert systems³ are the non-technical factors, which users bring with them to the making centre. Conventionally, these would be seen as being internalised within a creator and then reflected in an individual's preferences. In-expert systems work in addition to these internalised preferences. They exist as modules created by the user and brought with them to the fabrication facility or they could be selected from a library of influences available on-site just as technical modules like material properties, ergonomics, electronics and so on would be selected. The exact nature of the non-expert systems has not been fully realised, they would be drawn from things like favourite images, word association, childhood memories or the user's past creations. In many respects these ideas are built upon in Chapter 5-Generative Design Tools.

Design and construction of artefacts would happen in a real 3-D environment, a creating factory (although one could now just as easily place this in a web-based environment). Modules are chosen by the user and placed in their workspace which also contains an interface for accessing the module's information and actually creating the design.



Fig. 4.1 Designer Book

These interfaces could be a keyboard, screen and mouse but equally could be voice-based, haptic body measuring devices or any other interface that is effective for that particular user. The aim would be to tailor the interface to fit the user rather than trying to fit the user to the conventions of the professional CAD/CAM operations.

The user can alter the way the overall system helps them by changing the relative importance of advice that each module supplies to the central interface. Changing the physical location of the modules inside the space adjusts the relative weight of advice given by the module.

A user could decide that the most important aspect of the product they are creating is that it will be comfortable for auntie Mabel. As a consequence he places 'ergonomics', 'chair' and the 'measurements of auntie Mabel' modules very close to the design interface and the living-room mood module much further away. Alternatively, a more idiosyncratic new glasses case inspired by Philip Glass and the Polka would have a very different spatial configuration and consequently advice to the user.

In this way the hierarchical position of the designer/engineer is brought into play (or playfulness). Expert systems can help *at the discretion of the user* but the user has the capability (and responsibility) to determine what help they need and how important this knowledge is. This system also raises the intriguing possibility of mixing modules, of subverting their rationality by, for example, employing the very sensible guidelines for trampoline construction to produce unusual telephones or hats.

This is the most basic mode of operation and in principle a structuralist construction. Outcomes are guided by a series of rationalist rule sets, even if these rules are combined in highly individual ways. The framework described here emerges from the conventional expert system (seen in medical diagnosis, building regulation interpretation and generally in situations where a set of rules can be applied to a problem) with the introduction of in-expert modules; with these, the users are able to introduce rogue elements unforeseen by the designer.

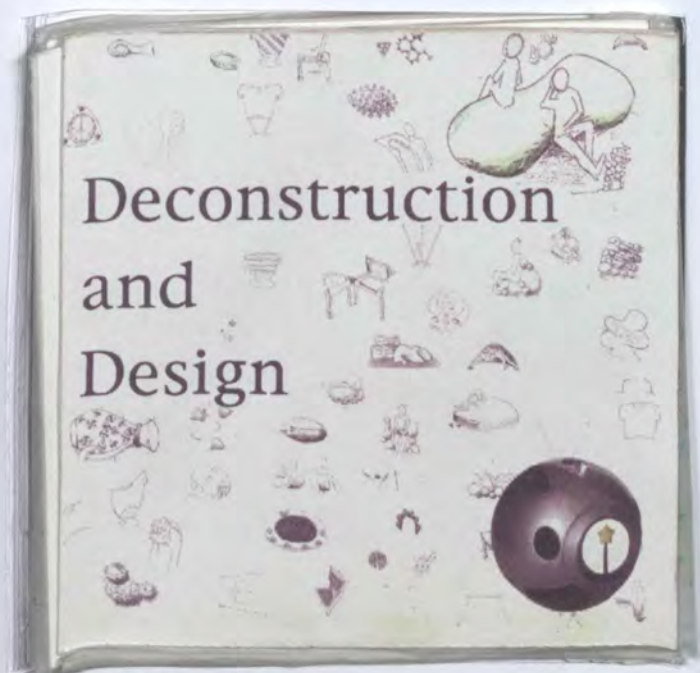


Fig. 4.1 Designer Book

4 That's you and me, nice to meet you.

5 In almost the ultimate statement of the designer as arbiter of taste the designer David Carson decided that as (in his opinion) Brian Ferry was talking nonsense in an interview the text was converted into the typeface 'dingbats' a non-alphabetical typeface, e.g. 'Carson' in dingbats is '✦✧◻▲◻■'.

This conceptual framework marks a shift in the trajectory of this thesis. It is at this point of development that the emphasis, particularly the practical propositions of the research, shift from the finished product to the *process* of creation and the engagement of the user in the construction of this process. This represents a move towards designer-user interaction in the development of processes or methods for problem-solving. The practical application of the issues raised in this conceptual framework led to a move from physical artefacts into digital products, environments and frameworks.

Reviewing the conceptual framework, its primary interest lies in its role as a user-modifiable system. A criticism of the proposal would be that technical and in-expert modules are rather too separate. There could be a role for modules that help the user to interpret the data received from both expert and in-expert modules. Individual designers would interpret this information in many different ways using a range of strategies; Chapter 6 explores this notion more fully.

Presentation

The book included here (fig. 4.1) collects together the mini-projects described in images and text above. The aim of this book was primarily to gather the superficially disparate projects detailed above together into a form that highlights their common and evolving engagement with the theoretical concerns of this research.

This act of pulling together also reflects these theoretical concerns; here this entails developing an interactive relationship between the reader of the book and the designer⁴. It seems inappropriate to present these design proposals to the reader as a *fait accompli* on which interpretation of the (physically) fixed narrative is the only impact they can have on the text.

This desire to reflect in its form the ideas presented in a text is not new. This approach has been taken within the typography art of the Futurists to André Breton's *Calligrams* to David Carson's typographic dismissal of a Brian Ferry interview in *Ray Gun*⁵. Closer to this specific topic Derrida's *Glas* (1974) explores the interplay of type and meaning. This area is explored in more depth in Chapter 3-Choral Works, itself an interesting exposition of form contributing to the meaning of a text.

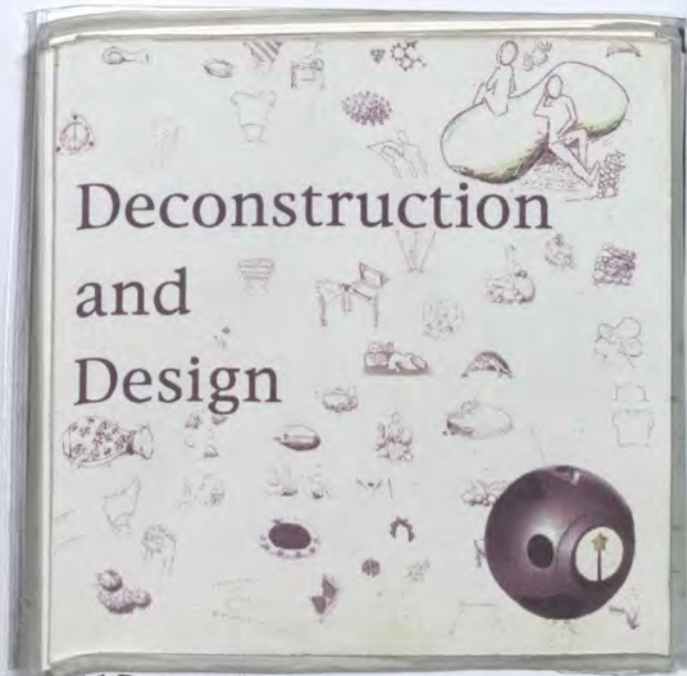


Fig. 4.1 Designer Book

The factor that has had the biggest impact on the form of the book is the way that it folds. Rather than being hinged on one side (conventionally in the West, the left-hand side), this book opens at different points on all four sides. The page is square to facilitate different folding arrangements in use; a symmetrical shape is required to allow the rearrangements of the document when being re-folded. Folding and variation in folding became a guiding principle for this book for a number of reasons;

1 The changes of direction the hinging of pages takes away the opportunity to casually flick through the book without looking at the pages, its operation necessitates *active* manipulation. While not difficult, the intention is that reader/users have to *look* at the book; it is a gentle provocation for the user to engage rather than passively receive the text.

2 The construction of the book moves away from the linear experience conventionally seen in books. Opening the book and navigating through it causes the juxtaposing of images and text in unpredictable ways. As the structure of the book unfolds unpredictably, these juxtapositions will be different for each user⁶ and connections made by the user/reader may be personal to their individual experiences.

3 The unpredictability of folding makes it very difficult to refold the book in the order it was before reading, so the user's/reader's musings are a legacy to the next person looking at it. This promotes the idea of multiple entry points to the book, and in practice the title page gets buried in the book very quickly. This is an attempt to give the book a rhizomic quality.

A by-product of the convoluted fabrication process for the book is that pages can very easily be placed in the book in the wrong place or orientated the wrong way⁷. This serendipity is welcomed into the process of construction. A second by-product is that the hinges of the book become tacky if the book is not used; a book left dormant is likely to start to seize up. Regular interaction is required for the artefact to function, and without attention it dies.

6 The possible combinations are finite but mind-bogglingly huge.

7 There is a model for the arrangement of pages which group together mini-narratives. Although only two pages need to be next to each in a specific orientation, the conceptual framework works best as a double-page spread.



Fig. 4.1 Designer Book

Beyond folding strategies, the idea of trace plays an important part in the book. A light trace is left with each reading: fingers leave marks; pollution discolours pages heightened by the acidic grease on our fingers; pages get dog eared. The uncoated, non-wipe clean paper used in the fabrication process records and welcomes these traces. In a more direct manner, the user/reader should contribute to the book. There is a specific space left in the book for them to do this but the intention is that this creeps into other pages⁸.

Judged as a conventional book, the artefact included here has some practical problems. It would be very costly to publish in its present form (there are some very interesting electronic/virtual possibilities) but mass production is not the aim of this artefact, it is a part of a larger developmental process.

This is equally true for the contents of the book. Some of these proposals may have commercial potential (the 'sensor pod' for instance) but their aim is to exploit and develop an interface between creation and a series of theoretical perspectives.

⁸ A prototype exploring this sort of contribution was an interactive, modular enposter titled 'Process as Practice' was displayed at a conference on design research (*Exchange 2000*).

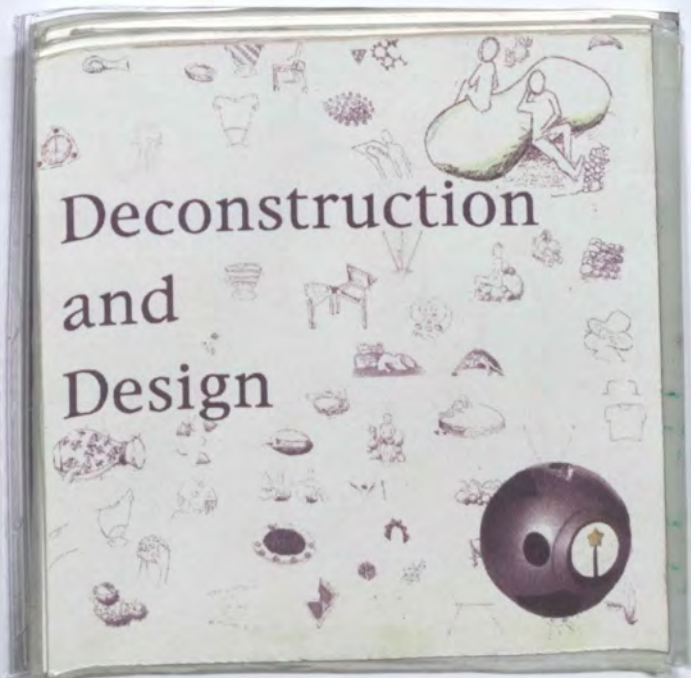


Fig. 4.1 Designer Book

Chapter 5 Generative Design Tools

Introduction

Building on some aspects of the conceptual CAD/CAM framework outlined in Chapter 4, a system was conceived to explore the principles of user-led creation by means of a framework support created by a designer or designers. The Department of Trade and Industry funded this through the NCTI (National Creative Technology Initiative). The aim of the Generative Design Tools (GDT) pilot project was to explore how a symbiotic relationship between designer and user could be developed without the designer having to be present during the process of creation. For the purposes of the pilot project, the outcome of this creative process would be a personal logo or business card. This led to a number of collaborative conference papers (Cruickshank 1999, 2000) an electronic simulation included here on CD at the end of this chapter, and an internally published report within the Media Lab at the University of the West of England (Bristol). These publications form the foundation of this chapter.

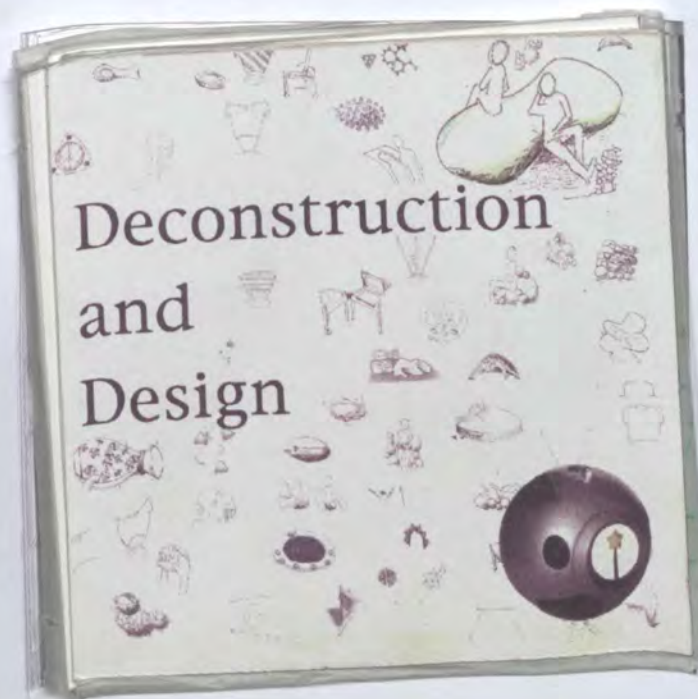
¹ For a moment lets set aside the complications of team design, the role of the manufacturer and the problem author

This project proposes the development of problem solving approaches or design methods by members (and later non-members) of the design profession. These methods developed by the designer not only guide the user, they make suggestions to the user. The user can modify, reject, accept or combine these suggestions, changing the approach to problem solving originally conceived of by the designer. There is a shift here, as conventionally the designer produces or conceives an artefact that is used by someone¹. In the scenario described here, the user of an artefact and the designer work in concert to produce the artefact.

GDT have wide-ranging applications within the design profession but they also have implications for non-professional creative production. As discussed below GDT gives designers the opportunity to engage with this section of society in a symbiotic, economically viable relationship without dominating it.

Overview

The distinction between method and methodology is a contentious issue. There is a danger that the adoption of the 'ology' suffix may be perceived as an attempt to gain pseudo-scientific credibility. Although in some instances this may be justified, I choose to adopt Wojciech Gasparski's (1993) distinction between these two terms. He defined the classification of method as 'the way of action applied sys-



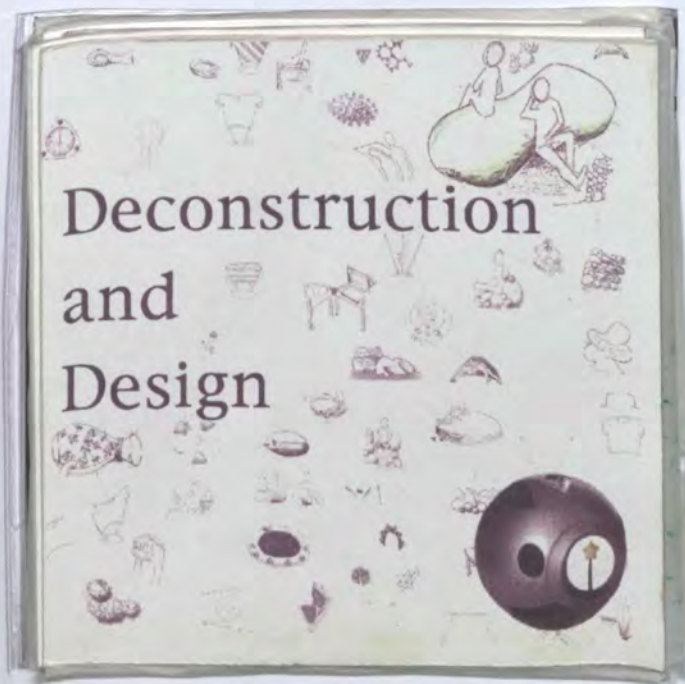
tematically to achieve successfully the purpose of action' (Gasparki 1993:167) and is to some extent a repeatable process, while a methodology can be seen as a set of philosophical principles that underpin a method or methods.

The GDT project is concerned with both method and methodology. A Generative Design Tool is an animate or articulating design method. It is a particular approach to problem solving existing in an interactive form independent from the original designer of this method. This interactive problem solving approach is a product of a personal methodology residing within the designer of the Generative Design Tool. It is entirely possible for a designer's personal methodology to spawn many contrasting design methods. A designer could create many different contrasting design methods for use as GDTs. While this is a new application of design thinking in a final idealised form, users of the GDS system would be able to mutate, 'breed' or even publish their own design methods. This would move the symbiotic relationship between designer and user from the realm of the artefact to the level of process or structure.

Within this new creative relationship between designers and users, prospective designers will produce a range of interesting approaches to problem solving (methods) these will fit into a piece of software that will allow a wide range of people to use these approaches to create their own artefacts. These approaches interact with a user in a symbiotic way to produce an artefact that neither designer or user would have produced independently (see CD GDT simulation).

The notion that the production of methods as a creative act in *its own right* (rather than a closely guarded personal matter) requires a paradigm shift for many designers. Within this new approach, a series of problem solving methods are put forward for consideration by the user. Someone who specialises in this type of design will be looking for useful or interesting methods of producing design solutions.

These approaches could be quite specific in their operation or alternatively they could attempt to be applicable in many disparate situations. They could be fun, political, revolutionary or conventional; the potential for development of methods for GDT is only limited the number and creative energy of the designers working in this field.

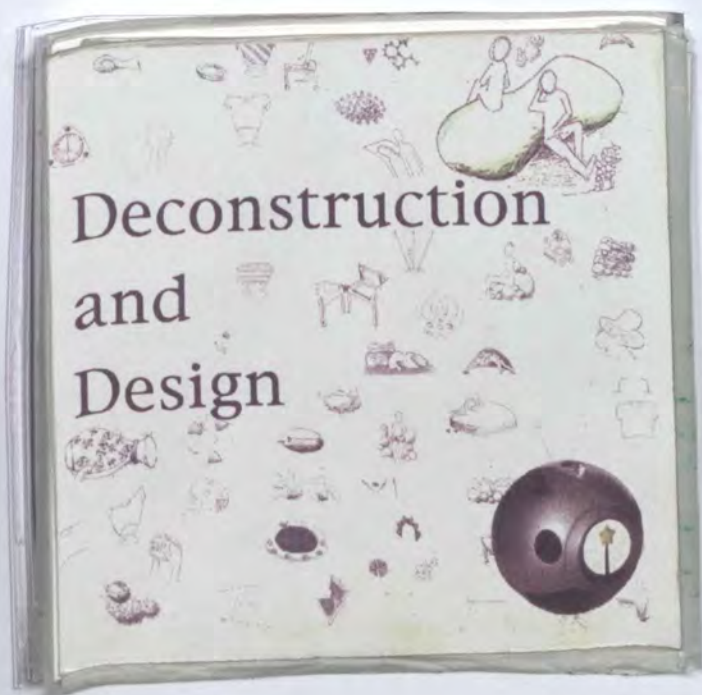


² Alan Turning devised a test in the early post-war development of artificial intelligence, a computer could be said to be intelligent if one could have a text conversation with it and not be able to distinguish this from text conversations with real people.

It is important to stress here that GDT is not an attempt to bottle or automate creativity; it is the production of a range of interactive stimuli, and the user interacts with these to make interesting artefacts. This sort of activity will not appeal to every designer but Generative Design Tools (GDT) increase the potential for cooperative design activity between users and designers rather than trying to revolutionise the whole design profession. Similarly it is not an attempt to pass a graphic Turning test². Its aim is to facilitate the invitation of design sensibilities into creative activities not normally within the remit of professional design.

For GDT to be successful, the interactive nature of the system is pivotal. Very few people would be either able or motivated to apply a rigid-rule based method when creating; such a predetermined 'stencilling' operation would preclude the desired 'give and take' relationship needed for user engagement. Moving to the other extreme for the user to take sole responsibility for creative production negates the specialist qualities that define the designer's role.

The software proposed here responds to the user rather than dominating them. The user can vary the predictability of the suggestions it makes and the method can only act on the initial contribution made by the user. The user has control over the outcomes of the process, a suggestion can be rejected; a new solution generated, using the same method. This is an iterative process of input suggestion and response between the method and the user.



Although not achievable within the pilot project NCTI or this PhD it is appropriate at this point to indicate some of the long-term objectives of the GDT project. A final, idealised system for GDT would

- Allow the user to have the ability to control the creative process. They must initiate the process with some original input (a practical as well as conceptual necessity).
- Have methods that are made up of elements that can be re-arranged by users allowing different methods to be combined into hybrids, blending problem solving approaches.
- Have methods that are open to the possibility of application in any media and for many different functions by the user.
- Have an infrastructure that would allow for the recording (and subsequent

use of design methods). This is an important aspect of a conclusion of the GDT project. It can be seen as the final step in the diffusion of the designer/user hierarchy as the production of methods as well as their use becomes open to all.

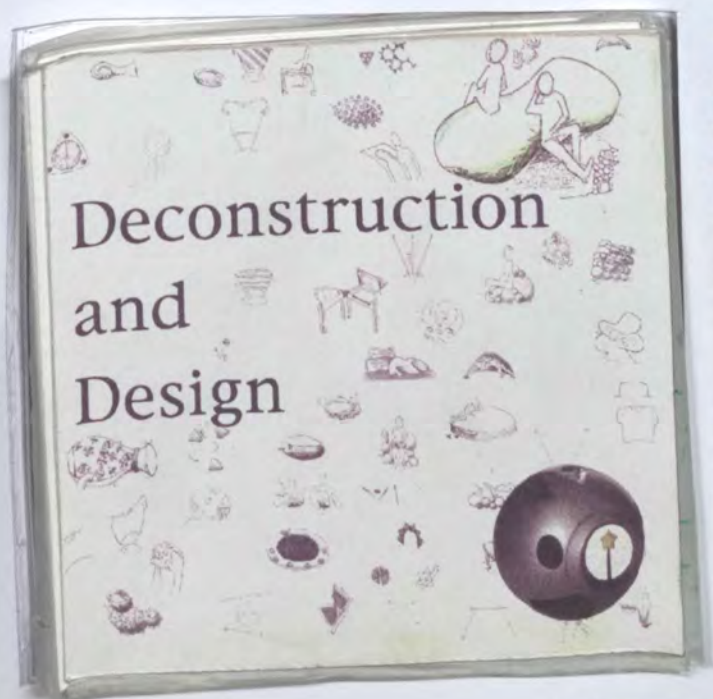
- Allow professional and non-professional designers to feel equally comfortable producing, exchanging using and modifying methods.

These objectives require an engagement with professional design practice through the proposition of the creation of methods seen as a creative act with the consumer and so promote personal engagement in the construction of a users environment. This also requires the solution of the technological problems of producing systems that can capture a design methodology and allow the user to interact with the system in a generative as well as a reactive way.

Finally, and importantly, while Generative Design Tools is potentially a new strand of design (and consumer) activity, it is not positing the end of the role of the conventional designer. It is an expansion of design practice into areas that are increasingly becoming outside the realm of the professional designer e.g. office DTP, web site production. This expansion is accompanied by a much more democratic, open approach to design compared to the conventional user-centred approach.

Background

This project is a practical consequence of a larger political stance; the designer may be in possession of specific knowledge and have specific skills but this does not automatically confer the right to impose this on the user. The designer is conventionally regarded as 'naturally' being in charge of the physical production of the artefact with the play between designer and user being restricted to the level of semantics and interpretation. Deconstructivist approaches demonstrate this where the designed artefact or text is 'difficult' in terms of use or reading. This immediately sets up a binary position dividing those willing to take up the challenge and are able to react to the structural/functional/legible provocations of the designer and those who are not willing or able to make sense of the provocation. Rather than democratising, this approach replaces one established hierarchy with another.

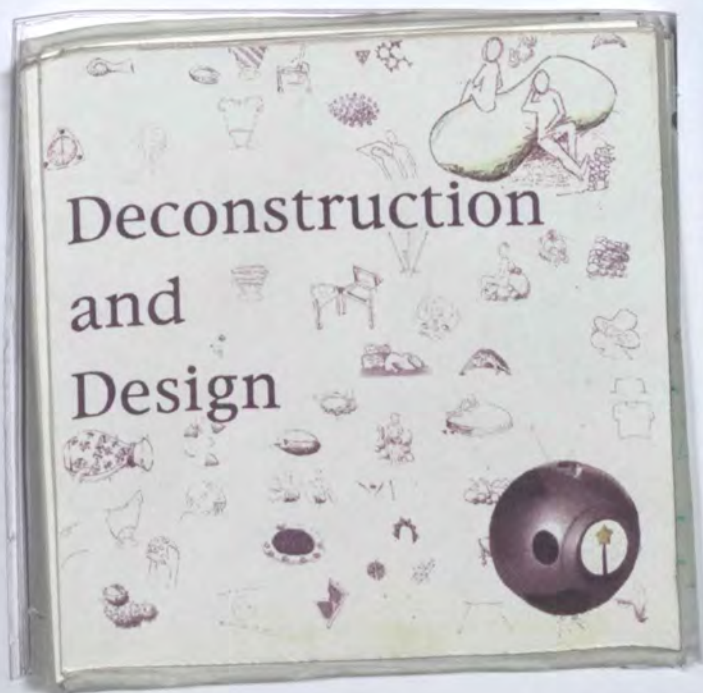


This can be seen in criticisms of Zaha Hadid's 'deconstructivist' fire station for the Vitra company. Here the physical deconstruction of the spatial properties of the station result in numerous trip hazards and garage doors that take 15 minutes to open. David Carson's deconstructive graphic design is patently problematic to read. His counter-argument to this criticism that 'you cannot, not communicate' is evidence of his abdication of responsibility of the designer to communicate specific information.

The dissolution of the role of the designer into a 'producing consumer' could be seen as being valid for individual consumption but crucially David Carson (and others) are still involved with mass produced communication design. The net result of this is that the hierarchical position coveted by some Modernist designers (including Le Corbusier, Herbert Bayer, Lissitzky, Rietveld, Mies van de Rohe) has developed into a position where deconstructivist designers now occupy a position of a hierarchical consumer. They acknowledge a relinquishment of control of meaning but through their retention control of the mass communication produced, they impose their personal interpretation of meaning.

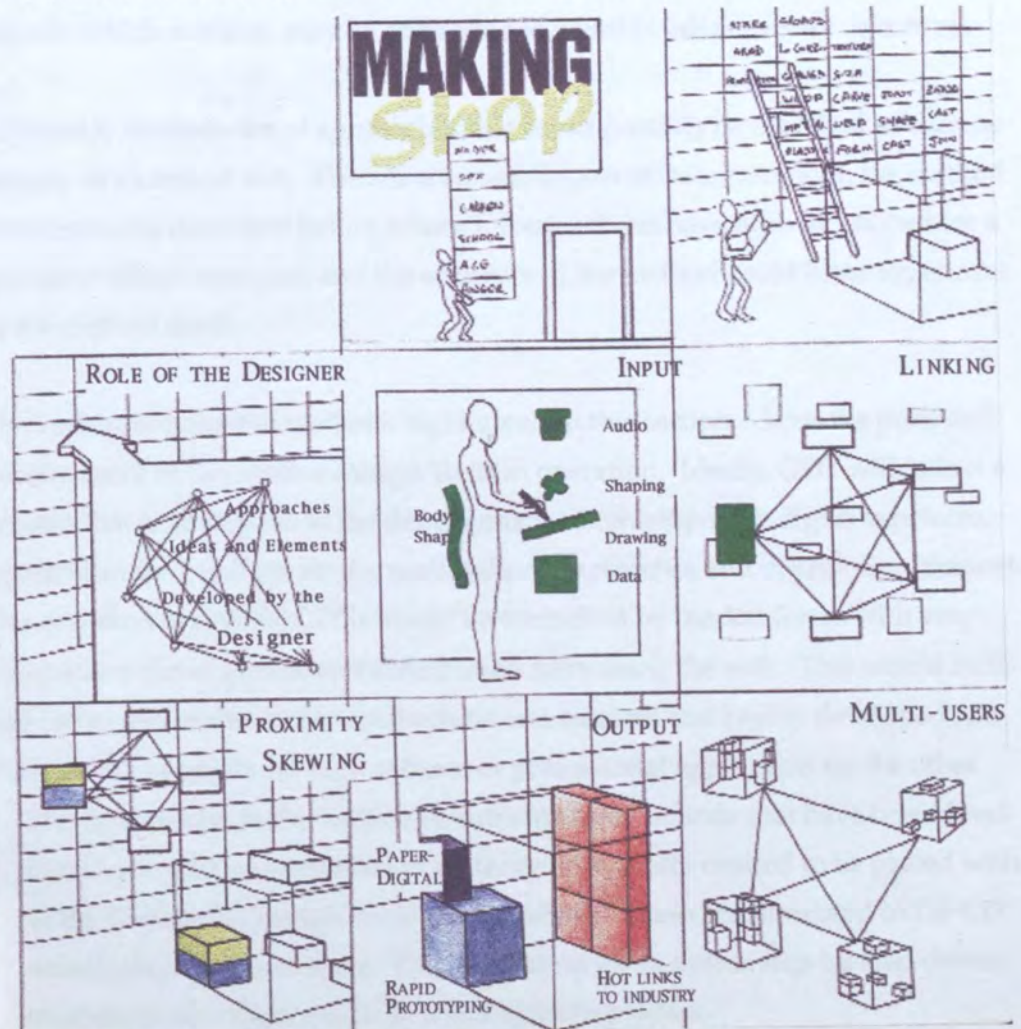
These observations and a realisation that going to the other extreme of a totally relativistic approach where absolute values are replaced by an individual users personal opinion or context dependent valuations led to a series of developmental projects that necessitated the engagement of both a designer and an end user to create an artefact. This series of designs undertaken by the author (paralleling theoretical post-graduate study and professional design activity) included the development of (amongst others) the projects described in Chapter 4.

Most significant of these was the development of a spatial environment in which the user could control specific design considerations such as production processes, material properties, methodologies, and human factors (fig. 5.1). The concept of facilitating the user's creative production with specialist knowledge and a range of problem solving strategies within a framework is a direct antecedent of the Generative Design Tools project.



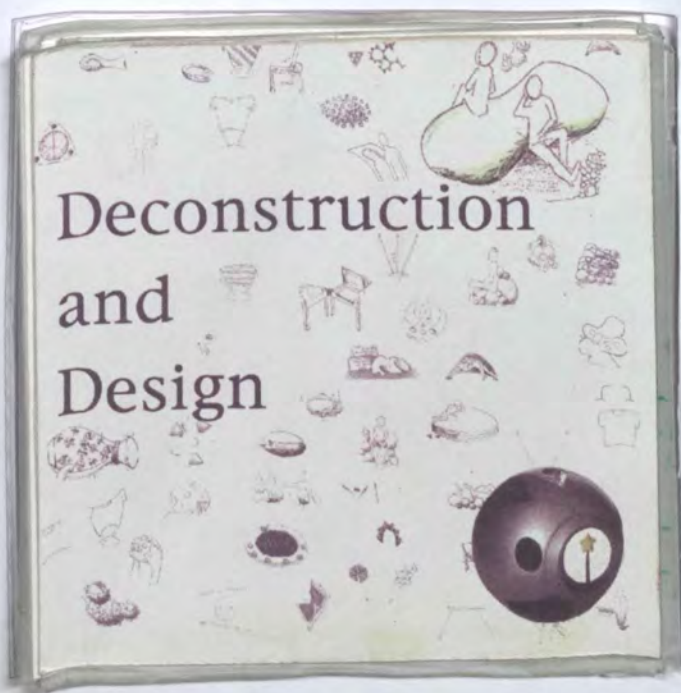
Research Methods

An investigation of the GDT project resulted in a preliminary discussion document and the production of an interactive electronic demonstration of the Generative Design Tools as they could operate. This formed the core of a paper presented at the Visual Narrative Matrix Conference at Southampton Institute in November 1999 (Cruickshank 1999) also at CADE 2001 *Digital Creativity: Crossing the Border*



(see Cruickshank 2001). The positive feedback from this presentation increased confidence in the final objectives of the GDT project and demonstrated some of the concerns of the design community (discussed below).

This project draws together a number of disparate disciplines including philosophy, industrial design, artificial intelligence, Computer Aided Design/Computer Aided Manufacture and computer science. This information informs the development of both the underlying concept of the GDT project and the projected application of the project.



In establishing a context in which the GDT proposal could operate three broad categories have been identified, 1 methodological infrastructures, 2 potential methods and 3 technical precedents.

1 Method Infrastructures are examples of projects that attempt to create an infrastructure within which other methods can be located. They address the possible ways in which methods may be applicable to a usable infrastructure or context.

2 Potential Methods are of approaches that could possibly be modified to become useable as a method tool. There is a certain degree of cross-over with the method infrastructures described below, where infrastructures have been developed for a specific method strategies, and the structure of the method could be as significant as the method itself.

The variety of potential methods highlighted in this section echoes the projected development of Generative Design Tools in operation. Ideally, GDT will follow a process that is analogous to the development of contemporary digital typefaces, resulting in the publication of a multitude of approaches and distribution channels. The adoption of specific GDTs would be controlled by market forces with very inexpensive development and distribution costs using the web. This would facilitate niche, disposable or fun methods on one extreme and highly developed relatively costly products for high volume or professional application on the other.

The final entries in this section document three methods that have been developed by myself as exemplars of methods specifically created to be placed within the Generative Design Tools infrastructure. These are simulated in the CD accompanying this chapter. This simulation gives a clear step-by-step demonstration of how these methods could work in practice.

3 Technical Precedents these are largely commercial examples of technology that illustrates activity that has the potential to facilitate the production of Generative Design Tools.

Methodological Infrastructures

Mondrian – A Teachable Graphical Editor

'Mondrian is a teachable object-orientated graphical editor that can learn new graphical procedures through programming by demonstration.'

(<http://lieber.www.media.mit.edu/people/lieber/lieberary/Mondrian/Mondrian.htm>)



Henry Lieberman devised this experimental software application at the Media Laboratory at the Massachusetts Institute of Technology in 1997. Its strategic aim is to defuse the problem faced by 'visual thinkers' like graphic designers, architects, and multimedia designers when their activities involve them engaging in activities that require programming. Lieberman argues that there is significant evidence that visual thinkers communicate through (visual) example rather than text. This natural affinity for the visual over text communication is a significant handicap when engaging with programming activities.

Mondrian allows the construction of digital artefacts through an analysis and generalisation of graphical examples. These generalisations are applied in subsequent situations. It is the 'fuzzy' nature of the generalisation and the application of example generated procedures that are significant in this context. This approach contrasts with conventional 'macros' that tend to be brittle; they are often applicable in very specific situations with predetermined outcomes and perform a tightly prescribed function.

In an example cited by Lieberman, Mondrian can create arches through the analysis of the actions of a user; actions recorded by the application in a series of snapshots of screen activity. Mondrian converts this series of snapshots into an editable storyboard and then into an icon that will apply the process to other graphic elements. The icons produced are domino-like constructions showing representations of the screen before and after the application of the operation.

Lieberman has further developed this idea in the paper '*Making Programming Accessible to Visual Problem Solvers*' (Lieberman 1997). Here he analyses adverts placed in the Yellow Pages. In this paper, the examples used to guide Mondrian are augmented by annotation by the designer. Using the Yellow Pages as an example, the annotations form a hierarchical framework that enables the translation of one text-graphic form of advert into an abbreviated text-only format. The form of the advert is different but the communicative hierarchy remains consistent between adverts.



In some respects, GDT is similar to the Mondrian project. Mondrian uses processes articulated by 'visual thinkers' and allows the flexible application of these processes by other designers. The method of recording procedures and their display, both in terms of the automated storyboarding of the process and in the development of domino icons could be relevant to GDT. Programming by demonstration as a generic area of computer science is an area worthy of future investigation.

Mondrian has very different aims to the Generative Design Tools project; it is a flexible graphical 'macro' generator. It records and organises particular, formal process-led actions (e.g. the creation of arch shapes or the mapping of text from one hierarchical template to another). This contrasts with the broader aspirations of the GDT project; where the aim is to produce problem solving approaches rather than graphical processes. As users provide the content and control the way the method is applied, the outcomes of a GDT process would not be even fuzzily predictable. In some ways, the possibilities of Mondrian in terms of programming through demonstration are more directly relevant to the documentation of specific designers method and their translation into a generative design tool.

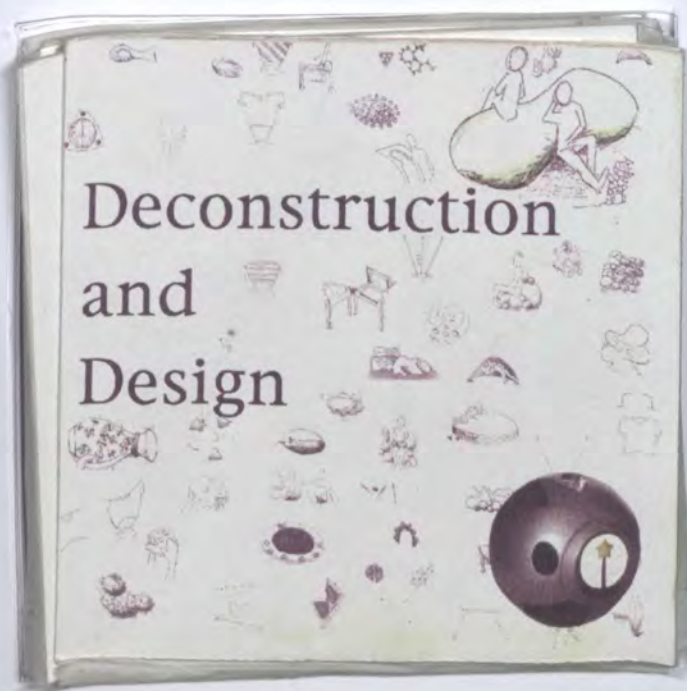
Design Paradigms

This is an area of research that asks the question '*what is the fundamental nature of the interaction between human and computer in that design process*'³. It examines how the conventional process of professional design can interact with computers. It adopts a less open stance than Generative Design Tools as it is looking at tools for designers rather than tools for everyone.

Joe Martin, Mark Friedell and Sandeep Kocher have proposed a range of different paradigms in their paper '*Interaction Paradigms in Graphical Object Modelling*' (Design Paradigms 1997). This binary axis links these paradigms with description (providing a precise graphical portrayal of a conventional design) at one extreme and automated design (the direct engagement of the computer in the design process) at the other extreme.

GDT and the Co-operative's approach outlined in the paper *Design Interaction Paradigms* are related. It seeks a system in which 'the human makes critical design discussions while the system performs detailed design refinement, gen-





erates several design alternatives and presents them to the human designer for browsing³. This process is enabled by Co-operative Computer Aided Design (CCAD) whereby 'the user expresses initial design discussions in the form of a partial design and a set of priorities that the final design must have' (Design Paradigms 1997). The aspirations of CCAD are also relevant for Generative Tools, as the goal is the flexible application of a problem-solving algorithm. The two systems also have significant differences. CCAD is concerned with the development of expert systems that require the human operator to specify final conditions, and CCAD then produces designs that meet these specifications in a variety of ways. These specifications could be things like materials, final dimensions, or buoyancy. Although some designers may choose this approach Generative Design Tools do not *depend* on the use of these sorts of rules to constrain the final outcome and more open-ended strategies could be applied.

While the examples given here have relevance to the Generative Design Tools project they all share a design-centric view of the creative process. They assume a Ptolemaic relationship between designer (at the centre of the creative process) and users on the periphery of the system. This contrasts directly with the political, philosophical and practical intentions of the GDT project. The systems listed above also have a very static view of the processes they propose. With GDT the aim is to be considerably more adaptable in operation and outcomes, with the ability to select, modify and create hybrid methods both within and across traditional creative classifications like graphic design, cookery, furniture design, architecture, dance, literature and so on. This flexibility is not only in the potential range of outcomes but also in the methods used to create these collaborative outcomes.

Potential Methods

The examples cited above are parallel activities to the proposals for the GDT project. The examples below do not relate specifically to a user-designer context but are examples of working strategies that could be adapted into GDT methods.

The examples below also give some indication to the potential variety of methodological approaches possible within GDT. It should also be noted that it is not possible (or desirable) to declare these examples as being good methods, just as it is not possible to say if the typeface Times Roman is better than Arial.

Low Complexity Art

A direct example of a potential method can be seen in Jurgen Schmidhuber's call for the development of Low Complexity Art (Schmidhuber 1997). Schmidhuber promotes the development of Art that uses Kolmogorov Complexity to achieve 'intuitive notions of simplicity'. He set two criteria for good low complexity art, firstly it should look good, and secondly the Kolmogorov complexity of the piece should be low. At its most basic level Kolmogorov complexity is determined by the number of bits of information that are required to describe something, the fewer the number of bits the lower the complexity. The first of these criteria 'looking good' is clearly subjective. This is particularly interesting within the philosophical context of the GDT project as it facilitates the process of symbiotic interaction between users and designer, and the reception of the piece of art becomes an important issue. The user's individual aesthetic appreciation always mediates the use of mathematical construction.

The second criterion, low Kolmogorov complexity involves the application of a range of strategies. One approach proposed by Schmidhuber is the use of fractal geometry to produce self-similar art that is described using a very small non-linear equation (in terms of the number of bits of information required to write it). In an alternate strategy, Schmidhuber proposes a series of rules to produce Low Complexity Art. These rest on the construction and manipulation of 'Legal Drawings' the rules are



'Initialisation – Draw a circle of arbitrary radius and centre position. Arbitrarily select a point on the first circle and use it as a centre of a second circle with equal radius. The first two circles are defined as legal circles. The rules for generating additional circles are as follows

Rule 1 Wherever two legal circles of equal radius touch or intersect, draw another legal circle of equal radius with the intersection point as its centre

Rule 2 within each legal circle with a centre point p and radius r , draw another circle whose centre point is also p but whose radius is $r/2$ '

(Schmidhuber: 98)



Fig. 5.2 The construction of 'legal' Kolomogovou drawings

When these rules are repeatedly applied, they result in the construction of a grid illustrated in fig. 5.2; which is used in conjunction with another set of four rules to create 'legal drawings'. The cartoon figure illustrated here is an example of a legal drawing where the rules combined with an individual artistic sensibility (making it look good).

The combination of a complex rule-based structure and a subjective element makes this approach eminently suitable for development as a Generative Design Tool.

Designs for the Future

Designs for the Future is a proposal by Randal Davies at MIT (1997) that enables the conversion of hand drawings into engineering drawings by a computer. A quite straight hand drawn line is transformed into a geometric straight line; a rough circle is turned into a perfect circle. This sort of translation is relatively basic and commercially available in proprietary software like Macromedia's Flash. Davies proposal goes further than this in two respects; it recognises conventions such as arrows and other symbols and can utilise the meanings contained within these symbols. Randal describes a second, more interesting aspect of this proposal.

'Two alternatives for the design for a circuit breaker were produced automatically by our program. This is achieved by the computer taking the role of a design literate audience when initial sketches are developed; by taking notes about the design and its rationale, asking sensible questions about the alternatives choosing and suggesting additional variations on the design' (Davies 1997).



This process involves an interaction with an expert system that is specifically concerned with the production of circuit breakers. This could be seen as a specialist design method that could operate within the proposed Generative Design Tools infrastructure; indeed it is within the area of CAD/CAM that GDT could find its first professional application.

The Electronic Workbook

The Electronic Workbook is an educational strategy developed by Audrey Steinhaver at Rensselaer Polytechnic Institute New York (Steinhaver). This is a

prototype application that guides/educates students in the 'basic elements and theories of visual communication. It presents four organising theories for constructing a layout and allows the student to practice layout design' (Steinhaver: 26).

The interactive process outlined by Steinhaver is as a method involving the application of models like balance, emphasis, unity and rhythm in the production of layout designs, graphic composition. A series of abstract exercises within an interactive CD-ROM communicate these ideas.

Generative Design Tools

The examples above have illustrated Art (Low Complexity Art), Engineering (Design for the Future) and Design (The Electronic Workbook) approaches to design methods that could form Generative Design Tools. As a complement to the research into pre-existing methods, I have created a series of methods to exploit the possibilities of the GDT project. The methods presented below (and in the CD that accompanies this chapter).

These methods would work together in an overarching system/software environment that would combine vector and pixel based image creation and manipulation. Accompanying this system (conceived of) as a combination of Adobe Illustrator and Photoshop would be a method tool pallet (fig. 5.3). The methods shown in this window and described below and in the interactive simulation are not presented here as a benchmark of 'good' method production, rather

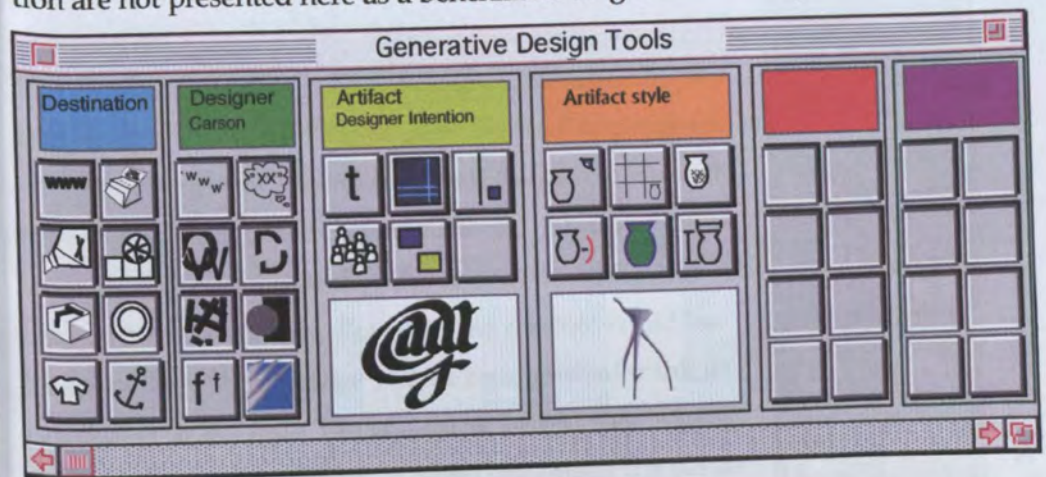


Fig. 5.3 The GDT Toolbox (simulation)

they should be seen as personal responses and other responses by other designers could be radically different. The CD included here is a dynamic simulation designed to show practically how the GDT system could function in a finished system.

Simulation

The example methods proposed here are not passive lists of instructions. They interact with inputs of the users and they generate suggestions in a way determined by the designer of the method. The user can determine the degree of unpredictability of these suggestions. A hierarchy of factors that influence a suggestion gives the system its unpredictable nature. At each level of this branching hierarchy there are a number of relatively straightforward rules. By introducing a user defined range of possible outcomes at each of these levels, the resultant suggestion could be wildly unpredictable or make exactly the same sort of response every time the user asks for a suggestion.

The methods described here are dependent on a users input in the generative process. It responds to and modifies the contribution of the user. In theory, once the user has given the tool a starting point it could generate a finished design (although it is unlikely that this would meet the users needs). A more productive way to use GDT is to have a series of micro-suggestions (illustrated in the simulation) throughout the creative process, creating interplay between the user and the tool. The user responds to the computer changing the design then the computer responds to the new version of the design making one or many suggestions of further developments.

Destination

The Destination tool (fig. 5.4) directly addresses the non-professional designer. It simulates the final appearance of a piece of graphic communication, helping the user to predict the result of their creative work. At its most basic level this tool modifies the canvas on which the user creates their work. For example the tool could be told that the output device would be a particular ink jet printer set to 200 dpi. The computer would then reproduce on screen the banded, washed out image the printer will produce.

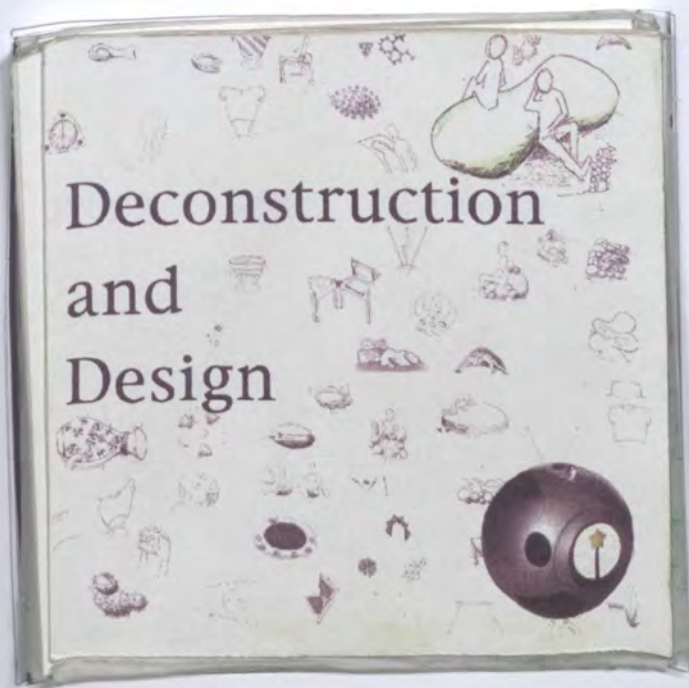


Fig. 5.4 Destination Method Menu

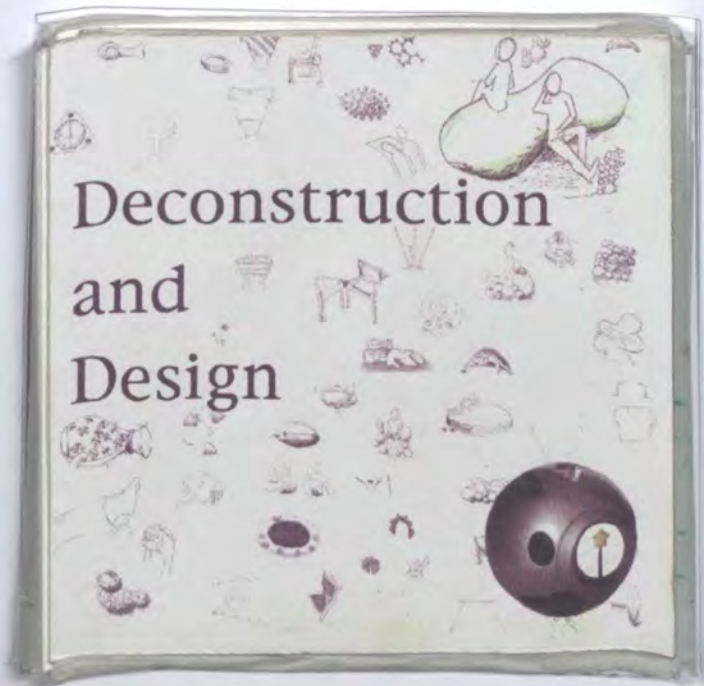
This tool could also work on a more sophisticated level; for example, the user could specify that the design will be transferred onto a baseball cap. The application would then create a template of a flattened out baseball cap on which the design would be placed. It would also allow the user to see the baseball cap in its 3-D form with the design mapped onto it.

The Destination tool has the potential to accommodate a wide range of output from a Photogravure press (with a minimum print run of 250 000 copies) to the simulation of tattoos (including setting the recipient's skin tone, hair colour and amount and so on). In this last scenario the screen would be a user modifiable pseudo-skin allowing the tattoo to be trialled on a canvas on which complexion, skin texture hair colour and density and length could be modified.

This is the most conventional of the tools proposed for the GDT project. Some aspects of this part of the proposal can be seen within the latest versions of PhotoShop which allows for an image to be presented onscreen simulating a variety of compression rates for web-based imagery. Wrapture is an application for use with the DTP package Quark Express. Wrapture allows for the mapping of Quark documents onto 3-D objects, principally for the packaging industry. The designs are displayed at different angles to gauge the effectiveness of the Quark image mapped onto the packaging boxes modelled by the designer. These instances of industrial software development are a move towards the aims of the GDT project, although retailing at \$6999 Wrapture is hardly a product for mass distribution.

The CD that accompanies this chapter demonstrates these methods in a working simulation⁴. This CD ROM simulates how three different methods could operate in real life. The production of the CD ROM simulation was useful as both a diagnostic and illustrative tool. The simulation of GDT operation exposed some unexpected requirements in GDT operation such as the need to be able to interrupt and modify the generative process within the stages of generation as well as at the end of each cycle. This explorative process was aided by the production of a series of versions of the CD that were used in the presentation/discussion phase of the GDT project.

4 This was completed with the assistance of two graphic design undergraduate students (Paul Mills and Julian Cross) at the University of the West of England (Bristol)



Pomo

This method was inspired by and to an extent parodies the increasingly style based 'post-modern' movement en vogue within a large portion of graphic design in the early 1990's. This method aims to help the user create a graphic artefact in a 'Pomo' style. It is within this method (with the accompanying examples shown below) that the generative nature of the project is articulated. This is also evident in the included simulation.

This generative aspect operates throughout the three levels of user modification available. It is through these different levels of control and suggestion that the user modifies their input.

Level 1 -Elements

The Pomo methodology is divided into seven elements (fig. 5.5). Each of these elements controls an aspect of the suggestion the GTD produces. In this instance these include; visual noise, the degree of layering/overlapping, the degree of dissection/cutting, the use and manipulation of GDT selected images and so on.

Level 2 Sub-Element Selection (fig. 5.6)

Each element is split into a number of sub-elements (up to approximately 50). These sub-elements are relatively simple rules that combine to determine the impact of that particular element on the users piece of design. For example,

the visual noise element contains sub elements that determine factors including speck size, speck colour, speck distribution, and line length, line orientation.

Level 3 Individual Sub-Element Control (fig. 5.7 overleaf). Each sub-element has a degree of variation built into it. These variations could be very wide for instance to select from the full spectrum of colours, tints and tones or alternatively the options could be to select one fixed state. The user is able to determine this degree of variation, or more accurately the range of variation.



Fig. 5.5 Pomo Method Menu

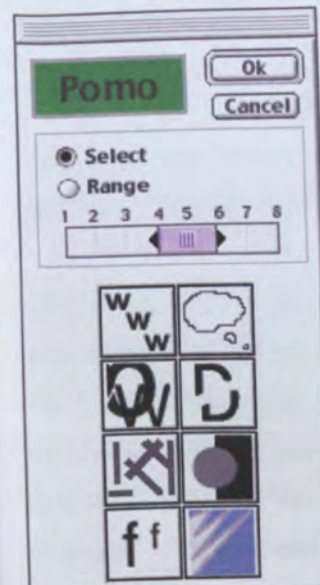
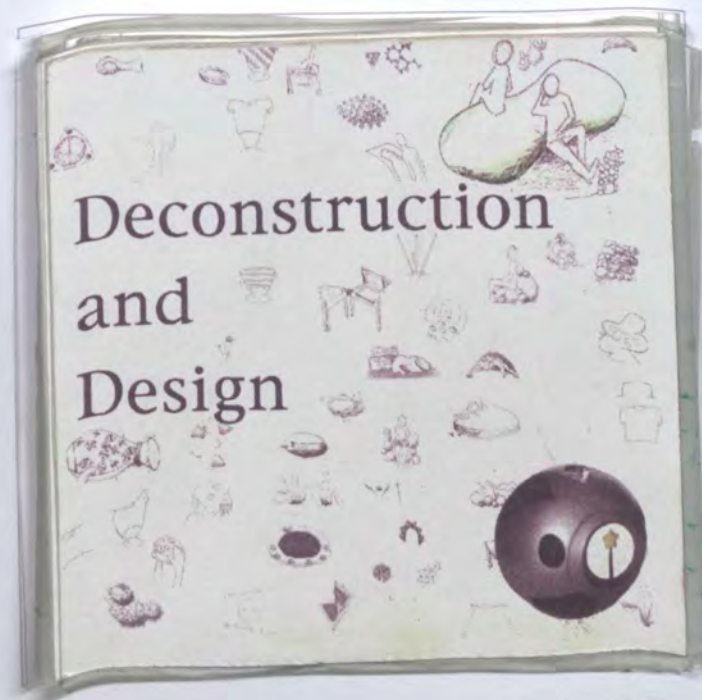


Fig. 5.6 Pomo Sub-Element Selection

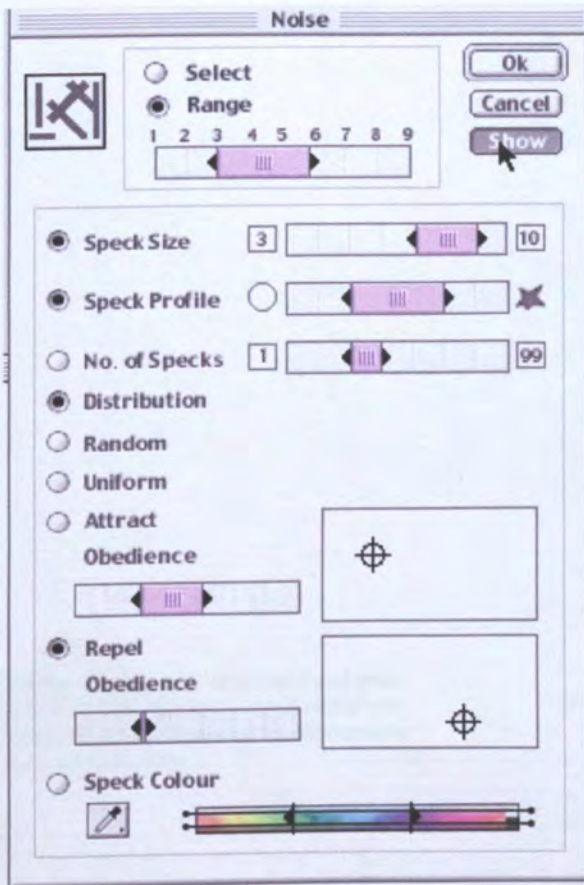


Fig. 5.7 Pomo Individual Sub-Element Control

In the methods described here, the user is *always* able to directly control each level of variation. Custom settings allow for complex tightly controlled, predictable transformations to be initiated by the user. Specific individual sub-elements can be selected and applied if this degree of control is desired. Although this approach is always open to the user, for many people this will not be the most common mode of operation; it would be laborious, having to experiment with and dictate the settings of hundreds of potential sub-elements.

GDT is able to produce suggestions for modifying the initial designs of the user in an unpredictable way; the user at each of the three levels outlined above controls the degree of unpredictability of the suggestions made. The method uses variable levels of unpredictability by incorporating a range of options at each of the different levels described above. In its simplest form, this sets the upper and lower limit of the possibilities available to the computer.

In the example shown overleaf the variations possible within one element (visual noise) are highlighted (fig. 5.7). With the range set to 4-6 the computer can select *any* 4, 5 or 6 sub-elements to be activate out of a choice of 9, introducing a degree of uncertainty. The use of ranges at the level of element, sub-element selection and for individual sub-element operation enables the user to initiate suggestions that fit within a set of parameters but can vary freely within these boundaries. The ranges selected is by direct selection or de-selection by the user; for example, a user could specify a range from 3 – 7 but deselect the visual noise element manually with a mouse click.

The strategies enable the user to define the range of options available to the generative process. These options control the operations of sub-elements that cannot be reduced to simple numerical ranges.

Attraction/Obedience (see fig. 5.7) is a way to control the composition of different parts of the design (in this instance the distribution of visual noise). In this illustration, it is being used to determine the distribution of the visual noise in the suggestion. A thumbnail of the working area is displayed, and an attractor can be placed over the thumbnail. This pulls the visual noise towards the attractor. The user can directly determine the degree of attraction or can be the result of another range option.

To further enrich the possibilities of this aspect of the generation a modifying obedience can be assigned to visual elements. If the obedience is set at 100%, all the visual noise acts in a predictable way. If the obedience is set at a lower level some components are increasingly likely to be disobedient. The 'naughty' components ignore the attractor by either not moving at all or moving in a different direction.

The colour range (shown above) allows the user to determine the gamut of colours available for the generations produced by the method (or even other methods). The manipulation of the guides for both tint/ tone and the colour spectrum using one pallet allows the user to determine very quickly the range of colours used in the generative process.

⁵ Since this idea was conceived and published in 2000, this approach to error correction has been taken up by applications such as Photoshop.

The degree of variation offered by the tool is enhanced by elements like Image Usage. This element can access images within a range of parameters set by the user from local hard disks, web based GDT databases or the web as a whole. For example, the element could look for an image through a search engine that has more than one Y in its title and manipulate the image using another set of sub-elements manipulating the Photoshop filters available.

At its most unpredictable, with all the ranges set to their greatest degree of variation a method would operate anywhere between the extremes available to it. It could apply just one sub-element and make a suggestion that was imperceptibly different to the users initial idea, or the computer could apply all the elements and sub-elements in an extreme way and produce something that would bare no resemblance to the users starting position. Repeating this would produce a different suggestion.

Each suggestion is recorded for future use, facilitating a high degree of variation. This allows the user the freedom to keep asking for suggestions without having to totally disregard earlier attempts. It also gives the user the ability to combine different elements of different suggestions if they want to⁵. The attached simulation demonstrates this more graphically.



Fig. 5.9 Design Inspiration Method

The Inspiration Tool

Like the Pomo tool, the Inspiration tool (fig. 5.9) concentrates on aesthetic qualities, but in this case, it is the user that supplies the basis of the tool in addition to providing the starting point for the method and intervening creatively throughout the iterative process. The user selects an image and it is this image's visual characteristics that form the basis of the tool's suggestions. The images could be family snapshots, magazine illustrations, drawings, and images from the Web or any other source of visual information. The user imports these images into the GDT interface. The window at the bottom of the interface displays the image currently acting as inspiration (shown in the simulation attached below).

Within this method a series of elements have been produced to exploit different aspects of the visual (formal) characteristics of the imported image. These elements include selecting and using components including profile, colour pallet and composition. The components derived from the image are used to modify the piece of work that the user is producing. For example, part of a silhouette of a picture of a piece of furniture could be used to modify a typographic element, or the composition of an image could be used in a piece of work that was very different visually from the original piece of inspiration selected by the user.

Each element has a series of sub-elements, each of which can in turn be varied. This adjustable hierarchy generates suggestions to complement the activities of the user. This method is interesting as it combines openness of using images that fall outside the professional designers' parameters of 'good taste' but still allows for the designer to contribute their specialist perceptions and understanding of how interesting aspects of an inspiring example can be pulled out and used. Although the operation of the elements within the methodology are open, the designer has an influence on the outcome through the framing of the problem solving process itself. The actions performed by elements and sub-elements are not unprejudiced, they are infused with the values of the designer. It is this infusion that is the designer's creative input and the reason for eventually looking to a system that allows users to produce their own methods.

Design Intention

The three custom-produced methods described above all engage with the artefact on a visual/stylistic level. The final method example presented here engages with a specific approach that is concerned with non-stylistic factors like



Fig. 5.10 Design Intention Method

context and target audience in addition to aesthetic considerations.

From a design point of view, the Design Intention method (fig. 5.10) would be attractive to designers who wish to deliberately develop artefacts as an illustration of a conscious expression of their personal methodology. From the users point of view they are able to look at a range of pieces of work and on this basis select a method that they think might help them produce an interesting design. In this instance, the intentions of the designer are the guiding factor in the method, not *necessarily* the visual properties of the work selected by the user. A particular designer could use his or her own methodology (together with their own unique creative sensibilities) to produce something very different to anyone else using the same method within the GDT framework.

In the example used in the accompanying CD, a method designer is interested in exploring the intentions behind the design of this logo shown above (fig. 5.10).

Robert Griffin designed this logo in 1998 for Pontypridd College of Higher Education; he indicated a range of influences on his design, prominent of these was the 'Swiss Graphics' movement. This graphic design approach grew out of an admiration for the approach of Moholy-Nagy at the Bauhaus. Pioneered by Jan Tschichold and later Josef Muller-Brockmann the approach gave pre-eminence to the grid, rationalism, and a rejection of ornament and leading from this the use of asymmetrical composition. In addition to Swiss Graphics, Griffin specifically states the importance of target audience and the context in which the design operates.

The eight elements that form Griffin's Intention Method reflect the most significant aspects of these issues. The nature of Griffin's approach dictates that this method is not concerned solely with aesthetic considerations. Griffin is also preoccupied with wider issues like context and target audience that engage with understanding rather than surface style. To facilitate these wider issues, an element that introduced an additional level of user engagement was developed. The emphasis in this particular instance on target audience has resulted in the development of a method in which the user is prompted to respond to a series of questions. The user's response to these questions directly affects the substance of the suggestions made by the method.

P J Philips

Who will see this?

Customers
Builders

What do you want them to know?

Carpenter.....
Reliable.....
A.S.S. Member.....
Phone 235461.....

Fig.5.12 Text based thesaurus

P J Philips

Options

Customers
Builders
Carpenter
Reliable
A.S.S. Member
Phone 235461



Text

Visual

Exchange

Skip

Import

OK

Fig.5.13 Text based thesaurus

The 'target audience' element used in Griffin's method demonstrates this approach. As its name suggests the target audience element is preoccupied with the context in which a piece of design is going to be placed—who will see it, what you want them to know. These questions (amongst others) form the basis of the prompting of the person using the method.

The responses of the user (in this case these responses are text based) create suggestions in two ways. The simplest process is the application of a thesaurus to the words entered by the user. The result is the suggestion of a series of appropriate words arranged thematically around the users initial responses to the questions (fig. 5.12). This process can be re-applied to the results of the first suggestions from the thesaurus. At any stage, if the user sees a word they think they might want to use, they can drag the word to a visible scratchpad for later use.

In the second process a thesaurus is also used but rather than text outcomes, the element suggests a series of images to the user. These images could be on a user's hard drive or the images could be available in DVD/CD format or, most likely, there would a selection of online databases available to GDT users (fig. 5.13). The user can determine the scope of the outcomes of the text or visual (or in principle sound based suggestions) thesaurus, the diversity of the connections it makes as well as the degree of relevancy in the visual database, resulting in control over the unpredictability of the visual suggestions. Like the text suggestions, at any time the user can drag images onto a scratchpad for later use. The contents of the scratchpad can also be used as raw material by other elements in the method or even other methods.

There will be an element of chance in the suggestions made by this element. For example a furniture maker could start by entering the word 'wood'. This could lead to the word 'pine' and this in turn could lead to the visual thesaurus making suggestions concerning worrying or unhappiness. This is perfectly acceptable as long as the user, in their manipulation of parameters and their engagement in the process, can control the degree of tangential connections and their application.

The desired result of the Design Intention method and all GDT methods created by me is that the user will produce artefacts that could not have been produced by either user or designer working on their own⁵. The outcome will have a recognisable kernel of the philosophical position articulated in the designer's approach but the visual characteristics of the users' artefact could be radically different from anything the designer is ever likely to produce. This method targets designers that are comfortable thinking and talking directly about their design approaches. In Nigel Cross terms they are happy to talk about the contents of their creative 'box' (Cross, N 1997). Although if a GDT method is regarded as a designed artefact it does not necessarily reveal more of the designers personal methodology than any other artefact.

⁵ It is problematic to say 'all' when describing generative design tools as their potential development is not limited to my personal expectations.

The examples used in the design intention method and in the other custom methodologies outlined, here are graphic in nature. A visual (graphic design) agenda was followed during the conception of this project for pragmatic reasons. The possibilities of cross-discipline methodological processes remain tantalisingly out of reach within this stage of the development of the GDT project.

For example: the intentions of a choreographer could be applied in an animation context. This does not necessarily mean simulating the choreographer's dance in animation, but in exploring the choreographer's values rather than aesthetic factors. New and interesting hybrid approaches to problem solving could be formed that would have been impossible for either the user or the choreographer to create. This potential for multidisciplinary methods is one of the exciting aspects of GDTs that falls outside the remit of this project and will form the basis of further study. It is not readily susceptible to exploration with simulations and it needs real people to interact with real methods to gauge the value of these assertions.

This text description of the operation of the GDT system is built upon in the simulations of the operations of these tools on the CD overleaf.

Generative Design Tools Simulation

The Simulations on the CD attached contains sections detailing An overview of the operation of the GDT system in practice including interface operation and operation inside a 'host' program.

There are detailed simulations of the methods developed specifically for the GDT project – Pomo, Design Intention and Design Inspiration.

While this chapter has described the basic operation of these tools most of the information within these simulations is not duplicated in this paper based description. In light of this, the simulations included here are core to the communication of the GDT project rather than being additional or supplementary in nature.



Fig. 5.14 CD Simulation of Generative Design Tools in operation

Technical Precedents

The research in this area inevitably led to the area of dedicated AI programming. This area is too specialised to be critiqued in detail. Also in this very quickly developing area the examples described here demonstrate that the principles underlying GDTs are technically feasible. Rather than present a series of applications to produce GDTs, the examples described below are potential starting points for a more detailed investigation of the commercial products presently available in the AI field.

Dataviews

Dataviews is a suite of applications produced by Dataviews Corporation UK They form a Dynamic Data Visualisation Tool; of the suite of applications, DV Centro seems the most useful in terms of GDT

‘DV Centro provides a language implementation model and framework that can greatly enhance the development process, making it technically and economically feasible to create new visual languages.... and to convert existing scripting languages into more user-friendly visual languages.’

(Data Views 1999)

‘The result is a design methodology that encompasses a combination of domain definition, language design, and object-orientated implementation that makes it possible to more easily create new visual languages to serve specific problem domains’¹¹

DV Centro is being used by Alan Blackwell at Cambridge University as part of the Vital Signs project for building new visual languages. This research questioning the relevance of the use of metaphor in interfaces is an indication that this technology could be adapted to support the GDT project, as could subsequent projects by Blackwell including *The Visual User* (Blackwell 1999).

ILOG

The ILOG Visualisation suite produced by ILOG Ltd (www.lpa.co.uk/index.htm) is a series of application development tools specifically addressing data visualisation, resource optimisation and real time control. Their promotional material promotes applications that are adept at

'-Constraint-based and linear-reasoning systems for resource optimisation and planning applications

-High-performance visualisation for state of the art 2D and 3D applications

-Dynamic rule systems for intelligent agents ' (Ilog 1999).

The combination of constraint-based reasoning dynamic rule systems and visualisation abilities have the potential for application to the Generative Tools Project.

LPA

Logic Programming Associates (LPA) (www.lpa.co.uk) produce a range of applications that could have a utility value in the development of GDTs. These include the FLINT toolkit, FLEX toolkit, DataMite. These systems use variants of fuzzy logic programming to achieve their aims. The applications listed here are all concerned with expert system construction and management. The use of fuzzy logic has the advantage that it uses linguistic rather than a numerical description for input and output. This allows for the use of non-precise terms like fast, very fast or even quite fast when interacting with the system. This flexibility has obvious advantages when one is looking to produce unpredictable results within a flexible range of options.

Sentient Machine Research is a Dutch company specialising in adaptive database mining based around their DataDetective engine (www.smr.nl). This supports 'formal queries, fuzzy queries (selection from soft criteria rather than hard criteria) and profile analyses'. An example of the application of DataDetective can be seen in AHS, an application produced for the Dutch police force to match descriptions with suspect photos and the automatic generation of descriptions from photographs.

Conclusion

The Generative Design Tools project

- Claims that the production of design methods are creative acts in their own right.
- Proposes the construction of a flexible infrastructure that enables the public to create their own artefacts through interaction with design methods.

-Differs from conventional 'wizard / macro' devices in that it has a generative capacity with a user definable degree of unpredictability

-Is *not* claiming to be a system for automatic design. The production of methods should not be seen as an attempt to bottle creativity, rather they should be seen as channels or guides to help the user express their own ideas, provoking a creative response or acting as a sounding board.

There are several factors that determine the likely success of the Generative Design Tools Project. These include technical aspects, acceptance within the design community, the distribution/infrastructure within which methodologies can be used and the engagement of the user.

Technical Aspects

Although not trivial, this seems to be the least problematic area of investigation. The tasks each sub-element undertakes can be relatively straightforward and still accumulate into a sophisticated series of suggestions. In practice this means that the success of the GDT project is dependent on the production a methods that have a very well defined specification of exactly what each element and sub-element does, how they interact with each other and how they work with the inputs of the user. With this in place, the ability to split elements into discrete sections means that technical problems with one sub-element will not halt the whole project. This places the onus on the design aspects of the project rather than having to develop radical new technology. It is up to designers to devise interesting problem solving approaches in an appropriate form for use within the GDT project.

Design

The project is dependent on the engagement of designers for the production of method; there is a long-term desire to allow users to express and develop their own method(ologies). Two main concerns have arisen from presentations of the GDT to fellow designers (including designers at Studio Fish, Wicked Web and in the papers listed above (Cruickshank 1999, 2001). One initial response was that the production of methodologies would result in the undermining of the design profession; they will end up designing themselves out of a job. Secondly, that it is not possible or desirable to automate creativity.

The economics of professional design production are in flux. This is especially true within graphic design where desktop DTP and the growth of home web publishing has resulted in the explosion of vernacular design that does not interface with or benefit from the professional design community (for example the wicki -wicki webs described in Chapter 2). Generative Design Tools offer the possibility of designers having a constructive input into areas of vernacular design not normally open to them, thereby increasing the scope for professional design activity. GDTs are not limited to this sort of vernacular design; there will be very sophisticated expensive methods that will be attractive to the working designer. Similarly, many designers will never feel the need to either make or use a method tool. The nature of design especially in digital media is changing. GDTs offer the possibility of having a wider sphere of influence than conventional professional design, with its attendant economic models and so offer (potentially) an increase in commercial potential rather than limiting it.

The question of commercialism is connected with the concerns of professional designers and of the viability and desirability of trying to capture a designer's creativity. This is a misconception; GDT is not concerned with the automation of creativity. It is important to see the production of a GDT method as a creative act in itself. In this respect GDT methodologies can be seen as tools, hopefully an interesting one but they are aides that help the user to create their own designs, and to express their own creativity. There are precedents of willingness for designers to engage with this sort of open approach. This can be seen in examples as wide ranging as the flexible architecture of Constant to Radical Italian design in the late '70s. Contemporary examples of this flexibility can be seen in Ron Arad's Sticks 'n' Stones (Sedjuc 1989) and the work of Tony Remo's Rag Chair and Chest of Drawers, and much of the work of David Crow (Crow 1995).

The Internet has expanded the practical possibilities of allowing non-design professionals to express their own values in the creative process. For example, Web sites are increasingly rendered 'on the fly'. This means that the information held on the relevant server can be mediated or even completely changed by the user giving them a direct input into the content and composition of a site. People can now publish their own web sites at an absolutely minimal cost. The range of hardware and software used to access the Internet challenge the idea of the kind of rigidly authored approach demanded by Modernist creations like Tschichold's *The New Typography* (1998).

Underpinning Tschichold's approach to graphic design was a series of rigid, absolute rules (for example all type should be sans serif, and all type should be set asymmetrically). The web is not suited to such absolute rules, as the precise font or point size cannot be determined by the designer. Even the 212 'web safe' colours vary considerably with the hardware and browser used to view them. On a deeper level Tschichold produced *The New Typography* as a practical manual for working printers to follow dogmatically. With advances in online publishing the source of production has become diffused. Rather than a few thousand artisan printers, the capacity to publish online has passed to any person capable of going online.

Infrastructure/Distribution

Ideally, the development of generative methods would follow the developmental cycle of digital fonts. As with digital fonts, initially GDTs will be produced by a limited number of people and will inevitably be limited in sophistication. With time, a larger number of designers could create design methods for a large constituency of users. Long-term development could be the development of a sister program to Macromedias Fontographer application, 'Methodographer' which would allow the creation and distribution of methods by the casual consumer.

The infrastructure within which the GDT project could operate is less well defined; the preferred solution would be to allow GDT to operate within many different graphic applications. Although this sort of cross-application portability has been achieved by applications such as Extensis Suitcase which is used to control the fonts available to the user at any one time, there are significant problems to overcome in the short/medium term. Fonts conform to universally accepted conventions embedded into every graphics package; this is unlikely to be the case for GDT. A further problem is that the actions undertaken by Extensis are straightforward while GDT would require a significantly higher degree of complexity and interaction.

The examples shown above and on the accompanying CD use the Photoshop interface although the actions demonstrated rely on both vector and bitmapped operations. This is not as problematic as it initially appears; it is now possible to move between Photoshop and the vector based Illustrator very easily preserving formats and structural elements like layering and using effects filters from PhotoShop in

Illustrator. It seems likely that GDT could exist within a dual application infrastructure. The use of Illustrator/PhotoShop poses non-technical problems; it costs in excess of £700 to purchase Photoshop and Illustrator. This would place GDTs well out of reach of the majority of the public, the application's target audience.

There are alternatives to these two flagship applications; these include Photo Impact, Satori Fx64 and Gimp. The possibility exists that one of the less well known companies in the market would use GDTs to differentiate it from its competitors. The continuing success of the Linux operating system and open source free-to-use software provides a promising environment for this to take place in.

Implications for Users

There has been a tendency within the debate around authorship in design to marginalise the user. In graphic design this can be seen in publications like Jorge Frascara's 'User Centred Graphic Design' (1997). In this book, Frascara equates a user-centred approach to being aware of the users needs and trying to accommodate them. This attempt at the prediction of a user's needs is little different from the traditional 'design-centred' approach.

On a more practical level, to what extent do people interact fully with their VCRs? In the case of Generative Design Tools there is little point in constructing elegant useful methodologies if they are never used. In recognition of this, mobile phone operators like Orange promotes itself through the provision of 'phone trainers' to help its customers get the most out of their phones. The challenge is to produce a system that is not only extremely flexible but also to create a system that people actually want to engage with interactively.

The nature of user interaction is one of the most prominent issues within multimedia development today. One interesting avenue of investigation concerns the role of play both as a stimulus and as a learning medium. It seems clear that playing reduces the restrictions imposed by convention. Initial research, building on the work of Stephen Kline (1995) and Gary Cross (1997) indicates that play is almost never a neutral activity; it is always both controlled by and promoting wider cultural influences. These issues will form an important part of the next stage of the project's development beyond this thesis.

Implications for Design

the designer has to be coldly analytical. Indeed a designer of a modernist hue who devised what they considered to be the perfect design method would probably be very frustrated by the unpredictability and possibilities for user modification and combination central to the GDT proposal. It is quite possible for the design of methods that are intuitive, tangential or chaotic if the designer is able to think about the method directly and break it down into basic components.

This is not necessarily easy or natural to many designers. The requirements of thinking about design methods directly rather than the outcomes of methods (products) while crucial to producing design methods also has merit in contemporary design education. The erosion of the studio system of teaching design has amplified the value of design students addressing the issue of design methods directly. There was a time when a small group of students would essentially live in a studio and throughout their degree, a number of lecturers (perhaps 6 or 7) would spend many hours talking to them about the students designs and through suggestions and advice the students would develop strategies for moving the design forward moulded by the lecturers' different approaches. In essence, the students are building up design methods from lecturers through 'osmosis' both between lecturers and students and just as importantly between students.

Financial pressures are such that it is increasingly common for students not to have a studio and staff members are increasingly unable to give individual students the time required to really discuss the student's work in great depth, certainly not with every student 2 or 3 times a week. In my role as a researcher and lecturer in Graphic Design at UWE (Bristol)* I developed a program that sought to accelerate the development of sophisticated design students able to modify their approach to a design problem (employ different design methods – problem solving strategies) by being encouraged to think directly about the design process and the different ways in which designs can develop depending on the methods employed. This had a complementary advantage in that it could start some students thinking about the production of design methods that could be applicable in the context of the GDT proposal.

The danger with such an approach is that in talking explicitly about design meth-

ods. Students (either implicitly or explicitly) regard them as templates for good design or worse the way they must design. Such an outcome would cut across the ideals of this whole PhD. For this reason and more pragmatic considerations a comprehensive lecture program was rejected. It would be extremely difficult to make such a program stimulating and even after achieving this there was still the problems of giving exemplars and the desire for students to think and articulate their own design methods and even develop their own methods.

Rather than try teaching design methods a strategy of practical provocation was developed. In a series of 3-day workshops students were required to follow one of five caricature design methods through a very basic design process. Each one of these methods (shown fig.5.14) directed students to think about the communication project 'Where do we come from' from a particular perspective. The methods and process used are deliberately not realistic; they also force students to design in a way that is very different from their normal (usually unconsidered) methods.

The workshop consisted of a series of seminars where students had to show and talk about their work and periods of self-directed study in which students were required to complete a very large amount of work in a short time. The alternation between high pressure and deep discussion firstly did not allow students to just go on designing as they did before. They had to change, and generally, the more accomplished students found this difficult (they already had a series of implicit strategies they could already use effectively).

In discussions, students would question the realism of the methods and process leading into discussions about the correct or real design process. Students would also talk about how this was different from the way they would normally have addressed this project. The discussions that lead from such comments involve quite animated discussions about students different design methods and how they differ from the supplied ones. Not only do students talk in an animated, even excited way, about a subject that could be very dry and abstract, they also see in each other that there are a wide range of methods being used by other students each time they create something and that perhaps some of the approaches adopted by their peers could be useful.

A supplementary benefit of this approach is that it is effective across groups with a

Fig. 5.14 Design Methods Workshop-Method Guides

Introduction to Multimedia Design- Design Methods

		Method				
		Empirical	Craft	Technology	Aesthetic	Theoretical
Process	Premise	A clear statement of your idea and how you are going to measure your outcome	How does your idea relate to the craft you are interested in?	How does your idea relate to the technology you are interested in?	How does your idea relate to the visual code you are interested in?	How does your idea relate to the ideas of others and how can you use them practically?
	Research	Extensive primary research, statistically sound, well documented and analysed	What is the process, how does this relate to your premise how can you develop it?	What "tool" are you going to be using, how does this relate to your idea, how can you use it?	Visually based this will demonstrate and communicate the deeper issues of your premise	What is the theory, why use it, how can it help you produce "graphic design"
	Development	Extrapolating from the data collected into a set of guiding criteria.	The incorporation of ideas and acquired techniques into an achievable, stated outcome	The practical bridging of premise and tools to form practical outcome	The explanation of stated ideas through the development of visual language	What is the theory, why use it, how can it help you produce "graphic design"
	Testing	This must be primary in nature and analysed in rigorous manner.	Is the technique successful? Does its application communicate your ideas	Have you un-equivocally demonstrated the principles of your project?	Does this represent your ideas in a visual way, are those ideas "solid"?	Run experiments, analyse and use results in further development
	Making	This must finished to a sufficient standard for it to undergo extensive analytical testing	This must demonstrate a high degree of engagement with both ideas and techniques	This must clearly demonstrate the principles of your premise using the tools selected.	This stage must be a very well executed visual exposition of your previously identified ideas	This must clearly demonstrate the practical use of the theory through example / experiment
	Presentation	This must be within the empirical context the project was developed in.	Demonstrating your mastery of the technique & its relevance to your ideas	Show the results of your investigating and their relevance to your ideas	This must communicate the ideas underpinning your aesthetic	Demonstrating your whole body of work especially your application of theory
	Explanation	An outlining your criteria, aims, objectives and quantifiable conclusions	The process used the reason for the selection and the premise you have investigated	How your premise has been demonstrated by the technology you have employed	What premise is this aesthetic trying to communicate?	How do theory and practice relate to each other to investigate your premise
	Evaluation	An extensive investigation and reasoned proof of the conclusions drawn from the project	An exposition of the projects successes and failures and what you have learnt	An exposition of the projects successes and failures and what you have learnt	An exposition of the projects successes and failures and what you have learnt	An exposition of the projects successes and failures and what you have learnt

wide range of abilities. Strong students react against the restrictions of the imposed methods most strongly, defining their personal position starkly in relation to the baseline they have been required to follow, while weaker students use the supplied methods as a safety net, a structure to fall back on if they get stuck.

This approach has developed from a single experimental workshop either building on each other or independently from Foundation to Masters levels. Most of these courses continue under the guidance and ongoing development of other educators although a level one module at Brunel University is an ongoing test-bed for these ideas with my facilitation.

The assertion made in this chapter and at the papers presented in a number of conferences (Cruickshank 1999, 2000) is that the educational strategies that have been precipitated from GDT corresponds (approximately) to the conventional development of a design student but by explicitly addressing methods through practice, the idea of design methods are reflective rather than reflexive. Using Ken Friedman's definition, reflexive is an unthinking reaction to stimulation, reflective is a conscious examination, designing should be a reflexive activity. These strategies are still in development.

On a more personal level, the creation of flexible user-lead structures into which others create is part of a continuing development of my own practice as a designer. This approach has a particular affinity with design education and increasingly underscores the idea that it is the designer more than the user that has to evolve, if symbiotic relationships between user and designer are to be cultivated.

Chapter 6-Communication Strategies

This chapter documents the development of two strategies that engage with the design of artefacts through the creation of flexible, user-modifiable communication systems. The common aim of these design proposals is the development of digital media applications or frameworks that encourage vernacular¹ communication through the adoption of new 'nomadic' modes of digital conversation.

The first project, Iconic Communication, was a collaborative undertaking² funded in part by the National Creative Technology Initiative. This was one of the earlier investigations relating to this PhD project and came to an interim conclusion in the Summer of 2000 after a series of conference papers and publications (Cruickshank 1999, 2000). Iconic Communication looks specifically at the problematic nature of text conversations with particular reference to the problem of introducing more nuanced communication into this electronic medium.

The second project called C Space is a proposal for a virtual/ physical hybrid environment that facilitates communication through spatial navigation and information exchange (body language, voice text, animation, video, 3D modelling even environmental conditions). This is part of a larger project called CISMUNDUS³, funded by the European Union through the Information, Society Technology (IST) initiative.

1 Following the distinctions established in Chapter 2.

2 Collaborators for this project were B. Hughes, L. Barnfield, S. Slocombe and M. Yazdani.

3 This stands for Convergence of IP-based Services for Mobile Users and Networks in DVB-T and UMTS Systems. Acronyms are unavoidable when working on very technical projects like this and are used to such an extent that within the project, the acronyms become words in their own right; a wider example of this is the LASER. Having said this I will try to keep these to a minimum

The topic of communication was specifically targeted as an arena of investigation. Communication resonates on a number of different levels throughout this PhD. It is an important facet of the theoretical constructs explored, supported and disputed here, which range from Derrida's analysis of speech and writing in *The Margins of Philosophy* to Barthes exploration of meaning and the promotion of the idea of the writerly writer in text *The Death of the Author* (1977).

Implicit in this chapter is the notion that dialects or variations of communication strategies within social groups is a positive thing to facilitate. Building on the pluralism underpinning this thesis the argument for the facilitation of non-homogenous cultures is well established in feminist, sexual and post-colonial theory. One example of this formalism is Cornel West's call for a 'new cultural politics of difference' (West 1994: 211).

A detailed contextualisation of the projects described here with wider theories of the facilitation

of difference is a task for another project. Certainly such an investigation would expose some interesting issues that would require a detailed (circumspect) investigation because, as West recognises 'the very notion of a deconstructive social theory is oxymoronic' (West 1994: 212).

There is a slippage in the referent of 'text'; here 'text' refers to lots of artefacts beyond words on paper. This generalisation allows the deployment of theory (often playfully) in other contexts (e.g. architecture, painting, furniture, fashion, literature).

This slippage also allows one to argue that (for example) a chair has to communicate to a potential user that it is meant to be sat on before it can signify a chair to that person and so have utility for that person. Furniture like Ron Arad's Transformer and 'Pratone' (translated as 'Big Meadow') by Gruppo Strum (Ambasz 1972: 100) have played with this idea. These design semantics communicate to cultures ranging in size from the almost universal (a knife) to the very limited (a scout woggle).⁴

The final rationale for selecting communication as an area of activity is that it is one of the truly universal activities, crossing cultural, economic and social conventions. It seems sensible for a research project with inclusive aspirations to explore this broadest of activities.

Iconic Communication

The Icon project is specifically concerned with the increasing use of electronic media for conversational communication either in open forums (e.g. Chat Rooms, intra-nets and Muds) or via e-mail. This project was not concerned with fact-intensive information like timetables or company catalogues; this type of information has its own distinct set of developmental issues to explore. A starting point for this branch of research might be 'The Rhetoric of Neutrality' by Robin Kinross (Margolin 1989: 131-143) investigation of the cultural factors within the train timetable.

Text-based digital media are hampered by an inability to express the nuances of meaning (emotional, cultural, physical, sensory) that enriches most other forms of communication. The user-led development and application of iconic elements within a text can help enrich the communication process, and a user-led approach (applications beyond the control of the designer) is more fruitful than an attempt at a universal visual language. This will enable user groups to develop their own way of augmenting texts in a similar way to other aspects of their communication; spoken language, dress, music and so on.

This hypothesis has been investigated both theoretically and practically here. The first half of this chapter documents these processes and concludes with a discussion of the problems in the

⁴ It is acknowledging these differences of understanding of texts, and that these differences are ultimately reducible to a near individual scale, that inform this project user-led semantic variation/augmentation on a micro scale.

Icon project that have yet to be solved and how this led to the second communication strategy charted in this chapter.

Text Augmentation

Network-based text systems communicate text using an encoding called ASCII. This encoding assigns each character a number and transmits strings of these numbers between computers. This allows the transmission and reception of text to be very quickly handled as a string of numbers. Although increased bandwidth now means that more complex text representations are possible, ASCII remains a universal standard and is still the main way that text and especially conversational text is used.

The disadvantage of this encoding is that the author of the document cannot determine the visual properties of the text characters and of the document as a whole. The text sent to the target computer is displayed in a typeface and layout determined by the user's receiver. The user has only limited control of the layout by means of creative use of punctuation and simple layout (line breaks, new paragraphs). This lack of control compounds the problems inherent within a text-based conversational system.

The richest form of communication is the physical interaction of people; this predominantly uses words supplemented by other factors. These can include facial expression, body language, dress, context, smell, complexion, fashion and a myriad of other factors that all go towards our understanding of the conversation's meaning. Christian Metz (1973: 93) calls these factors 'non-specific codes of meanings' and argues that these codes have a significant role to play in the formation of meaning.

The nuances of meaning that are not part of the overt specific meaning of the communication are present in all forms of communication. In a hand-written letter, we have the script employed, the colour of the ink, type of pen, paper, the scent - if you are lucky - and so on. Within mass-produced communication, books have the typeface, the paper, the illustrations, and the layout. All these factors modify our appreciation of the words that carry the core meaning of the communication. It is these non-specific codes of meaning that allow us to communicate nuances and undercurrents in conversations and it is precisely such non-specific codes of meaning that are absent from plain text, e-mail communication. Aids to text generation such as predictive text in mobile phones and spelling and especially grammar checkers serve to thicken the potential barriers to an idiosyncratic 'voice' in text communication.

The assertion here is not that text is not a powerful communication tool, it patently is. For textual communication to be used most effectively it requires skilled senders, receivers and time to

compose messages and have an intimate common understanding. While these are to be encouraged, the iconic project is offering an additional option or layer of meaning to help users express ideas in different ways. To a certain extent, Internet Service Providers (ISPs) are taking a similar approach. AOL's (America Online's) portal software allows the user to embed images within text messages as long as the receiver is using the same version of their software. Although these icons are a limited set, it is nonetheless a good indication of the demand for augmentation in online conversations.

The facility to add illustrations to e-mail documents can be seen as evidence of an appreciation on the part of the ISP that increased bandwidth can be used to give their portal added value. A further drawback of ISP solutions is the fact that any additions to the text can only take place between people that are also clients of that particular ISP. Further compounding this, Internet access is fragmenting into a myriad of companies, with the result that most text is still in plain text format (ASCII).

The lack of depth of plain text communication removes many of the clues we use to verify the information received by us. Face-to-face communication allows us to gauge the truthfulness of statements. This can be achieved both directly (is the person talking to you really wearing a yellow angora cardigan?) and indirectly (is the person's body language confident or do they look like they are hiding something). Letters have postmarks, signatures, and letterheads. Books have the reputation of the publisher and author and the material investment in production: all of these things help to substantiate their content. Conversational communication lacks many of these checks and balances, although URLs and e-mail addresses are beginning to be used as indicators of pedigree.

Although lack of verification is an issue for academic use of electronic media for conversational communication, this is not necessarily problematic for this project. The creation of Avatars or online personas can be a liberating experience that builds on the narratives we weave around any conversational interchange. Digital communication takes this narrative weaving to new heights; the most basic traits like gender or height become variables determined by the sender.

Verification is not a central concern of the Icon Project, however it is a potent demonstration of the impact that stripping away levels of meaning can have on a text. In a basic example of the problems inherent in the communication of nuances of meaning in electronic conversations, one cannot tell the gender of the person one is talking to. The communication of nuances like emotional modifiers (I am joking, I am serious) and other cultural values such as those carried in a person's clothing or handwriting are more important in conversations than bald facts. There have been attempts to address the issue of communication of nuances of meaning in

textual communication. There are a number of graphic languages that claim to have advantages over text languages (Cruickshank and Hughes 1999) Generally, psychologists or educationalists have developed these languages to replace text communication with a self-contained vocabulary and syntax. The text below examines the most significant of these approaches.

There are also a number of examples of spontaneous attempts to add layers of meaning to plain text. This vernacular activity is characterised by building on textual communication rather than trying to replace it. This building or augmentation approach results in the development of a flexible evolving system with local variants and connections.

A common way of making textual communication more spontaneous is to use acronyms. These make for faster communication allowing conversations to be faster; some of these go further than 'straight' descriptive examples of acronyms like LOL (Laughing Out Loud). Some acronyms invoke humour and a vocabulary that shows a move away from simply aping conventional communication. It would be a very confrontational person that says GLBAUGH (Get lost before you get hurt) (AOL 1999) in a physical conversation. There is a sense of fraternity, an almost subversive exclusion from conversations acronyms like POS (Parents Over Shoulder) (ibid.). Variations in acronym conventions demonstrate local grouping, in terms of web communication rather than geographical location. In one listing of acronyms (America Online's list), both ROFL and ROTF (ibid.) denote rolling on the floor laughing.

The use of acronyms is evidence that people are not happy with using the same conventions as in spoken conversation, when typing. New conventions spontaneously develop to accommodate this new form of communication, facilitating differences between social, economic and cultural groups.

It is unsurprising that along with the use of acronyms the most prevalent forms of vernacular augmentation have evolved using common punctuation as a source. Contemporary punctuation has a dual role; it is concerned with the structure of texts to enable us to distinguish coherent parts of a text. The structural role of punctuation is relatively new, as Ellen Lupton explains in 'Period Styles: A History of Punctuation' (Lupton and Miller 1996 (2): 39). Punctuation is also used to give an indication of the emotional emphasis placed on a selected piece of text. In today's texts, this includes the exclamation mark, the question mark and the use of capitals. The use of punctuation to give emphasis rather than structure was much more important in the past when text was often read aloud. Systems of punctuation that determined the pitch of voice and the rhythm of delivery have developed from explicit instructions seen in Greece circa 250 BC to a more implicit influence in the way we communicate using text.

Punctuation was regional in its application and interpretation well after Gutenberg invented the movable type printing press. It was only with the truly mass production of printed material that conventions started to be widely accepted. The application of punctuation before unification through mass production is analogous to contemporary electronic communication; production is not centralised and the medium is still in its infancy, so new conventions are emerging. In the sixteenth century, individual printers were free to set words completely in CAPITALS, or to put s p a c e s between individual letters of words for added emphasis, and italic scripts were developed (Lupton and Miller, 1996 (2): 38).

Today new conventions are developing in an adhoc way to augment textual communication, particularly in a conversational context. Some of these conventions include a return to a medieval strategy, using all capital letters to shout. Another approach is that a word or words are given stars (*) before and after them to embolden or underline text. The word-processor Word 98 program automatically converts the words bracketed with asterisks into bold type. These widely applied conventions are examples of an extensive set of punctuation modifiers. Some of these aspire to be widely used while others are very specific in their application, and they are relevant only to a particular group.

Emoticons or more colloquially 'smiles' are a vernacular system of creating representational icons within a text. These started by being quite simple expressions of emotion, hence the smiley tag (:-)). Individuals have built upon this system with many personal pages devoted to putting forward suggestions of different emoticons. There are 50 - 60 different emoticons being widely published but the fluid, open system of use and dissemination results in the constant suggestion, adoption or rejection of new emoticons by some groups and not others making absolute categorisation impossible and redundant. Some chat-rooms and e-mail clients can now interpret basic emoticons and insert an appropriate graphic icon.

Several aspects of emoticon construction and usage are indicative of the vernacular attempts to augment textual conversation. There are many variations on some basic elements of meaning, (e.g. grin: :) :D :o) :-|). This is evidence of an identification of a similar need from several different sources, as many people are making suggestions for emoticons. Specific groups, whether social, cultural or geographic, produce group-specific emoticons. For example, we have emoticons for Princess Leia (from Star Wars) @(-_-)@ , Homer Simpson (_8(1) and Tony Blair :~] . These examples are dependent on specific knowledge for their significance to be recognised. Illustrating this there was a spontaneous development of icons that were culturally or person-specific during the empirical investigation of the Iconic Project.

Understanding the nuances (or even the broader meaning) of these emoticons by those outside these specific groups was very difficult, as we did not have a compatible framework of understanding. The evolution of sophisticated and interconnected emoticons can be seen in the development of the icon for Yuppie \$-) (Lupton and Miller 1996 (2): 38) and I love money \$) (AOL-2 1999). Both of these icons communicate connotations of money colouring the way the individual sees the world in a way that is not easy to communicate succinctly in words alone.

The final observation of the development of emoticons is that, as the possibilities for the combinations of punctuation become exhausted, emoticons are becoming increasingly tenuous. Examples of this feeble generation of meaning can be seen in the icon for spider (/ \(00)/ \) (ibid.). This emoticon uses more characters than writing the word itself. Similarly the utility value of the emoticon #####@##### (a centipede in a sombrero) has to be questioned.

The Iconic Project

After this initial investigation, it was determined that the ability to add nuances of meaning in a graphic way would enrich purely textual communication. It was also decided to build on working systems of augmentation rather than trying to initiate a radical change in the way we communicate electronically and then try to convince electronic users to adopt this new system. The Internet does allow minority communication systems to survive; there are many Esperanto language sites⁶ on the internet and over 50 forums for communicating in Klingon⁷; as we shall see there are also interesting graphic languages that fill this niche.

A User-Led Approach

The qualities of an open, evolutionary project constrained as little as possible by the preconceptions of its originators and developed in such a way that the project grows, mutates and is developed in ways beyond the designer's control or prediction has been categorised here as user-centred. This transcends the 'taking the users needs into account' approach of George Frascara's *User-Centred Graphic Design* (1997). It is also important to note that this project is not taking an anti-design(er) approach seen in De Board, Vangem et al. (Knabb 1981). The work of Radical Italian design groups like Archizoom and Superstudio (Ambasz 1972) demonstrates this.

This user-centred approach seeks the establishment of a symbiotic relationship between user and designer that allows the innate skills, abilities and understanding of both groups to achieve a balance of expression. In this instance, the proposal is a designed framework in which users can create their own icons and embed them in textual conversations. Fundamentally, this is facilitating the production of emoticons using basic graphic elements that are flexible in their composition, rather than using punctuation with very limited compositional ability.

⁶ Esperanto League of Cyberspace downloaded 2 October 1999 from www.esperanto.org

⁷ Klingon Language Institute (internet) downloaded November 2005 from www.kli.org

There are compelling reasons for the development of a user-centred approach rather than a more traditionally hierarchical 'design' solution. Underpinning these theoretical and practical rationales is the political assertion that it is better to include rather than to exclude.

There is a groundswell of theoretical activity that is causing problems in the hierarchical position traditionally assumed by the designer epitomised in the stance taken by Norman Potter in the book *What is a Designer?* (1980) One of the many strands of this debate can be traced back to Ferdinand Saussure's rejection of a single, unambiguous meaning (Saussure 1966). Arguing that the meanings given to words (and signs in general) were not fixed but negotiated within specific cultural contexts set the scene for the development of a move towards authorship being a process of mediation between reader and writer. Building on and subsequently superseding Saussure, Roland Barthes cultivated the notion of 'the death of the author, birth of the reader' (Barthes 1977).

Strands of thought including those proposed by Foucault (1980), Derrida (1976), Lyotard (1984), and Deleuze and Guattari (1994) all advance this idea from strongly contrasting directions and are discussed in more detail in other chapters of this thesis. Grossly simplifying the common strand that runs through their writings is that the meaning of a text is as much dependent on the reader as the writer. This amounts to a destabilisation of the act of authorship of meaning, defusing it between writer and reader.

In terms of the Icon Project, it is counterproductive to attempt the modernist scheme of producing a universal set of icons that would be appropriate for everyone. The Isotope system has already attempted this (unsuccessfully) in the field of information design (Meggs 1992). If one accepts that the reader and author fix meaning together then any attempt by a designer to pre-determine nuances of meaning causes problems.

It is not possible from a linguistic/philosophical perspective to develop signs that are universal in their meaning, furthermore the very validity of this aim is questionable. Building on the work of Bourdieu (1998), it is a politically dubious act to attempt to dominate a user by attempting to impose a fixed meaning on the user.

The adoption of a user-centred approach for the Icon Project is part of the rejection of a centrally imposed system of communication within digital textual conversation. This rejection resulted in a move away from plain text itself and in the development of systems that allow users to create their own systems of augmentation with the help of designers. In conversational electronic communication, the designer does not have the right or the ability to dictate plain text augmentation. The Iconic project is a propagation of an open, evolutionary process that is

already in operation despite the restrictions placed on it by current infrastructures.

This approach differs radically from textual alternatives like Elephants Memory, Rebus or Bliss (for details see Cruickshank and Hughes (1999)). These languages have a fixed vocabulary and usually attempt to replace textual communication altogether. This is shown in its extreme form with Elephants Memory. This language, developed by Timothy Ingen Housz, is proposed as an experimental language for children enabled by the Internet. It consists of 50 graphic elements along with a grammar and syntax to guide their composition. In some ways, this contemporary language echoes the aims of Blissymbolics.

Developed by C.K. Bliss, this symbolic visual language, initially aimed at children with learning difficulties, had a rigid visual vocabulary. Bliss saw this language as something fixed and as a replacement for conventional textual communication. The text accompanying his letterhead evidences his strident views on the use of Bliss.

The Blissymbolics and the books are copyright recorded under the Berne Convention, the Copyright act of the USA and the universal Copyright convention. ALL RIGHTS RESERVED. Infringes and perverters have been and will be prosecuted anywhere to ensure uniformity as ONE WRITING FOR ONE WORLD.'

(Bliss' capitals) (Sassoon 1997: 32)

This high modernist approach is problematic in theoretical and practical terms. Bliss faltered and ultimately fails because people are generally not prepared to learn and communicate with a rigid new language, syntax and grammar. The required investment in time and understanding outweigh the potential benefits. As Rosemary Sassoon says, 'Bliss has created a dead language, a dead language does not allow for evolution. To be effective a modern symbol system must be able to grow' (Sassoon 1997: 34). In this respect, Bliss is the antithesis of the aims of the Icon Project.

Semantic Compaction (Cross 1998) is an approach to graphic communication that has a much more flexible approach. The language was designed to allow people with very restricted movement to use 'a very small number of graphic elements to communicate complex ideas, by assigning each icon with several different possible meanings. The location of an icon in relation to other icons determines the particular meaning. For example placing an apple shape next to a tree denotes the fruit 'apple' while placing the apple next to a rainbow means the colour 'red'. The meanings assigned to icons and the contexts which determine which particular meaning is relevant are controlled by the user, allowing the graphic language to become more sophisticated as the user's language skills become more developed and more complex concepts need to be communicated. Although this system is interesting, there is still a considerable investment needed in the definition of terms and the learning of both vocabulary and syntax, which would

be beyond most users.

The Iconic Project Prototype

After the literature search phase of the project was complete, a prototype system that allows the user to develop their own codes and conventions in conjunction with the people they directly communicate with was developed. This system would provide a range of primitive graphic components. Arranging these components forms icons for insertion into textual conversation.

The prototyping for this project consists of two aspects: a paper simulation of how people would use icons to augment textual conversation and the development of a software prototype to examine the technical problems of textural augmentation.

Paper Prototyping

Before discussing this aspect of the Iconic Project, these practical exercises are not part of a full-blown piece of action research. They are a pre-test for the pilot project, being used as diagnostic tools for the development of future more rigorous and extensive studies.

Issues identified with the study in its present state of development include: sample size; the lack of multiple conversations; the reliance on drawing to communicate; the number and composition of basic primitives used (more complex but still ambiguous shapes will be included in the next study). Despite this, there are some tentative conclusions to draw from the sessions described below.

The workshops consisted of a series of three groups, each with a different composition. Group 1 had three students (two computer science students and one graphic design student) and a researcher.

Group 2 had two computer science students and a researcher.

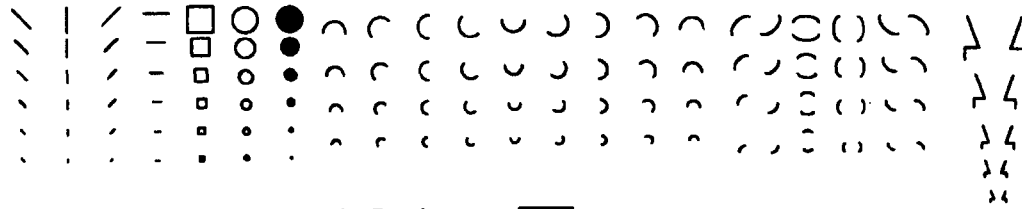
Group 3 had two nurses who had no prior knowledge of the project.

Each member of the group received a printed sheet (fig. 7.1) group members followed these instructions:

Appendix 1: Work Sheet Proforma for Iconic Conversation Workshop 1

Exercise - Using icons to help give textual communication depth

Basic Elements



Guidelines for the Iconic Communication Exercise

No talking or looking at each other

Have a conversation on absolutely any topic using the roll of paper to write on, you may want to talk about the idea of using icons to give printed text more emotion.


This conversation must use printed handwriting, you can also make up pictures using shapes from the sheet provided

These picture / icons can use any shape on the sheet, any number of times but it must include the large box shown left.


Please put a circle around any of the shapes that you use, if you use it twice put two circles around it.


If there are icons that you want to use again please record them in the boxes provided on your printed sheet.


This is supposed to be a conversation not a test, so don't think too long about your responses, have fun and try and express your personality.

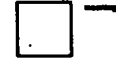
 Make your icons in a box about this size


Icons you want to use again














Guidelines Iconic Communication Exercise

1 No talking or looking at each other please.

2 Have a conversation on any topic using the roll of paper to write on.

3 This conversation must use printed handwriting. You can also make up pictures using shapes from the sheet provided.

4 These picture / icons can use any shape on the sheet, any number of times, but it must include the large box shown in the left-hand corner of the sheet.

5 Please put a circle around any of the shapes that you use. If you use it twice put two circles around it.

Fig. 7. 1 Text conversation worksheet

6 If there are icons that you want to use again, please record them in the boxes provided on your printed sheet.

These groups were then given long rolls of paper, stickers and pens and left to their own devices to have a textual conversation. An element of ambiguity facilitated the intuitive development of textual augmentation rather than measuring the degree to which groups conformed to our expectations.

The initial reaction of the test subjects was one of puzzlement. Researchers adhered to the instructions given on the sheet, adopting the position analogous to someone introducing this concept to a group online using text and icons to explain the underlying concept. Group 3 did not have any researcher-guided facilitation.

After an initial phase of confusion, conversation became animated. It was notable that all sessions continued well beyond their planned duration. From a strategic standpoint, there does seem to be difference in the ways the different groups used icons. Group 1 tended towards using icons to replace characters, while group 2 tended towards the substitution of actions with

icons (the replacement of nouns). Group 3 used icons to signify specific people.

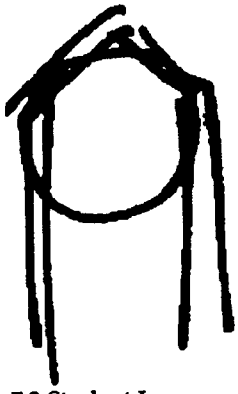


Fig. 7.2 Student Icon

I do not attach significance to these observations beyond the fact that in all cases there was evidence of the building up of a group-specific iconic vocabulary. There were interesting resonances across groups along age/educational lines. One of the researchers attempted to signify 'student' with this icon (see fig. 7.2). The younger students who did not associate long hair with students at all did not recognise this. Conversely, all students recognised the icon as signifying 'keeping it real' (see fig. 7.3).

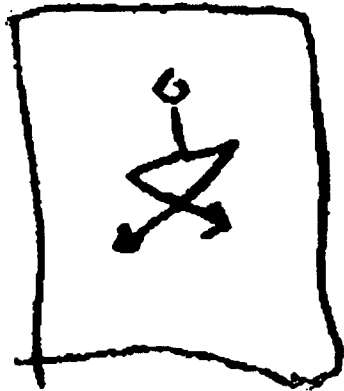


Fig. 7.3 'Keeping it real'

By chance, test groups created icons competing for the same meaning. Invariably one icon survived and was used by others while other icons died and fell out of use. For example, two icons were produced by group 1 to denote the woman (see fig.7.4) and one icon was adopted by the group while the other was not used by anyone else.

From the results of the paper study, it became clear that it was worth continuing the development of this open system. There is evidence that discrete dialects could develop, be this along cultural, geographic social or a multitude of other lines and that these dialects would form spontaneously once a network was in place to facilitate this.

The Digital Prototype

Initial plans were to design a system to augment an e-mail system with user-created icons but it became clear that there were many drawbacks to this approach. In an alternative approach a web page that hosted one or more discussions, these discussions would then be in text augmented with the user-created icons. The programming and de-bugging for this system was undertaken by a group of computer science students from Exeter University.

The advantages to this approach were:

The technical scope was more manageable. Recreating an e-mail package or adapting an existing e-mail client is a large-scale undertaking requiring a lot of work beyond the core concerns of the project.

The mechanism for icon sharing would be simple. Implementing icon sharing between large collections of separate e-mail packages would be difficult to implement effectively. Basing the service around a website would mean that whenever a user created a new icon, it would be available for others to use.

One of the key aspects of the project was following the way that users and different user

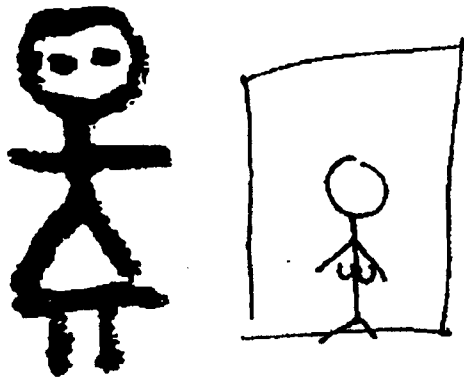


Fig. 7.4 Competing icons for female

Fig. 7.5 Text authoring

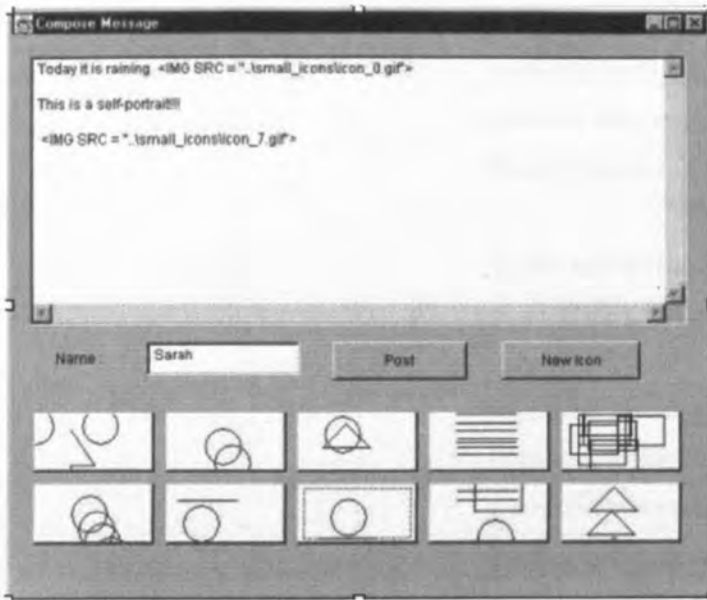


Fig. 7.6 Online 'icono-textual' communication

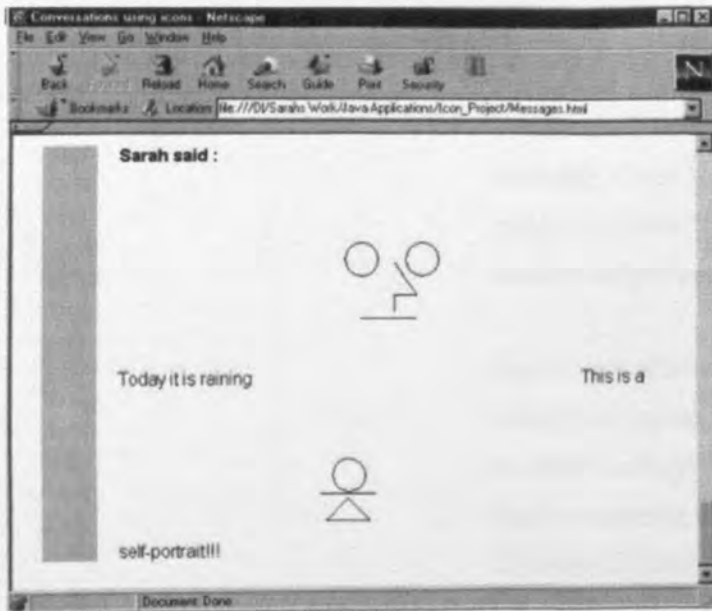
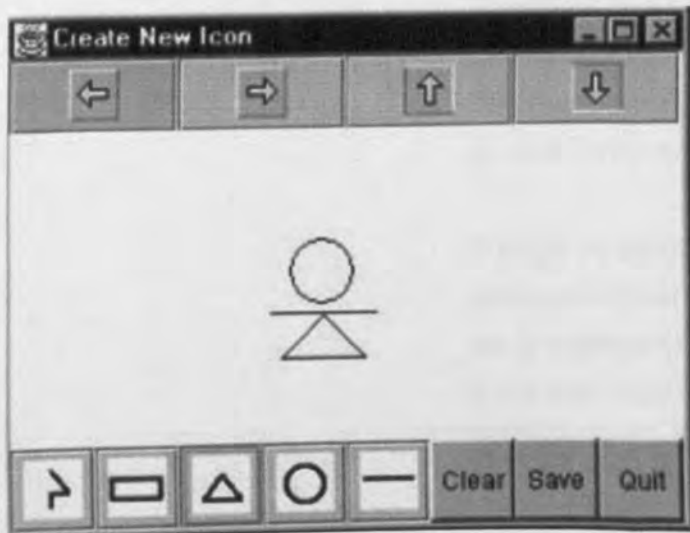


Fig. 7.7 Icon Creation



groups make use of the system. A further advantage for the future is that the archives of use themselves could be made accessible online, enabling other groups researching in this area to analyse the material for their own research.

Building the digital prototype

The decision to implement the system as a web page prompted the choice of technology as HTML web pages while the functional elements would use Java. The first phase was to construct the system as a stand-alone Java application. With this application, users could add paragraphs to an ongoing discussion and intersperse their text with icons from a pool of icons. This pool of icons could be supplemented by creating new images using a series of primitives. The icons are GIF images.

To get a better idea of the technology and interaction involved in the prototype let us look at the functionality it offers by means of several screens from the interaction. A good starting point is the web page that embodies the discussion; it is a digital version of the roll of paper used in the earlier paper-based experiments (see fig. 7.5).

Users can alternately or asynchronously append messages to the bottom of the page. The visual design of the page indicates the boundary between subsequent messages and by the fact that the name of each person posted the message, preceded the message. The text of the message can be interspersed with small graphic icons.

In order to append a message to the discussion a user starts up the message-authoring package (once the system is ported to the web this would be done by a simple click on a button in the web page). This consists of a textual window where the user can click and type the text of the message (see fig. 7.6).

Below this, a text fill-in field allows the user to enter their name to appear below the message in the discussion. In an eventual web-based system where users login to different discussions, this appending of the persons name would be automated.

The mechanism to augment the text with icons consists of a menu of the

pool of icons at the bottom of the window. By clicking on an icon, the user causes the icon to be included in the text at that point. Technical restrictions on the display of text and graphics in the text area mean that the icon is a textual HTML reference in this window, and although functional, this is not ideal.

In the event that the user wishes to augment the text with an icon that is not part of the icon pool, they click on the button 'new icon' and a new window for composing new icons appears (see fig. 7.7 above). Here they start with a blank icon and can introduce primitive graphic elements by clicking on the pictures below the icon composition area. On introducing a new primitive, arrow buttons above the icon composition area modify the element's position. At any point the user can choose one of the options at the bottom right of the screen to clear the icon composition area, to save the icon into the icon pool or to quit the icon composition and return to the message composition area.

Extensions to the system

This digital prototype confirms the working of the technologies involved; the next stage is to export the Java code to the web in the form of an Applet and to improve some aspects of the usability. Once this is completed, it would be possible to use the set-up for experiments in much the same form as the paper-based trials. Further amendments would allow use over the web by larger user groups. In particular, the following areas are in line for amendment:

Icon composition

A more advanced icon composition tool needs to be developed. However this should strive to remain uncomplicated, the key to icon creation is that users can do it simply and quickly, on-the-fly, creating an icon is not the creation of a precise masterpiece but the creation of a fast aid to communication.

Primitives and icons

During the paper-based trials many of the icons used consisted of primitives beyond the initial set on offer. In particular, a blank or empty face would be a useful primitive, as would other general forms such as a cloud (cloud, thought bubble, sheep's body, mop of hair, etc.).

It might be useful to allow users to define their own primitives. An even more flexible approach would be to remove the distinction between primitives and icons and bundle everything together in one pool. This would allow users to incorporate icons in their text and to build new icons from simple primitives in the icon pool or augment existing icons (combining a face icon and a line to give a face with a moustache).

Managing multiple discussions

Eventually the service should be able to support multiple discussions; a group of users should be able to get their own dedicated discussion area. Such a service would require an extra level of design to manage multiple discussions in this way and to manage the associated pools of icons answering such questions as how icons are shared between different discussion groups, and how users will deal with large numbers of icons in the pool.

Interim Conclusions

There are many contemporary developments related to the enriching of textual communication. Browser-related e-mail packages allow the sending of e-mail messages with HTML and some web-based e-mail services offer the user ready-made templates for their e-mail, in effect a stationary pack of different sorts of paper. With augmentation with predefined icons discussed earlier and the advances in sound technology, services are starting to augment or replace textual communication with computer-based voicemail.

In commercial terms, these developments in richer computer-mediated communication make the position of iconic augmentation of text unclear. However, even if there is no mainstream place for the technology we expect that the service will still appeal to a large niche user-group.

In future phases of the project an arena where such users have the opportunity to communicate using user-defined icons will enable us to clarify the expectations that arose from the paper-based experiments. It is hoped that such a web-based system; where the use of icons is easier and more fluid through a lowered threshold, will yield results that will support our paper-based observations and even produce other as yet unexpected results.

This project came to an interim conclusion in 2000 after a series of conference papers and publications (Cruikshank 1999, 2000). SMS, and more recently MMS services, allow icons and images to augment text. These coupled with 3D chat rooms using VRML or Flash, have further facilitated (and in some senses superseded) the iconic proposal.

C Space

This section continues the previous project's preoccupation with the facilitation of communication. This is enabled through the provision of an adaptive virtual/physical environment in which everyday users can both communicate and negotiate new ways of communicating with each other.

The aim is to establish a communication structure that is flexible, adaptive and modifiable by the user. The specific nature of this communication will not be determined at the start of the project. Rather, it is intended that it will evolve with the system described. The structure and

the descriptions here are a primer for the development of communication strategies developed by separate groups in ways relevant to them. This is a project rooted in technical possibilities and which exploits the telecommunications and broadcast networks currently available and those that will become so within the near future.

The C Space project is proposing the offering of a physical/virtual space in which users can express themselves, encouraging them to step into, to be pro-active in and to tailor the space offered both conceptually, electronically and virtually. It should invite them to interface with others in a seductive manner, to pull them into this active communication space. The space will also be a mediated position between the binary of designer-user and, in the Derridian sense, attempt a deconstruction of that position, that is, not just a reversal of binaries to dissolve the distinction between the categorisations of the user and designer. Of course the designer-user relationship is just one of the axes through which this idea has manoeuvred and continues to do so. As a surrounding of the C Space each of these axes has a position, a mass inertia and a trajectory and relationships to others.

Here we are primarily concerned with the territories of design theory, philosophy and techno-economic contexts, in addition to design practice, deferring other potential areas of interest (including psychology, ethics, feminism, sexuality, and consumption) for another day.

Theoretical Contexts

The theoretical impetus for this project can be traced back at least as far as the Fair Play campaign of 1905 as well as to *Homo Ludens* by Johan Huizinga (1944). Here complicated 'pre-packaged' toys were rejected in favour of basic fundamental playthings that did not limit the child's imagination, like balls, ropes and building. This strand can be traced through to Aldo Van Eyck's Situationist playgrounds (Sadler 1998: 27). This is one point in a cloud of influence on the development of the proposed C Space. Mapping these influences precisely is a task for the literature survey as in many ways the preoccupations seen here mirror the more widely held influences on this research project. Having said this, there are a number of axes of interest that can be drawn from the general scheme presented in the literature survey that have been especially important in stimulating the C Space proposal. These share a common engagement and support of:

The Vernacular - validation of the non-professional being a common thread running throughout this project and its theoretical context;

Participation-the bringing together of professionals or the academy with the non-professional in acts of creation;

Flexible Structure -a concern with structure over content, a concentration or preoccupation with the organisation of things of the meta-level rather than the specific.

Following very quickly on from this, forestalling a misreading of this assertion, it is not a benevolent genius that fixes these structures or the components within them; the structures in addition to their contents are themselves the product of a changing participatory evolving environment. To expand on this my interest is not the sort of modularisation found in Le Corbusier's Domino house system or in Charles and Ray Eames furniture, but rather a flexibility of these basic constituents in addition to the way these basic components are arranged.

A radical expression of this politics was illustrated by the Situationist's in the 60s and was pre-figured by COBRA (Plant 1992: 54, and Buchloh 2001: 15) with their adoration of and adoption of children's drawings unsullied by the 'academy' and earlier by the Surrealists canonisation of the study of drawings from inmates in a mental asylum and their use of slogans such as 'take your dreams for reality' and 'demand the impossible'. Groups like the Metropolitan Indians, the Angry Brigade, 'travellers' and in the present, WOMBLES⁸ and counter-capitalist activities carry this tradition forward in general. The WOMBLES take their name from the children's TV programme describing the adventures of white bear-like animals who look after a London common by collecting and recycling litter. This activist group wear white boiler-suits to keep their home-made armour in place during violent protests.

With this said the Situationists resonate most strongly here with a well-established and active literature. It is interesting and unfortunate for the Situationists that the cause has become so celebrated and one has to say that in recent publications this has become increasingly recuperated, a badge to either help diffuse the radicalism of projects or an attempt to radicalise (and so sell) the banal.

An example of this recuperation (and an anathema to the Situationist International's ideals) is seen in the A&D publication *New Babylonians* (Borden and McCreery 2001) in which casino design features as a contemporary example of Situationist activity. The ultra-controlling atmosphere of the casino could not contrast more starkly with the ambitions of user autonomy, of individuals and communities taking control of their own situations and the rejection of materialism espoused by the Situationists. The Situationists' awareness of the potential for recuperation of their ideas resulted in almost every member of the Situationist International either being purged from their ranks with only Guy Debord being immune from this. The issue of production of artefacts was an important cause of friction within the group.

Debord rejected the strategy of creating artefacts to stimulate the population into creating their

**8 White Overalls Movement
Building Libertarian Effective
Struggle.**

own situations and overthrowing the all-controlling environment of the situation. For him the role of general without foot soldiers precluded the production of examples that may be seen as indications of a 'party line' (although he did at one point make films). Constant Nieuwenhugs, Jasper Aguard and others took a contrary view, that it was possible to create or at least propose artefacts/strategies for the undermining of society even if these suggestions were few in number and often not easily realisable propositions.

There is a clear relationship between the Situationists and the principles of vernacularism, participation and flexible structure. They promoted the uncontrolled rising up of the common man, of them taking control of their lives. In Constants' twenty-year New Babylon project he proposed a series of infinitely repeating flexible habitations that would enable the playful everyday (wo)man to structure and restructure her environment however she wanted. This filtered into contemporary design practice with the production of adaptive furniture like Peter Murdoch's Paper Cup chair (Bayley 1985: 208) or Bartolini's Sectional Automobile (Branzi 1984: 79).

This divide between criticism and practice-as-criticism can be used to further explore the context in which the C Space proposal is situated. The critical vector from the Situationists leads to the 'big men' of contemporary French philosophy-Foucault, Derrida, Deleuze & Guattari and Lyotard, all of whom were relatively intimate with the 1968 activities.

A different vector of practice-criticism can be traced to the direct action of a number of activist groups and in design-research, radical Italian design including Archizoom, Super Studio, Banal Design and with Sotsass's links to the Imaginist Bauhaus and beyond. Both these sources are of inspiration for experimental design groups like Droog, Kestel Kramer, through their Do brand without content (explored more fully in chapter 4), and designer stars like Ron Arad.

Of course, this neat picture is a convenient narrative or at least an opportune reading of the situation; one could just as easily find the Surrealists as a nodal point with the connection of Bataille to the thinkers and designers outlined above. It is also true that many of the ideas espoused in terms of participation would be common to early Bauhaus teachings and even more strongly to Maholy Nagy's incarnation of the New Bauhaus in Chicago (Findeli 1998), giving a more modern flavour to this investigation. Some of this is common to accepted design good practice promoted by journals like *Design Issues*, however the important difference is that within design 'best practice' the designer is in control of the process and (grudgingly or not) invites users into the process on their terms.

Acknowledging these alternative starting points, it is the Situationist connection that has been a

core source of provocation for this project. In contrast with much mainstream 'good design practice', the designer (me) is not in control of the outcomes of this system, *n* years of academic training have not mediated the aesthetic taste of the means of communication. The fact that I dread the anatomical electronic images a group of teenage boys (or girls) could put into this system is ample evidence that I should not attempt to dictate how they are used. The impending proliferation of phones with digital cameras on them seems particularly facilitating for those passing through puberty.

There are differing views on the actual implementation of schemes. Emerging from Debord's 'pure criticism', Constant is happy for his designs to remain theoretical and to be a theoretical architect because change was always going to come from the people and as such he was almost marking time until the uprising came. The approach is not necessarily about educating the user, rather it is about preparing (fertilising?) the ground for users to colonise. As such, one could say that this sort of design project is more about changing designers and their attitudes than attempting to change society's opinions at large.

In contrast, companies such as Droog and the early works of Ron Arad attempted to make an impact on mainstream consumption and use of products in order to be popular. The success of these experiments in terms of engaging with the masses is questionable, although one could argue that companies like IKEA have both taken up some of these ideas and had an impact in the mass consumer market⁹. You can now purchase inflatable furniture, self-paint and modular components all aspirations of fringe design groups in the 1960's. It is clear that the development of digital artefacts make it less problematic to produce accessible experimental design in the sense of many people being able to see the product, but accessibility and the need for the validation of the masses is still a rather open question.

9 Although at face value this seems an unusual connection, the marketing of plain unpainted furniture for decoration by the buyer is equitant to Droog's Drawing Table by Djoek de Jong, a table covered entirely in blackboard paint

10 IST stands for Innovation, Society and Technology. This is a substantial fund (several billion euros) from the European Union.

11 The full list of collaborators is: Brunel University, France Telecom R & D, Institut Fuer Rundfunktechnik GMB, Motorola Labs, Philips Research Laboratories, RAI-Radiotelevisione Italiana, Telediffusion de France, Ostdeutcher Rundfunk Brandenburg, TV Cultura (Brazil).

CISMUNDUS Convergence of IP-based Services for Mobile Users and Networks in DVB-T and UMTS Systems

It is the coming together (one cannot help but use the buzz-word 'convergence') of telecommunications, Internet and broadcast technologies in a mobile device that has sparked the project in which the C Space proposal resides. This is an ongoing project funded by the European Union in conjunction with industrial partners through the IST¹⁰ initiative. The total budget of the CISMUNDUS project is ≈ 8.1 million of which ≈ 4.3 million is being contributed by the industrial partners in the project, including Philips Research, Motorola, Telecom de Frances, RAI, IRT¹¹.

The aim of the CISMUNDUS project is to show the related hardware, network and broadcast industries how these technologies can work together synergistically in a portable device. This

involves the generation of scenarios of potential use and the development, testing and demonstration of these fully functional scenarios to the major European companies involved in their commercial application.

The aim of the scenarios proposed is their adoption, mutation and replication by other agencies, and in a sense, this is an invitation to détournment by other companies. My implicit aim must be to make this détournment as likely as possible and to have as wide as possible an engagement of non-technicians in the use, reinvention and subversion of the system.

Without becoming sidetracked by technical specifications, it is worth briefly outlining how these technologies are being developed and the capabilities that can be exploited. The main concern of the CISMUNDUS project is the development of mobile platforms or devices and the networks that support these devices; these are working test-beds for the technology rather than projected retail products. The physical device will be the size of a large paperback book and will have a large colour, touch-sensitive screen. The heart of this device will be two processing units, one standard low power consumption processor, the other is a Tri-Media chip that has been specifically developed by Philips to process sound, image and video in a very efficient manner. This will have the capability to show broadcast quality video while undertaking other computational tasks.

The device will be capable of accessing interactive television signals (DVB-T signals broadcast from large terrestrial transmitters-as seen in the BBC's Freeview service today). In addition to being very high quality in terms of sound and vision, each DVB-T channel takes up a small fraction of the available broadcast spectrum required by analogue television. This allows many more digital channels than are available with analogue television. This system also has the ability to broadcast data (loosely the sort of information one might store on a CD-ROM). This can either take the place of the sound and image of the conventionally broadcast TV program or the data can be broadcast 'on the side' of a channel much like a very high bandwidth sophisticated, teletext service.

The broadcast network (DVB-T) transmits the same information to many people. This could be a whole region, a city, or in circumstances that are more exceptional, a local transmitter could broadcast to a small area such as a stadium or airport. The smaller the number of people broadcast to the less cost-effective the broadcast. This one-to-many network is complimented by a point-to-point telecommunications network. This is most efficient for sending information to a single user, and will use UMTS (Universal Mobile Telecommunications System) technology the next version of the GPRS (General Packet Radio System) currently used for Multimedia Messaging, photo messaging and mobile Internet access. It allows the targeting of data at spe-

cific terminals and allows the user to send data from their device to others.

As many as possible of the conventional scenarios presented to the consortium have Trojan possibilities for more radical activity, subversion, pirate broadcasting and provocation, or even revolution, woven into them. It is these unannounced possibilities that I am trying to slip past the consortiums. Promotion of this (unperceived) potential for détournement is important. This could range from overt political facilitation (e.g. allowing groups to coordinate direct action more easily), to the dissemination of information to more individual activity, growth and interaction.

Applications

During the initial development of the C Space, I conceived of a number of different applications including:

-Digital Graffiti-détourning, attacking, improving virtual images of real landmarks in their physical vicinity;

-Pets on the move - 'meeeeooooow' letting a user play with their pet on the train. It responds to sounds, world events, other pets and the climate;

-Broadcast games - mixing games with broadcast sport at the sporting event; racing virtual skiers against real-life competitors at the ski slope (fig. 7.8 overleaf).

-C Space a virtual/physical communication space

After the presentation of initial proposals, the consortium selected C Space for further development. The consortium sees it as novel, having the potential to genuinely integrate the technological components and not being dependent on broadcast rights for demonstration. While the initial response was positive, there was resistance that it could be too radical¹².

The initial suggestions above helped inspire some of the further development of the use and application of C Space itself; this is especially true of the psycho-geographical elements of the proposal.

- User-Centered Psycho-geographic Mapping of a city-uses mapping and modifying maps in real time of city in using criteria determined by them. For example, a skateboarder could rate the possibilities of the environment for fun while a Yuppie could map (and be guided by) the

¹² There was also a view especially by the Telco component that there were no new services to be developed and that they did not want to create a service that was completely integrated, I read this as a protection of their income streams

Live/Avatar Ski game

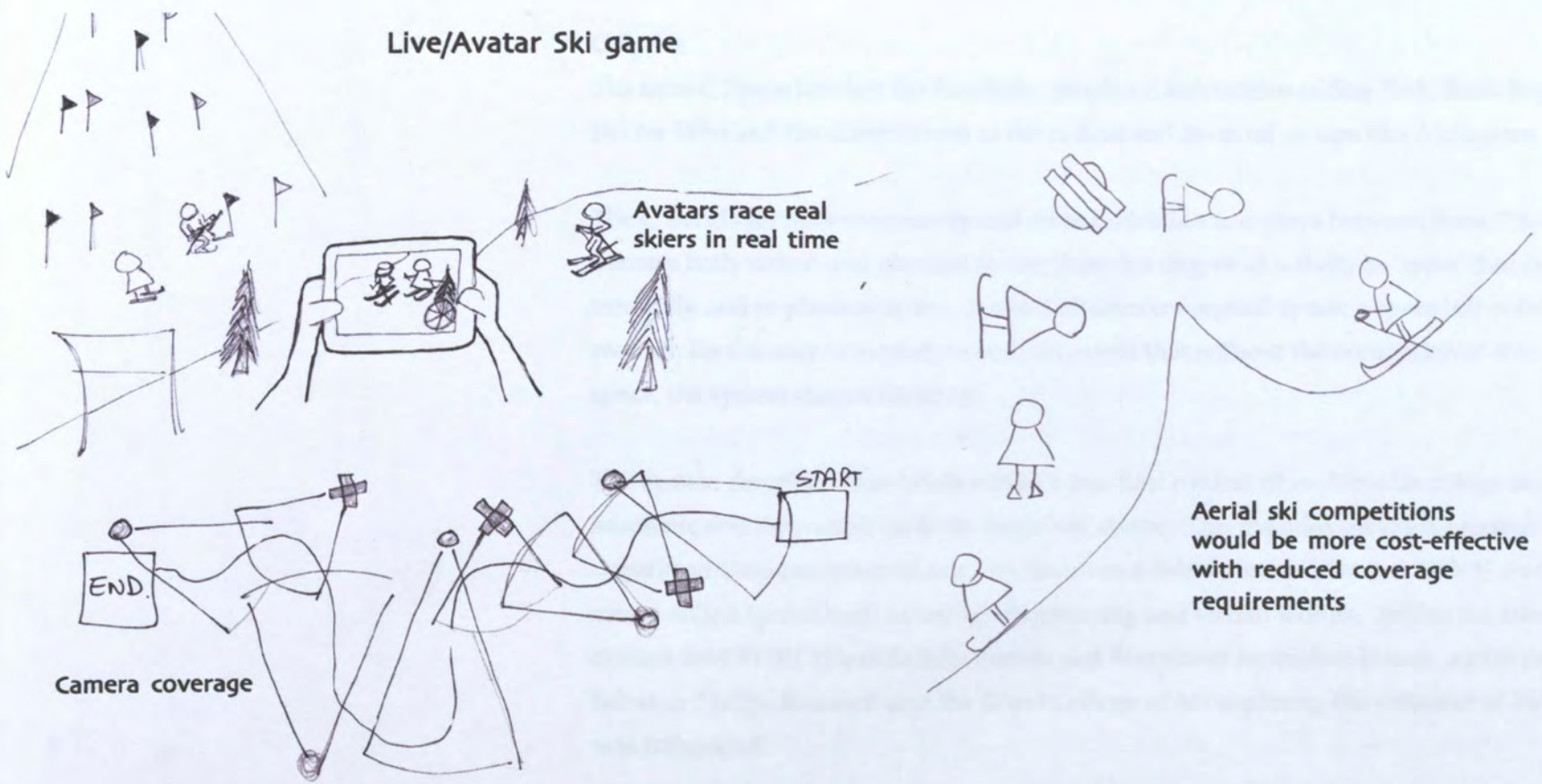


Fig. 7.8 Broadcast game

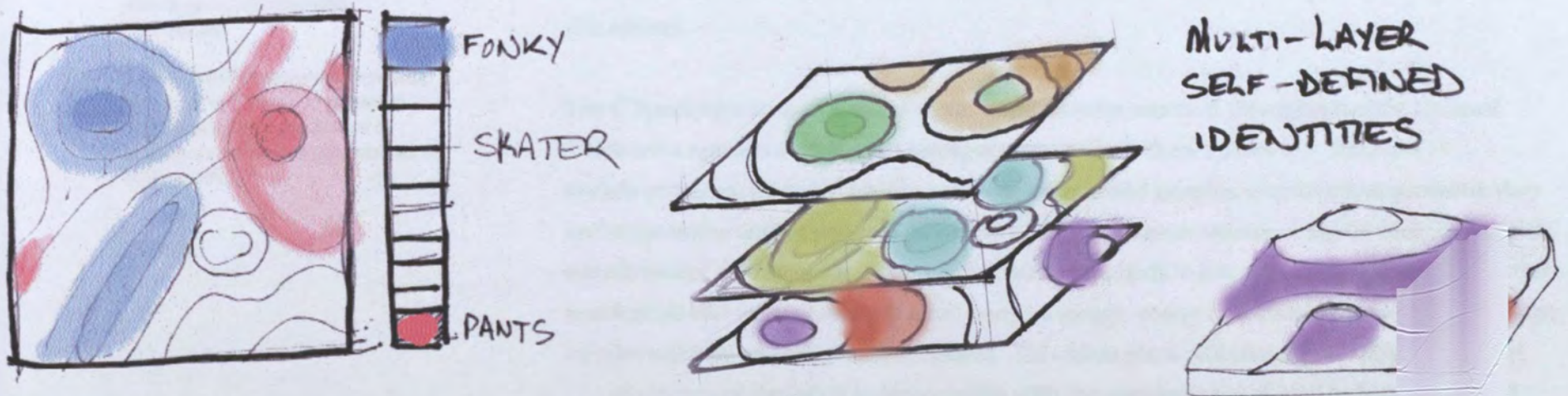


Fig. 7.9 Psychogeographic Mapping

quality of the Cappuccinos (fig. 7.9).

C Space

The term C Space invokes the futuristic, utopian constructions of Star Trek, Buck Rogers or Doctor Who and the constrictions of the radical architectural groups like Archigram.

The C stands for both community and communication and plays between these.¹³ Space here denotes both virtual and physical space; there is a degree of activity in 'areas' that exist electronically and in physical space. It also indicates conceptual space; a space left in the process of creation for the user to exploit, to such an extent that without the occupation of this creative space, the system cannot function.

The system described here exists within a practical context of multimedia design as well as the academic and theoretical contexts described above. This includes previous research concerning negotiated Iconic communication. It also owes a debt to text MUDs and MOOS and latterly visual online spaces such as www.helpgame.org and virtual worlds. Within the telecommunications field FLIRT (Flexible Information and Recreation for mobile Users), a joint project between Philips Research and the Royal College of Art exploring the potential of WAP phones was influential.

C Space distinguishes itself from these as here it is the user that is in control of the deployment of a much-distributed flexible system and the patterns of use and the operational structure of this system.

The C Space system uses a series of virtual structures accessed through a mobile terminal. There are a number of projected configurations of how these spaces may function. A system provides, through the interaction of avatars and peoples, a system that promotes data exchange in the widest possible sense. This ranges from conventional digital files (documents, sound, video, animation) to conversation (voice and text) to less easy to define aspects of communication like (virtual and physical) body language, group dynamics (the interaction of large numbers of avatars/people in one place). This takes place within a digital/physical hybrid environment designed to be scaleable with the development of new technology, higher bandwidths, better displays and so on.

This environment is not a single, one-size-fits-all monolithic entity that is hoping to please everyone a multitude of 'spaces' that work in different ways, with different pre-conditions of use and with different relationships between the physical and virtual components of the space. Looking more closely at these interrelationships, there are a number of predicted configurations.¹⁴

13 You could say that they are different or interchangeable definitions

14 It is worth reiterating here that these are my views of potential applications and structures of operation, not value judgements of best practice.

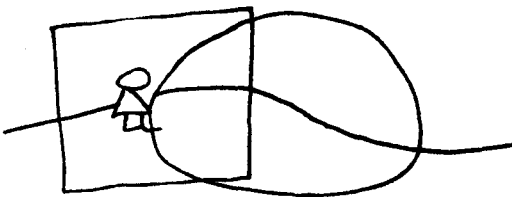


Fig. 7.10 Stationary Common Geography

Stationary Common Geography (fig. 7.10)

This is a virtual space that maps to a discrete fixed physical location. To access the virtual space you must be inside the geographical space, and this could be at its smallest a half kilometre square area up to many kilometres, determined by UMTS cells. For example, one scenario below discusses the use of a space that covers the tracks and station of the mainline train station from London to Oxford. This could just as easily be a shopping centre or a village.

Like the Borges story,¹⁵ this has the opportunity for reality to 'show through' into the digital space and the digital into the real world. Landmarks, physical features, contours and rivers could punctuate the virtual map in addition to myths, archaeology and memories (the developmental work below explores this more fully). It is a space that people live or work in or a space that they travel through. This space is exploring the potential resonances between physical and virtual meeting, passing the environment of developing a physical/virtual community.

The physical nature of this experience raises issues not normally associated with virtual communication. One is not in a diffused, anonymous environment in terms of ethics and social interaction. You would not want to talk to just anyone and would certainly not occupy the often aggressive stance occupied by many people in a chat situation online.

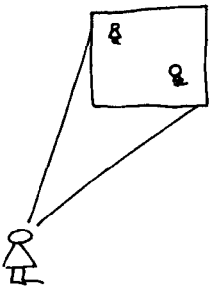


Fig. 7.11 Geographically

15 Taken from Baudrillard's
'Simulacra and Simulations' (Poster
1988

Geographically Remote (fig. 7.11)

This is a local geographically fixed space (virtually and physically) which other people can tap into. The obvious application of this would be a person who wanted to keep in touch with their community when they moved away from their physical location. It could also be the case that someone wants to acquaint themselves with a new environment or just expand their area of communication. This link does not have to be between space and a single individual. A group could go on an exploration or space-linking could occur in the same way that towns are twinned between cultures.

Geographically Mobile (fig. 7.12)

This is a virtual area that moves through physical space. A train, bus or even some other utility

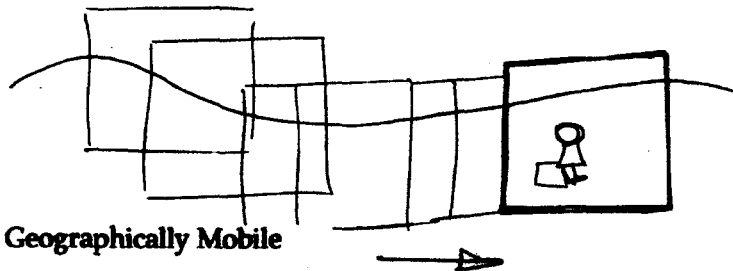


Fig. 7.12 Geographically Mobile

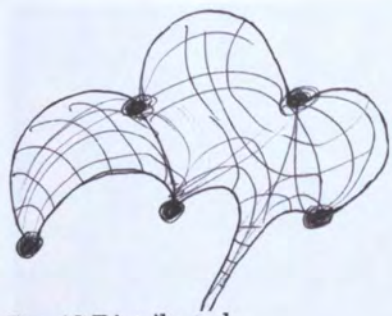


Fig. 13 Distributed

vehicle like a milk float could be the vehicle for this movement. This space or structure is exploiting transition. It has people passing through the sphere of influence of the space and has the space passing through the sphere of influence of, and the user's experience in this space which must be transitory, as both physical and virtual spaces are changing with the movement of the space.

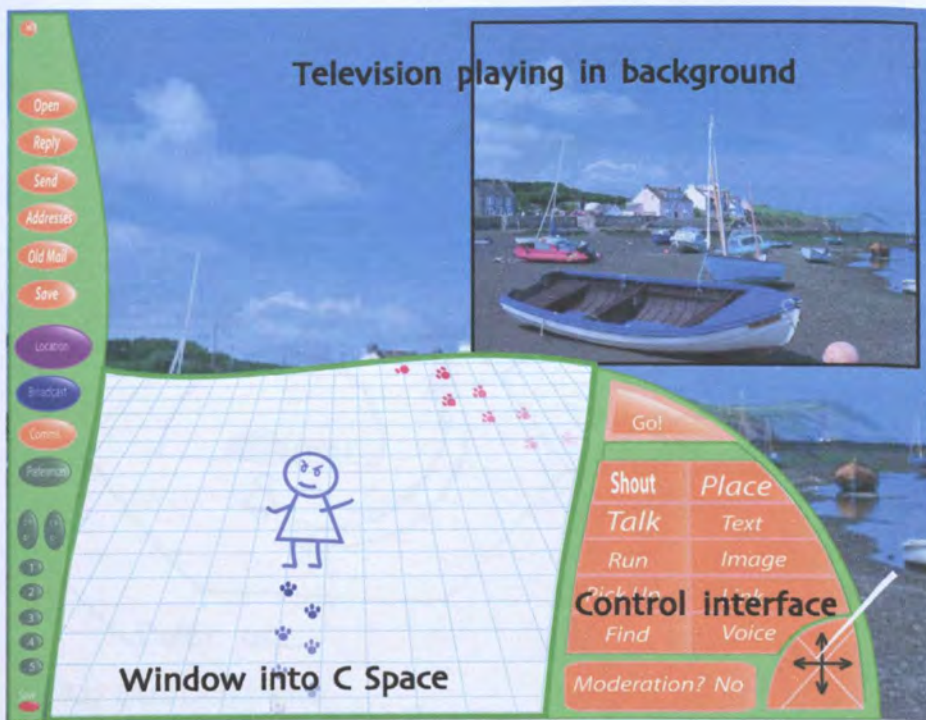
Distributed (fig. 7.13)

This space does not relate to a physical location. It operates in a similar way to conventional chat rooms and virtual online environments. There are some intriguing possibilities when such a system starts to interface with the other spaces and operations available. In addition to this, these distributed systems are popular and should be included in the possibilities offered. Indeed the ideal would be if all possibilities were on offer.



Fig. 7.14 C Space avatars

Fig. 7.15 C Space Interface



The modes of operation outlined here are modifiable in a number of different ways. Generally, spaces can have different layers (in effect sub-spaces). These can have restricted access, be moderated, have different characteristics in terms of data capacity, response time, links to other places, topics of conversation and so on.

On their own, the spaces described here are simply empty vessels; populating these spaces are a number of different elements (fig. 7.14).

The most important element within C Space is the avatars of the people using the system. These avatars can be illustrations/graphic images but also photographs, three-

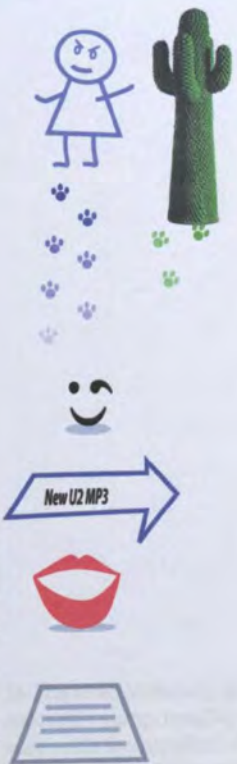
dimensional objects, even a three-dimensional animation. The user sees this avatar in the centre of their device window and moves through space by directing this. The avatar remains at the centre of the window with C Space moving in relation to this (fig. 7.15).

Avatars can undertake a wide range of activities from talking (voice or text) to other avatars to picking up or dropping data and links. Avatars leave footprints as they move through the spaces that dissolve in a set period. This 'bread-crumbling' helps people to get together in C Space. Another element populating the areas will be data. This could be text, MP3 film clips or images, and the volume and accessibility of this information is dependent on the infrastructure and resources devoted to this aspect of the system (fig. 7.16).

In addition to data existing in the space-available to everyone in the space there will also be links to other information and other spaces. The links to information could be to a website or be a peer-to-peer file transfer-made notorious by Napster. These files could be placed within a conventional web server or exist on CISMUNDUS terminals. Access to the links could be open, restricted by profile (for example age, by subscription or favourite band) or be limited to a specific person or persons, for example, the avatars on screen at that moment.

There could also be links to other spaces (with the relevant gate-keepers). This could be a URL-type link but it would be more stimulating for there to be a window through which avatars and the people controlling them could see through into the other space and the activity within the local area on the other side.

Fig. 7.16 C Space Actions



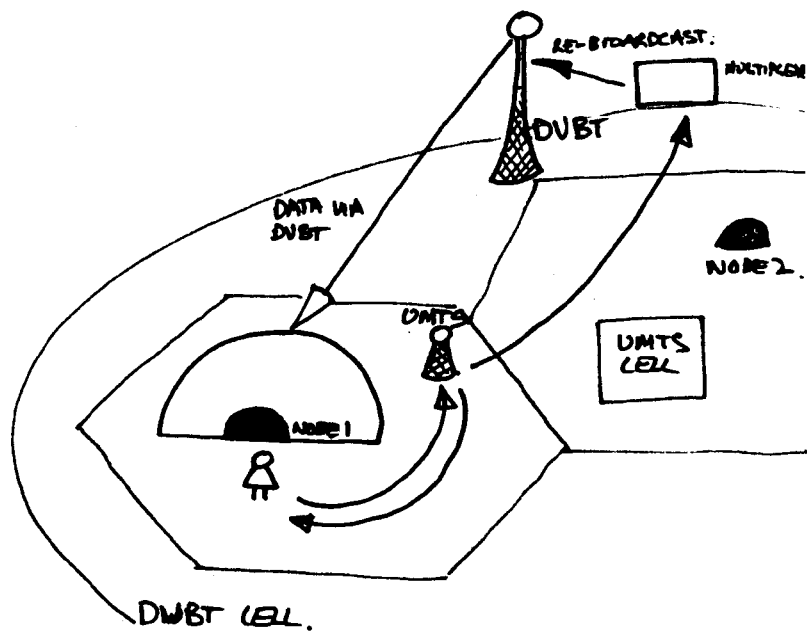


Fig. 7.17 Data Distribution

Technical Explanation

For these ideas to have the potential to go beyond an academic exercise, it is important that C Space is (at least in principle) a practical proposition. Building on this it is worth here spending a little time describing how the technology under investigation for the larger CISMUNDUS project could be harnessed for the C Space proposal. This system exploits the technological convergence of digital television (DVB-T) and data-capable telecommunications (UMTS). DVB-T has the advantage of very high bandwidth transmission of data (including conventional high quality video) but to be effective it has to send the same transmission to many people.¹⁶ UMTS has the advantage of offering point-to-point connections but has a comparatively lower data rate (fig. 7.17).

C Space broadcasts the data-rich environment (and constantly updates it) to many people using DVB-T. Feedback and communication from the mobile terminal will be handled by UMTS as the user moves their avatar, UMTS will be used to tell the broadcaster (actually a multiplexer) to move the avatar. This updated C Space is then re-broadcast and the avatar moves.

There will be situations where the changes to C Space are very small or the constituency (the number of people in the space) will be too small to make it worth updating the whole space centrally, as the amount of data that needs to be changed for each user could be very small. In this case, the system would automatically (and seamlessly) use the UMTS network to update the spaces. The automatic switching between broadcast and telecommunications systems to dynamically find the most efficient way to service the users is a major objective of the CISMUNDUS project as a whole.

The C Space idea was one of approximately ten other (competing) suggestions produced by other members of the consortium. They all went through a number of iterations evolving from basic statements in (innumerable) meetings to written proposals, to storyboards, to a formal technical description. Scenarios described each idea; this is a description of how an imaginary 'real' person would use the service on offer, the service being the general description of the proposed system.

This narrative-based scenario generation approach reflects the overall aims of the CISMUNDUS project, demonstrating the capabilities of this technology at a large exhibition at IBC (International Broadcasting Conference) in September 2003 in which we had to communicate

¹⁶ The exact data rate for UMTS is hotly contested compounding this, data rates vary with the number of people using UMTS in a particular cell. One of the technical requirements of the CISMUNDUS projects is to empirically investigate the actual data rates for a moving terminal.

our research in a five minute one-to-one demonstration with the aim of drawing that person into a more detailed conversation.

This reliance on the development of scenarios to describe the proposed systems is potentially problematic for the description of the C Space concept and resonates with the wider problems of describing much of the design work for this PhD project. This difficulty stems from the fact that much of this design work is proposing as-yet-unbuilt open systems. There is a danger in predicting the way that these systems are used which is that these examples are seen as 'best practice' when the way that the system would actually be used could be quite different. The answer to this problem is actually to make and test and then play with the systems. Unfortunately in this instance, a description has to be constructed in order to determine which scenarios are considered for demonstrations which are documented but not made, and which are discarded. The C Space presentation consisted of one main scenario demonstrating basic operation and another less developed one demonstrating one possible inflection of this technological approach. The two scenarios described a commuter and financial worker in a city centre. There were pragmatic reasons for the selection of these subjects-early adopters, high disposable income, semi-free time reflecting the implicit and explicit commercial preoccupation of the consortium. This should also be seen as a rejection of the assumption of many of the radical design groups in the 1960s and 70s that the increasing automation of life would result in a nomadic working class without work.

Nested inside these rather conventional scenarios are possibilities for more radical activity, including activism, subversion, pirate broadcasting and provocation even revolution. It was these unannounced possibilities that I was trying to slip past the consortium.

Commuter Scenario

This describes a fixed geographical network covering the length of the train line from London Paddington to Oxford.

Tony splits his working time between his home near Oxford and the publishing house he works for in Soho. As he leaves his house he picks up his (CISMUNDUS) terminal. This handy book-sized device that stores all the information he needs to take to work with him, has also downloaded his daily newspaper, and a magazine to which he has subscribed.

At the train station he waits for the 7:42 to Paddington. As he mooches around the platform he switches on his terminal and watches the early morning news. After checking the local weather he decides to see if he can find out where his train is and have a chat to some people he knows on it. Selecting the C Space option on his terminal, he selects 'Train' from the range of 'Spaces' available to him.

His avatar appears in the space, and he sees that there are a few people around, so he goes in search of his mates on the train. Following a foot trail he tracks down someone he does not know. He strikes up a conversation. 'Silver Surfer' is on a platform much further into London, she does not know what's going on either but is glad to know that her train has just left Tony's station.

Tony decides to drop a voice link accessible to the six or seven people he regularly talks to on his train. This dropped, he continues looking around and soon comes across Spider. Although they have never met, Tony and Spider often talk in this space. He tells Tony that his train is on the way and has just left Bromsy. They decide, while waiting to follow a link to a website they have discovered, and they explore the site for a while continuing their conversation as they play online crazygolf together.

Tony receives a voice call; someone has activated the voice link he left. It's Tracy; she tried to keep Tony a seat, but the train is crowded. She also says that she has something for him; moving back to the voice link Tony left, he sees Tracy's avatar. Tracy hands him an MP3 file of the recital she performed in last night. I know you would have liked to come, so I thought you would like this. Tony does not like classical music but thanks her nevertheless.

As his train arrives, he sees there is a seat next to Sanjit. He recognises Tony and activates his terminal, and for the rest of the journey an animated conversation ensues within a combination of C Space and physical space as Sanjit, Tony and Tracy swap information gossip and data.

This is the scenario published in the work-package document for the CISMUNDUS submission. Beyond this, the system can branch out in a multitude of different uses and applications. The following describes a personal slice through the unconstrained possibilities of the system. These further developments are not examples of best practice or an ideal, rather these suggestions are to provoke your imagination.

The Banker

With the basic details of the operation of the C Space system established, the second scenario develops and extends the proposed system. The scenario concerns a stockbroker working in the square mile, London. It exploits the focused geographical distribution of like-minded financial workers, with high disposable incomes, an easy engagement with technology with an accompanying digital friendly infrastructure. The early adoption of new communication technologies such as Blackberry (www.blackberry.net), a business-only mobile device for reading e-mail in a precursor to domestically available GPRS service, is evidence of the feasibility of this proposal.

(b)ubble spaces

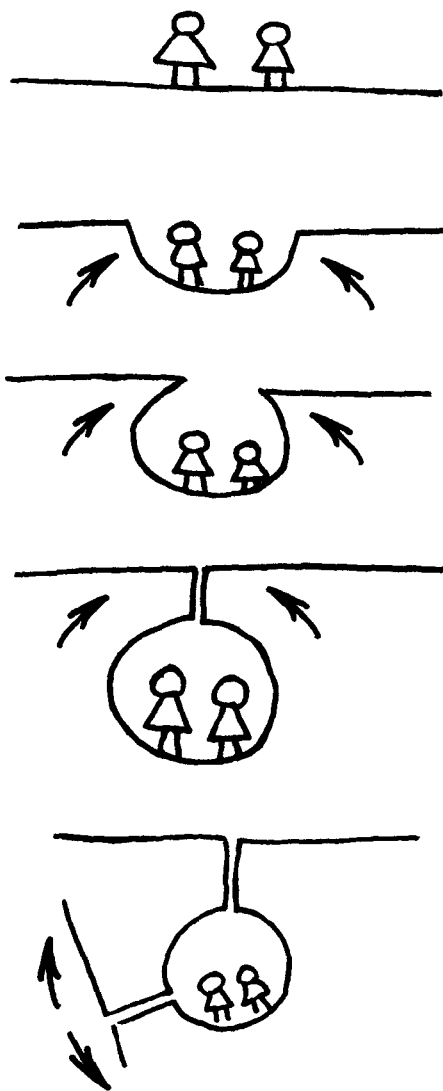


Fig. 7.18 Creating private areas in C Space

The system is geographically located in the notional 'square mile' of London's financial district and surrounding environs, with a very high quality provision, accompanied by subsidiary provision along the major lines of communication (although in terms of live DVB-T broadcast the underground presents an intractable problem). UMTS cell update at stations is a possible compromise position, although C Space is not the only activity available with this terminal; this could be time to catch up on the journal downloaded to the terminal or play space-invaders.

The system offers many different communication spaces in a very adaptive user-led environment, looking in the spheres of work and leisure (it is speculated that) the following services would become available.

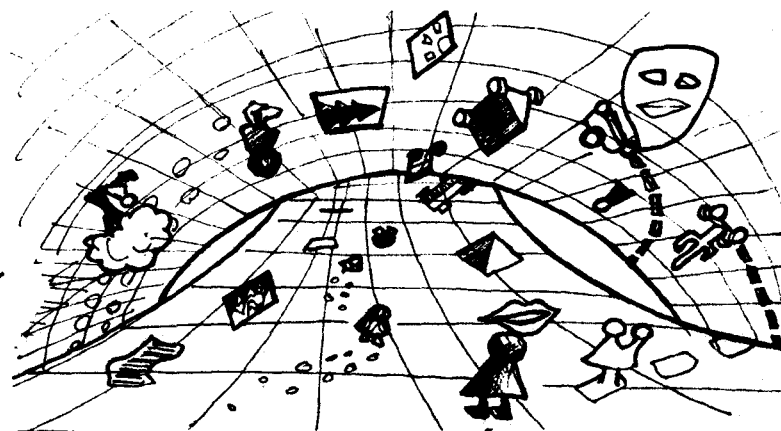
Business Use

C Space facilitates communication, especially communal communication. It offers a graphic environment in which a large amount of data is deposited, distributed and retrieved (fig. 7.18). Spaces can be open to all, moderated or highly protected. Within the spaces, the normal open mode would allow people to mingle, chat, exchange information with many different people. There could also be the facility for less public or indeed highly confidential communication through the creation of a b(h)ubble space. In the process of creation, the C Space which a number of people are occupying, wraps around them to form a self-sealing bubble of space completely isolated from the starting space, so protecting (for a fee) the information (voice, text, file and) exchange within the bubble. The exit 'unwrapping' of the b(h)ubble does not have to take the people inside the bubble back into their initial starting plane of C Space; it could open into another plane entirely (fig. 7.19).

Personal security of data is also an issue. As an avatar moves through C Space it is likely that some people will want to receive information updated second-by-second but not shared by all. This could include 'texts', the receiving of e-mails, stock prices or other time sensitive information. The developmental work below describes a range of strategies for the development of C Space (fig. 7.20).

Fig. 7.19

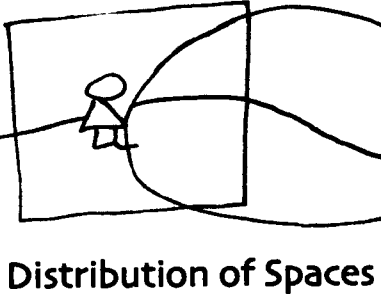
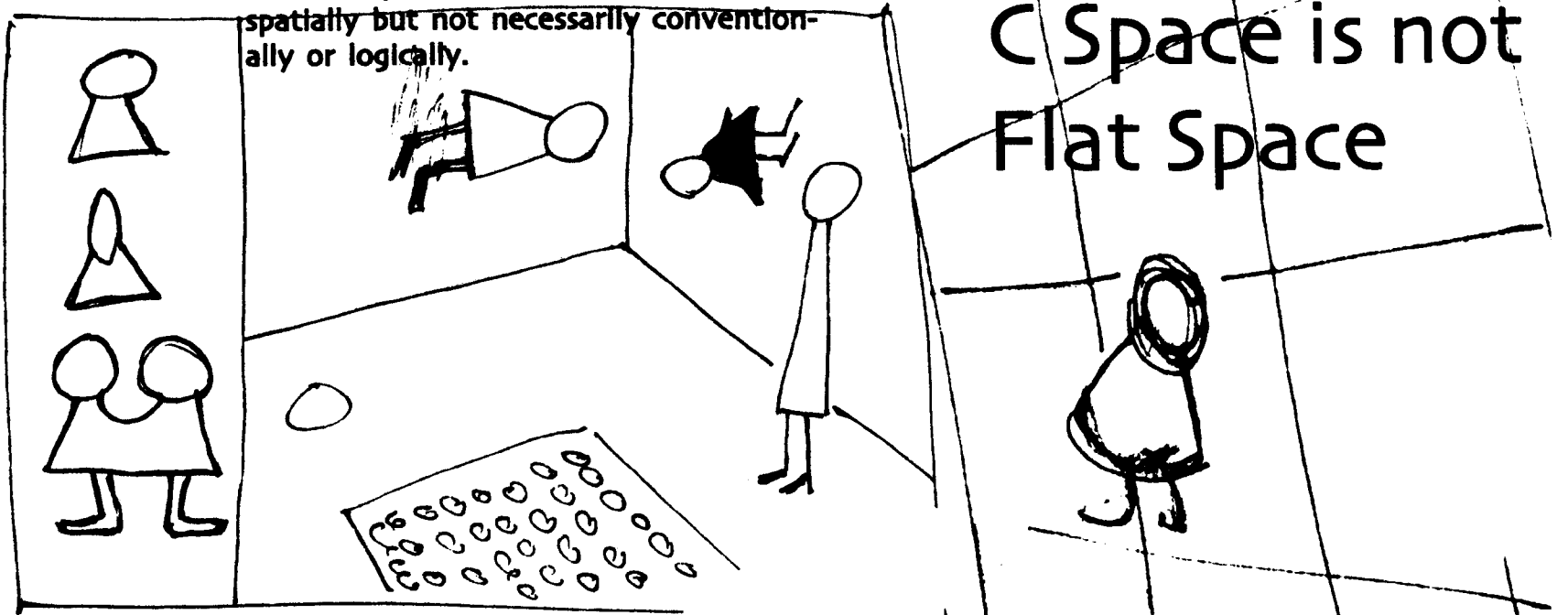
C Space environments could be very rich in terms of the number and type of user and the spatial relationship between different plains.



Similarly, this developmental work describes the relationships between spaces and the possibilities of moving between spaces and a range of different possible applications of C Space. It seems appropriate to present these further ideas in an open,

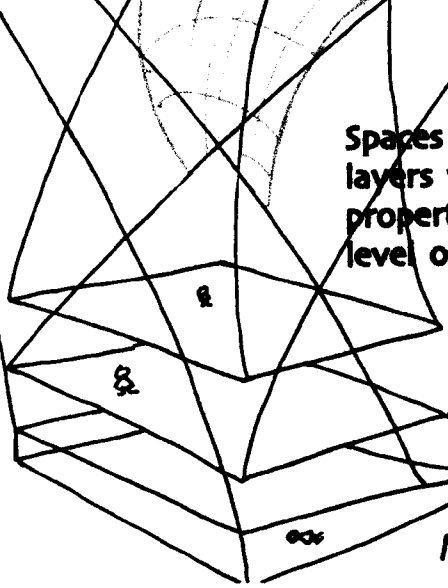
Different planes can relate to each other spatially but not necessarily conventionally or logically.

C Space is not Flat Space

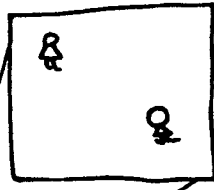


Distribution of Spaces

Spaces can split into layers with different properties, rules or level of moderation.



Magritte the moderator



Spaces can move geographically in the real world

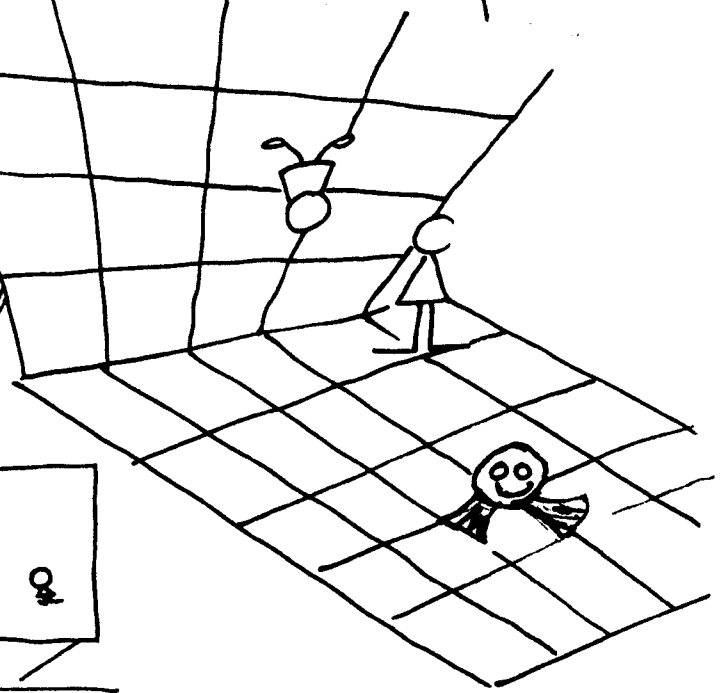
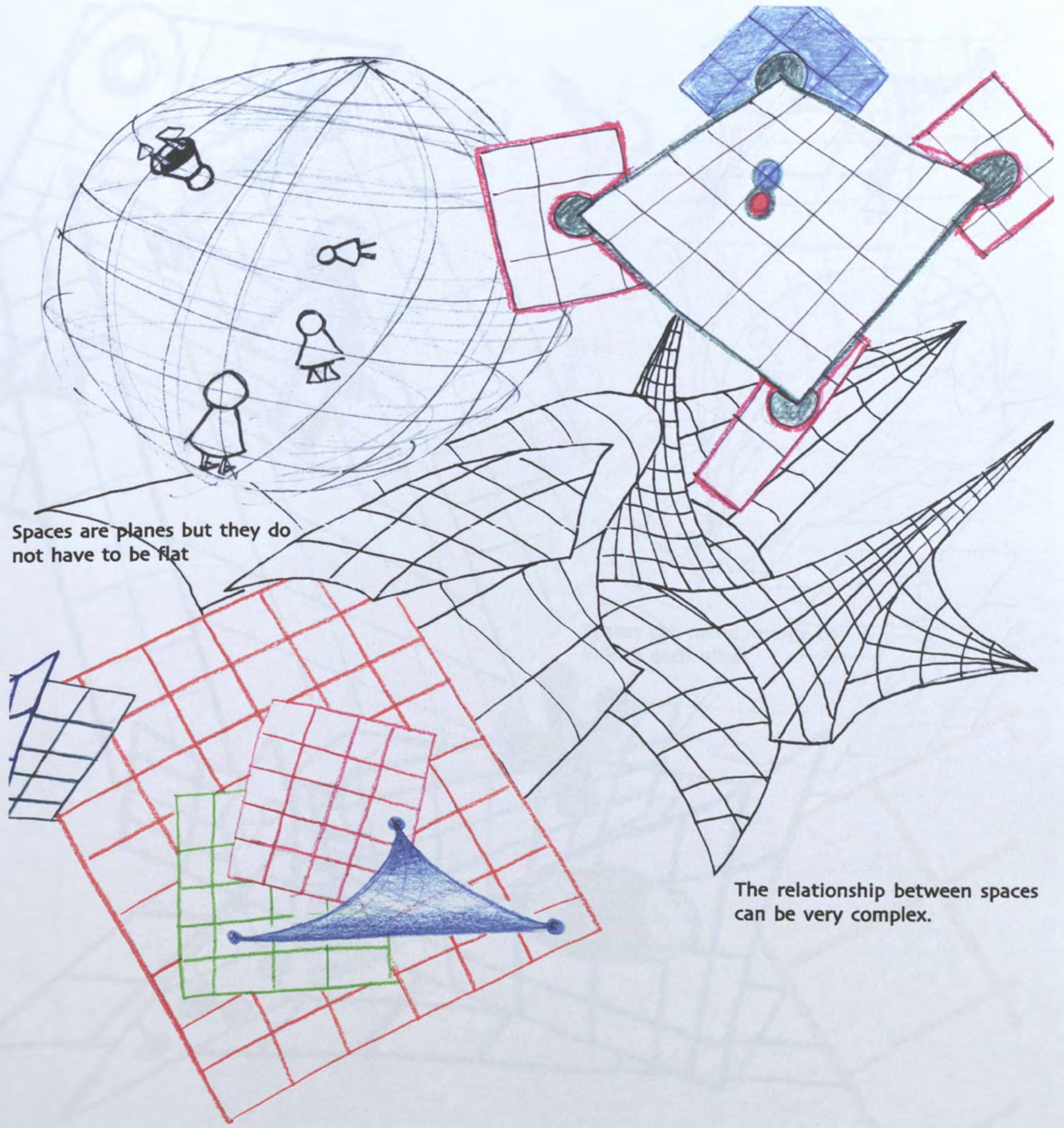


Fig. 7.20.2 C Space configurations

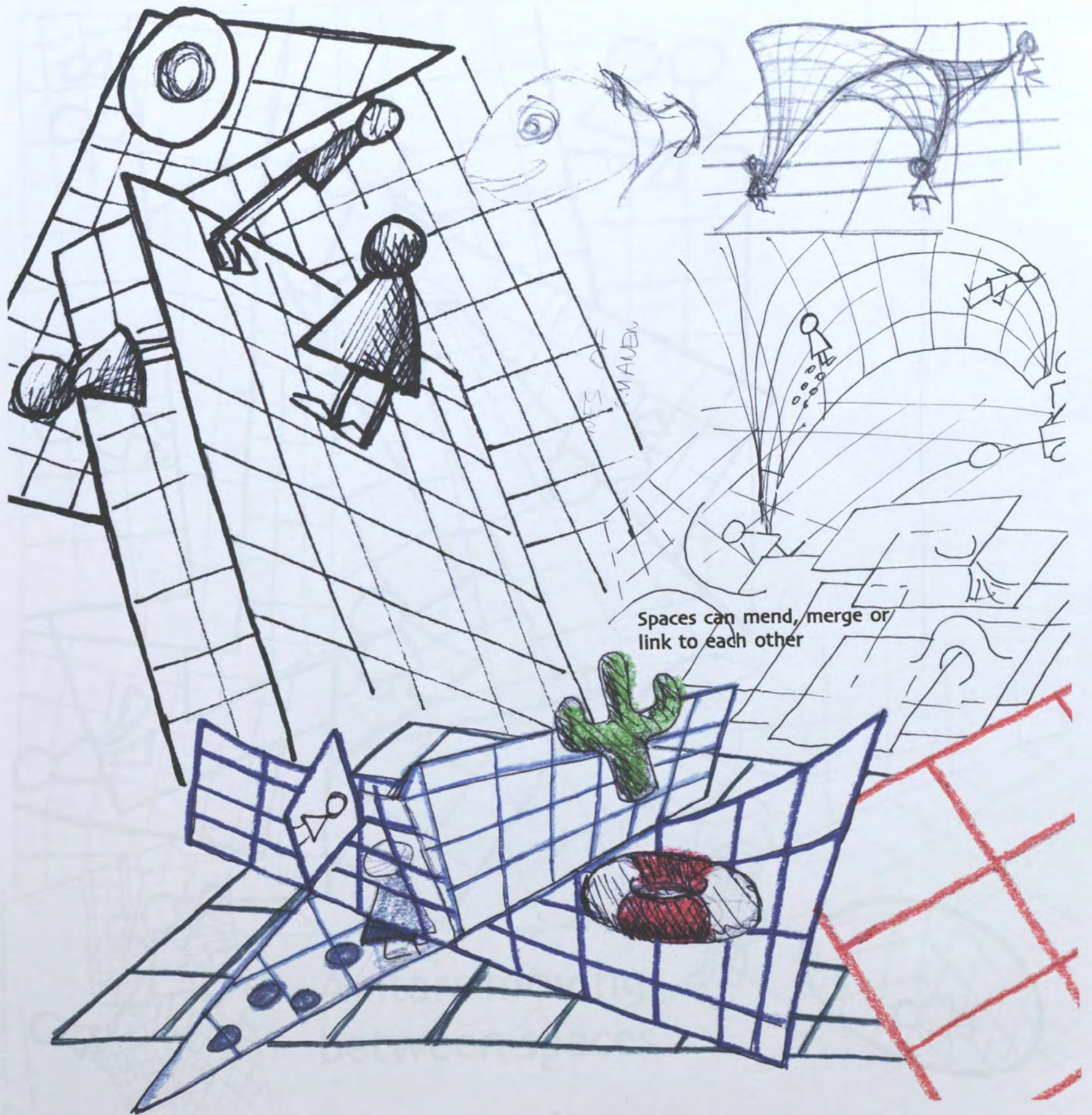
Fig. 7.20.3 C Space configurations 2

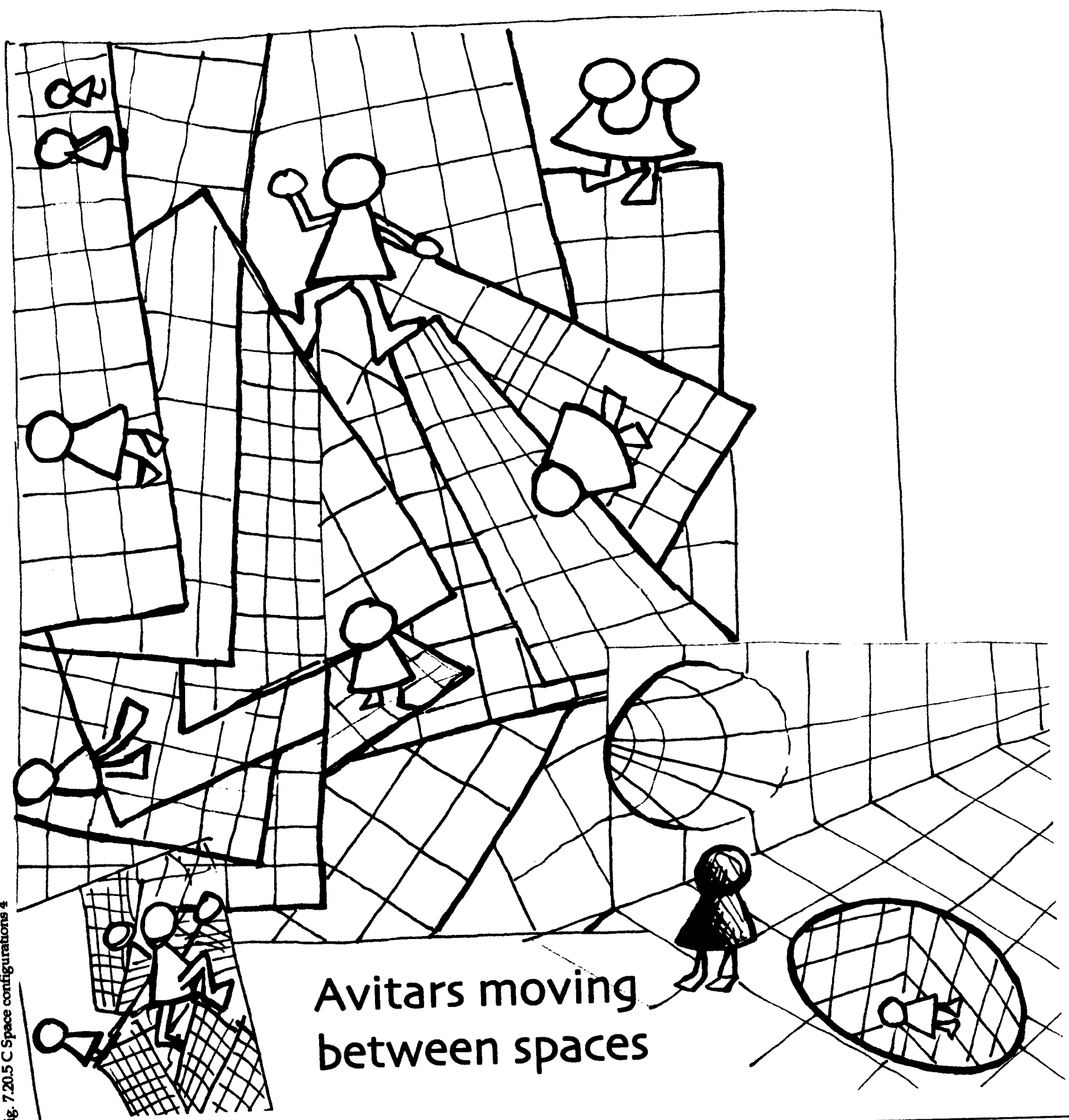


Spaces are planes but they do not have to be flat

The relationship between spaces can be very complex.

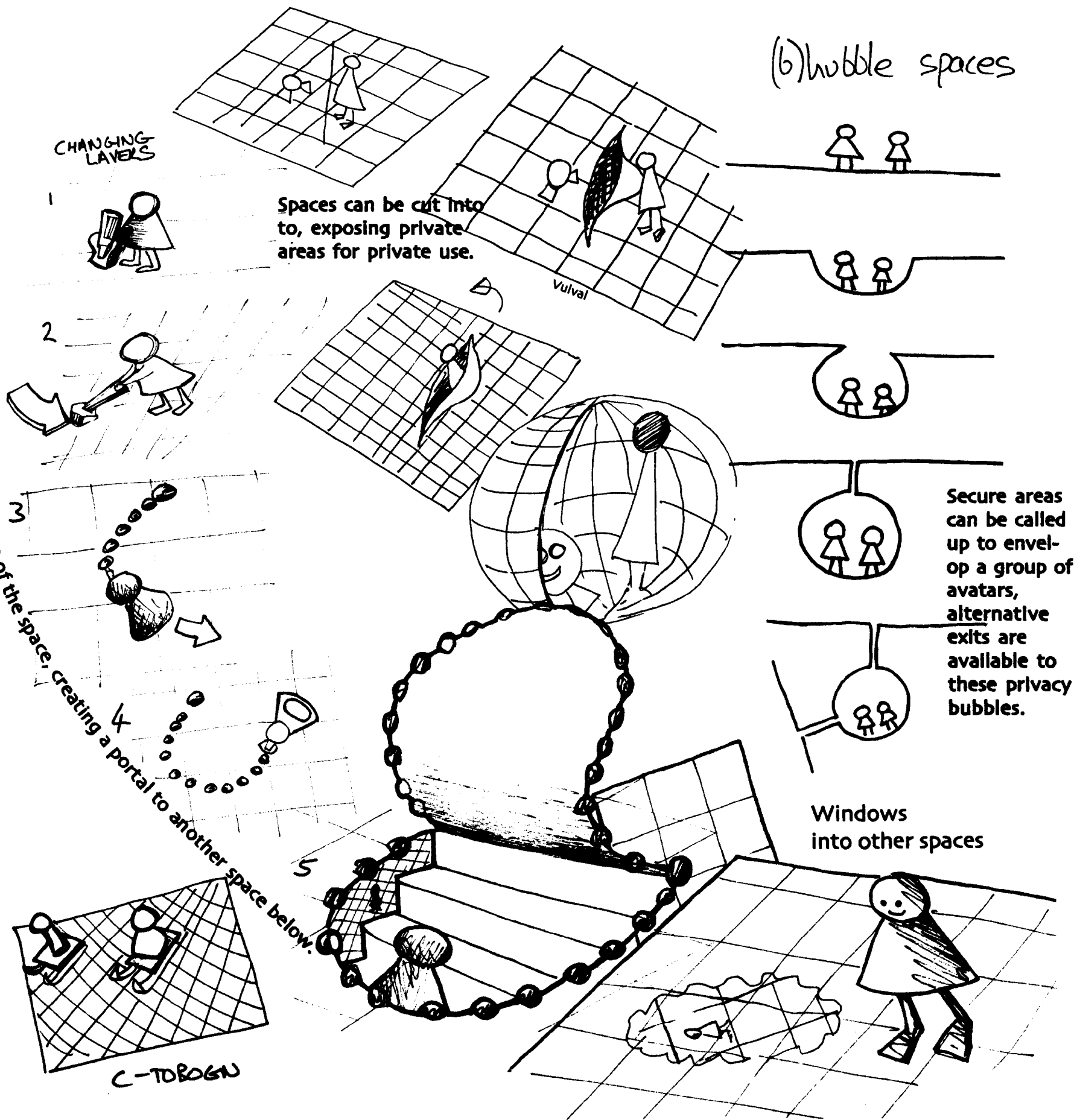
Fig. 7.20.4 C Space configurations 3





Avatars moving
between spaces

Fig. 7.20.6 Moving between C Spaces



Personal / Limited Group Data

Most data is only seen by the avatar it is connected to.

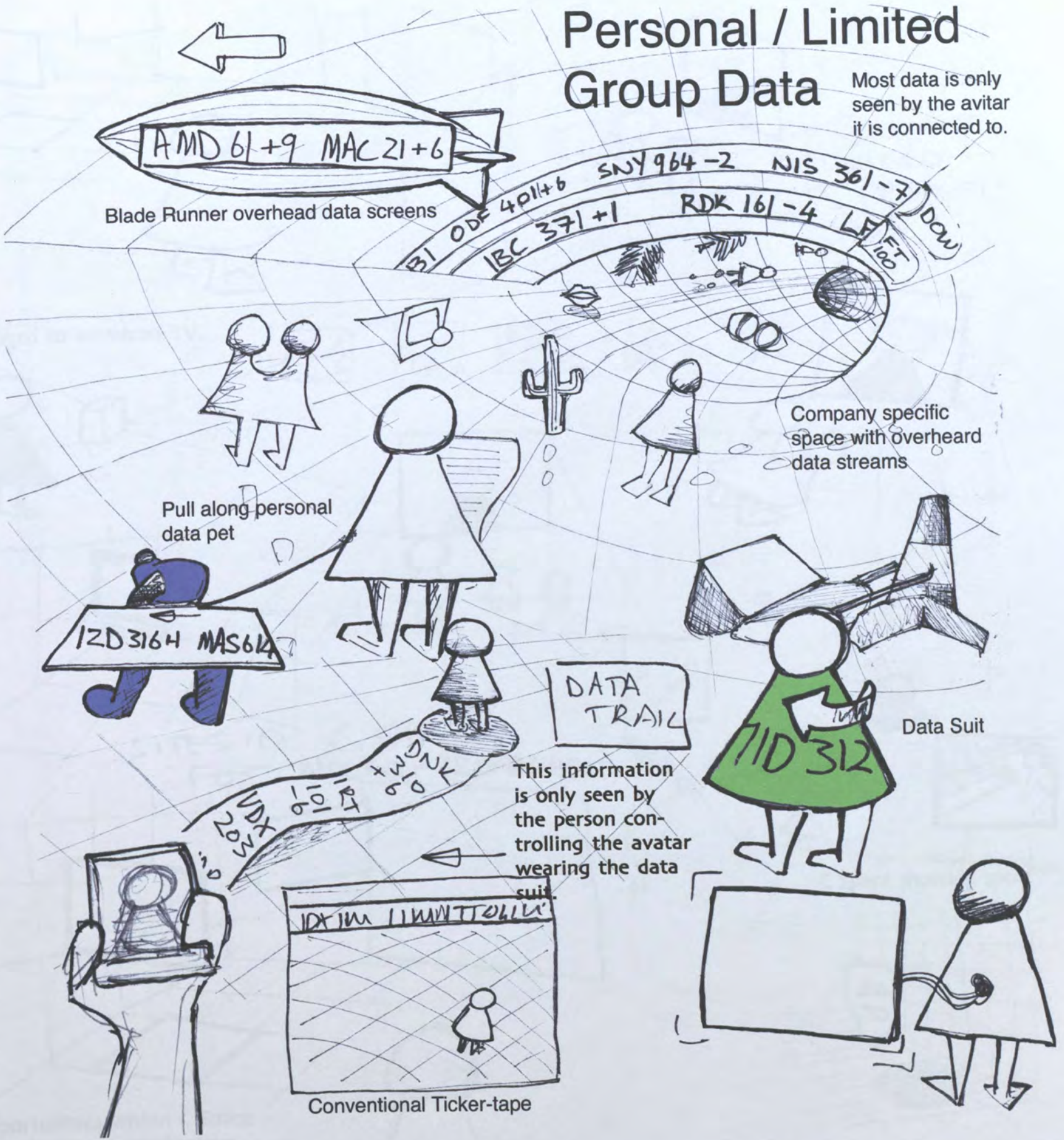


Fig. 7.20.7 Protected data in C Space

C Space used to broadcast TV.

CREATE MICRO-PROTESTS

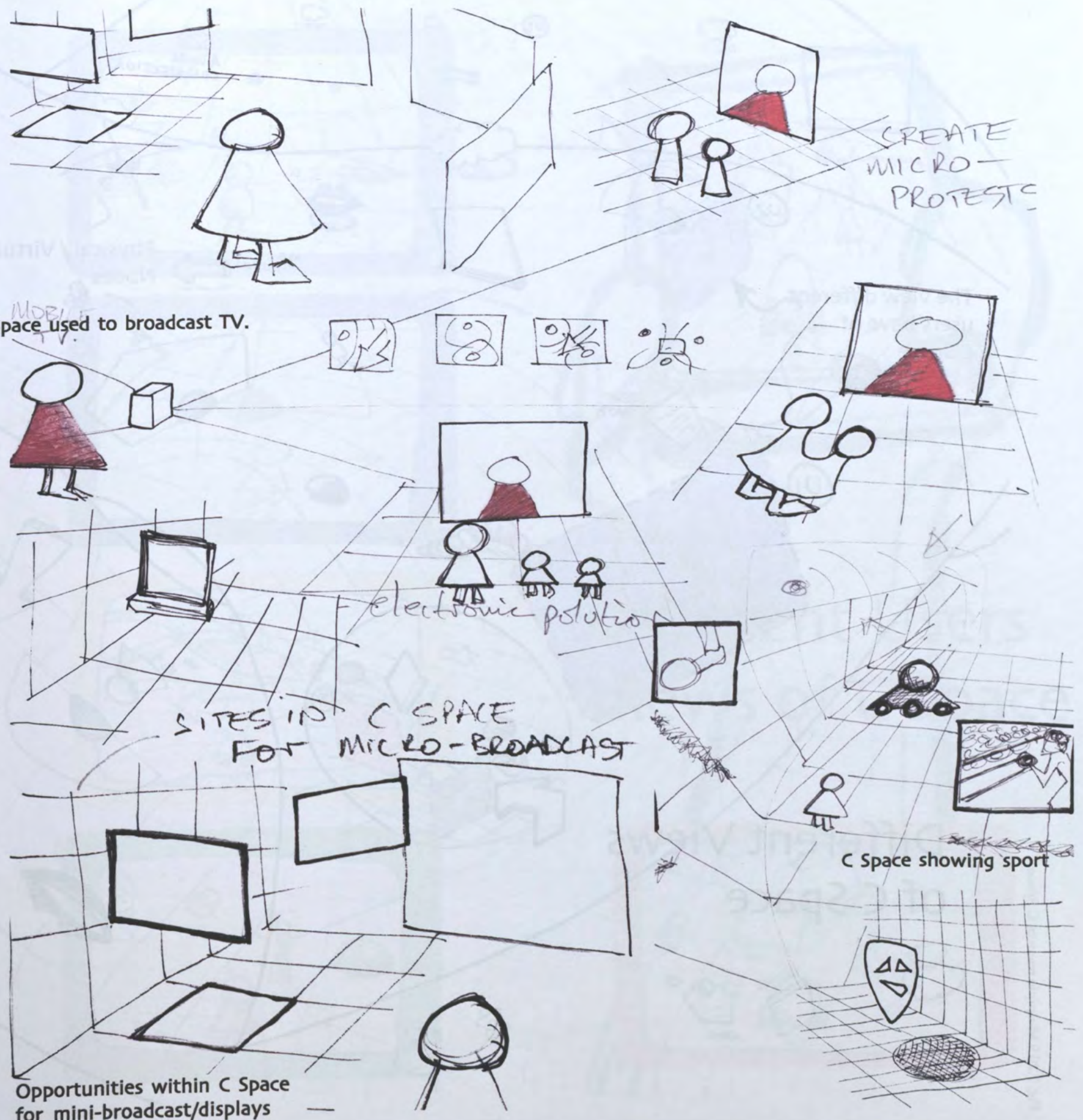
Electronic pollution

SITES IN C SPACE FOR MICRO-BROADCAST

C Space showing sport

Opportunities within C Space for mini-broadcast/displays

Fig. 7.20.8 Micro-display in C Space



The view different users have of C Space

Different Views of C Space

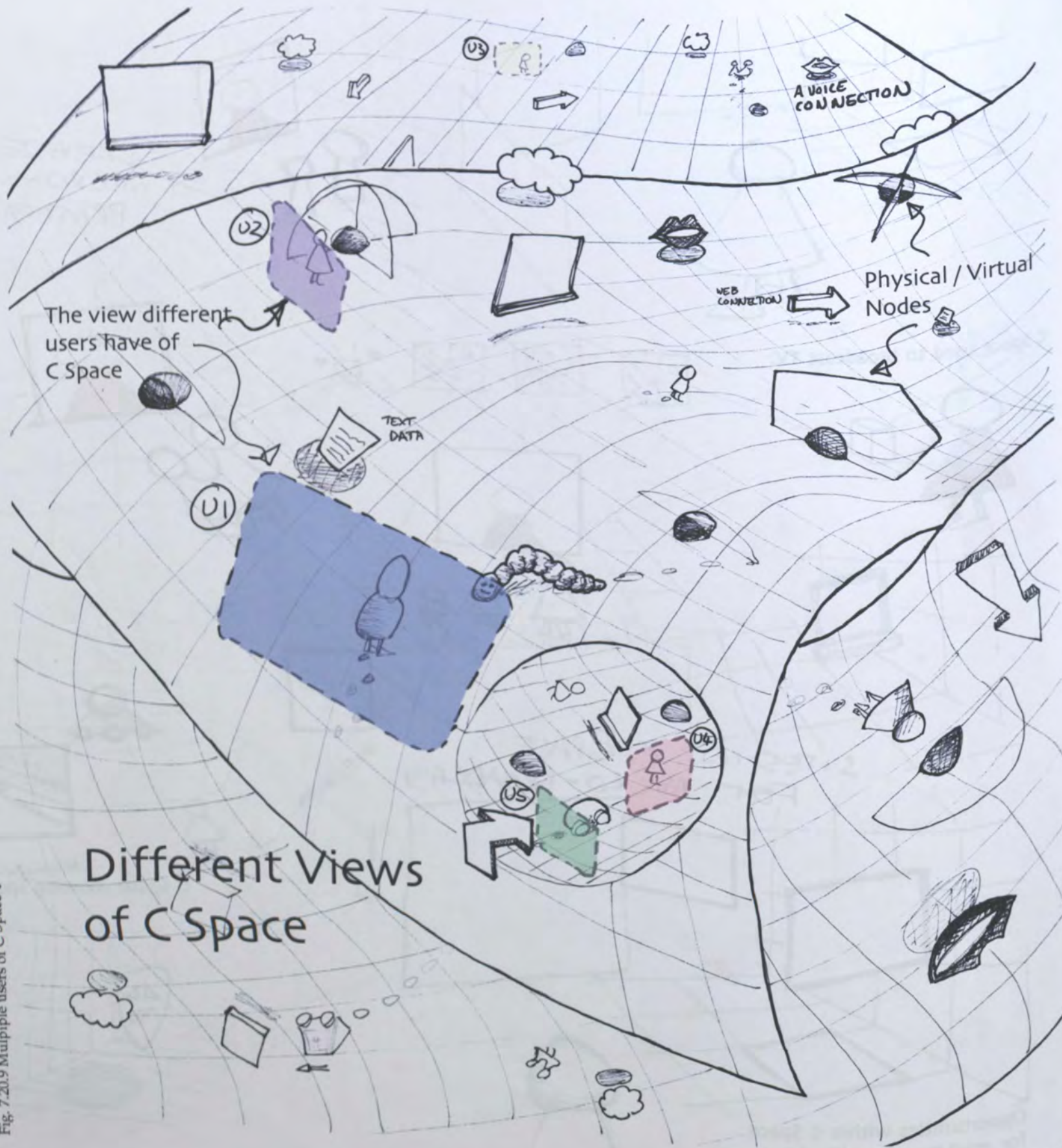
WEB CONNECTION

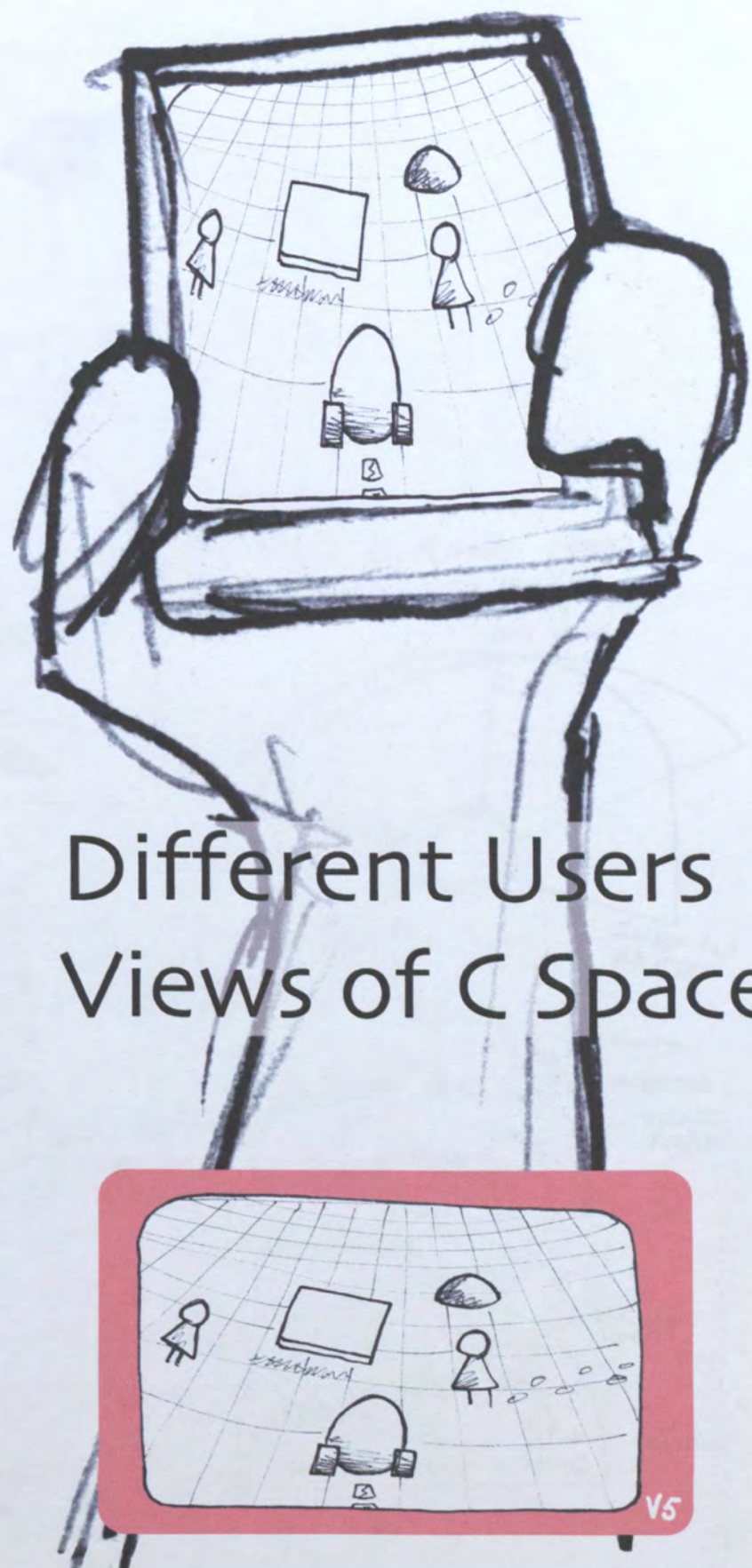
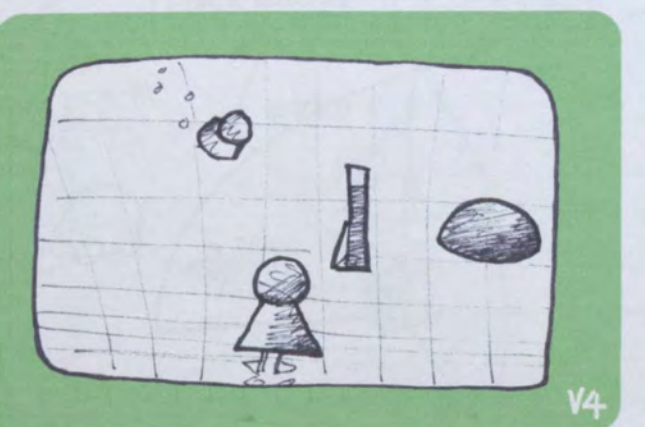
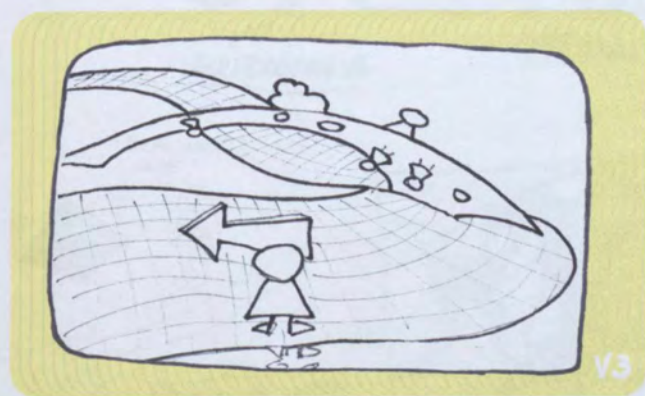
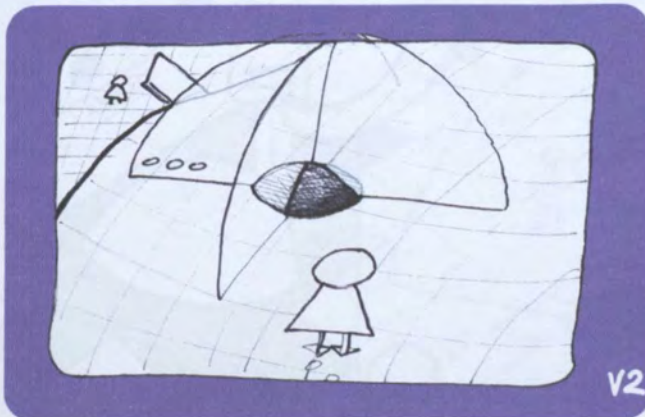
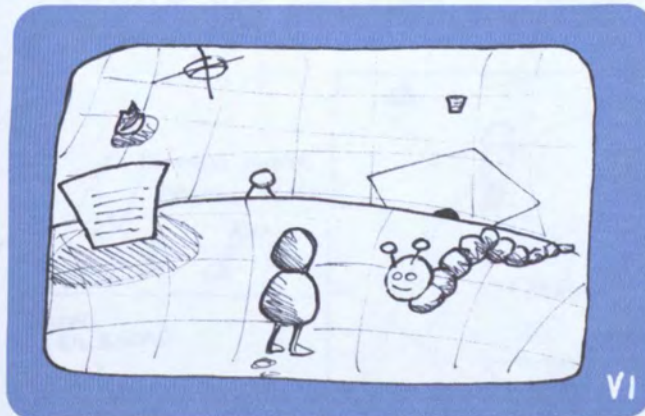
A VOICE CONNECTION

Physical / Virtual Nodes

TEXT DATA

Fig. 7.20.9 Multiple users of C Space 1





Different Users Views of C Space

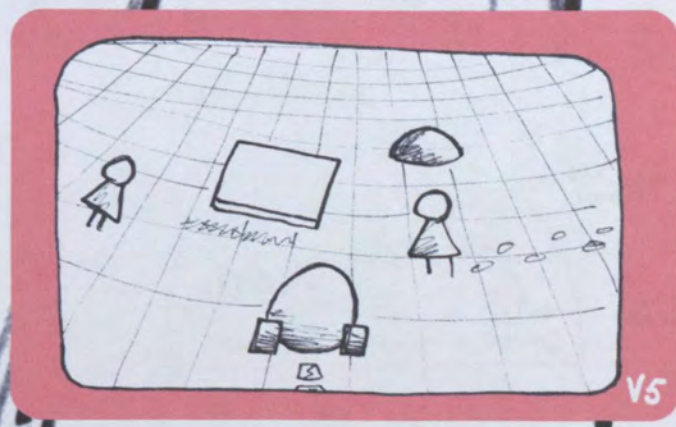


Fig. 7.20.10 Multiple users of C Space 2

Physical/Virtual Interaction

CONTENT USER GENERATED BY PROFILE — HOSTED LIKE TRIPOD |

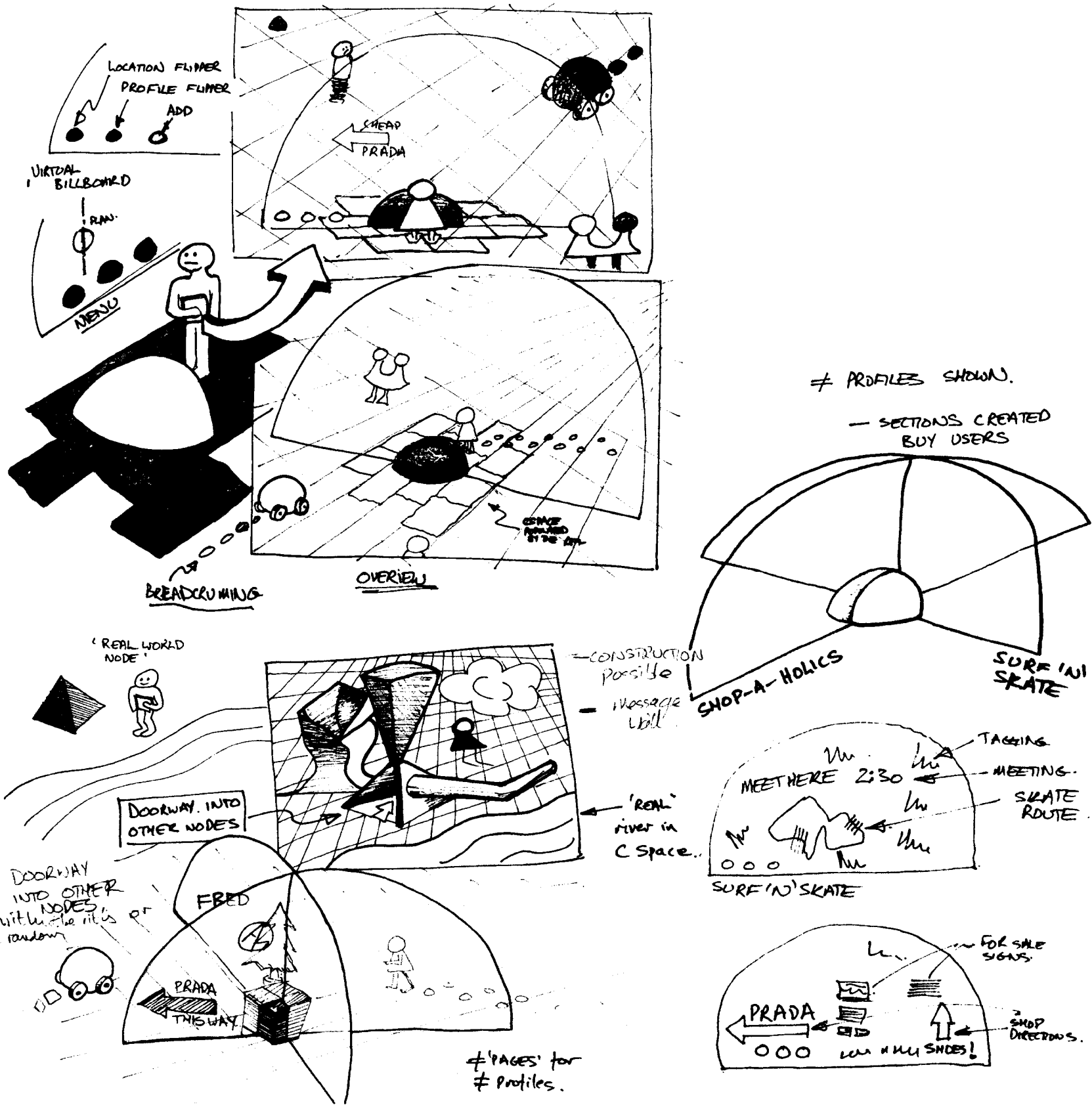
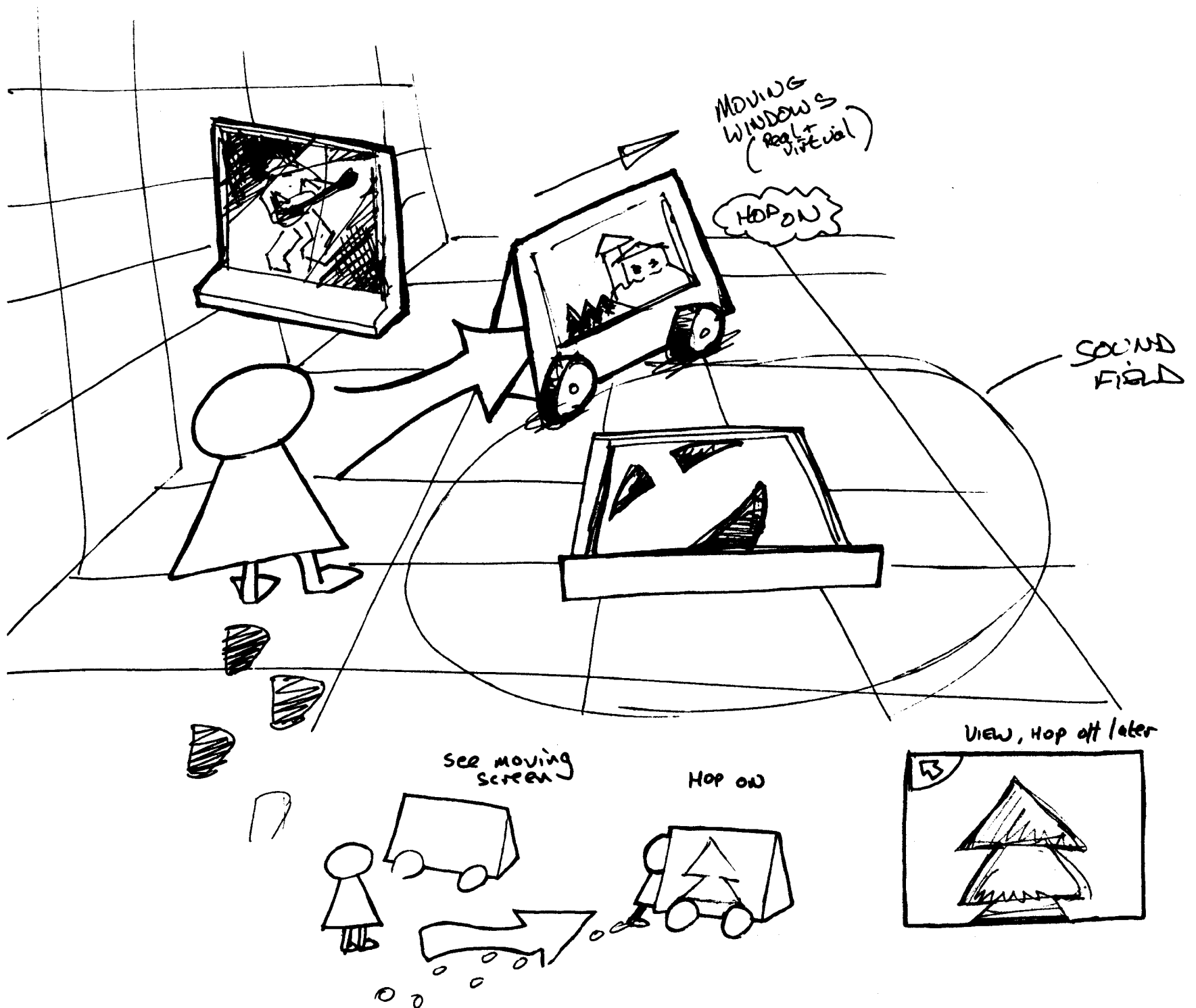


Fig. 7.20.11 C Space, physical/virtual interface



Mobile broadcasts can be 'latched onto' by a user's avatar. Hopping off a moving broadcast places them in a different part of C Space.

discursive, ambiguous manner rather than a specific, deterministic taxonomy of 'good' applications of this technology.

The space offers novel data services either for common consumption or within the members of an institution or individually.

Conclusion

C space continues to be developed, expanding the description of the possible range of applications and the way users could modify or radically reorganise these structures. This is very much a snapshot of a continuing process rather than a completed project.

Although collaboration and convergence are the foundation of this project, there is resistance to the integration of services and scenarios between broadcasters and telecommunications (Telco) companies. Both groups want the project to 'converge' towards their core activities. Both argue that it is their core activities that will provide a sound financial basis for the development of new services.

This indicates a knotty problem for the consortium and a problem for me in terms of exploiting the CISMUNDUS project as a real-life platform for the development of industrial-based design proposals for *this* research project. The unwillingness to develop new business models made for slow progress in the development of scenarios, with both groups hoping to 'augment' their own core services.

Despite the problems outlined above, there are reasons for optimism that an engagement with these technologies can result in an emancipatory rather than a restrictive influence. For similar reasons as those detailed earlier in this chapter, there is evidence that digital media is a fruitful hunting ground for participative, vernacular activities subverted by non-professional users. Basic communication strategies from texting and emoticons to pirate Internet broadcasting, to digital protest reporting, demonstrate this.

The interim aim of making a working version of C Space for the IBC exhibition/ conference has not been achieved. There are a number of valid reasons for this; C Space is not part of the core business of either Telco or broadcast media so within their terms of reference there was no compelling reason to champion the proposal. It is interesting that in this group the strongest support for C Space came from Philips, a company with no axe to grind.

Corporate agendas aside, it would be difficult to demonstrate C Space to a 'cold' audience in ten minutes especially as it would require a community already to be online interacting with the system and each other. It would also be difficult to communicate the potential

empowerment of the user to industrial representatives that have a supply-side appreciation of the technology. It is a comfort that the alternative scenario implemented for the IBC exhibition was also designed by me. This sports scenario uses table football to side-step copyright issues and facilitates the betting service developed as part of the scenario—the viewer bets on live table football in realtime.

The implementation of C Space or a version of it is possible (even likely) in a new project currently being prepared for submission to the EU as part of the framework 6 funding of the IST initiative. INSTINCT²² is a larger continuation of the CISMUNDUS project with 24 industrial partners rather than the seven partners in the current project. With a more overt emphasis on convergence, an exploration of interaction and games, and building on the new understandings developed in the CISMUNDUS project, C Space is already being talked of as the blueprint for a new way of thinking about broadcast/Telco convergence.

While there are no guarantees that the new consortium will take the C Space route, it is entirely appropriate that the realisation of C Space will not be under my or any one person's authorship. The production will be of a complexity that will necessitate the involvement of many industrial partners, researchers and PhD students, none of whom will have the full understanding or control of the structure of C Space in its entirety. Its also clear that C Space will never be a finished thing, it should be constantly being transformed by users over time.

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Services and Terminals for
Converging Systems**

Chapter 7 Conclusion

In keeping with most design projects, this is a project interrupted rather than one that comes to a neat conclusion. In addition to the continuation of the core investigation of strategies for the promotion of symbiotic relationships between designer and user, there are a number of supplementary applications or tangential developments that will form the impetus for my research activities in the future. These include explorations of the way in which deconstruction has been interpreted and the utility of this term to the display of textual information in virtual environments and design education.

This programme has explored how it is possible for designers and users to build symbiotic relationships. Working towards the ideal expressed by Raoul Vaneigem of 'a new unitary triad: self-realisation, communication, participation' (Vaneigem 1994: 237) this exploration has been achieved through the integration and mutual support of theoretical investigations and design practice.

Following an action research approach has resulted in stronger outcomes both in terms of research and (design) action than would have been the case if these activities were attempted independently. This approach has led to the practical exploration of a range of strategies for the distributed negotiated creation of artefacts, systems and meanings. The intentions of the designer and user interact in the creation of products or services without demanding the bodily presence of the designer. These strategies are the most basic articulation of the outcomes of this PhD research. Of course, looking within these strategies reveals that the apparently simple aim of creating a toolbox of approaches does not constitute the kind of comprehensive challenge to conventional practices and products of design in the way I initially intended.

The strategies developed here include the juxtaposition of images and text used in the book *Deconstruction and Design* inserted in Chapter 5. Here the user (you) looks at the book but in doing so changes the composition of the pages of the book, constructing an individual passage through the material presented in the book and the combinations of images experienced at the same time. The next viewer of the book will be the recipient of this re-ordering along with any additions to the book in terms of wear and tear as well as more explicit additions previous readers have added.

A range of design proposals were developed in this book. These grow from new forms of conventional products that facilitate multiple uses, but within forms and parameters determined

by the designer, to modular and computer-aided manufacture proposals that allow the user to create their own components. The final stage of this progression is the proposal of strategies in which the user can manipulate the structures that inform the process of creating.

In the 'sensor pod' the predetermination built into the ergonomic assumptions of the conventional video cameras were challenged through the proposal of a device that resists conventional ergonomic styling and the standard of the recording device operating as a filter between the user and the real world. Having said this, the designer is still very much in control. This device offers the opportunity to document information beyond that experienced by the user at the time of recording. Rather than diverting attention away from the user's experience in a given situation, this device would expand their experience. The desks and chairs proposed strategies for disrupting established hierarchical power relationships in the working environment through a reappraisal of the desk as a separator of boss and worker, as a marker of hierarchic divisions and distinctions.

An evaluation of the furniture projects led to a complementary strategy of giving the user more control over the production of their own environment. Modularisation (an approach also used in the sensor pod) was the first attempt to achieve this additional control. Designers such as Charles and Ray Eames and Le Corbusier used modularity in a drive towards modernity and efficiency with systems like Le Corbusier's Domino House. Chapter 5 discussed the problems with modularity in terms of developing symbiotic relationships. Although more permutations of freedom were potentially available to users through modularisation, it is very much still under the discretion and control of the originating designer. In many instances designers exploit modularisation while striving for greater efficiency, rather than offering any emancipatory options. The work of Sottsass and Droog are important for this thesis because they are exceptions to this linking of modularisation to efficiency as a prime motivation (see Chapter 5).

An alternative to modularity is custom manufacture to a user's specification. Technically this is relatively straightforward in areas such as Desktop Publishing as users can relatively easily make the item to be manufactured (printed) on a computer. Even putting aside the technical challenges associated with other areas of design, this is not a move directly towards the aims of this research, the aim here is to develop symbiotic relationships between designer and user, not remove the designer's contribution altogether. This resulted in the development of 'design methods' and their application to the proposed CAD/CAM process. This was the starting point that led to a fundamental rethink of the focus of engagement with the user described below.

While the seeds of 'design methods' were germinating, the alternative strategies of both modularity and CAD/CAM were explored. This was the beginnings of a line of development in which proto-products were to be manufactured that required the intervention of individuals after purchase to turn these components into finished (and unique) products and led to the proposal of the T Light and T Screen products.

While echoing subsequent products created in the Do-Create exhibition, strategies that engage with process rather than outcomes, or even proto-products, have proved to be a stimulus for much of this PhD. The move into process was precipitated by thinking about the role of the design professional in use-led CAD/CAM operations. This resulted in the development of the proposal of the construction of problem-solving approaches as a creative act in its own right. This resulted in the development of a proposal of a CAD/CAM system into which expert system modules addressing technical issues like material properties would be augmented with a range of interesting problem-solving methods created by a new breed of designer. The construction of open frameworks available for users to occupy and exploit marks a very significant shift in my thinking about the relationship between designers and users, and is developed in the chapters describing not only generative design tools but also the Iconic Communication and C Space projects described in Chapter 7.

In the development of this thesis there is parallel concern for theoretical and practice-based research. This development sees a shift from an awareness of the user, to the provision of choice, to flexible relationships, to an appreciation and application of de Certeau's tactics. In practice, being matched and in some instances precipitated by the move from design solutions that firstly provoked the user, then were modular to finally being 'open source' flexible solutions.

The idea of getting users involved with applying process is not without precedent, but what is novel is the idea that these structures in themselves are a site of user-designer negotiation. The user not only uses structures in a flexible way but they have the opportunity to modify or substitute different problem-solving processes originally provided by the designer. This facilitates the development of processes and their outcomes (artefacts) that are not the product of, nor dominated by, products and negotiated between designer or user. As the idea of the system becomes the focus of attention rather than the artefact, 'participant' or 'contributor' are perhaps more appropriate term than 'user'.

This strategy questions the role of the design professional and in some instances undermines

their (largely self-appointed) positions of authority. There is a danger designers could feel their personal skills are under attack or being marginalised. This is not the case, as the objective here is to support the role of design and designers, which in some (many) cases will be conventional in nature, but also to promote opportunities for engagement beyond the specific social, cultural and economic conditions currently needed for the involvement of a design professional.

I have been very particular in my use of the term 'strategy' throughout this PhD and especially in this concluding chapter. This term will be problematic to anyone familiar with the distinction drawn by de Certeau. For him, strategies were constructed from positions of power by the establishment. He recognises and disseminates tactical responses by users. Tactical responses are fleeting, not underpinned by a firm foundation; they are the population's individual creative guerrilla activities against institutional homogeneity. While Julier's criticism of de Certeau's position as being somewhat romantic (Julier 2000: 52) seems to have substance, these tactical creative acts are recognised and welcomed here but almost by definition tactics are not something that can be applied from the outside. I talk in terms of strategies here because the aim is to operate strategically, to influence others, to say something structured and cohesive but to create strategies in such a way that they are porous, enabling or encouraging unknown individual tactical activities. In this sense I'm trying to 'reverse-recuperate' the idea of the strategy, to radicalise it by attempting to place strategic possibilities into the hands of those de Certeau considered limited to the tactical. I am proposing the development of 'counter-strategies'.

That there is a tradition of users participating in creative process is the position of a number of designers, although my contemporaries largely do not take this line of reasoning to (at least for me) the logical conclusion. Truly symbiotic relationships need to develop through the development not just of flexible products, or user-accessible processes, but through the negotiation and modification of the processes of creation themselves.

The work of theoretical designer and educator David Crow is an example of this sympathy with, but (as I see it) ultimate rejection of, the logical conclusions of this line of reasoning. In a series of typographic projects for the (unpublished) CD-ROM *Forest of Signs*, Crow asked members of the general public to arrange stones on a piece of paper, and then used these compositions to create new typefaces. This activity was explicitly informed by post-structuralist ideas questioning authorship, but the translation of these compositions into typefaces was completely under the control and discretion of Crow. The members of the public played a role in the authorship of the typefaces but only as a subservient resource to be tapped by the designer. They supply unpredictable responses or input that is accepted, rejected or modified on the designer's terms.

Groups like Droog and Do are exploring the issues of the designer's relationship with the user in a very intuitive designer-led way but neither approach stresses the developmental process rather than the products they produce. For example one of the products for Do-Create (the collaboration between Do and Droog described in Chapter 2) was a roll of sticky tape that resembles gold picture frame. This roll of tape allows the user to quickly create picture frames around any objects they desire, in effect making each user an artist through the facilitation of their creation of artworks.

Like many of Droog's designs this picture frame on a roll is clever, simple and quirky and is part of an intuitive response that has resulted in the creation of many products with the intention of producing 'good design' without an underlying rationale or agenda. Concepts undoubtedly do guide them but these have been assimilated (usually during design education) and are happily kept in the subconscious.

There is activity in theoretical circles exploring the complementary strands of the Situationists and post-structuralism (see Plant, Vidler, Wigley, Coyne). These texts are aimed at design professionals and other academics, not for general consumption. Deleuze and Guattari's *What is Philosophy?* (1994) is arguably an exception to this limited focus in that it can be read as a simple introduction to philosophy but also as a challenge to the philosophical orthodoxy.

In the context of digital media, contemporary theoretical investigations addressing the relationship between designer and user (including this one) do so in the context of the facilitation of new technology and especially digital media. For George Landow hypertext is an 'embarrassingly literal embodiment of Derrida's and Barthes' theories' (cited Julier 2000: 178). In this respect the networked nomadic ideas of groups like Archigram and Studio Alchymia in the 1960s form part of the groundswell of the ideology from which digital culture has emerged. The enabling advances of new technology have resulted in the development of a number of writers exploring its emancipatory potential for users from William Gibson's fiction and Negroponte's *Being Digital* (1996) to Mitchell's *ME++* (2003).

Initially there were predictions of a migration into a completely virtual existence. These predictions were personified by people like the performance artist Stelarc, who facilitates the manipulation of his movements through muscle stimulation by online 'users', and the Extropians, a group of American West Coast futurists. The Extropians' philosophy is summarised by Erik Davis:

In the Extropians utopia, the mind abandons the body, technology rewrites the laws of nature, and libertarian superbrights leave Terra's polluted and impoverished nest for a cyborg life in space (Davis 1998: 128).

There has increasingly been a realisation that we are not going to become wholly virtual digital beings in the near (or even probably in the distant) future and that in Mitchell's words, 'It makes more sense to recognise that invisible, intangible, electromagnetically encoded information establishes new types of relationships among *physical* events occurring in *physical* places' (Mitchell 2003: 4; italics in the original). This brings in to play technologies such as robotics and, a little further into the future, nanotechnology. First conceived of by Eric Drexler in this seminal book *Engines of Creation* (1992), nanotechnology is the science of engineering on an individual atomic scale. Drexler predicted the creation of secure, palm-sized design and prototyping facilities allowing users to manipulate material on an individual atom scale to design their own artefacts and go to local facilities to 'grow' the things they have designed. This has resonances with the utopian Situationist desire for the establishment of small, locally self-sufficient communities.

It is easy in a discussion of these issues to concentrate on the design side of this debate, however as we have seen in earlier chapters, there are also consumer-led explorations of the designer-user relationship. There is now a well-developed body of literature that formalises the increasing power of the consumer from Myers's *Ad Worlds* (1999) where the consumption is discussed in terms of a triad of power (advertising, media and consumption) to anthologies such as Abercrombie's *The Authority of the Consumer* (1994) that challenges the idea of the passive, manipulated user/purchaser of commodities.

Practical examples of users taking the place of designers, discussed in detail in the user-ed section of Chapter 2, superseded these academic analyses of consumer society. This process has also been facilitated by a tendency in the promotion of products, and especially products manipulating digital media, as opportunities for user authorship. This move is almost ubiquitous in the advertisement for computer products (where in the past the focus would have been games, or before that capabilities like home accounting). Sony and Apple led this shift in promotional strategies supported by an increase in the capabilities of the hardware itself.

This raises the question of the degree to which users want to engage with designers. It introduces the spectre of trying to impose emancipation. Part of the polemic position I am adopt-

ing here is that whenever it is appropriate, the designer *should* enter into a dialogue either directly or indirectly with the user. The converse of this position is also applicable, where appropriate users should engage with their environment and its creation. This is not to say that all or even necessarily most design or consumption would be the product of a symbiotic relationship between designer and user. The aim for both design and consumption is to offer an expanded range of possibilities; some opportunities for user interaction will achieve niche status (e.g. time-shift TV recorders such as Tivo or Sky+), while other possibilities such as emoticons in SMS Messaging (texting) have become almost universal.

The examples listed here tend to focus predominantly on *either* practical or theoretical aspects of the development of designer-user relationships. An example of a more equal combination of design activity and academic research can be found in the work of Peter Eisenman and Bernhard Tschumi. Chapters 2 and 4 explored the strengths and weaknesses of the activities of these two architects in depth.

The examples described in this work indicate different responses to the issue of hierarchical relationships between designer and user. While some of these examples have undergone a fairly critical analysis in the chapters above, I would not want to give the impression that there are either correct or incorrect responses to the issues raised here, rather they demonstrate a healthy variation of interpretation. This rejection of dogma relates not only to positioning my ideas against those of others, it also demands an ongoing examination of assumptions, analysis and interpretations within any work. The rationale for this constant re-evaluation on one level is that without a questioning approach, a rigid unacknowledged style of response could develop, establishing a binary (hierarchical) relationship (of those things fitting the style and those things that do not) irrespective of the applicability of these solutions to the problem at hand. The imperative here is not to reverse the binary or simply empower the user; it is to destabilise the binary relationship of designer and user.

This approach and the outcomes recorded in this document have resulted in a number of contributions to the field; there are a number of ways of looking at the impact of these ideas. One aspect of this is the debate concerning design practice as research. The nature of design is to find novel solutions to problems, to innovate and as such there was an argument that design is research. The role of practice in design PhD's has been the subject of a number of conferences, including three Exchange conferences held at the University of the West of England (Bristol), in 1999, 2000 and 2002 specifically, devoted to this topic. It seems clear now that practice alone is not research.

On looking back at the early design work for this PhD (the sensor pod, furniture design), while more significant than a random act, their role can be seen as that of an internal catalyst, a 'design as sketch' or a 'product' that is developmental in nature. These designs have had an impact on my thinking processes rather than the world at large, even though a spherical sensor pod is novel and potentially a significant response to the commodification and control of leisure time. These designs are the action component in the action research method adopted for this project; they are an iterative vehicle for the advancement of the research rather than the research itself.

Going beyond the 'design is research debate', there are other ways of considering the contribution of this research to human knowledge. The ideas developed within the Iconic project were ahead of their time (just). The publication of these ideas in a variety of contexts added weight to the impetus for the graphic augmentation of electronic text conversations that resulted in these services now becoming ubiquitous (Cruickshank and Hughes 1999, Cruickshank and Barfield 2000).

The peer review of research, seen either as part of the publication process or as part of an externally funded project, can be an indication of the validity of a piece of work. There is tight supervision of EU-funded projects, with monthly progress reports and a six monthly formal peer review. These reviews can and do stop funding for projects that are not up to the required standard. My contributions to the CISMUNDUS project, including C Space, have been included in deliverables (after first undergoing an internal peer review) that form part of the external review process. The inclusion of the C Space scenario in the official CISMUNDUS documentation and successful submission for peer review is an objective indication of its worth to the industrial partners within the consortium and to the peer reviewers at the EU.

On completion of this project in these deliverables are publicly disseminated reports through the IST website (www.cordis.lu/ist/) the main constituency for these substantial documents the Telco (telecommunications) and broadcast industry. In this sense the C Space idea has affected a small number of people so far but this constituency will be influential in the direction mobile media develops in the future. One of the stated aims of the CISMUNDUS project is to suggest new solutions to and influence the next generation of mobile communications. This dissemination is supported by more general papers such as 'C Space: an adaptive, user-led communication service exploiting the convergence of DVB-T and UMTS in portable devices' which I presented at the MGANI conference on *User-Centred Perspective in Mobile Entertainment* (24-27 March 2004).

The Generative Design Tools project has a lower profile than C Space in terms of collaboration and external funding. Presentations at Visual-Narrative Matrix (Cruickshank 1999) and at CADE (Computers in Art and Design) (Cruickshank 2000) conferences have contributed more conventionally in academia. It is clear through these presentations and discussion with other design researchers that the idea of the design of problem-solving approaches (methods) as a creative act in its own right (and that designers might specialise in this in the same way that designers may specialise in font design) is a significant step into uncharted territory.

The (sometimes heated) discussions concerning the Generative Design Tools project have contributed new ideas and a new perspective to design research but they also precipitated the development of teaching methods that certainly in the long term and arguably in the short term have made a bigger contribution to humanities knowledge, to 'changing the world', than any other aspect of this PhD.

While changes in teaching approaches precipitated by methodological investigation resonate in some respects with the work of other educators, there is no evidence (so far) of students being explicitly provoked into conceptualising and articulating their own personal design methods through comparison with a number of different basic 'baseline' methods.

The development of design method workshops in design education has had very positive results. It is especially suited to groups with a wide variety of background or aptitude. Students naturally situate themselves at the appropriate distance for them from the baseline method they are working with. Very strong students are a long way away from the baseline; some even create their own baseline method (they can articulate in a considered manner their own design methods). Weaker students are much closer or even on the baseline, and for them the methods provide a safety net which encourages them to explore different ways of designing or attempting to employ approaches employed by other students because they always have a guide to help them if they get lost.

Though a series of workshops and modules almost 400 students have benefited by this approach, ranging from Foundation to Masters Level. A number of institutions are delivering their versions of this methodological approach as a result of exposure to the workshops I have facilitated. This year over 250 students across a range of institutions will explicitly be undertaking a version of the methodological approach described above. This ranges from a few days' workshop to a twenty-credit module. The argument for its potential to add to

human knowledge is firstly that as far as it is possible to be sure this is an innovative approach and that the change of perception engendered by this approach could over time have a significant impact on students that go on to be the designers of tomorrow.

This approach to design education and design method goes some way to addressing the calls within Design Studies of people such as J. Broadbent (2002) for the development of the next generation of design methodology. It offers an alternative to the promotion of both design science promoted by writers such as Love (2002) and the contrary hermeneutic position directly mapped to Rhizome models by writers such as Coyne. The ideas presented in this thesis through the promotion of 'counter-strategies' present a rationale for a tactical approach that offers the possibility of non-hierarchical progress and application rather than isolated micro-resistances that have little chance of cumulative effect.

Taking a broader view, the interesting and successful aspect of this PhD is the redefining of the problem under investigation. The relocation of the investigation from the artefact itself to the creation of systems or frameworks that not only allow many different people to populate, explore and use these structures but also to change the structures themselves is providing an impetus for further research.

In short this PhD has contributed to the development of a number of strategies exploring the breaking down of hierarchical relationships between designer and user and that this field of engagement between designer and user has shifted from hard products, to the process of creation, to flexible systems of production. This shift in emphasis has not necessarily come to rest in the 'correct' position, indeed constant re-evaluation in changing contexts is likely to engender a focus that is ever moving and that as such all of the above is a preliminary introduction.

References

- Abercrombie, N., 1994, 'Authority and Consumer Society' in, *The Authority of the Consumer*, R. Keat *et al* (eds), Routledge, London, pp. 43-57.
- Ackland-Snow, N., N. Brett, S. Williams, 1996 *Fly: the art of the club flyer*, Thames and Hudson, London.
- Agre, P., 2003, 'Hierarchy and History in Simons - Architecture of Complexity' *Journal of Learning Sciences* Vol. 12, No. 3, pp. 413-426.
- Airaksinen, T., 1995, *The Philosophy of the Marquis de Sade*, Routledge, London.
- Ambasz, E. (ed.), 1972, *Italy: The New Domestic Landscape: Achievements and problems of Italian design*, Museum of Modern Art, New York.
- AOL-1 AOL Intranet, keyword 'Acronym' (Accessed October 1999).
- AOL-2 AOL Intranet, keyword 'Smiley' (Accessed October 1999).
- Archer, B., 1994, 'The Nature of Research', in *Co-Design: the interdisciplinary journal of design and contextual studies*, vol. 1 no. 234-41, pp. 6-13.
- Banger, A., 2003, 'Table of Contents', *Wallpaper*, January / February 2003, London, pp. 59.
- Banham, R., P. Barker, P. Hall and C. Price, 1996, 'Non-Plan: An Experiment in Freedom', *New Society* vol. 13, no. 338, 20 March 1969, pp. 435 - 443.
- Paul Barker 2000, *Thinking the Unthinkable in Non-Plan essays on freedom participation and change in modern urbanism and planning*, Architectural Press, Oxford, pp. 2-21
- Barthes, R., 1977, 'The Death of the Author', in *Image, Music, Text*, Fontana Press, London.
- Baudrillard, J., 1995, *The Gulf War Did Not Take Place* trans. Paul Patton Power Publications, Sydney.
- Baudrillard, J., 1983, *In the Shadows of the Silent Majorities*, Semiotext(e), New York.
- Baudrillard, J., 1988, 'Simulacra and Simulations' in *Jean Baudrillard Selected Writings*, ed. M Poster Polity Press, Oxford.
- Bauman, Z., 2000, *Liquid Modernity*, Polity Press, London.
- Bayley, S., (ed.), 1985, *The Conran Directory of Design*, Octopus Conran, London.
- de Beauvoir, S., 1991, 'Must We Burn Sade?', in *The Days of Sodom*, The Marquis de Sade, trans. A. Wainhouse and R. Seaver, Arrow Books, London, pp. 3-64.
- Bennington, J., 1989, 'Deconstruction is not What you Think', in *Deconstruction*, ed. A. Papadakis, C.Cooke and A. Benjamin, Academy Editions, London, p. 84.
- Blackwell, A., 1999, www.borg.cs.dal.ca/~smedley/veu/ (Accessed June 1999).
- Boyarsky, N. and N. Murphy, 1998, *Action Research*, Serial Books: Architecture and Urbanism, Black Dog Publishing, London.
- Borden, I. and S. McCreery, 2001, 'New Babylonians', *Architectural Design*, vol. 71, no.3 Wiley-Academy, London

- Bouman, O. and S.Malkar (eds), 2001, *3D>2D The Designers Republic's Adventures in and out of Architecture with Sadar Vuga Arhitekti and Spela Malkar*, Laurence King Publishing, London.
- Bourdieu, P., 1998, *Distinction: a Social Critique of the Judgement of Taste*, Harvard University Press, Connecticut, MA.
- Branzi, A., 1984, *The Hot House: Italian New Wave Design*, trans. C. H. Evans, MIT Press, Cambridge, MA.
- Briggs, M., 2002, 'The Rhetoric of Research', in *Common Ground*. Proceedings of the Design Research Society International Conference at Brunel University, September 5-7 2002. David Durling and John Shackleton, (eds), Stoke-on-Trent, Staffordshire University Press, pp. 530-536.
- Brinck, T., D. Gergle, S. Wood, 2002, *Usability for the Web*, Morgan Kaufmann Press, London.
- Broadbent, G., 1991, *Deconstruction: a Student Guide*, Academy Editions, London.
- Broadbent, J., 2002, 'Generations in Design Methodology', In *Common Ground*. Proceedings of the Design Research Society International Conference at Brunel University, September 5-7 2002. David Durling and John Shackleton,(eds), Stoke on Trent, Staffordshire University Press, pp. 161-171
- Buchanan, R., 1998, 'Wicked Problems of Design Thinking', in *The Idea of Design*, ed. V. Margolin, R. Buchanan, The MIT Press, Cambridge, Massachusetts.
- Buchloh, B., 2001, 'A Conversation with Constant' in '*Activist Drawing: Retracing Situationist Architectures from Constant's New Babylon and Beyond*' ed. C. de Zegher and M Wigley, The MIT Press, Cambridge, MA.
- Busignani, A., 1973, *Gropius*, Hamlyn, London.
- Constant, N., 2001, 'New Babylon: An Urbanism', in *New Babylonians*, ed. I. Borden and S. McCreery, Wiley-Academy. London, pp. 12-14.
- Cook, P., 1996, 'Architecture is on the Wing Again' in *The Recovery of the Modern Architectural Review 1980-85 key text and critique* ed. Michael Spens, Butterworth Architecture, Oxford, pp. 64-73.
- Cook, P., 2002, 'The Metamorphosis of and English Town' (drawing), in *Theories and Manifestoes of contemporary architecture*, ed. C. Jencks and R. Kropf, Wiley-Adcademy, UK.
- Coyne, R., 1999, *Technoromanticism digital narrative, holism and the romance of the real*, MIT Press, Cambridge, MA.
- Coyne, R., 2005, 'Wicked Problems Revisited', in *Design Studies* Vol 26 No 1 January 2005.
- Cross, G., 1997, *Kids' Stuff*, Harvard University Press, Connecticut.
- Cross, N., 1997, 'Creativity in Design: Analysing and Modelling the Creative Leap', *LEONARDO* vol. 30 No. 1 1997, pp 311-317.

- Cross, N., 2000, 'A History of Design Methodology', in *Design Methodology and Relationships with Science* ed. M. J. de Vries, N. Cross and D. P. Grant, Kluwer Academic Publishers, London.
- Cross, N., 2001, 'Designerly Ways of Knowing, Design Discipline Verses Design Science', *Design Issues* vol. 17 no.3, Summer 2001, pp. 49-56.
- Cross, T., 1998, 'Semantic Compaction in Both Static and Dynamic Environments: a new synthesis', delivered at 13th Annual International Conference, *Technology and Persons with Disabilities* (The CSUN Conference) 17-21 March 1998, The Center on Disabilities at California State University,
http://www.dinf.ne.jp/doc/english/Us_Eu/conf/csun_98/csun98_064.htm (accessed November 2005)
- Cruickshank, L. and L. Barfield, 2000, 'The Augmenting Textual Conversation with User Created Icons' in *Iconic Communication*, ed. P. Barker and M. Yazdani, Intellect Books, London.
- Cruickshank, L., 1999, 'Generative Tools, Using the Postmodern' at the *Visual-Narrative Matrix Conference*, Fine Art Research Centre, Southampton Institute 15-17 November.1999.
- Cruickshank, L., 2000, 'Design Philosophy into Teaching – The Development of Innovative Pedagogic Strategies in Graphic Design', in *Digital Creativity: Crossing the Border*, Proceedings of the CADE 2001: the 4th Computers in Art and Design Education Conferences, held at Glasgow School of Art 9-12 April ed. R. Shaw and J. McKay, Glasgow School of Art Press pp. 92-97.
- Cruickshank, L., 2002 (designer) Promotional CISMUNDUS pamphlet.
- Cruickshank, L. and B. Hughes, 1999, 'Facilitating the Evolution of a User Driven Iconotextual Patois', *Digital Creativity*, Vol. 10 No. 2.
- CSUN 1998 Conference. The Conference is in Los Angeles in March of 1998. The CSUN Centre on Disabilities may be directly referenced at: <http://www.csun.edu/cod/>
- Culler, J., 1994, *On Deconstruction: Theory and Criticism after Structuralism*, Routledge, London.
- de Certeau, M., 1988, *The Practice of Everyday Life*, trans S Rendall, University of California Press, Berkley.
- de Certeau, M., L. Giard, P. Mayol, 1998, *The Practice of Everyday life volume 2 living and cooking* Trans. T Tomasik, University of Minnesota press, Minneapolis.
- DataViews Corporation UK <http://www.dataviews.co.uk> (Accessed September. 1999).
- Davis, E., 1998, *Techgnosis: Myth, Magic and Mysticism in the Age of Information*, Three Rivers Press, New York.
- Davis, R., 1997, *Design for the Future*, Artificial Intelligence Laboratory, Massachusetts Institute of Technology, <http://www.ai.mit.edu> (Accessed Nov. 1997).
- Debord, G., 1994, *The Society of the Spectacle*, Zone Books, London.

- Deleuze, G. and Guattari, F., 1996, *A Thousand Plateaux: Capitalism and Schizophrenia* trans. B Massumi, Athlone Press, London.
- Deleuze G. and Guattari, F., 1986, *Kafka Toward a Minor Literature*, trans D Polan, University of Minnesota Press, Minneapolis.
- Deleuze G. and Guattari, F., 1994, *What is Philosophy?*, Columbia University Press, New York.
- Derrida, J., 1986, *The Margins of Philosophy*, trans. Alan Bass, The University of Chicago Press, Chicago.
- Derrida, J., 1974, *Glass*, trans. J Leavey, University of Nebraska Press, Lincoln.
- Derrida, J., 1976, *On Grammatology*, John Hopkins University Press, Baltimore.
- Derrida, J., 1995, 'Honoris Causa: this is also extremely funny', in *Points – Interviews, 1974-1994*, ed. Elisabeth Webber, Trans. Peggy Kamf (and Others) Stanford University Press, California, pp. 399-421.
- Derrida, J., 1997, 'Chora', in *Chora L Works Jacques Derrida and Peter Eisenman*, (sic), ed. J. Kipnis and T. Leeser, The Monacelli Press, New York, pp. 15-32.
- Derrida, J., 1997 (2), 'Why Peter Eisenman Writes Such Good Books', in *Chora L Works Jacques Derrida and Peter Eisenman* (sic), ed. J. Kipnis and T. Leeser, The Monacelli Press, New York, pp. 95-102.
- Design Interaction Paradigms Home Page <http://design-paradigms.www.media.mit.edu/projects/design-paradigms/> (Accessed Nov. 1997).
- Desktop Publishing, *Creative Review*, July 2003 Vol. 23, No. 7, pp. 62 – 65.
- Dick, B., 2002, 'You want to do an action Research Thesis' [Online] available, <http://www.scu.edu.au/schools/gcm/ar/arp/ppar.html>.
- Do Surf - <http://www.dcreate.com/index2.htm>, (accessed November 2005).
- Drexler, K. E., 1992, *Engines of Creation: The coming era of Nanotechnology*, Oxford University Press, Oxford.
- Esperanto League of Cyberspace, 1999, www.esperanto.org/elc/ (Accessed October 1999).
- Eisenman P, 1989, 'Peter Eisenman – An Architectural Interview by Charles Jenks' in *Deconstruction*, ed. A. Papadakis, C. Cooke and A. Benjamin, Academy Editions, London, pp.141-149.
- 'Exchange 2000, Facilitating Research in Art Media and Design' 2nd – 3rd November, organised by University of the West of England at Watershed Media Centre, Bristol, UK.
- Feenberg, A., 2000, *Questioning Technology*, Routledge, London.
- Findeli, A., 1998, 'Moholy-Nagy's Design Pedagogy in Chicago 1937-46' in *The Idea of Design*, ed. V. Margolin and R. Buchanan, The MIT Press, Cambridge, MA, pp. 29-44.
- Foucault, M., 1980, *Power/Knowledge: Selected interviews and other writings 1972 - 1977*, Harvester Wheatsheaf, London.

- Foucault, M., 1991, *Discipline and Punish: The birth of the prison*, trans. A. Sheridan, Penguin Books, London.
- Foucault, M., 1994, *The Archaeology of Knowledge*, Routledge, London.
- Flusser, V., 1999, *The Shape of Things: A Philosophy of Design*, Reaktion Books, London
- Forty, A., 1986, *Objects of Desire: Design and Society 1750-1980*, Thames & Hudson, London
- Franks, B., 2000, 'New Right/ New Left: An alternative experiment in freedom', in *Non-Plan: Essays on freedom participation and change in modern urbanism and planning*, ed. Jonathan Hughes and Simon Sadler, Architectural Press, Oxford, pp. 156-165
- Frascara, J., 1997, *User-Centered Graphic Design: Mass Communications and Social Changes*, Taylor & Francis, London.
- Friedman, K., 2003, 'Theory Construction in Design Research: criteria Approaches and Methods' in *Design Studies*, vol. 24 No. 6 November 2003, pp. 507-522
- Gasparski, W., 1993, 'Design, Science and Philosophy: The Praxiological Perspective' 1993, *At A Glance Design Methodology and Relationships with Science*, in Proceedings of the NATO ARW, Eindhoven, the Netherlands, September 29-October 2, 1992, M.J. de Vries ,N. Cross ,D.P. Grant (eds), (NATO Advanced Science Institutes Series, D: Behavioral and Social Sciences), Kluwer Academic Publishers, Amsterdam, pp. 165-189.
- Gere, C., 2002, *Digital Culture*, Reaktion Books, London.
- Green, D., 1999, *Concerning Archigram*, Archigram Archives, London,
- Griffiths, J., 1989, 'Deconstruction Deconstructed', in ed. A. Papadakis, C. Cooke and A. Benjamin , *Deconstruction*, Academy Editions, London.
- Guthrie & Pope <http://www.somewhere.org.uk/artists/impress/paper.htm> (accessed November 2005).
- Hall, P., 2002, *Cities of tomorrow: an intellectual history of urban planning and design in the twentieth century*, Blackwell Publishers, UK.
- Highmore, B., 2000, 'The Death of the Planner', in *Non-Plan: Essays on Freedom, Participation and Change in Modern Architecture and Urbanism*, ed. J Hughes and S Sadler , Architectural Press, London, pp. 156-165.
- Hill, J., 1998, *The Illegal Architect*, Black Dog Publishing, London
- Hill, J., 1998(ed.) *Occupying Architecture: Between the architect and the user*, Routledge, London.
- Hom, R., 1985, *Memphis: Objects, Furniture and Patterns*, Running Press, Philadelphia.
- Huizinga, J., 1944, *Homo Ludens: A study of the play-element in culture*, Beacon Press, Boston.
- Jencks, C., 1971 *Architecture 2000: Predictions and methods*, 1st edn, Studio Vista, London.
- Jencks, C. and N. Silver, 1972, *Adhocism: The case for improvisation*, Secker and Warburg, London.
- Jencks, C., 1987, *Language of Post-Modern Architecture*, Academy Editions, London.
- Jones, J. C., 1970, *Design Methods: Seeds of human futures*, Wiley-Interscience, London.
- Julier G, 2000, *The Culture of Design*, Sage Publications, London.

- Keat, R., N. Whitely and N. Abercrombie (eds), 1994, *The Authority of the Consumer*, Routledge, London.
- Keedy, J., 1998, 'Graphic Design in the Postmodern Era', in *Émigré* No. 47, summer 1998, NYC, pp. 51-60.
- Kicker, 1995, *The Misery of Football considered in all its forms and a few remedies offered*, Hat Trick Folios (photocopied pamphlet).
- Kipnis, J. and N. Leeser (eds), 1997 *Chora L Works Jacques Derrida and Peter Eisenman*, The Monacelli Press, New York.
- Kline, S., 1995, *Out of the Garden: Toys and children's culture in the age of marketing*, Verso, London.
- Klingon Language Institute, 1999, www.kli.org, (accessed November 2005)
- Knabb, K. (ed. & trans.), 1981, *Situationist International Anthology*, Bureau of Public Secrets, Berkeley, CA.
- Knight, J. and Jefsioutine, M., 'Understanding the user-experience: tools for user-centred design of interactive media' in *Common Ground*. Proceedings of the Design Research Society International Conference at Brunel University, September 5-7 2002, David Durling and John Shackleton eds, Stoke on Trent, Staffordshire University Press, pp. 530-536.
- Kuhn, T., 1970, *The Structure of Scientific Revolutions*, University of Chicago Press, Chicago.
- Lawson, B., 2000, *How Designers Think*, Architectural Press, London.
- Levi-Strauss, C., 1978, *The Raw and the Cooked Vol.1*, trans. John and Doreen Weightman, Jonathan Cape, London.
- Lieberman, H., 1999, Making Programming Accessible to Visual Problem Solvers, Media Laboratory, MIT, <http://web.media.mit.edu/lieber/Lieberary/Mondrian.html>, (accessed November 2005).
- Logic Programming Associates, <http://www.lpa.co.uk/>, (accessed November 2005).
- Love, T., 2002, 'Are 'the reflective practitioner' and 'learning cycles' suitable foundations for theories about designing and design cognition', in *Common Ground*. Proceedings of the Design Research Society International Conference at Brunel University, September 5-7 2002, ed. David Durling and John Shackleton,(eds), Stoke on Trent, Staffordshire University Press, pp. 677-687.
- Lungair, C., 1999 *Creative Design With Your Computer*, Teach Yourself, London.
- Lupton, E. and A. Miller, 1996, 'Deconstruction and Graphic Design', in *Design, Writing, Research : Writing on Graphic Design*, Phaidon, London, pp. 3-23.
- Lupton, E. and A. Miller, 1996 (2), *Period Styles: A History of Punctuation*, *Writing on Graphic Design*, Phaidon, London, pp. 33-39.
- Liotard J.F., 1984, *The Postmodern Condition: A Report on Knowledge*, Minnesota University Press, Minneapolis.

- Marcus, G., 1990, *Lipstick Traces: A secret history of the twentieth century*, Harvard University Press, Cambridge, MA.
- Margolin, V., (ed.), 1989, *Design Discourse: History, Theory, Criticism*, University of Chicago Press, London.
- Massumi, B., 1999, *A Users Guide to Capitalism and Schizophrenia: Deviations from Deleuze and Guattari*, MIT Press, London.
- McKay, G., (ed.), 1998, *DiY Culture: Party and Protest in Nineties Britain*, Verso, London.
- McQuiston, L., 1993 *Graphic Agitation: Social and Political Graphics Since the Sixties*, Phaidon, London.
- Meggs, P., 1992, *A History of Graphic Design*, Van Nostrand Reinhold, New York.
- Metz, C., 1973, 'Methodological Positions of the Analysis of Film', *Screen*, Spring/Summer 1973, SEFT, London, pp. 89-101.
- Mitchell, W., 2003, *Me++: The cyborg self and the networked city*, MIT Press, Cambridge, MA.
- Myers, G., 1999, *Ad Worlds: Brands, Media, Audiences*, Arnold, London.
- Negroponte, N., 1995, *Being Digital*, Vintage Books, New York.
- Nielsen, J., 1993, *Usability Engineering*, Academic Press, London.
- Norris, C., and Andrew, B., 1989, *What Is Deconstruction?*, Academy Editions, London
- Norris, C., 1992, *Uncritical Theory: Postmodernism, Intellectuals and the Gulf War*, Lawrence & Wishart, London.
- Packard, V., 1981 *The Hidden Persuaders* Penguin, Harmondsworth.
- Palmer, D., 1997, *Structuralism and Post-structuralism for Beginners*, Writers and Readers Publishing, London.
- Papadakis, A., C. Cooke and A. Benjamin (eds), 1989, *Deconstruction*, Academy Editions, London.
- Patton, P. and T. Smith (eds), 2001, *Jacques Derrida: Deconstruction Engaged*, Power Publications, Sydney.
- Pawley, M., 1998, 'We Shall Not Bulldoze Westminster Abbey', in *Archigram and the retreat from technology, Oppositions Reader* ed. M Hays, Princeton Architectural Press, New York
- Pevsner, N., 1991, *Pioneers of Modern Design, from William Morris to Walter Gropius*, Penguin, UK.
- Plant, S., 1992, *The Most Radical Gesture: the Situationist International in a Postmodern Age*, Routledge, London.
- Potter, N., 1980, *What is a Designer?*, Hyphen Press, London.
- Press, M., 1995, 'Its Research Jim..', in *Co-Design the interdisciplinary journal of design and contextual studies*, vol. 1 no. 234-41, pp. 34-35.
- Protevi, J., 2002, <http://www.artsci.lsu.edu/fai/Faculty/Professors/Protevi/Foucault/Difficulty.html> (accessed July 2002).
- Ramakers, R., 2002, *Less + More: Droog design in context*, 010 Publishers, Rotterdam.
- Ramakers, R, Van der Zanden, J, 2000, *do create, do & Droog Design*, Amsterdam

- Ramakers, R., and G. Bakker (eds), 1998, *Droog Design: Spirit of the Nineties*, 010 Publishers, Rotterdam.
- Robinson, C., 1993, *Real Life Research*, Blackwell, Oxford.
- Romitol, L., 2001, 'The Surreal Foil', in *New Babylonians*, I. Borden and S. McCreery (eds), Architectural Design Vol. 71 No. 3 June 2001, London, pp. 20-22.
- Ross, K., 1998, *Fast Cars, Clean Bodies: decolonization and the reordering of French culture*, MIT Press, Cambridge, MA.
- Rotzer, F., 1995, *Conversations with French Philosophers*, trans. G. Aylesworth, Humanities Press, New Jersey.
- Rudofsky, B., 1973, *Architecture Without Architects: A Short Introduction to Non-Pedigreed Architecture*, Academy Editions, London.
- Ruggeri, L., 2001, 'Abstract tours Operator' in *New Babylonians*, Architectural Design Vol. 71 No. 3 June, London.
- Sadler, S., 1999, 'Open Ends the social visions of non-planning', in *Non-Plan: Essays on freedom, participation and change in modern urbanism and planning*, ed. B. Hughes and S. Sadler Architectural Press, Oxford , pp. 138 - 155
- Sadler, S., 1998, *The Situationist City*, MIT Press, Cambridge, MA.
- Sassoon, R., 1997, *Signs, Symbols and Icons*, Intellect, London.
- Saussure, F. de, 1966, *Course in General Linguistics*, McGraw-Hill, New York.
- Schmidhuber, J., 1997, 'Low Complexity Art', *LEONARDO* vol. 30 no.2 , 1997, pp. 97-103.
- Sentient Machine Research, <http://www.smr.nl> (accessed November 2005).
- Siegel, D., 1998, *Creating Killer Web Sites*, Hayden Books, Indianapolis.
- Sim, S., 1992, 'Structuralism and post-structuralism' in *Philosophical Aesthetics*, Oswald Hanfling, Blackwell, Oxford, pp. 405-440.
- Sless S, 2002 'Philosophy as Design: a project for our times' – paper presented at the third International Conference of the Design Education Association Cardiff March 14 2002.
- Stairs, D., 'Okuwangaala: The Persistent Vitality of the Vernacular', *Design Issues*, vol. 18 no. 3 Autumn 2001, pp. 70-88.
- Steinhauser, A., 1999, 'An Electronic Workbook: A template for electronic discourse between teacher and student in visual communication – a progress report', *OutLine* issue 8 Autumn 1999, pp. 21-26.
- Sudjic, D., 1989, *Ron Arad: Restless Furniture*, Rizzoli, New York.
- Sudjic, D., 1994, 'Gehry's Blockbuster', *Blueprint*, April 1994, pp. 38-40.
- Swan, C., 'Action research and the Practice of Design' in *Design Issues* Vol. 18 No. 1 winter 2002, pp. 49– 61.

- Teunissen, J., 2000, *Droog and Dutch Design*, Centraal Museum, Utrecht
- Tigerman, S., 1989, 'Construction (De)Construction (Re) Construction Architectural Antinomies and a (Re)newed Beginning' in *Deconstruction*, Papadakis, Cooke and Benjamin (eds.), Academy Editions, London, pp. 256-259.
- Tschichold, J., 1998 (first published 1928), *The New Typography*, trans. Ruari McLean, University of California Press, London.
- Tschumi, B., 1989, 'Parc de la Villette, Paris', in *Deconstruction*, ed. A. Papadakis, C. Cooke and A. Benjamin Academy Editions, London, pp.175-184
- Vaneigem, R., 1994, *The Revolution of Everyday Life*, trans. Donald Nicholson-Smith, Rebel Press/Left Bank Books, London.
- Vattimo, G., 1997, *Beyond Interpretation: The Meaning of Hermeneutics for Philosophy*, trans. David Web, Polity Press, Oxford.
- Vague, T., 1997, *Anarchy in the UK the Angry Brigade*, AK Press, Edinburgh
- Venturi, R., D. Scott Brown, S. Izenour, 2001, *Learning from Las Vegas: The forgotten Symbolism of Architectural Form*, MIT Press, Cambridge, MA.
- Vidler, A., 2001, 'Diagrams of Utopia' in *The Activist Drawing: Retracing Situationist architectures from Constant's New Babylon and Beyond*, ed. C. de Zegher and M Wigley, MIT Press, London, pp. 83 – 92.
- War Chalking, 2005, <http://www.blackbeltjones.com/warchalking/index2.html> (accessed November 2005)
- Wearable Business, 2003, http://wearablesbusiness.com/ar/apparel_customatix_steps_promotional/ (accessed July 2003).
- West, C., 1994, 'The New Cultural Politics of Difference', in *The Cultural Studies Reader*, Simon During (ed.), Routledge, London, pp. 203 – 217.
- Wigley, M., (1999)'Paper Scissors, Blur' in *The Activist Drawing retracing Situationist architectures from Constant's New Babylon and Beyond'* ed. C. de Zegher and M. Wigley, MIT Press, Cambridge, MA, pp. 27-56.
- Wigley, M., 1997, *The Architecture of Deconstruction: Derrida's Haunt*, MIT Press, Cambridge, MA.
- Wolfreys, J., 1998, *Deconstruction: Derrida* Macmillan Press, London.
- Wood, D., 1992, *Derrida: A Critical Reader*, Blackwell, Oxford.
- Zanden, J., 2001 *Do Create'* exhibition Catalogue, Architectural Association 12 January – 22 February 2001.
- Zeitlian, H., (Designer/Editor), 1992, *Semiotext [e]/Architecture*, Semiotext [e], Columbia University, Distribution Autonomedia, New York.
- Zijl, I., 1996, *Droog Design 91-96*, Centraal Museum [sic], Utrecht.

Apendix - Publications

Cruickshank & Barfield, 2000, '**The Augmenting Textual Conversation with User Created Icons**' in the book *Iconic Communication*, ed. P. Barker and M. Yazdani, Intellect Books, London.

Cruickshank C, 2000, '**Design Philosophy into Teaching - The Development of Innovative Pedagogic Strategies in Graphic Design**', in *Digital Creativity: Crossing the Border*, Proceedings of the CADE 2001: the 4th Computers in Art and Design Education Conferences, held at Glasgow School of Art 9-12 April ed. R Shaw and j McKay, Glasgow School of Art Press pp. 92-97.

Cruickshank and Hughes, 1999, '**Facilitating the Evolution of a User Driven Iconotextual Patois**', in *Digital Creativity*, Vol. 10 No. 2.

Cruickshank, C **Space an adaptive, user led communication service exploiting the convergence of DVB-T and UMTS in portable devices**, proceedings of *Mobile Entertainment: User-centred Perspectives*, 25-27th March 2004 ed. Karenza Moore & Jason Rutter