CONSCRIPTING ORGANISMS:

AN ETHNOGRAPHY OF BOUNDARIES, AUDIENCES AND REFLEXIVITY IN ACADEMIC AND CONSULTANCY WORK

A Thesis submitted for the degree of Doctor of Philosophy

by

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ABSTRACT

This thesis investigates the use of boundedness, claims for credibility and the exploitation of reflexive accounting within knowledge work. The current literature from the sociology of scientific knowledge is used to contextualize this investigation, which constructs the thesis' central problem as a concern with the way boundary maintaining and boundary breaking activities contribute to the distribution of science and technology into its wider context.

Two distinct and apparently contrasting knowledge cultures are used to explore this problem: the social studies of technology (SST-1) is constituted as an academic knowledge culture and stratified systems theory (SST-2) is constituted as a consultancy culture. Ethnographic investigation and a variety of textual forms are used to address each of these cultures and the relationship between them. The constituted distinction is used as a further resource for investigating the problem. Chapters one to three provide the 'introduction', 'aims' and 'methodology' and exemplify boundedness, credibility and reflexivity in the culture of SST-1. Chapters four to six provide the 'data' chapters of the thesis and exemplify boundedness, credibility and reflexivity in the culture of SST-2. This investigation identifies the concepts of unlocatability, conscription of members at the margins, and flexible and locked boundedness as key features of SST-2.

In the final chapter, this thesis claims the apparent contrast between SST-1 and SST-2 is unsustainable as they can both be constructed as 'working' via the variable 'incorporation' of 'entities' (people, roles, locations, artefacts, ideas) into 'conscripting organisms'. However, the boundaries constructed for the production of this thesis allow us to establish SST-1 and SST-2 as similar in using conscription and distinct in the focus of conscription. SST-1 is constituted as conscripting at the core and SST-2 is constituted as conscripting at the margins.

CONTENTS OF THE THESIS

CHAPTER FIVE

Conscripting at the Margins: An Examination of the Relationship Between Stable Form and Interpretative Possibility **119**

FIGURES AND TABLES

GLOSSARY OF TERMS AND ABBREVIATIONS USED

BCA	Bibliometric Citation Analysis
CEO	Chief Executive Officer
CM	Construction Management (Construction Contract)
CPA	Career Path Appreciation (Assessment used by SST-2)
CRICT	Centre: Research on Innovation, Culture and Technology
DARG	Discourse Analysis and Reflexivity Group
ICOSA	Institute Concentrating on Social Analysis
JCT	Joint Councils Tribunal (Construction Contract)
Level of Capability	SST-2 Description of Capacity to Tolerate Complexity
Level of Work	SST-2 Description of Complexity of Work
Mode	SST-2 Description of Rate of Indiviual Development
RSUG	Representative of SST-2 User Group
SSK	Sociology of Scientific Knowledge
SST-1	Social Studies of Technology
SST-2	Stratified Systems Theory
TC	Trade Contractor
Time-span	'Measure' of Work Complexity
ZC	Zone Coordinator

FOREWORD

Structure of the Thesis

This thesis provides an ethnographic exploration of a form of work increasingly prevalent in academic work: consultancy aimed at audiences outside academia, by constituting Stratified Systems Theory (SST-2) as the thesis data. It also provides an ethnographic exploration of academic work aimed at audiences within academia by constituting Social Studies of Technology (SST-1) as the thesis audience. These two 'case studies' produces accounts of the ways in which credibility is achieved by each culture. The specific focus of the investigation is the contribution 'boundedness' makes to credibility. In making these statements, however, certain extremely contestable constructs have been used; namely what does this thesis refer to with the terms academic work and consultancy, and what distinctions between the two are being constructed for the purposes the arguments developed within this thesis. Can the reader please be assured at the outset that these constructs will not be accepted as clear or self-evident in the arguments that are developed within this thesis. Instead the work involved in creating these entities for the thesis, will be examined as part of the data of the thesis. It is also necessary to indicate that another contestable construct has been used in the opening sentence: the claim for 'the increasing prevalence' of consultancy work in academic environments. This piece of rhetoric is, no doubt, (irony intended) used to indicate to the reader the contemporary importance of the subject covered within this thesis. If the reader does not share such a reading of the current place of consultancy in academia, the strength of the arguments in the following text will be weakened, but there are always such risks in the production of accounts.

The primary purpose of this foreword is to constrain the potential readings of this thesis. To achieve this a description of how the document is organised is provided. It has been suggested in the previous paragraph that this thesis falls in the category of ethnography and as such it follows a fairly conventional report format. It exploits the linear construction of introduction, aims, methods, results and conclusion to provide an analysis of the ways in which boundaries around 'knowledge products' and 'knowledge work' are managed in the struggles for credibility. The 'content' of this potential reading of the thesis represents an ethnography of SST-2. However, we are also concerned within this thesis, to undertake an ethnography of the equivalent struggles within academic work produced for academic audiences. For this reason, the thesis has been designed to take advantage of the reflexive possibilities inherent in the question by treating the construction of this thesis as an exemplification of the chosen problem.

The thesis therefore exploits two structures. As stated above one is a conventional linear format with introduction, aims, methods, results and conclusions. The second is the structure of two discrete stories about the two knowledge cultures used in this thesis using the similar themes of boundedness, credibility and reflexivity to organise the stories. The first three chapters illustrate SST-1 'at work' and chapters four to six illustrate SST-2 'at work'. Therefore the exploration of the two 'case' examples of the struggle for credibility are developed in parallel to each other. The following list of chapter contents describes the contribution of each chapter to each of these parallel structures.

Chapter one serves as an introduction to the thesis and outlines why the examination of boundaries and credibility across 'community' boundaries is a central question within the sociology of knowledge. At the same time this chapter takes the production of credible problems as its theme for examining the contribution of boundaries to credibility within academic work. For the linear report this chapter provides the introduction and for the parallel narrative it gives an account of boundedness within SST-1.

Chapter two concentrates upon articulating specific research questions about the nature of technology, within the general context established in chapter one, in order to give a particular direction to the research data reported in chapters four, five and six. In parallel to this it acts as an exemplification of the process of generating an academic audience or 'user group' for this thesis. For the linear report format this chapter provides the aims section and for the parallel narrative it provides an account of struggles for achieving credibility with an audience within SST-1.

Chapter three provides the method section which is a critical contribution in any thesis. The first section of this chapter describes the action taken by the SST-1 ethnographer and the specific methodological questions raised within this thesis. In parallel, it also subjects the process of generating data and the consequent action of configuring 'subjects', 'members' or 'natives' to critical review in the context of claims for credibility within academic knowledge work. In summary, for the linear report format this chapter provides the method section and for the parallel narrative it gives an insight into reflexivity at work within SST-1.

Chapter four describes the day to day working practices of SST-2 based upon the ethnographic fieldwork and develops the notions of unlocatability, conscription, conscripting organisms and marginal membership as key observations of the culture of SST-2. This also examines the consequences of the methodological decisions of using 'unlocated ethnography' for the data generated. Hence, for the linear report format, this chapter provides the introductory data section which articulates the general findings and for the parallel narrative in provides an account of boundedness within SST-2.

Chapter five describes the variability in accounting in marketing documents within SST-2 and develops further the notion of conscription at the margins of membership for SST-2. This chapter also examines the consequences of the methodological decision to approach variable accounts as stable artefacts as a means of studying the relationship between stability of form and openness of interpretation. In summary, this chapter provides a more detailed data chapter for the linear report format and for the parallel narrative, it provides an account of credibility within SST-2.

Chapter six describes the boundary that exists/is constructed between SST-1 and SST-2 within this thesis by examining the distinction in readings of SST-2 documents by conscripted members and unconscripted members. It examines the consequences for the data from the boundaries that are constituted by inquiry. In summary, this chapter provides a final data chapter for the linear report format and for the parallel narrative it provides an account of reflexivity within in SST-2.

Chapter seven acts as a coda to both structures. It provides a summary aimed at the audience within SST-1 of the findings for the linear report format and a suggestion about the potential interpretations and reinterpretations of both SST-1 and SST-2 based upon the notions created within this thesis for the parallel narratives about these two knowledge practices. The equivalent concluding section for the audience within SST-2 in given in appendix one.

Of course, this rendered order in the account of the organisation this thesis is the latest form of the work and in no way reflects the struggles involved in thesis production, or the diverse influences conscripted in the process. The following account of a meeting prior to the writing provides another narrative about the organisation of this thesis and acts as the first exploitation of the reflexive possibilities within the problem set.

'Background' to the thesis organisation

Discussion with Supervisor 7th May 1992

Supervisor So this is the outline of your thesis; I haven't read it yet

Student Do you want me to talk you through it?

Supervisor Yes.

Student I have divided the work into three themes, each of which is concerned with a different aspect of the process of knowledge acceptance. The first theme explores boundedness, for example, how something is defined as a problem. The second theme explores how outsiders make sense of, for example this problem, how it becomes credible and my third theme explores the generation of 'data'; a concern with inquiry. I

will explore each in two knowledge practices. Stratified Systems Theory, which is ostensibly my data and Social Studies of Technology, which ostensibly is my audience.

Supervisor Can we just accept that Social Studies of Technology is SST-1 and Stratified Systems Theory is SST-2

Student OK. But it is not appropriate to do a compare and contrast exercise on these, because this would suggest that there is some definitive framework which can be used to explain each and both of these. So, instead, I am going to use these two different approaches to the generation of knowledge, which both take social organisation as their focus, to point to.....

Supervisor But why are you doing this work?

Student I don't understand.

Supervisor What is the purpose of writing this thesis; what are you trying to explore?

Student I'm wanting to exploit the current concerns with boundedness, credibility and reflexivity within the Sociology of Scientific Knowledge to explore how explanations and artefacts are taken to work.

Supervisor But that's not why you started this.

Student Well. I moved from my original thesis because I was intrigued by the fact that in the process of writing about the organisation of construction projects. I was myself engaged in a form of organisation. So I have shifted the focus to look at SST-1 and SST-2 because they are ostensibly discrete, but both are concerned with organisations and organising.

Supervisor In what way is SST-1?

Student SST-1 takes as its focus the production of organisations, all of the actor-network approach and the stuff on seamless webs is a study of organisation. Other approaches to artefacts look at physical closure but, I will argue that what is taken to be physical closure, is also organised socially. So if we tie these to issues of reflexivity and credibility we can begin to explore the ways in which SST-1 and SST-2 each use 'reflexivity'; that is how each uses the action of being explicit about the constructs used for different purposes. My contention would be that some recent 'academic' work is increasingly tending to use reflexivity as a barrier to entry - to maintain boundaries around the work. The constant reference to the process of constructing a representation can be read as decreasing accessibility to readers. On the other hand, consultant use of knowledge, I will suggest, exploits reflexivity to invite users into the sense making process. an activity I describe as 'conscription'.

Supervisor But you can't just present SST-1 and SST-2 as discrete phenomena with defined properties. When you say that they are both concerned with social

organisation and that they differ in the use they make of reflexivity, you are treating SST-1 and SST-2 as if they each have an existence, independent of the use you are putting them to; you need to be much more critical about the nature of accounts and accounting.

Student Yeh. OK, I am concerned with the way each renders an account - turns something into an explanation, but that was why I wanted to deploy the two in the way I have described. By running them alongside each other, I can make manifest the processes in each without having to labour the point; or to turn my thesis into the sort of account I am desperately trying to avoid.

Supervisor I thought that was your starting point, your reason for doing this thesis: that you wanted to demonstrate that in certain crucial respects academic work and consultancy work were no different. And yet in your description you construct them as different.

Student I'm hoping to deal with this problem by showing them both at work. Therein lies the value of juxtaposition, it can make explicit that in the difference I construct, they can also be constructed as the same. It is also interesting because the construction project that I was to address in my original thesis, which is to become a bit player in the struggle to define a problem, was also focussed upon juxtaposition, in this case of different trade contractors.

Supervisor How far have you got with the ethnography?

Student I'm intending to look at the ways the different types of users are incorporated into SST-2. I have a general problem with this work because I can't find where to draw the boundaries around SST-2 for the purposes of the ethnography; it doesn't really exist anywhere.

Supervisor A useful reference for that is Michael Moerman 'Where are the Lue.' Each time he asked a 'member' if they were part of the Lue, he was sent elsewhere.[1]

Student The other problem is what to do to SST-1 with SST-2. I'm thinking of using the differences in the way that technology is defined with SST-1: as object or relationship as the starting point. Clearly, I have to give space to SST-2 'talking back' and making sense of the work that has been done to them, if I am to make the most of what is presented to look at issues of credibility, but then I want to lead SST-2 into the act of explaining.....

Supervisor Why not do an ethnography of....

Student I'm not doing any more ethnography, it still privileges SST-1 and their

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[1] In trying to locate this reference I had a similar experience. This idea has been thoroughly exploited within this thesis, but the reference never located. Where are the Lue?

way of rendering accounts.

Supervisor Well, if you are determined to go for a symmetry in your writing, I thought SST-2 needed a client for defining something as a problem. What you just described is not a problem for me

Student OK. then I can look at the issue of hybridisation.

Supervisor That's not a problem for me either. The issue of boundaries in SSK is a new area of academic work, I even have a PhD student working on it...

Student Who?

Supervisor You

Student Oh, yes of course. I will locate my thesis as an examination of the boundaries: I will write about them and demonstrate them at work.

Supervisor There are some potential problems, this is a thesis of course, it needs to show all the scholarly trappings of such work.

Student OK, OK. In principle I will be critical of SSK accounts and representation. but in practice I will be guided by the rules.

Supervisor Another area that may be raised as a critique is the macro-sociological concerns of the wider shifts in funding agencies and arrangements for academics. You may need to put this thesis in context.

Student Steve. are you suggesting that I should explain something?

ACKNOWLEDGEMENTS

CHAPTER ONE: INTRODUCING [1] BOUNDARIES, CREDIBILITY AND REFLEXIVITY IN PROBLEM CONSTRUCTION

Aims and Organisation of the Chapter

As an introductory chapter (Ashmore 1989), the aim of this chapter is to establish as legitimate a particular construction of a research problem (Callon 1980a, Knorr et al 1980, Woolgar 1981, Law 1986a, Woolgar and Ashmore 1988, Ashmore 1989). In parallel to the process of constructing this problem, this chapter aims to explore the boundaries this chapter uses to support claims of legitimacy for this problem. The chosen problem arises from a curiosity about the difference between consultancy and academic 'knowledge work'. This has generalised into questioning how the bounded products of knowledge (be they ideas or artefacts) are accepted as relevant/ useful/ credible/ accurate/ real and what happens to the nature of these bounded products in the process of being accepted as relevant/ useful/ credible/ accurate/ real. The consequence of this is that this thesis can be used as data for its own question and hence has been designed to take advantage of this reflexive possibility.[2] The first three chapters of this thesis are used as data to explore each of these themes in turn as well as serving the conventional function of introduction, aims and methodology. Enmeshed in this chosen problem are a series of interconnected themes which need to be examined. The idea of a theme follows Derrida (1978a cited in Lawson 1985:15) who suggests that the notion of a 'theme' is an appropriate way of representing subjects that cannot directly be addressed. The term 'theme' is used to indicate that the thesis is not addressing clearly bounded topics.

The first theme is boundedness: a theme which generates the following types of question: What are boundaries and how might we study them? To what extent do knowledge products require boundaries to be acceptable? How are boundaries deployed to enhance the acceptability of a knowledge product? Do boundaries change with the use products are put to? The content of chapter one will also be used as 'data' to explore boundedness in the development of knowledge products.

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[1]Please note that the word 'introducing' is used with two distinct meanings in this title. Firstly, this word is used to refer to the role of this chapter in introducing the subject. Secondly, this word is used to describe the function of introducing - namely to create boundaries and claim credibility.

[2]Ashmore (1989:xxvi) discusses the function of introduction within dissertations that take as one of their themes their own production. Woolgar and Ashmore (1988:3) also discuss the conventional function of introductions.

The second theme is credibility which generates concerns such as the following: How are audiences produced? What is credibility and how is it expressed? Is it the attitude of a person-group-culture? Is it the property of a knowledge product - the property of a fact or artefact? Is it a 'configured relationship' (Woolgar 1991a, 1991b) between entities? Is it a force similar to electricity, a distributed power, unseen and taken for granted except in its absence? Chapter two will be exploited as 'data' for the examination of credibility in the context of the production of audiences. These two themes of boundedness and credibility entwine to develop further questions such as: Why are some knowledge products acceptable and others not? Why are some knowledge products accepted by some audiences and not other audiences? Why are some knowledge products used in one way by one audience and in another way by another audience?

The third theme is reflexivity. As this thesis seeks to generate legitimacy for its ideas, it is an example of its own subject. Embedded in this knowledge product - this thesis - is evidence which can be used to examine the constructed problem. This means that attention must be paid to this reflexive possibility in the structure of this work. The first three chapters of this thesis are used specifically to address these three themes of boundedness, credibility and reflexivity in a reflexive way: namely by applying 'ethnography' to the text (Woolgar 1988a) to render the content of these chapters as data. The resource provided by chapter one, as an introductory chapter is its character as a boundary to the thesis. Chapter two, in producing clearly articulated aims for a specific audience, provides us with a case study of the struggles for credibility inherent in the configuring of audiences. Chapter three, in articulating the rationale for the ethnographic methodology used in data generation, provides us with the opportunity to examine inquiry and the part inquiry plays in constituting the subject and hence provides a case study of the reflexive nature of inquiry.

The use of chapters two and three as data has been summarised in the foreword and will be addressed in more detail in the introduction to each of these chapters. In this chapter, questioning its own production allows us to examine the work of the conventional boundaries around thesis introductions. By recognising this introductory chapter as a boundary in this fashion it opens the possibility of breaching (Garfinkel 1984) these conventional boundaries to examine the contribution of taken for granted conventions to the acceptability or credibility of such chapters. The boundaries around this chapter are breached through the tactic of introducing material which could conventionally be classed as data. In this context this seeks to demonstrate the boundaries around one audience's form of acceptable problem construction by contrasting it with an alternative audiences's form of problem construction. These

possibilities raised by the reflexive quality of the problem has lead to the organisation of this chapter into three sections.

The first section develops a literature review of the material relevant to the themes outlined above using particular rules of textual organisation (Ashmore 1989:226). In this section, use is made of the literature which analyzes 'problems' and 'solutions' and how they are defined and how they are accepted as legitimate. The framing epistemology is described by the boundary term: The Sociology of Scientific Knowledge (SSK).[3] This assertion of the content of section one provides a clear[4] and definitive[5] textual anchorage (Latour and Woolgar 1986; Law 1986b; Latour and Bastide 1986) and a clear boundary for exploration. By starting here, the interests[6] of this text are linked with the literature which is SSK[7]. In its objective[8] to count as a thesis[9] which presupposes a legitimate

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[3] In the next chapter, this general subject will be focussed onto specific questions within social studies of technology (SST-1) This introductory chapter aims to demonstrate understanding of the context to the specific questions within SST-1 and the specific aims of this investigation by starting with the literature which constitutes SSK.

[4] Ashmore (1989:111) demonstrates sympathy with those who require Clarity and discusses its place in the construction of knowledge.

[5] But, as Woolgar and Ashmore (1988:2) suggest: "you wouldn't have expected this text's authors to be quite so stupid as to introduce a definitive list of aims and arguments in this volume without there being some clever reflexive point to it all." This point will I hope become clear throughout the course of the account.

[6] The construct 'interests' has a long a turbulent history in SSK and provides the potential topic for a thesis exploring controversies and negotiations within SSK, in its own right. A full account is not within the bounds of this thesis.

[7] This characterization of SSK as literature is in keeping with the recommendation given by Ashmore (1989) "If we talk in the post-modern fashion of texts rather than findings - a way of talking which such luminaries as Richard Bernstein (1983) Clifford Geertz (1980) Paul Ricoeur (1971) and Richard Rorty (1982) have recently reminded us is becoming the dominant discourse heard in the interstices of philosophy, social science and literary studies - this sensitises us to the permanently interpretable and re-interpretable nature of all such cultural products" (Ashmore 1989:14).

[8] The question this raises for this thesis (and indeed for this epistemology) is can 'things' have objectives or are there differences between humans and non-humans? Latour (1988b) suggests that non-humans need to be treated as actors in an equivalent way to humans. This is developed further in Latour (1989) when he states "It is easy to trace an absolute gap between humans who speak and non-humans who are mute, only if we do not think about the matter for more than ten seconds, at the eleventh, the matter starts to become much less clear. First, lots of humans are talked about by others....Second most non-humans are said to communicate, write and answer directly in laboratories or through instruments. Microbes, electrons and gravity do the talking and writing" (Latour 1989:125).

[9] Addressing this point, Ashmore (1989:xxvi) discusses the tasks and regulations involved in the construction of a doctoral thesis.

problem, this text exploits three themes; boundedness (for example Gilbert and Mulkay 1984, Haraway 1991), credibility (see for example Ashmore 1989, Woolgar 1991a 1991b, 1992, Latour and Woolgar 1986, Latour 1983, 1988a, Callon 1980) and reflexivity (see for example Ashmore 1989, Woolgar and Ashmore 1988, Woolgar 1988, Lawson 1985, Gergen and Gergen 1991, Steier 1991, Wynne 1988). The themes of credibility and of reflexivity are concerned with 'translation' (Law 1987) across knowledge boundaries and turn the limits imposed upon any problem into The Problem (Ashmore 1989, Latour 1983, 1988, Woolgar 1989). It is no longer sufficient to accept the boundary around, for example, a laboratory [10] or a refrigerator (Mackenzie and Wajcman 1985:1, Schwartz Cowan 1985), for the purposes of instigating investigation; instead these self-evident boundaries become themselves the locus of inquiry. It is becoming increasingly difficult to accept categories or entities such as washing machines or laboratories and sustain them in being with the properties defined for them, without questioning the forces that bring them into existence. The specific forces central to this thesis are the theoretical and methodological activities in knowledge work. The political relevance of this exploration is that these forces constitute what counts as knowledge and what cannot be known.[11] Hence both these 'objects' of study are manifestations of a concern with boundaries in/of/around knowledge.

The second section involves a dialogue between four potential vested interests in this thesis. These interests are 'embodied' (Armstrong 1983, Benner 1984, 1989, Dreyfus 1972) as caricatures of certain positions or voices. The strengths and the weaknesses of the dialogic style of writing are discussed in section one of this chapter. There are two reasons for exploiting this form of presentation in this section of the introduction. Firstly it serves to destabilise the boundaries around the conventional introductory presentation of supporting literature through the contrast in style. Secondly

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[10] The notion of a laboratory is introduced as it has a particularly relevant history within SSK given our current problem. Latour and Woolgar (1986) suggest "we attach particular importance to the description of observations of scientific activity obtained in *a particular setting*" (Latour and Woolgar 1986:28). This account also writes of anthropological strangeness. However, none of the latter is applied to the acceptance of the laboratory as boundary. Instead 'members' categories are used. Latour (1983, 1988c, 1989) talks of inappropriate respect given to boundaries around laboratories and argues that power comes from taking all social relationships within these boundaries and never stepping outside. Suggestion in Callon Law and Rip (1986) that study needs to focus on knowledge crossing these boundaries. It is possible that the approach to reflexivity in SSK at the moment is a device for retaining intact the boundaries around SSK work while appearing to break them down.

[11] This general contention is based in the analysis of power and discourse in producing docile bounded bodies within the work of Foucault (1977, 1980, 1989); see Birth of the Clinic (1989) for an analysis of the force that produces medical seeing or gaze, Discipline and Punish (1977) for an analysis of the forces producing regulation and order in docile bodies and Power/Knowledge (1980) for a constructed discussion of power as force.

4

it illustrates the divergence of interests surrounding the problem being discussed and so opens the possibility for the explicit creation of audiences for our knowledge product (our knowledge product being a legitimate problem for investigation). This second section therefore also provides an important precursor to the substance of chapter two: the configuring of a user group for this thesis.

The third section presents an alternative form of problem construction in a narrative entitled 'Josephine's story'. The problem constructed in this section is argued to be equivalent to the problem constructed in section one of this introductory chapter: a concern with how ideas are accepted (or not) by different groups of people. The inclusion of this narrative breaks the boundaries that are placed around a conventional introductory chapter in two ways. Firstly, the content of this account would conventionally fall within the data section of this thesis as it based upon interviews with the key informants (described as Josephine in this thesis). Secondly, the narrative style deployed is more conventionally that used in ethnographic data accounting, or novel writing. However, as the specific concerns expressed in section three are so similar to those presented in the first section of this chapter, the juxtaposition of Josephine's story with the academic exploration of boundaries, credibility and reflexivity allows us to make evident the textual techniques exploited in different forms of problem construction, and the extent to which these textual techniques contribute to the credibility of a thesis problem.

Section 1 - An examination of the relevant literature on boundaries, credibility and reflexivity

Boundaries

This is not an original topic. The investigation of boundaries, their creation and their consequences has been crucial to discussion in many areas of contemporary social science. For example, this has ranged from a concern with the construction of boundaries around community (Cohen 1985) the construction of boundaries around bodies (Douglas 1975, Haraway 1991) and the construction of boundaries around areas of investigation (Gilbert and Mulkay 1984). This thesis does not seek to add to this literature in a direct way by investigating 'boundaries' around another type of 'entity'. The rationale for not taking an 'entity' and describing the 'boundary' around it, is that it involves us accepting as unproblematic the entity selected. Constituting boundaries using an entity in this way only allows a limited view to be taken of what a boundary could be. To conceive something as an entity, the existence of boundaries is taken for granted. Problematising the boundary for this thesis does not involve asking what a

5

particular set of boundaries 'looks like'; instead it involves problematising the very existence of boundedness. To examine this issue of boundedness the investigation of boundaries within this thesis seeks to explore 'translation' (Callon, Law and Rip 1986) out of an area of 'investigation' to an area of 'application' (this is characterised in a variety of ways throughout this thesis, for example as a relationship of consumption and as a relationship of knowing).[12] The rationale for this focus upon translation is that, within a translation process it is possible to constitute the boundedness of any set of ideas as contestable. To commence our exploration with an entity is to construct a particular orientation to a boundary as something solid. The desire to resist this initial focus upon entities resonates with the assertion that: "Displaying the work of achieving an explanation is possible only if the display is not restricted to one location" (Latour 1988a:175).

The Boundary is a problem for this thesis. As stated in the introduction to this chapter the literature that is SSK will be used in this section to bound our discussion of boundaries. In this context it is not necessary to describe SSK in introductory detail as there are various accounts of this discipline given for various different purposes which are already available (Ashmore 1989; Mulkay and Knorr Cetina 1983; Mulkay 1980a; Bloor 1982c; Collins 1983) This thesis has no desire to add to this specific literature. Instead a brief introduction to the pressures within this discipline which have made boundaries problematic will be given.[13] The problematising of boundaries for SSK can be traced to the statement used by many as the starting point of SSK, or as Ashmore (1989:8) describes it "the best-known artifact so far to have come out of the sociology of scientific knowledge" - the tenets of the strong programme introduced by Bloor (1976:4-5). These tenets are for causality, impartiality, symmetry and reflexivity. Based upon the first three of these tenets, claims have been made for relativist sociological explanations for the generation of scientific facts (Latour and Woolgar 1986; Collins 1985) artefacts (Lynch and Woolgar 1990) and practices (Gilbert and Mulkay 1984). One of the main claims for reflexivity to be considered as a legitimate problem for SSK comes in a self-proclaimed ironic (Woolgar 1981) account of reflexivity as a development: "the author's claim that all such passages are in fact ironic, is clearly a belated and transparent attempt to get themselves off the hook" (Woolgar and Ashmore

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[12]Application can be seen at work in SST-1 in the struggles to configure an audience in chapter two and convince members in chapter three. Application can be seen at work in SST-2 in the struggles to interest clients reported in chapters four and five.

[13]Throughout the following account, there will be reference to the other issues for this section; credibility and reflexivity. As these are all themes rather than topics it is not possible (or even desirable?) to separate them completely.

1988:10). In this they suggest: "SSK...has deployed a form of relativism to make the point that scientific and technical knowledge is the ....contingent product of various social, cultural and historical processes... The general issue of reflexivity emerges in the specific area of the social studies of science, once it is recognised that the same point can be made about the knowledge produced by SSK" (Woolgar and Ashmore 1988:1). This is linked with concerns about credibility by the same authors when they suggest that readers are a problem: "our problem is that we would very much like to produce a standard form of book, a text for anyone, which doesn't make any particular expectations of its readers and which can still be read in many different ways; but which we would still like it to be read in a very specific way" (Woolgar and Ashmore 1988:11).

The boundary problem for this thesis centres around what can be characterised for the moment as a 'relationship of consumption'. In the context of the literature used in this section this can also be characterised as a 'relationship of knowing'; a relationship between readers and writers where each 'knows' (produces and consumes) the other. Some recent work within SSK has suggested that the use of boundaries by researchers produces both the account and the accounted for. The argument is that by configuring a boundary it allows the researcher to stand outside the world of the 'researched'. (The implications of this for the inquiry accounted for within this thesis will be addressed in chapter three, section two). For example Ashmore (1989:107) states that: "we have been concerned with the outside..we have been discussing modes of study and inquiry." He goes on to argue that the outside can be aligned with the following terms; external, analyst, observer, ethnomethodologist, sociology, object language, science, expert, objective and states that it is the 'outside'; this inquiry, which brings the 'inside' into being; it produces the both the account and the accounted for. To demonstrate this point, such literature inevitably has to exploit the activity it seeks to deconstruct. It requires the creation of an entity, in order to have something to study. To illustrate this using the last example, the account from Ashmore (1989) seeks to demonstrate the lack of distinctiveness between inside and outside. To do this it is clearly essential to work initially at establishing a boundary between them. Ashmore (1989) uses an implicit boundary in his account; that between knowledge production and knowledge consumption. In deconstructing the 'false' boundary between inside and outside, his account has conflated knowledge and knowing with *production*. One further example of this generation of boundaries to produce a focus for investigation can be seen in my introduction of the constructs of production and consumption within this paragraph.

Exploiting the distinction between inside and outside[14] is an important manoeuvre for reflexive questions within SSK because the use of this distinction maintains a boundary around SSK which can be interpreted as acting to retain intact the identity of SSK while its working practices are examined. Latour suggests that it is this privileging of what I am describing as production which gives enquiry its 'power'. He suggests that the effectiveness of Pasteur (Latour 1983, 1988c) comes from never stepping outside the 'laboratory' but instead incorporating the 'external' within it. Similarly, reflexive practice by authors within SSK operates by using their 'facts' about scientific activity to deconstruct the processes by which knowledge is produced within SSK. The deconstruction by Ashmore (1988, 1989) of Collins' (1982) claim to have replicated his finding about the processes by which scientific facts are replicated is one clear example of this. In doing this, the parallels between SSK and the deconstructed science it describes are highlighted. This leads to the suggestion by Woolgar and Ashmore (1988) that reflexive arguments can minimally be taken as further evidence of the accuracy of the 'fact' of social construction. These parallels are used as evidence that all practices are forms of knowledge production.

The privileged position of observer held by any *particular* SSK analyst is undermined in this process. It can be undermined in a variety of ways, for example, by examining the way an account is constructed (Woolgar 1988a) or by demonstrating the failure in applying their own findings to their own practices (Mulkay 1984, 1985; Ashmore 1988, 1989). The concern for this thesis is that while deconstructing the claims of a particular analyst, these arguments effectively work to maintain a privileged position for production. They may open Pandora's box (Gilbert and Mulkay 1984), but they do not question it's existence. Self-proclaimed reflexive analysts appear to construct their problems as problems of production; or as I described it earlier in this chapter, with the 'translation in' across boundaries.

I am not suggesting that 'consumers' are not considered. This would clearly be inaccurate. Instead, I am suggesting that production of knowledge is privileged over consumption. For example, in the laboratory studies of science, the subjects of these studies of scientific knowledge are configured as producers and the ways in which the hardened 'facts' of other scientists are incorporated are described (Latour and Woolgar 1986, Callon, Law and Rip 1986). The descriptions of the use of hardened facts are limited to understanding their place in the production of other facts. The studies for example of laboratory scientists (Latour and Woolgar 1986) or the citation practices within the sociology of scientific knowledge (Hicks and Potter 1991) concentrate upon

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[14] Of which both Ashmore (1989) and this thesis are examples.

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consumers of facts from within the same academic community; consumers who have a particular relationship with the content of the knowledge.[15] The same level of recognition of consumption is made in reflexive studies of the sociology of scientific knowledge. In the example given above, Woolgar and Ashmore (1988) refer to readers which the authors would like to control. Latour (1988a) alternatively refers to readers as having control over his text. In a different context Mulkay (1984, 1985) produces stylised fictional characters of scientists responding to the arguments of the sociologist of scientific knowledge by indicating, in the terms of the sociologist of scientific knowledge why the claims of the sociologist of scientific knowledge are contradictory, rather than fundamentally uninteresting.

To examine boundaries within the context of SSK it is therefore necessary to examine this characterization of production - consumption and the position of various authors' arguments in the context of this relationship. The two themes, credibility and reflexivity, explored within the remainder of this section have been identified to allow such an examination. The theme of credibility, as has been discussed above, represents a concentration on problems of consumption whereas the theme of reflexivity represents a concern with production. Two areas of SSK address this question of credibility or consumption. The first describes itself as the actor-network approach (Callon, Law and Rip 1986). This approach describes "a world in which actors have only *relative* size and are fighting very hard to vary the size of everyone else. In order to do this they need to recruit as many heterogeneous allies as possible" (Latour 1988a:174). In relating this specifically to the products of the scientists and SSKer's, the fragility of scientific knowledge at consumption has been recognised "scientific texts prepare themselves against...not being believed by their readers or worse not interesting anyone...When I portray scientific literature as in risk of not being believed and as bracing itself against such outcomes...I do not require for this account any more than this very process; my own text is in your hands and lives or dies through what you will do to it" (Latour 1988a:168-171). The second involves the ethnographic investigation of the production of artefacts and the parallel process of configuring users (Woolgar 1991a, 1991b, 1992).

Within such accounts the focus of inquiry concerns whether and how knowledge is translated across boundaries around the locus of their production to have salience and relevance for outsiders. The problem for this thesis is to understand and explore the translation process. It has been argued that "each translator must maintain the integrity of the interests of the other audiences in order to retain them as allies. Yet this must be done in such a way as to increase the centrality and importance of the .... work" (Star

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[15]The notion of distance from knowledge as a significant variable in its credibility is discussed later in this section.

and Griesemer 1989:389). Whether this assertion of the tension between boundary maintenance and boundary breaking is legitimate is a key question which the conventional data chapters (chapters four to six) will interrogate. In addition, assuming this characterization is legitimate, these same three data chapters will explore how a balance between maintained and broken boundaries is achieved and demonstrated in knowledge work.

However, for the remainder of this section, the discussion will be concerned with the existing theoretical view of 'boundary management' under the two headings already mentioned: credibility and reflexivity. Concerns with both credibility and reflexivity create outsiders as those in a position to know. 'Reflexivity' creates outsiders as a description of those who produce knowledge and the interests in 'credibility' constitute outsiders as those who consume or reject knowledge. These two themes will be explored in relation to how they impact upon what is problematic within and for science and technology throughout this thesis. The purpose of the following discussion in this chapter is to locate these concerns specifically within the existing literature in SSK.

Credibility

Woolgar (1991a, 1991b, 1992) describes the struggles for credibility for new artefacts via the process of 'configuring' users for a product throughout the process of its design. Woolgar (1992) identifies three types of consumers or users of knowledge products/ representations: those located conceptually close to production, those whose use is separated but not remote and those whose use is remote from the locus of production. Hence he characterises consumers as being distinguished by their spatial and temporal relationship with an artefact. In turn he argues that credibility can be construed as a function of the spatial and temporal properties of this relationship. He constructs this relationship as an entity with particular variable properties. The variability in these properties he suggests can be connected to the different characteristics of the artefact. To illustrate the variability in the properties of such relationships, Woolgar (1992) compares the use of a computer as knowledge-representation with text as knowledge-representation. He suggests that the physical characteristics (or as Latour (1989) suggests the capacity to withstand trials of resistance) of the former type of artefact means separated users are more active in configuring themselves in relation to the representation than is necessary with text. He suggests that this greater need to configure oneself or be configured means users find the physical artefact more 'credible' than the textual representation. There are two key criticisms of Woolgar's (1992) account which need to be raised here as they will inform the content of this thesis. The first is the assumption underpinning the construction of different types of 'user' based

10

upon the notion of production within this account and the second is the exploitation of separateness and physicalness as significant factors in credibility.

Firstly, the suggestion that a user can be conceptually close to or conceptually distant from production conflates the 'design' of an artefact with production: it conflates its physical nature with its interpretive nature. It could instead be argued that all relationships of use are emergent relationships of production and consumption. As will be discussed in the final part of this section, there is a debate within texts on reflexivity about the extent to which the author or reader 'produces' the meaning of any given text. If this same thinking is applied in the context of the categorisation of users developed by Woolgar (1992) we could argue that every 'use event' is an act of production and consumption; that an artefact is 'produced' anew each time it is used. The implications of this concern for the 'data' section of this thesis is to resist the categorisation of users or artefacts based upon any boundary between production and consumption (to resist the temptation to treat users and artefacts as sets of entities with properties which we should attempt to describe) and instead investigate 'use events' in an attempt to examine how boundaries and credibility are constructed in this process.[16]

The second concern is the exploitation in Woolgar's (1992) account of two dimensions; physicality (or resistance Latour 1989) and distance as key criteria in the conferment of credibility. These are not new to the literature within SSK. The history of physicalness and distance and how they have been exploited to support the distinctiveness of science provides us with a appropriate focus for our discussion on credibility. The exploration of the way a boundary between science and technology is established, maintained and collapsed within studies of science gives an indication of the way in which physical tangibility is used to give force or power to knowledge. It will also indicate the way in which distance between the production of the physical artefact and the production of the 'fact' adds to the credibility of this knowledge.

The constitution of the science-technology relationship

There are a variety of ways in which the boundary between science and technology is established which, it is argued (Mulkay 1979), fall into two broad traditions prior to the strong programme in SSK; the history/philosophy of science (Lakatos and Musgrave 1970) and the sociology of science (Merton 1973, Johnson 1977). What I aim to illustrate in this context is the subtle way in which each has used technology as the

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[16]This recognition has been built into the exploitation of an unbounded ethnography which travels across settings, reported in chapter four and in the refusal to accept physical representations in text as final representations reported in chapter five. The decisions underpinning these methods are discussed in chapter three section one.

definer of the credibility of scientific knowledge. The latter makes a particular plea for science as a credible endeavour because of the physical outputs ascribed to it: it is described as credible because it is 'useful'. Mulkay (1979) gives an interesting account of the way that the idea of usefulness has been 'used' to validate the special status of scientific knowledge within sociology. Mulkay (1979) argues that 'conventional' sociology of science has suggested that "the universal validity of scientific conclusions can be established for us as laymen by the success of science on everyday practical affairs" (Mulkay (1979:68). To illustrate this further, he quotes Johnston (1977:13): "when we say that science works, we mean that it provides us with the ability to manipulate and control nature" (Mulkay 1979:68). This implies that, for this approach, the status of scientific knowledge is based upon the manifestations of this knowledge in contexts separate from the endeavour itself - or what is being described in this context as technology. It exploits distance as crucial to credibility.

An alternative tradition is the 'philosophical' approach to science and technology. This is typified by the debate between Kuhn (1970a) and Popper (1970) about the status of science. They are concerned with describing their ideas about the day to day activities of scientists, they argue, as it is these activities which separate science output as qualitatively different from the output from other knowledge practices. Both authors agree that there is something about the practices of scientists which separates their knowledge practices from others, but they disagree about its nature. Despite seeing science in what they consider to be fundamentally different ways, they both use the idea of technology and its expression in physical products as a demarcation criterion for what counts as science.

Kuhn (1970a) uses the concept of technology to delineate 'normal' science: "astrology was not a science. Instead it was a craft, one of the practical arts with close resemblances to engineering....Although astronomy and astrology were regularly practiced by the same people...there was never the astrological equivalent of the puzzle solving astronomical tradition. And without puzzles first able to challenge and then attest to the ingenuity of the individual practitioners astrology could not have become a science even if the stars had in fact controlled human destiny" (Kuhn 1970a:8-10). He is thereby suggesting that there is a separateness in the particular form of social relationship and relationship with work between engineering and science.

Popper (1970) uses this same discriminating feature to downgrade Kuhn's notion of 'normal science' in favour of 'revolutionary science': "the 'normal' scientist has been badly taught. He has been taught in a dogmatic spirit; he is a victim of indoctrination...he has become what may be called an applied scientist in contradiction to what I would call a pure scientist...I admit this kind of attitude exists and it exists not

only among engineers but among people trained as scientists. I can only say that I see a very great danger in it: a danger to science and indeed to our civilisation" (Popper 1970:53). Popper (1970) again focusses upon the form of social relationships but implies that these are deviant when producing 'engineers'.

There is a clear disagreement between these two over the constituents of science and technology. Kuhn (1970a) emphasises the social relationships within scientific work which, he argues, do not exist elsewhere; Popper (1970) emphasises the inadequacy of social relationships outside of science in the work of producing knowledge. Distance or distinctiveness is a significant feature in claiming credibility. In this case both are clear that there is a distance between science and what they take to be its closest relative and both exploit this distance to confer credibility upon scientific activity.

Technology (practice and representations in tactile form) in characterizations of science such as those of Kuhn (1970a, 1970b) and Popper (1959,1970) can thus be seen as a concept which is fundamental to the believability of science. Within the sociology of science, technological artefacts appear to be exploited to demonstrate the power of scientific knowledge; within the philosophy of science, technology is characterised as a sub-standard way of producing knowledge which confers credibility upon science in contrast. These areas of study therefore both link science and technology while managing a distance between them to exploit the different types of credibility that are ascribed to physical and conceptual artefacts.

It was within this context that SSK defined an alternative way of problematizing science; a shift from focussing upon what makes scientific knowledge particular, to focussing upon how scientific knowledge is produced. However, in order to legitimize this new activity, connections need to be built to the existing problem. This managed relationship between science and technology needed to be addressed as part of creating new questions of science. Two resolutions have been attempted; either emphasising or collapsing this boundary.

Emphasizing the distinction between science and technology

Many authors within SSK appear to maintain this distinction. This is because to remove it would rob them of one of the underpinning notions of science upon which their contribution to knowledge rests. To explain this, it is useful to explore the dualism which characterises many of the discussions about science within SSK; the dualism between 'representation' and 'object' Woolgar (1983:31). Such authors suggest that if science is to be credible it is necessary for scientists to assume that 'reality' causes the representations (or facts) which are the product of science.

This assumption is questioned within conventional SSK texts. Instead it is

suggested that it is the representation which creates 'reality' (Woolgar 1988b). This, it is suggested, is a counter-intuitive view as it points to the social construction of knowledge. However, this is only counter-intuitive if science is constructed by such authors as distinct from other knowledge practices. When looking at the 'built environment'; it is no longer counter-intuitive to suggest that the world is socially constructed. As Hamlin (1992:513) suggests "the term "construction" after all would seem to be more at home in technology than science." If bridges, houses and electricity exist as 'representations of reality' and if they are the knowledge products from knowledge work (of which science is only one example) then science is obviously actively involved in shaping our world. It is therefore necessary for any problem which seeks to explain the concept of social construction to maintain a distinction between different types of knowledge work. For such ambitions to be credible, theoretical or 'conceptual representations' have to be assumed to be distinct from 'physical representations'. If they are not, the explanations offered by SSK become trite. No-one would be surprised by the argument that roads or computers are constructed socially; well certainly no-one involved in the design and planning process for such endeavour. [17] To claim importance and relevance for the 'fact' of social construction, SSK needs scientific knowledge and technological knowledge to be distinct. However at the same time, to have a new problem, it is necessary that the approach constructs this differently from its predecessors. Science is therefore moved as far away from technology as is possible.

The texts that follow this tactic describe science and technology as completely different domains and set out to 'disprove' what are described as the 'textually created associations' between the different practices which have been created they argue to support a particular form of problem construction (Pinch 1988). Mulkay (1979:71) suggests that from "the empirical evidence relevant to this issue, we find very little indication of clear or close links between basic scientific research and the great mass of technical developments." He also states that "it is still doubtful whether the bulk of modern technology derives in any direct fashion from scientific knowledge." Making a similar point, Layton (1974:32) suggests that " in the name of a theory, technology is made subordinate to other types of social and intellectual activity and virtually denied a role of its own." This, he contends, leads to the absence of any recognition of the importance of the development of technological knowledge; a contribution which he suggests involves the human process of actively translating knowledge from one domain to another. Barnes and Edge (1982:150) make a similar point when they suggest that

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[17]Although it has been suggested that this would depend upon the interpretation of the concept 'social' by the parties involved.

"technology must be conceived of as an inventive activity, predominantly developing the scope and extending the significance of technological knowledge via its active, creative application." They also suggest that science and technology are completely distinct cultures: "Technologists apply technology. Hence the state of science sets no necessary constraints on the possibility of technology nor conversely, does a scientific advance automatically indicate a corresponding leap forward in technology" (Barnes and Edge 1982:149). The notion of distinct cultures is explored by many other authors (Mayr 1982; J de Solla Price 1982; Winner 1986). One such account of credibility within science relates success to particular aspects of culture. (Latour and Woolgar 1986) These authors explore the use of 'inscription': the process of converting activity into text. This is described as the process required to generate facts and hence produce the audience necessary within science for knowledge credibility. The study of credibility therefore becomes a study of how ideas become acceptable to internal, exclusive audiences.

Collapsing the distinction between science and technology

However, there are authors who suggest that problem definition which accepts the pre-given boundaries around disciplines and locality fail to understand how science-and-technology have established the powerful and credible position they currently hold in Western Culture. In contrast with the approach outlined above, where the central concern is with the credibility for bounded audiences, other authors have been concerned with the distribution of acceptance. Credibility is examined as distributed power and influence instead of localised 'fact' or artefact production, by the removal of the distinction between science and technology. This removal of the separation between science and technology can be found in the actor-network approach (Callon, Law and Rip 1986) and in the study of system building (Hughes 1987). The actor-network approach for this reason explicitly treats science and technology as undifferentiated. This is in recognition of the limitations on SSK which come from focussing exploration internally to science. As Latour (1983:142) states "the terms have changed, the belief in the scientificity of science has disappeared, but the same respect for the boundaries of scientific activity is still manifested." An alternative focus for investigation is proposed based upon the argument that the "power of science-technology comes from its ability to destabilize existing social and technical relationships by bringing new 'actors' to bear such as microbes and missiles." Empirical work in this area it is suggested needs therefore to turn its attention to this activity as suggested by Callon (1986:10): "the job of the analyst..is to study the creation of such categories and linkages and examine the way in which some are successfully imposed and others are not."

There are various aspects of the actor network approach which can usefully be

extracted at this stage. Firstly, technological development involves the establishment of a network of heterogeneous elements (Law 1988). Secondly, there is no privileging of social forces above technical; the social relationships are what is being examined; they are not the explanation (Latour 1987). Thirdly there is a focus on abstraction as the means of dealing with the complexity generated from the necessary networking involved in the production of technological systems (Law 1987). The texts which characterize this approach so far comprise case studies which concentrate upon the way audiences are created across boundaries for particular ways of conceiving of the world. The theoretical ideas within the actor-network approach will be discussed in more detail in chapter two which addresses the production of audiences.

Configuring the outside(r)[1][8]

The credibility question in the relationship between science and technology within the SSK literature becomes one of audiences. This is certainly not new, for as Mulkay suggests (1977:95) "the major characteristics of the social context of 'pure' research are as follows; participants are expected, indeed they are constrained to pursue research topics on the basis of their scientific significance. The audience for results consists of other researchers who are working on the same or related problems and who judge the adequacy of results by means of scientific criteria...the context of applied research is significantly different...they are required to use a different means of communication to reach a new audience; an audience which judges their work by different criteria of significance and adequacy." Indeed, if we refer back to the account of the precursors to SSK given earlier, it could be argued that this is merely reframing the Kuhn - Popper debate but putting the focus upon who consumes rather than who produces the knowledge. Both of these approaches to problem construction within SSK have asked the question "how is this activity convincing?" Both have in response described practices which generate audiences. One gives an account of the process of inscription for a core-set of members, exploiting the credibility that comes from generating an exclusive audience. The other gives an account of the mechanisms by which unconnected ideas become associated or 'conscripted' which extends the audiences for ideas and pursues credibility through inclusivity; the configuring of variable audiences. The similarity in both is that the distinction between science and technology can be seen to rest on the way audiences or users of the particular category as knowledge product and the knowledge products of the practices being analyzed are configured. (Woolgar 1991a, 1991b, 1992) This current state of SSK requires that this thesis address the configuring of audiences or

[18]Following Woolgar (1991a, 1991b, 1992) and his account of the process of configuring the user in the development of computer artefacts.

users as a central feature of its exploration for both of the knowledge cultures under consideration. Chapter two is an explicit account of the process of configuring a user within SSK and chapter five presents data from our members focused upon the processes of configuring users within their working practices. However, for the remainder of this section, the theme of reflexivity will be discussed to examine whether the same tensions are apparent in the texts exploring reflexivity.

Reflexivity

As the aim, following Woolgar and Ashmore (1988:4) is "simply to talk about reflexivity" rather than "to examine the extent we can profitably engage in it" (Woolgar and Ashmore 1988:4) this section aims to fail: As Ashmore (1989:110) argues: "It is not enough to take reflexivity as ones topic - which is why it is a failure [*it is not a matter of being correct*]". To write about reflexivity; to make it subject, is not to engage in it. This point is made by Lawson (1985:15), following Derrida (1978a) "if one could approach this central theme directly it would at once cease to be central and would no longer have the character of a theme." So as a text about boredom (Woolgar 1988) would aim to fail in boring its audience, this introduction aims to be as unreflexive as possible. An alternative way of accounting for this is to point out that my objectives at this stage of thesis production are best served by exploiting the form of expository writing[19] which I shall later problematize in the discussion of polyphony in ethnographic writing, given in chapter three, section two. However, at this stage, following Latour's advice (1988a:171) "In my efforts to forestall certain outcomes and encourage others, I too muster all available allies, all linguistic possibilities."

So to start we require some boundaries - a section entitled reflexivity could with legitimacy encompass the majority of recent thought in the human and social sciences, philosophy, arts and much of natural science. Mehan and Wood (1975:59) make this point when they suggest that there "could be infinite sayings about reflexivity and still reflexivity would not be captured. Reflexivity will exhaust us long before we exhaust it." Clearly therefore the first requirement is to limit the scope of this discussion. So as in all 'good' realist or expository writing rather than letting the story unfold, with the consequent uncertainties and possibilities acting as a resource for plot complexity, the denouement must be exposed at the outset. This will be done in two ways: by locating

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[19]This is connected with the contemporary concerns within literacy programmes to deal with the problems of taking students with literacy problems beyond understanding writing as a narrative activity to one where exposition is required (Faulk 1993). The recognition within this discipline is that until expository writing is understood by these students, education opportunities are inevitably closed. This gives some indication of the power inherent in what is called realist writing in SSK as a barrier or facilitator of credibility.

reflexivity within the wider issues covered by the gloss 'post-modernism' and by limiting our subject matter to those disciplines whose knowledge products can be described as meta-statements about the knowledge products of others.

Post-modernism has been described as the death of truth (Lawson and Appignanesi 1989). I would suggest in contrast to this that the 'essential' feature of post-modernism can be characterised as the death of essences. The exploitation of abstractions such as 'science' for example, while conferring power on particular ideas/facts (Latour and Woolgar 1986) and on science itself (Latour 1988a), lie. It is suggested that there is always more to be said and that these details in turn open more and more possibilities of meaning (Latour 1988a; Lawson and Appignanesi 1989; Lawson 1985). If this is accepted, it can be argued that post-modernism, is the antithesis of the death of knowledge or of meaning. Post-modernity opens rather than closes meanings. But how can you have knowledge or meaning without recourse to some definitive crystallisation or essence? It is this problem which animates interest in reflexivity.

The 'Problem' of reflexivity[20]

Texts on and in reflexivity take as their central theme a questioning of the definitiveness of accounts and accounting; it can be described as the study of what Quine (1987) refers to as the 'technology of text'. It has been argued that "reflexive questions have been given their special force in consequence of the recognition of the central role played by language, theory, sign and text. Our concepts are no longer regarded as transparent - either in reflecting the world or conveying ideas" (Lawson 1985:9). Therefore, for the purposes of this thesis, reflexivity is taken firstly to be any textual activity which destabilises the boundaries placed around written knowledge. Woolgar and Ashmore (1988) suggest that: "to date the recognition and exploration of the significance of reflexivity has been hindered because most previous discussions have portrayed reflexivity as a 'problem' for social science. With almost no systematic examination of the topic past discussions have simply assumed that reflexivity is a source of difficulties" (Woolgar and Ashmore 1988:2). Indeed, Lawson (1985) makes this very point when stating "these difficulties are often most evident in disciplines which

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[20]There have been various approaches to solving this problem, extensively discussed by Ashmore (1989). These can be categorized into three types of response. The response which denies or ignores the problem of reflexivity for SSK, the response which panics and gets stuck a reflexive loop and the response which sees reflexivity as a resource for further study. This thesis attempts to contribute to this last type of response.

are of a meta-order nature. Thus the sociology of knowledge and theories of science are immediately faced with this problem for they are attempts to provide a theory about how theories are possible" (Lawson 1985: 20). Ashmore (1989) suggests that just as SSK deconstructs science and reconstitutes the world, so reflexive questions deconstruct SSK and reconstruct science. Reflexivity is therefore particularly compelling as a central question for those who comprise the SSK 'core-set' as it opens SSK to accusations of 'Tu Quoque' Ashmore (1989). The concern is how is one to take the claim of the philosopher that all claims are open to interpretation (Lawson 1985).

Two different orientations to 'solving' this problem are discussed; reflexivity as questioning 'explanation' and reflexivity as the process of 'wrighting' (Ashmore 1989). The roots are suggested to be two sources as discussed by Lawson (1985); the concern with presence (Heidegger 1971) which constitutes the solution as considering the author/producer in text and the concern with absence (Derrida 1978a) which constitutes the solution as 'configuring' the reader/consumer in text.

Presence: Reflexivity as Practice

Reflexivity is embraced as a resource for further study within texts which make problematic the existence of legitimised practices for generating adequate accounts of the world. Woolgar (1988b) suggests that reflexivity involves making explicit the essential similarity between the methods used by a researcher for making sense of a situation and those used by his subjects, and suggests that all knowledge practices are concerned with the production of adequate representations of some component of the world. The adequacy of representation he suggests rests upon establishing a balance between sameness and difference and states that "method, is a knowledge community's sanctioned procedure for accomplishing adequate connections between representation and object; a guide...for generating an image which is faithful to the represented reality" (Woolgar 1988a:20). Within this same account he argues that reflexivity involves making explicit the way such connections are established and at the same time establishes reflexivity as practice by describing it as "the ethnographer of the text" (Woolgar 1988a:14). Hence reflexivity, in this orientation describes a 'methodology' for 'wrighting' (Ashmore 1989); specifically accounting for the production of representation within texts generating representations. As Woolgar and Ashmore (1988:2) suggest: "by exploring new forms of textual expression and analysis ....some fruitful lines of exploration...are opened up by a fresh attitude to reflexivity." The construction of sections two and three within this introductory chapter represents the first manifestation of the concern within the main body of this thesis to address such questions.

Absence: Reflexivity as a question of explanation

Latour (1988a), when discussing this suggests that the problem lies in "the belief in the existence of a framework inside which events are inserted in order to be explained which is the hallmark of non-reflexive social sciences" (Latour 1988a:174). Instead he suggests that the idea of 'social factors' behind the production and acceptance of knowledge, instead of operating as an explanation are another manifestation of the very activity reflexive work should seek to explore. As he suggests "social factors are still there, but they are one of the things to be studied, not elements which allow us to understand. 'Social factors' are the particular product of professional social scientists striving to establish new types of calculations in their institutions...In other words social sciences are part of the problem, not the solution" (Latour 1988a:161).

Latour (1988a) therefore argues that the problem of reflexivity is one of deconstructing explanation; most specifically the power of explanation to reduce a large number of disparate elements needing explanation into a single explanatory element. He suggests that this enables what he describes as 'action at a distance' (Latour 1988a:159). He suggests that credible reflexive practice needs to weaken the boundaries around disciplines by displaying not only the explanation, but also the work of achieving an explanation. He suggests that this is only possible if the "display is not restricted to one location...the criterion of our reflexivity is to have our work distributed among the networks. This may be achieved by co-authorship with scientists but also by blurring the distinction between the study of science and the production of other sciences". (Latour 1988a:175) It is the blurring of such distinctions that this thesis takes as one of its themes. The incorporation of the material in sections two and three of this chapter are illustrative of such attempts to 'blur distinctions'.

Working with these solutions

Considering reflexivity as a problem of practice or as a problem of explanation involves questioning the authority of accounting.[21] Given that the boundary problem produced by a concern with reflexivity is the separation between inside and outside (see earlier discussion of boundaries at the beginning of this section) it is scarcely surprising that there are two ways in which the problem of authority has been addressed; the first concentrates upon the authority of the writer and the second upon the authority of the reader. Woolgar (1988a) for example, tends to concentrate upon the way author or producer can be taken into the 'frame' of any particular text. This is implicit in his

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[21] The issue of the authority of accounting is discussed in more detail in chapter three, section two, which gives an account of the current concerns with the nature of writing within ethnography. The question of authority also links to concerns raised about credibility earlier in this section.

account of reflexivity as the 'ethnography of the text'. He suggests that reflexivity can range from what he terms benign introspection to radical constitutive reflexivity (Woolgar 1988a:21). Radical constitutive reflexivity, which is that most relevant for this thesis, implies an approach to writing which seeks to reinstate the author as something more than "the essentially uninteresting character of the agency involved in the report's generation" (Woolgar 1988a:28). This endeavour to engage in radical constitutive reflexivity has encouraged writing in ways which destabilize the conventional forms of authority exploited in academic writing (this is discussed in chapter three in the specific context of ethnographic accounting). One such form, exploited at various stages in this thesis is the construction of dialogue. Woolgar and Ashmore (1988) argue that the interruption experienced by the reader, which tactics such as writing in dialogue invoke, makes explicit that re-presentational nature of an account:

> " 'I suppose you are going to suggest the use of a dialogue?'
> 'Well, it does have the advantage of demonstrating (rather than just pointing
> out) the multivocal character of the text. The explicit presence of more than
> one voice reminds the reader (and the writer) that interpretation goes on all the
> time, that the idea of one reading - a singular correspondence between text and
> meaning - is illusory' " (Woolgar and Ashmore 1988:4).

The argument is that the explicated relationships between text and author and between text and reader which exploiting 'new literary forms' (Woolgar 1988c) generates, makes the representations less 'authoritative' because the 'reality' to which the text refers has been problematized. However, this conclusion can be questioned for "the point of dialogue can be chaos or order" (Marantao 1991:244). In the illustrative quote given above it is possible to argue that rather than destabilising the connection between representation and reality, it merely replaces one referent (the topic in the account) with another (the activity of writing the account). The explicit interruption which introducing the 'author' into text creates, allows the 'reality' to which the 'document' refers to change. This change means that among those being represented (or explained) in the account are those involved in doing the 'representing' or 'explaining'. In doing this, such a tactic appears to take the author 'inside' the world of the 'subject' and hence maintains the boundary around inquiry as suggested earlier in this section.22

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22 This argument can be compared with Latour's (1983) account of the strength of Pasteur coming from his capacity to take the field inside inquiry and introduce new actors. In the case of Pasteur, Latour suggests these new actors are microbes. In the case of reflexivity, it could be argued that the new actors are authors.

In the example given above, I am suggesting that the account exploits the authority of a correspondence between the text and a real discussion between two people. The focus of interpretation is diverted from the adequacy of the 'reality' of the argument to the adequacy of the representation of the 'reality' of its production.

But, hold on, here's an 'interruption', my supervisor disagrees, his notes on the first draft of this account state that his reading is of a "'stylised' (Socratic) dialogue" (Woolgar 1994). Instead, he wants me to read the referent in this example given above as an "artificial 'reality' whose point is to destabilise the idea of 'reality' rather than to offer a preferred 'reality'" (Woolgar 1994).

In this interruption, we have further evidence of the problematic role of readers in the credibility of texts; an example of the desire to have a text "read in a very specific way" (Woolgar and Ashmore 1988:11). His interruption indicates that he has not understood *my* meaning; I wasn't suggesting that the quotation given above, lifted from his text (Woolgar and Ashmore 1988) was implying a *preferred* reality. Instead, I was suggesting that he cannot avoid his text referring to something. When I read dialogue I invoke two people in a room speaking - I can't help it. The following quotation gives an indication that this problem of text needing to refer to something has been recognised; "My third problem with the idea of dialogue is the tendency to *hear* (my italics) it as a debate between two positions; one voice has one set of views and the other voice another...far from introducing instability in the text this notion of dialogue implies a debate between two identifiable and consistent positions." (Woolgar and Ashmore 1988:5) However, the use of the word 'hear', despite the contention reported earlier in this chapter that the 'proper reading' should be of a stylised dialogue, can be argued to exploit an external 'reality' of text production. Surely I *read* this statement, not *hear* it.

Implicit in this account is the idea that the 'technology of text' (Quine 1987) can be developed to ensure that the consumption of its products can be more controlled. This aspiration is also apparent in the work of Ashmore (1989) who, when deconstructing Woolgar's account of the 'Problem' constructs two accounts which he states are "texts which ideally should be read simultaneously" (Ashmore 1989:170). This statement constructs the problem as the reader failing to 'read adequately' from the outset (as I certainly cannot read in parallel) and so retains the authority with the writer. To require 'simultaneous readings' is to require the reader to operate in an impossible way. This requirement for 'adequate reading' is problematized by Woolgar (1988a) when he suggests that methods for writing are unlikely to be the way forward: "a next task is to seek forms of narrative organization which convey more than an impression of self-conscious cleverness. But it also raises the thorny question of what counts as an adequate demonstration of constitutive reflexivity. The idea that this might come about

as a result of some specific combination of techniques drawn from a set of standardized 'reflexive devices' is unlikely to prove satisfactory because it pays little attention to the concept of the reader" (Woolgar 1988a:32). Other attempts to work with reflexivity also reject the central role of the author in solving reflexive difficulties and look to the reader. In referring to the attempts made so far at alternative forms of textual organization as a solution to reflexive questions, Latour (1988a:166-7) suggests: "The deconstructionists try to write texts in such a way that they neither refer to anything nor give the impression of presenting or representing anything. Ethnomethodologists aim at just the opposite, they write texts that although by necessity distant from the setting they describe aim to give the impression of being still present out there in the lived world of their subjects...The dire result of such a tack is visible in the prose of Derrida and Garfinkel. If the prose were unreadable, not much harm would be done. But there is something much worse in it; worse from their own reflexive point of view. Deconstructionists and ethnomethodologists consider that enough methodological precautions are taken, then better texts can be written." His response to this 'problem' of reflexivity however is also to suggest methodological prescriptions for better writing when he suggests that the criteria for successful reflexive accounts would be that "we could write texts which would at once be craftily written, scrupulously true, which would not make readers believe that what was reported was exact and which would still be interesting" (Latour 1988a:166) His solution is that the inherent equality of all texts be recognised and all accounts accepted as 'just another story' and in so doing invokes the authority of the reader.

Concentrating either upon the author or the reader as the significant 'entity' whose properties need to be understood can be seen as a limited approach to exploiting the potential which reflexivity opens. This is recognised in the accounts explored above as although they approach reflexive problems by focussing upon either the author/writer or the reader, they come to similar conclusions. They suggest that the implication of asking reflexive questions is that the proper subject of investigation is to be found in the 'community' or 'communities' within which the account is distributed. Latour (1988a) argues that the success of such reflexive accounting needs to be assessed in the extent of the distribution of the 'story' throughout 'the networks'. The concept which he introduces to characterize this aspiration is that of 'hybridisation'; the production of equally partnered solutions formed through the juxtaposition of explanatory frameworks. Similarly, Woolgar suggests: "It follows that our ethnography of the text must develop an understanding of text as just one element in a reader-text community. Otherwise there is little hope that readers will recognize the more subtle feature of textual organisation" (Woolgar 1988a:32). Woolgar (1988a) hence appears to be widening the

bounds around the proper focus of study opened by a close attention to reflexivity from an approach which maintains and investigates the insider-outsider boundary to an approach which investigates the distribution of 'readings' in 'communities'. Hence both suggest that distribution is central. Woolgar (1988a) constructs this as the study of readings in communities whereas Latour (1988a) constructs this as the study of connections and hybrids in explanations.

Conclusions for Section One

As the focus of study within SSK, consequent upon playing with reflexive questions, has extended to include <u>distribution (hybridisation/community)</u> as well as <u>representation</u>, the 'development' which this thesis seeks to contribute is the possibility of exploring the relationship between representation, alternatively described as boundary maintenance, and distribution, alternatively characterised as boundary breaching. This involves examining the boundedness of 'knowledge products' and the impact of this boundedness upon their distribution. This problem is explored in the ethnographic account of knowledge products and their distribution in the consultancy work. However, as has been stated earlier, this thesis also wishes to examine the same phenomena for academic work. This desire to subject academic work to investigation will be tackled by exploring the issues around boundedness and distribution inherent in the specific aspect of knowledge work which each chapter exemplifies. Section one of this chapter has aimed to produce an entity, in this case a credible problem within an existing academic field. In the remainder of this chapter the boundaries used in section one to constitute this entity in section one will be examined. This examination involves breaching the deployed boundaries by using 'data' in this introductory chapter as 'matter out of place' (Douglas 1966).

The following two sections of this introductory chapter investigate representation and distribution within problem construction, by presenting an alternative form of problem construction within an alternative explanatory framework used as consultancy for our field based ethnographic study reported in chapters four to six. Our first requirement is to develop a rationale within this introductory chapter for the legitimacy of such a tactic, which will be presented in section two. To achieve this, a different form of presenting argument to that used in section one will be deployed; the dialogue. The rationale for this is, as discussed above, the capacity of dialogue for introducing multivocality into the account and representing multi-vocality in action. Section three, will in turn, present a problem from the perspective of our 'members' which could potentially be viewed as equivalent to that outlined in section one of this chapter.

Section 2 - Dialogue rationalising the legitimacy of introducing alternative problem construction [23]

The objective of this thesis could therefore be characterised as an exploration in the production of 'hybrids'. This neat metaphor, lifted no doubt from the biological sciences so many of the SSK forebears have exploited for data (Dean 1979, Gilbert and Mulkay 1984, Latour and Woolgar 1986) is used to produce the question: "Is it possible to do for social science artefacts what has been done for geraniums? Can we breed for vigour, resistance, colour and diversity?"

Academic: Do you have to be so florid and allusive (Southgate 1992), our readers will be wanting to know what purpose the study serves; what is our rationale? Instead you start talking about geraniums. Hybridisation is merely one metaphorical suggestion for the goal of reflexivity which, if you recall, I have incorporated under the general heading 'distribution'. This is an important point, as hybridisation involves the production of new artefact, whereas this thesis is concerned with the tensions between the continued existence of an artefact and the need for 'hybridisation' in credibility. The concept of distribution does not necessarily entail the alteration in artefacts and hence is a more appropriate concept.

Steve: (aside:Woolgar 1994) What is the source of your account of the goals of hybridisation?

Josephine: (aside: fieldnotes) It's based upon a visit of mine to a geranium seed producer.

Narrator: Shut up you two, our readers will be thinking we are reporting a 'real' discussion rather than an idealised Socratic dialogue. I'm sorry. I got carried away. I could argue that the use of such metaphors opens a degree of accessibility to those outside out field.

Academic: Hold on, my concern is not just with the consequences for meaning of the florid nature of your account, you also need to explain our 'existence', to demonstrate what we represent and how we are being used, before launching into the aspirations of this section. Then you need to remind us of the discussion in section one about Woolgar and Ashmore's (1988) disquiet about the tendency for dialogue between named participants to imply fixed positions in contrast to each other, rather than the fluidity of position which reflexive writing claims as it's aspiration. From this you then need to explain the way these different participants are used to represent different relationships between word and world (Mulkay 1984, 1985) embodied in different

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[23]In the construction of this dialogue, embodied voices and disembodied roles are used deliberately to enhance the possibility of producing an account which is both multi-vocal and stylised.

forms of text. For example you could be taken as a representative of the allusive, metaphorical poetic approach to representation of the world in text. However, I could be described as perhaps representing the scientific scholarly rejection of the explicit recognition of textual nature of explanations. Kindly explain what purpose your presence serves without disappearing in florid and unscholarly trains of association or I will have to silence you throughout this thesis (Pinch and Pinch 1988).

Narrator: You can't do that. If you do this chapter will fail. My purpose is to do what you complain is the problem with my text; namely to disappear in florid and completely unscholarly trains of association which make explicit the difficulties in controlling meaning in accounting that you mentioned before. It is my florid quality and your rejection of this quality which illuminates the boundary which your earlier writing in section one exploits in its struggle for credibility. Section one has exemplified (Latour 1988a) the controlled quality of writing which, I would argue, is the primary technology for 'academic' problem construction. To demonstrate the boundary around what counts as credible writing we need to introduce an alternative 'technology of text' (Quine 1987). If we do what many other academic texts do and pretend text is controllable or that it is only uncontrolled in poorly constructed and unscientific text we maintain and exploit this boundary. In a thesis on any other subject, this could be considered acceptable, but given the subject we have chosen, such a tactic would fail to exploit the resources we have to explore our chosen problem within our own writing. In any case, you have had most of this chapter to get your point across and get this thesis off to a convincing and scholarly start - although of course the binding and introductory pages have probably gone some way to meet these objectives - so where do you get off with this need for control, for definitiveness, for certainty. My job is to introduce a little messiness (Low 1992) into the process. You want to convince our readers it is the world you describe - I would like to let our readers know that collectively we are not so naive.

Academic: What do you mean this section would fail?

Narrator: You have concluded that the route 'forward' for us to produce a doctoral thesis concerned with the problem of the credibility of knowledge products is to examine the boundedness of knowledge products and their distribution. One metaphor for such an endeavour is exploring the possibility of producing hybrids, as in so doing taken for granted boundaries are brought into question.

Academic: Those are your words, not mine.

Narrator: Nonsense, I was just making explicit what you were getting at. If you just describe other knowledge practices within this thesis and restrict your examination to how other practices go about the business of bounding and distributing - then you have sub-ordinated other knowledge workers practices to your own, rather than

exploited your own activity as data. While an ethnographic case outlining the balance of boundedness and distribution in consultancy is interesting, relevant and new within the sociology of knowledge and technology, it is only a very limited way of addressing the subject you have set yourself. If you retain this explanatory privilege (the outsider position) then the boundaries around sociology of knowledge and technology will be strengthened by this process. I understood, that in deciding to use this thesis as data for its' own question, you wished to undertake something a little more risky. It is for this reason that I have focussed upon the issue of hybridisation as it allows us to conceive of the sociology of knowledge as one of the parents making an equal contribution to our endeavour, not controlling the whole activity. There are many problems associated with the aspiration to produce hybrids of this kind. We need to start with separated parents; they need to be mutually disassociated - with no interests in common. However, the only tool we have to achieve this is text. Using such 'technology' which is inherently serial, how do we present these two 'parents' in parallel? Where do we stand to describe what each parent is and what each brings? Who will be fit to judge whether the hybrid is a real offspring or just a clone of one parent? If the production of a hybrid is something that can be entirely contained within one of the frameworks used in this exploration, then what we produce is a clone; it is not good breeding. I would therefore suggest that a subsidiary purpose of this thesis is to begin testing the possibility of textual hybridisation.

Academic: You keep forgetting we have a specific audience (see chapter two). This is a thesis, I am going to do an ethnographic exploration of boundedness and distribution. I need to allow the members of SSK, those you are suggesting comprise one of the parents, to express what is problematic and meaningful for them. The risk in introducing different groups of members as 'parents' is that this thesis will not achieve credibility with any potential audience.

Narrator: Indeed, that is the danger inherent in the work you have undertaken. In making boundaries your problem you are involved in testing the technology of text to its current limits. The work you have introduced so far requires, as Haraway (1991:150) has commented a "pleasure in the confusion of boundaries and responsibility in their construction". May I suggest that you begin to take such responsibility (Haraway 1991) by using your members words to generate an alternative account of the problem that this thesis seeks to address. As Hamlin (1992:534) suggests: "story-telling, after all, is a technology." By placing two alternative ways that this 'technology of text' can be used in problem construction alongside each other, you can begin to illustrate the boundaries that you are creating between 'inside' and 'outside' in this thesis. It will also provide a focus for illustrating the way boundaries around a problem are produced

within SSK.

Academic: An interesting suggestion: to place `data` in the introductory chapter. That certainly confuses (Haraway 1991) the expected boundaries in thesis construction and so could be argued to bring their existence into focus. As well as demonstrating the alternative ways text can be used to construct problems, this suggestion also allows us to demonstrate how the ethnographic orientation towards the culture studied shaped the research question and how some of the practical concerns of our `members` were configured into the final shape of the research focus. Maybe we could explore the construction of a concern with credibility for an a second `parent` by interviewing our key informant, Josephine, about one of her concerns arising from her consultant practice.

Section 3 - Josephine's story or 'Why was my consultancy work not suitable as thesis material?'[24]

Joanna: Why has a working party[25] for raising the profile of Stratified Systems Theory (SST-2) been set up?

Josephine: To answer that question it is probably best to give you a particular experience of mine. I was employed as a consultant on a large construction site three years ago which was attempting to change the way construction was procured and managed. My help was sought to find out and report on what was working and what was not. This site was being developed at the same time as a debate within the construction industry about the relationship between performance and procurement.[26]

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[24] This story is based upon material from the retrospective participant observation for this study. Material has been drawn from two interviews with practitioners, information obtained from participant observation on construction sites over a period of six months, from the client reports and published material (Dodd 1994, Dodd and Langford 1990) based upon the work which was the focus of participant observation. The sources of data for the participant observation exploited within this study are outlined in detail in chapter three. The details of the ethnographic work are given in chapters four, five and six. This account is constructed between a character Joanna who represents the candidate for this thesis and Josephine who represents the `key informant` in the ethnography. Please see chapter six, section two for an alternative characterization of these two `people`.

[25] Towards the end of the second stage of participant observation (see chapter three, section one) a group of people met on three occasions to discuss the lack of impact of Stratified Systems Theory (SST-2) and to discuss how this problem could be addressed.

[26] Since the work of Higgin and Jessop (1965) which described the existence of a similar informal system of communication across medium size construction sites which was operated by members of the site team to make the formal system work, the industry has been concerned increasingly projects. This work has been developed to look at large complex organisations (Pretonus and Taylor

This site was procured using a form of contract known as 'construction management'. The development of this approach is discussed in Dodd and Langford (1990), Gray and Bennett (1987) Bennett, Dodd, Gray and Eustace (1989). 'Construction management' represents a significant change in the relationships between participants when compared with the standard Joint Council Tribunal (JCT) form of contract. The joint tribunal contract (JCT) is discussed by Fellows (1981). In normal practice, a client requiring a building will appoint an architect, both to design the project and to alleviate the client of the responsibility of deciding who to appoint to complete the construction. The architect will also oversee the quality of the construction work. When a main contractor has been appointed, this firm of contractors is responsible for hiring subcontractors as they see fit. The architect has full responsibility for the design and the main contractor has full responsibility for the work on site.

Figure 1.1 JCT form of organisation
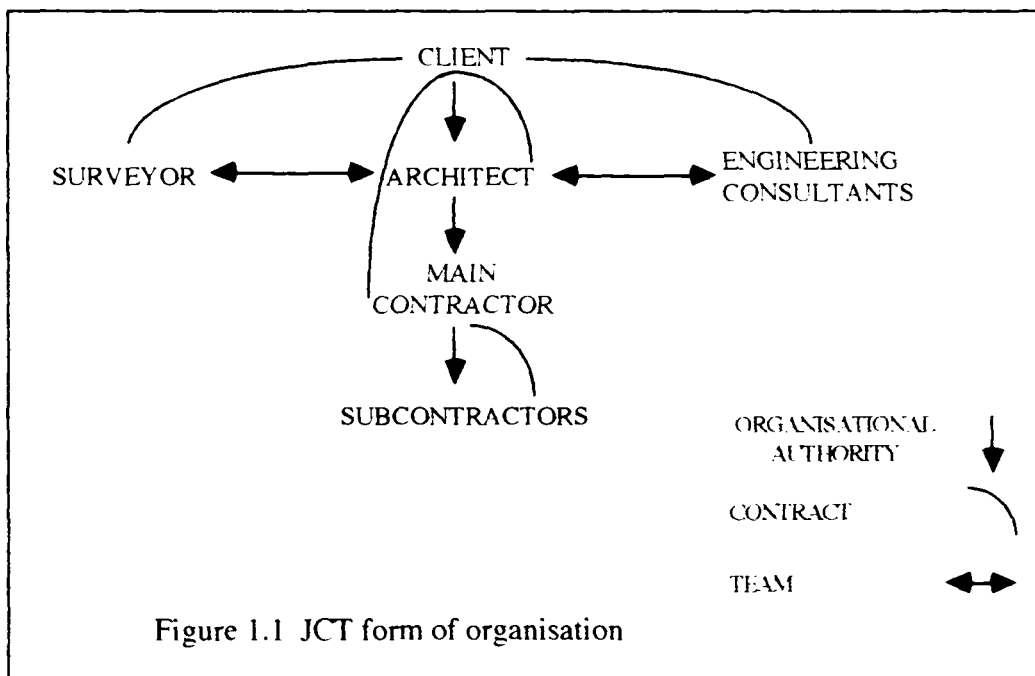
1986) the role of the client (Cherns and Bryant 1984) the role of specialist contractors (Gray and Flanagan 1989) and the factors inhibiting change (Dodd and Langford 1990).

29

Figure 1.1 shows the way I illustrate the arrangement when I am teaching organisational design to construction management students. This form of contract frequently leads to problems on site due to a lack of clarity about accountability. As the architect is both a contributor to the project and the client's representative, responsibilities can become muddled. If there is a problem on site with the work, there is frequently disagreement between the main contractor and the architect, with the latter suggesting that the problem is bad workmanship and the former lack of drawing information. There is no one to arbitrate effectively in this situation because the architect is the client's representative so has power of veto, as well as being embroiled in the conflict. The construction site which employed me, as I mentioned earlier, used a different legal arrangement. which. in my opinion led to a different set of relationships between participants. (Although many of the people I interviewed were unaware of the changes and operated the JCT set of relationships). The main factor that differed was that all contributors were in direct contract with the client (Dodd and Langford 1990). This removed the role of main contractor. Many of the functions previously performed by the main contractor were located in a new construction management (CM) role. The responsibility of the CM role was *not* for any specific part of the actual construction work. Instead it existed to ensure that the contributions from all the trade contractors (TCs) and the designers are properly coordinated. Another key consequence of the shift to direct contracts between client and participants was that the architect had a similar relationship with the client as any other contributor, being responsible for their area of expertise, rather than acting as representative for the client. The client maintained a continuous presence on site, making the decisions about which contractors to appoint, when to pay and helping solving problems.

fig 1.2 Construction management form of organisaton
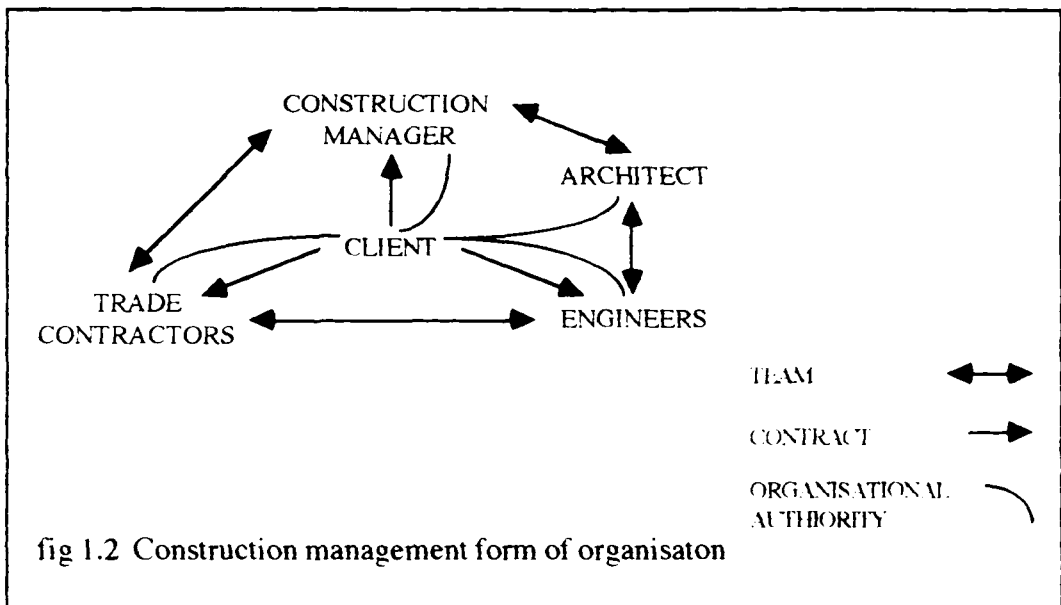
When the opportunity to work on this site was offered me I had a degree in social science, nine months experience of listening to architects and builders talk about the things that had gone wrong on construction sites and a good brain - a fairly poor armoury as I was to discover in a world of engineers used to reshaping their physical environment on a daily basis.

Joanna: But how has this contributed to the development of the working party we mentioned at the beginning of this discussion?

Josephine: Be patient, you need to understand my experience on this site to get a sensible answer. The purpose of my work on this site was to examine what factors were inhibiting the intended changes and how the construction project organisation could be improved. I was immersed in this site for two months, wandering where I pleased and speaking to anyone and everyone - loving the mess, the muddle, the noise and the dirt and the fact that week by week the site changed. Out of the messy, muddy, formless ground there rapidly emerged a huge steel structure - a great improbable reddy-grey skeleton, which appeared to my untrained eye to have little form and surprisingly little function. But slowly, as floors were poured and stairs emerged the sense of being overwhelmed by this chaos subsided and I confidently began to walk around to visit site

offices hidden away in the middle of nowhere.

The more I explored and understood, the more in awe of what engineering could do - and the more envious. Out of that muddy, cold, formless pit there quickly emerged steel, then cladded steel, then walls and lifts and stairs - a whole new world took shape out of the minds of this seemingly unremarkable group of construction engineers. I quite literally fell in love with this industry that so unashamedly shaped its environment. I had read this all this stuff about alienation, oppression and domination at work in the course of my undergraduate study but it seemed entirely irrelevant; these people were having fun. The more I watched, the more I began to question what I could do with my knowledge.

However, merely wandering around listening to people talk about their work and its problems seemed to be valued and the written summaries of my discussions were appreciated by many of those I am working with - to the extent that I am still contacted regularly by many of my colleagues of that time who have something to discuss about their work which they do not quite understand.

Joanna: So you felt your presence was useful?

Josephine: Yes, increasingly, it appeared to me that the order these engineers could render in their physical environment was not matched by the degree of order they could generate in the social organisation. I felt I was beginning to define a contribution for myself. The work of consultants with social science backgrounds, I decided, was to help people make sense of the situations they find themselves in, so that the clarity with which one piece of marble cladding fits to another, is matched by the clarity with which two roles or tasks are linked. The more I focused upon this, the more the organisation of people within this new form of contract felt like the muddy formless pit I had seen on site when I first arrived. This 'organisation' certainly did not resemble the gleaming quality of the completed office block. The very activity which I had identified as necessary for myself; making sense of where I fitted in, was precisely what I could contribute more generally. My consultancy practice I decided, needed to involve working with and shaping the understanding individuals had of their work and working relationships in a way that could make sense to the engineers I was working with.

Central to my establishment of this role was the explanatory framework (SST-2) developed by Jaques (1986,1991) which was helpful for two reasons. Firstly, the model, (SST-2) had an explicit focus on hierarchy, with clear descriptions of levels of work which allowed me to rapidly analyze what I had been observing on site. The framework allowed me to explore the workings of this site while removed from it; in the office on the tube, in the bath. Secondly, the methodology used, social analysis, focuses upon the way that people make sense of their working environment.

Steve: (Woolgar 1994) But surely other theories would allow you the same capacity to 'act at a distance' (Latour 1988a)?

Josephine: You are right, it was not the only option and in selecting SST-2 as the approach to use in this context, I was also rejecting much of the other work on organisations. For example, I could maybe have taken some of the work from Mintzberg (1979, 1983) on bureaucracy and adhocracy as a framework, or some of the work from Lawrence and Lorsch (1967) or Galbraith (1973) on integration and differentiation, or some of the work on negotiation following the work of Silverman (1970) but although informative, they did not allow me to 'carry the site in my head' to the same extent.

Joanna: Steve, I would suggest that your need to subject Josephine's account to this type of questioning is entirely the point of this section. As I have stated, the purpose of introducing 'data' into the introductory chapter of this thesis is, by breaching the conventions, to demonstrate how boundedness (in this case around a conventional form of textual problem construction) contributes to credibility. Josephine is describing the construction of a problem to us without having to account for her theoretical decisions. For the purposes of this exercise, she is a 'member' and allowed the freedom of 'everyday practical sense' (Garfinkel 1984) as justification enough for her account. However, I have made some concession to these conventions in a footnote. [27]

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[27]Clearly to fully legitimate this decision within such a context, Josephine would have to present reasons, aimed at the SSK readers of this thesis, for her choice of theoretical model. This would need to be based upon internal characteristics of the various options as judged academically. Working as a consultant, the question she asked of the literature was 'would this make sense to the engineers I was working with/ could I marshal their interest and enhance my credibility and the credibility of social science by presenting this view?' In a sense this is the crux of the problem presented in this chapter, as all through the work at these early stages, the decisions made were concerned with the applicability of the theoretical principles she had at her disposal, rather than based upon the academic credibility of the principles; naively supposing that if they worked in one domain the would be acceptable in another. The reason for this thesis being in this final form is because there emerged a divergence between the credibility of SST-2 within 'social science' and its credibility to 'clients'.

As stated in the main text, Josephine's approach was to work with the understandings of people on site; to take an interpretivist approach. This is by no means revolutionary, having its antecedents when looking at bureaucracy with Weber (1947) and more recently being advocated by Argyris and Schon (1978) Weick (1979) Lawler et al (1985) Morgan (1986) Mangham (1987) Reason and Rowan (1981) Hassard and Pym (1990) to name a few.

However, the approaches which favoured such a focus of data generation tended to view the hierarchical nature of organisations in a fashion not resonant with her experience of working on this site. She wished to understand how hierarchy worked as relationships between people, which allowed you to improve its working. However, within the available literature other than Jaques (1986a, 1989) work, hierarchy is viewed in one of three ways.

It is seen as a causal factor in other areas of scientific investigation. For example, Weber (1947) deals with hierarchy as part of a concern with the development of society and the consequences for that society

Josephine: To describe in more detail the problem I am currently facing, it is useful to provide a short outline of a few of the key ideas in SST-2[28]. SST-2 suggests that employment organisations are stratified into qualitatively different levels of work, and that the nature of these different levels is the same from organisation to organisation, regardless of the specific work any particular organisation is involved in. It suggests that as one moves up through an organisation, the tasks get inherently more complex, involving a greater number of variables to be manipulated with potentially many more connections to be made. In addition the uncertainty about the appropriateness or otherwise of these decisions has to be tolerated over longer periods of time. This 'time-span of discretion' (Jaques 1956, 1965, 1991) in work as the major factor which contributes to the experienced 'weight' of the responsibility. Abstraction (Jaques et al 1978) allows the individuals involved in these more complex tasks a way of rendering this complexity manageable by reducing the number of separate variables they are having to manipulate at any one time.

This model further suggests that this stratification is based upon systematic observable differences in individual ability (MacDonald 1978, Stamp 1978, 1988) to handle uncertainty and abstraction. It is a developmental model in that the capacity of individuals to tolerate greater uncertainty and abstraction is argued to be a function of

and for the individuals within it of the increase in 'rationality' or bureaucratic control. Alternatively, hierarchies are taken as a topic of investigation but the approach is critical: hierarchy is seen as fundamentally damaging to individuals. In doing so, the existence of entities such as hierarchies is accepted, but the concern is not to explore these but to criticize their production. An example of this is given in the account by Morgan (1986) who when talking of hierarchy as a mechanical metaphor uses connotations of oppression which resound through much of the sociological literature on organisations. He states "mechanistic approaches to organisation have proved incredibly popular...because of their ability to reinforce and sustain particular patterns of power and control. The machine metaphor has special appeal for individuals and groups who wish to exercise a close control over people and their activities" (Morgan 1986:38).

Finally, texts less hostile to hierarchy view this capacity to exert control as one of the benefits of this type of organisation, without analyzing the form of these organisations, but assuming that all hierarchies are equivalent. One example can be seen in the work of Galbraith (1973) who explores coordination devices, taking the existence of hierarchy for granted. Hierarchy in this context is assumed but not explored.

These orientations, she suggests, are in marked contrast to the work of Jaques (1986a, 1989) who accepts hierarchy as the predominant experience of employment organisation, as being worthy of study in its own right, and is concerned with improving its functioning. As Evans (1979) states "Jaques argues that we ought to accept and study the employment hierarchy as an institution in its own right, seeking to understand the authority and accountability relationships for their own sake; instead of as we tend to do, treating all these things as pre-democratic anachronisms shortly to be replaced by new existential modes of interpersonal relationships" (Evans 1989:29).

[28]These ideas are outlined in a different form in the dialogue used in chapter six to represent the boundary between SST-1 (observer) and SST-2 (participant).

34

age. However, this model also suggests that not all individuals develop at the same rate or to the same extent in their capacity to tolerate uncertainty. It is argued that one of the central problems with this theory, in terms of its general acceptability is that it states explicitly that some people are inherently more gifted in the area of executive decision making because of their capacity to tolerate uncertainty than are others.

The argument is that work involves the exercise of discretion within prescribed limits. Jaques (1965, 1986a, 1991) argues that for someone to be able to work, they need to have sufficient, but not too much uncertainty to deal with. If the amount of uncertainty is too great or too small the discretionary aspect of working is interfered with. This proposed difference between people in their ability to handle uncertainty is argued to be the reason that organisations are structured into different levels. It is suggested that it is the work of those at the more abstract levels to manage and contain the amount of uncertainty experienced by those working in less abstract ways. Hence these differences between levels ensure that any individual has the appropriate boundaries around their discretionary activity.

Joanna: Can I just interrupt at this stage Josephine to assure our readers that the historical development of these propositions is investigated in chapter six and their construction as facts is problematized as part of our ethnographic exploration of the struggles for credibility. I realize that the last few paragraphs will have tested the reader's tolerance of the deviation in this chapter but it is with purpose. In this account we have represented a narrative account of how an issue has become problematic. I would suggest that the inevitable frustration with the account given so far in this section is that it provide no textual anchorage for our readers. Reader, if you are experiencing this frustration, please accept it as evidence of my claim, if not, then clearly you have understood my point. Sorry, Josephine, for that interruption, please continue.

Josephine: My client on this construction site asked me to investigate what they considered to be one of the key interface points on the site; the zone interface. The construction work on this project was broken down into different phases of construction (each phase being a single office block) Each phase was in turn broken down into different zones. A zone refers to a technologically based division within a single office block such as the structure, envelope or services. During the first phases of the building, the trade contractors (TCs) experience of the input from the CM firm had been that it was unpredictable. Some TCs had responded to this situation by taking responsibility for site management, which was the desired outcome. However, others had complained about a lack of management, which had resulted in aspects of the construction not being completed adequately (Dodd and Langford 1990). The CM firm had therefore decided to develop a new role to prevent similar problems on later phases;

the zone coordinator (ZC).

However there was some uncertainty within the CM firm about the precise function of this role. Each of these ZCs was liaising with people from up to twenty TC firms, as well as architects and engineers. In some situations the arrangement appeared to work whereas in others it did not. I was asked to investigate this, with particular emphasis on the meetings held to offer some insight as to the possible causes of good and poor performance. The rationale for the focus on meetings was that the client for the construction work was committed to this form of interaction as the main technique of communication.

Some ZCs appeared to be more effective than others and even some of the most successful ZCs did not seem to have an impact upon the performance of all of the TCs working with them. I was hence assigned to shadow one ZC chosen by the CM firm (my client) on two main criteria; he was considered to be one of the most effective currently employed and in the course of my investigation would be involved with a with range of TCs from a variety of zones. For two weeks I followed this person around for a large proportion of the working week and in the course of this time attended seven scheduled meetings of importance to my work. Out of this certain key features emerged which tended to point towards a possible principle for the CM firm to describe the function of the ZC role and how the TC firms needed to structure their contribution to interact with the person holding this position.

The expectations of the TC personnel when meeting with the ZC fell into two broad categories; those who came to the meeting with an agenda of their own, with supporting material and clear objectives and those that came to the meeting because it had been called by the CM firm. The latter tended to assume that they were being called into account for their actions:

> ZC: What are the critical problems for the plumbing?
> TC: The holes for our pipes (handing over a request for information) our materials are geared up to the drawings, we're having to stop on the holes.
> ZC: We need an Architect's Instruction to get a hole cut: you need to give your requests earlier.
> TC: The problem is that xxx didn't take us into account when....
> ZC: We know, we've been through all that before. The rainwater is the other problem; it's coming in from the holes around the pipes in the roof.
> TC: No, its the terrace.
> ZC: Why's there no temporary system to take the rain off?
> TC: Don't know.
> ZC: Do we need to draw up a short term programme for getting rid of the rainwater? Do I need to sit down with someone? I'll come over and see it...is there any pressure from any other trades?
> TC: Yes, the ground floor cladding details and dry risers. We're waiting for levels from xxx.
> ZC: So its information that we need

whereas the former saw it as an opportunity to get potential problems resolved:

ZC: Can we start with the minutes from last time? (leaning over and searching through the papers in front of the TC manager) have you a copy?
TC: They're issued so late; they're out of date before I get them, let's just ignore them....I want to sort out this firespray.
ZC: D'you have your quality system yet?
TC: I told xxx you say we have none, but we have, there's just no paper work.
ZC: So there's no formal system.
TC: Yes, but there's no paper work.
ZC: Agree to disagree.
TC: About this upset with the firespray (some firespray had accidentally ended up on the cladding panels which therefore needed cleaning and possibly replacing) I've sent a letter to you and...
ZC: I've not got it
TC: ..to take the emotion out xxx (firespray contractors) have gone, but there are panels covered.
ZC: can you highlight what the permanent damage is?
TC: (Handing photographs over) we can't do that until they've been cleaned.
ZC: (ironically) I'm glad to see you've been keeping a record.

Both these illustrations come from the first five minutes of a scheduled meeting. The interpretation from SST-2 is that the interaction between the two people in the first illustration is characterised by its quality of one directing and the other responding; in SST-2 terms a manager-subordinate relationship between people working at different levels. However, the quality of the second interaction is very different, with a much greater sense of equality between the two participants being apparent. In SST-2 terms this could be interpreted as an interaction between two people both working at the same level with different objectives. This pattern continued throughout these meetings and in different ways was observable throughout the other meetings attended.

Joanna: Hold on, I see Steve muttering in the background.

Steve: (Woolgar 1994) "How can you get from these TCs' utterances to their 'assumption that they were being called to account...'?" "Are these tape transcripts? If so, what are the problems in recording and transcribing? If not, what is the basis for claims to accuracy?" "Conversation analysts[29] would take issue with your use of this material." "Your claim for greater equality between participants in the second account is not established".

Josephine: These are just to illustrate, I'm not making these sort of claims, in fact the demand to defend questions such as these is precisely the problem I am facing.

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[29]Conversation analysis is not examined in this thesis. This practice involves constituting data out of the detailed account of conversational interactions between people and people and people and things. A variety of conventions exist to characterize for example phrasing, pausing and simultaneous speech. See for example Myers (1979),   Atkinson and Heritage (1984) and Thomas (1990).

Joanna: This interruption from you, Steve, illustrates more about your requirements for credibility than it does about the information Josephine is giving us to construct an account of her problem. These interpretations have been accepted by your client, haven't they Josephine?

Josephine: Yes, when I asked the ZC about these two meetings afterwards he said that he found the second of these more demanding, but also more productive. He stated that he could act as the interface between this firm and all other firms to ensure that problems were avoided, because he could rely on this person anticipating and bringing problems to the meeting, rather that having to check continually for himself. He suggested that TCs were in a better position to predict problems than he was, because they were the specialists. Talking about the meeting from which the first illustration is drawn, he suggested that such meetings were in themselves easier to handle, because he was never presented with anything unexpected; but that was the problem. The construction of the plumbing system was far less efficient, because they were continually looking to him to anticipate and manage their problems, rather than as using him as a resource to prevent problems with other TCs emerging.

The interpretation, using SST-2, that I reached from this was that for the zone coordinator needed to interact with managers from the TC firms *working at the same level.* The general principle, extrapolating from this particular investigation, was that effective interfaces between firms in all areas on the project also needed to overlap in this way. I suggested that it was not appropriate for one firm to have an employee in the position of managing an employee from another firm.

This basic principle was then explored in other contexts, such as the directors meeting and the design contribution. From the latter a general model for the structure of project organisations has developed (Bennett, Dodd, Gray and Eustace 1989) which has also been extended to look at the organisation of design in construction projects (Dodd 1994). I wanted to use this case study as the basis for a doctoral thesis in social science, but it has not been possible to find a suitable supervisor outside the field of construction management. I am curious why an approach which has been so accepted in certain fields, does not have the potential as material for a doctoral thesis.

Joanna: So your problem is why should your explanations have credibility with some groups and not with others?

Josephine: That is a reasonable summary of my experience; it is the reason for developing the working party mentioned earlier.

Joanna: It is a question such as this that we have constructed within section one of this chapter. If you are prepared to become 'data'; to become a case study for this thesis, we could use this and other experiences from your field to address our concerns with

boundedness, distribution and credibility which have been outlined in this introductory chapter.

Josephine: Well, it could be useful for our working party.

Summary Discussion of the Chapter

This chapter sought to construct an appropriate problem for this thesis through outlining the existing theoretical material on boundaries, credibility and reflexivity within SSK. It also sought to use the resource of this chapter as an opportunity for examining boundedness in problem construction by breaching the conventional boundaries of an introductory chapter.

An approach to problem construction which exploits the expository style conventional within SSK was developed in section one which indicated the variety of ways in which boundary maintenance and boundary breaking is implicated in the credibility of knowledge products, by examining this issue under three thematic headings; boundaries, credibility and reflexivity. These three themes each allowed a different representation of the problem for this thesis. From section one, the examination through the theme of boundedness suggested that boundaries are important for knowledge products to the extent that they simultaneously increase the centrality of work and maintain the interests of audiences. It was further suggested, from examining the material through the theme of credibility, that credibility involved practices which generate audiences. In examining the way concepts of science and technology are exploited in problem construction within SSK, two types of audience generation were identified. One gives an account of the process of inscription for a core-set of members exploiting the credibility that comes from generating an exclusive audience. The other gives an account of the mechanisms by which unconnected ideas become associated or 'conscripted' to extend the audiences for ideas through inclusivity; the configuring of variable audiences. Finally, exploration via the theme of reflexivity produces a central concern with distribution. Woolgar (1988a) constructs this as the study of readings in communities whereas Latour (1988a) constructs this as the study of connections and hybrids in explanations. Through these examinations the problem identified; the 'development' which this thesis seeks to contribute, is the possibility of exploring the relationship between distribution and representation in the production and consumption of 'knowledge products'.

Sections two and three sought to use this problem identified in section one as a 'knowledge product' in order to explore the first of the themes identified in section one: the theme of boundedness. This was attempted by breaching (Garfinkel 1984) the conventional boundaries of an introductory chapter to demonstrate the importance of

these boundaries. Section two, by employing a 'stylised Socratic dialogue', sought to demonstrate those 'voices' that are silenced in this conventional report style and opened the possibility of alternative forms of problem construction by giving space to multivocality. Section three continued this dialogue style, but in a more narrative form, to introduce the contribution of those voices, conventionally reported as 'members', which can offer alternative forms of problem construction. Problem construction in section three demonstrates the legitimation of problems via the exploitation of narrative. Interjections from representative voices from 'members' of SSK are exploited to demonstrate the concerns with legitimacy which such narrative problem construction create for SSK.

In exploring boundedness in this fashion, this chapter contributed to the characterization of SSK and SST-2 as constituting problems through different forms of authority and legitimation by allowing different actors 'voice' within different boundaries. In section one, SSK is characterised by references littered through the pages integrated through the construction of a single authored theoretical exposition. This is in contrast to the characterization of SST-2 as constructing problems via the unauthored, multi-participant 'data' driven narrative. This process of characterizing SSK and SST-2 as distinct is developed in chapters two and three. Chapter two struggles to configure a user group within SSK, by reconfiguring SSK as Social Studies of Technology (SST-1) for the study reported within this thesis and chapter three struggles to establish SST-2 as suitable data.

CHAPTER TWO - AIMS FOR A CONFIGURED AUDIENCE

The aims and organisation of this chapter

Chapter one established that the problem for this thesis is to understand and explore the representation and distribution of knowledge products. A contribution to this problem definition in chapter one involved an examination of how representations such as 'science' and 'technology' have been 'configured' in relation to each other and constituted by the SSK 'users' of these representations. It was argued that the production of conceptions such as science and technology involves the production of audiences. Credibility is conferred either by configuring exclusive, bounded audiences or configuring variable and distributed audiences. The distinction between science and technology can be seen to rest on the way audiences or users of the particular category are configured (Woolgar 1991a, 1991b, 1992). The first aim of this chapter is to undertake such an activity of audience 'production' in order to generate a specific set of questions for a specific audience within the general problem area identified in chapter one. This would conventionally be described as the 'aims of the investigation'. The primary work implicit in such an endeavour is the work of configuring an audience or 'users' (Woolgar 1991a, 1991b) for this text. The 'users' identified are those whose interest falls within the boundary term social studies of technology (SST-1). The reasons for characterising this as my 'user group' are twofold. Firstly SST-1 can be described as a sub-set of the potential user group covered with the heading SSK. The turn to technology (Woolgar 1991c) as a potential focus for reflexive questioning has been identified as a recent move within SSK (Hamlin 1992). SSK as an audience was implicitly configured in chapter one. I have therefore inferred that the problem construction which was the substance of chapter one and provided the boundaries to this thesis, will resonate with the interests characterised for the potential user group of this chapter. Secondly the specific named interest in technology which the boundary heading SST-1 implies immediately suggests a particular linked interest with production and consumption of knowledge products (artefacts or ideas). My task, therefore, is to articulate specific questions relevant to this 'user group' within the general frame established within chapter one.

At the outset of chapter one it was suggested that the substance of this thesis could be explored using three thematic headings; boundedness, credibility and reflexivity. Chapter one acted as 'data' for the exemplification of boundedness and its role in problem construction. The second aim of this chapter is to 'exemplify' (Latour 1988) the second of our general themes; credibility. In this chapter the struggles to configure

an audience for specific questions provide us with the potential data to examine struggles for credibility within academic knowledge work. This chapter will exploit this opportunity by making explicit the 'struggles' within the following account.

These two aims will be intertwined in the text of this chapter, rather than being segregated into separate sections. This is because the chapter will act most effectively as data if the 'struggles' to configure are identified throughout the text rather than as an analytic afterthought.[1]   These two themes are therefore not used to structure this chapter. Instead a structure has been developed which exploits assumptions inherent in arguing for a 'configured relationship' between 'user' and 'artefact'. The idea of a 'user' (in this case SST-1) and the idea of an 'artefact' (in this case the concept of technology) are examined in turn to see how each can be configured in relation to the other for the purposes of this chapter. It is important to point out that this exploitation of two poles of a relationship is forced upon us by the linearity of the text we are using as our technology (see chapter one section one. Quine 1987). I am not claiming that these two poles are real entities which exist independently of each other and can be understood and described. Instead, I would ask the reader to accept the recognition within this thesis that describing these as 'two poles' is the rhetorical device needed to begin exploration. The production of a credible artefact, it can be suggested, is the same process as the configuring of a user. However, text commits us to seriality and this is the constraint in presentation that must be worked with.

Section 1 - Configuring a user group

In this section I am concerned with the potential for configuring a specific user group for the problems this thesis addresses developing the argument that an audience produces credibility, rather than the credibility of an idea or artefact producing the audience. In chapter one, via the juxtaposition of two forms of problem construction (one is given by a member of SSK in section one and the other given by a member of SST-2 in section three) it was suggested that differences in audience construction have profound implications for the way in which knowledge is viewed and accepted. Hence it was suggested that the construction of credible questions is the construction of an audience or group of users for the questions. An example of the work of audience construction can be extracted from the first fragment of ethnographic data which is

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[1] Although. the statement that this approach will be the 'most effective' can be recognised as the first of many 'props' this text will use to configure its audience; implicit in this statement is a characterised readership which will appreciate this reflexive style..... and yet again a statement to configure an audience as appreciative of reflexivity. and ......

presented in chapter one of this thesis: Josephine's story. Her account gives 'evidence' of two quite distinctly configured audiences for SST-2 (our members); one that is deployed as being 'interested' (the 'client') and one that is deployed as 'disinterested' (academic social science). These audiences were deployed as entities as if they existed independently of the narrative used to construct the problem. Within Josephine's account the status of these as 'real' audiences is claimed, separate from their deployment in the story told as the 'configured community' necessary for the construction of her problem. However, it is necessary to question the extent to which these audiences 'exist' independent of the use to which they are put. In contrast, I would claim that what is described as an 'audience' is a set of distinct configured relationships in Josephine's work. Their creation is the work of the account; the success of her work depends upon the success of configuring these audiences. In Josephine's construction of the meaning of her work, these audiences 'define' the meaning of her actions and understandings. The understanding of Josephine's account within the context of this chapter is that the construction of these audiences is synonymous and contemporaneous with the construction of the problem. These 'audiences' are not conceived as the 'cause' of the problem, which is how they are incorporated into the narrative in Josephine's story. Instead the problem is conceived as being a 'function'[2] of the audiences generated in the process of its construction.

I now wish to do the equivalent 'audience construction' within this thesis by naming 'social studies of technology (SST-1)' in association with my interests to configure them as a user group within this thesis. I must introduce and characterize[3] a community at work in my writing exploiting the process of what has been described as interresment (Law 1986, 1987). As with Josephine's story, this process, as well as constructing relationships of interest, will inevitably construct relationships of disinterest and also absence. The previous paragraph of this account in a key contribution to this interresment. We are deploying Josephine's story for a similar purpose to that ascribed to Josephine's story, namely, to configure an audience or users for the work of this thesis. Exploiting Josephine's story at this stage constructs two key features for our user group. Firstly, it configures our user group as interested in the way credibility is achieved through text based accounts of problems. Secondly our user group are placed in a particular sort of relationship with the narrative called Josephine's story; they are

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2 The term 'function' is taken from mathematics to describe a specified dependent relationship

3 The concerns about 'introducing' are discussed and developed through chapter one as it took the boundedness of introductions as the topic. This chapter is concerned with questions of characterizing. It must be made clear that the tactics taken in this account to introduce and characterize are tactics.

placed as analyst in relation to this account of the work of SST-2 presented in chapter one, section three. The exploitation of this story therefore provides me with two important manoeuvres in engaging in this configuration exercise. My first manoeuvre in locating SST-1 as a user group is the articulation of a topic, the social construction of credibility, which can be linked with those interests to be characterised as belonging to SST-1. The second manoeuvre involves the characterization of two groups as distinct; SST-1, deployed as the primary 'users' of this text and SST-2, deployed as 'data'. As was mentioned in chapter one, section two, the aligning of distinct interests, be they for hybridisation as discussed in chapter one, section two, or for inquiry, as is attempted in this chapter, requires that categories of user are established as distinct. This establishment of distinctiveness will involve the characterization of what "SST-1 is really like" and what "SST-2 is really like". To locate SST-1 as 'users' it is necessary to undertake two things with the SST-2 'community'. The first thing is to characterize them as data which has been the implicit work involved in the use of Josephine's story.[4] The second is to identify them as an appropriate 'object' of study for a user group interested in technology. Why should the potential SST-1 users be interested in the workings of this culture of 'consultants'? What relevance can the work of these members possibly have for SST-1's concerns about technology?

To address these questions it is useful to draw upon the work of Hollway (1984, 1991) She gives an account of the construction of humanness, individual responsibility and 'blame' at work through the application of ideas about selection and the pen and paper tests which form the armoury of occupational psychology. She argues that these 'soft artefacts', the 'ideas' and the 'pen and paper tests'; articulate and make operational psychological conceptions of human nature. The consequences of the use of these techniques, she argues, is that 'human nature' is no longer open to question but instead is embodied in artefact and application. She argues further that such ideas and techniques need to be addressed as 'technologies of the social'. However, this does not make my 'interresment' task entirely straightforward. SST-1, I would suggest (in commencing my characterization of what SST-1 is really like) can be conceived as wishing to demonstrate the extent to which 'resistant' (Latour 1989) physical objects can be demonstrated to have been socially constructed. Mulkay (1979) suggests that investigation of "how the technical meaning of *hard* technology is socially constructed" (Mulkay 1979:77) would be useful as such investigations could demonstrate that "no area of knowledge (whether formal, scientific or practical) is closed to sociological

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4 This process of configuring SST-2 as data for our user group with be developed in chapter three which acts as the methods chapter within this thesis

interpretation" (Mulkay 1979;78). A 'technology of the social', with the conceptual or abstract nature it ascribes to technology may not be considered an appropriate test case of 'technology' by many authors within SST-1. It is therefore possible that my venture to configure a user group may fail. Representatives of this user group may suggest that to study SST-2 as a 'technology' would be at best a 'soft' or 'easy' example compared with the demonstration of the social construction of physical objects. Implicit in this is one additional characteristic attributed to our potential user group in this chapter; a characteristic concern with what can be taken to count as the "harder hardest test case" (Woolgar 1991c).[5]   To develop fully this characteristic for the user group, it is necessary to construct 'what counts as technology' within SST-1. This has been identified as a general phenomenon by Pinch, Ashmore and Mulkay (1992) who argue that "what counts as technology can itself be contested" (Pinch et al 1992:265). They suggest, when investigating domestic technology, that the domestic context of the investigation means that women interviewed only consider certain artefacts open to inclusion under this heading. This contextual definition of 'technology' can be argued as much for my SST-1 'user group' as for the women Pinch et al (1992) deploy to demonstrate this point. I need to configure the application of 'ideas' as a legitimate technology for investigation within the context of studying the processes of social construction. Hence I need to engage in the configuring of SST-2 as a 'technology' in the process of configuring our user group.[6]   The two issues that have emerged so far in attempting to configure a user group are what counts for them as technology and how things are taken to be credible, or to put it another way, how they are taken to work by them.

Representative of SST-1 user group (RSUG) Excuse me, can I interrupt here, maybe this objective would be better served with the presentation of a discussion rather than a monologue. If you want a user group configured, what better way than to construct a voice for them? Your distinction between these two particular concerns seems tautologous. Would we define something as technology if it was not taken to

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[5]A concern with what can be taken to count as a test case for assertions of social construction has animated much debate within SSK and SST-1. For example Ashmore (1989:44) suggests that Collins (1982b) claims scientific facts as the hard case, as he suggests these are where arguments for social construction are least likely to hold. However, Ashmore (1989:231) in turn claims reflexivity as the hardest test case of social construction.

[6]As a note to this last sentence it is necessary to make explicit, that, despite my efforts to separate the two 'poles' attributed to a configured relationship; user and artefact, it is clear from the foregoing discussion, that they are inherently linked with each other. Configuring the artefact and the user are the same process within this account.

work? Are these two questions not just two different formulations of the same question. It could be argued that the reason you are choosing to describe your informant's consultancy practice as a 'technology of the social' is because she considered it to work. Would it not be possible to suggest that when describing something as technology we are also effectively saying that it works in a given context - that is, we use the title 'technology' as confirmation of a particular sort of success.

Student 7 If your purpose in making this interruption was to exemplify the unstable qualities of text and the inherent fragility of my attempt to construct and represent a 'user group' for my work, may I say that you have succeeded admirably. You have forced me to address the construction of these concerns as a subject for this chapter rather than as a rationale for what comes next.

May I suggest that much written within SST-1 exploits a similar basic assumption. Pinch and Bijker (1984, 1987) Mulkay (1979) Schwartz Cowan (1987) all imply that one of the central concerns for SST-1 are what social processes are involved in any 'solution' being accepted as working. The implication of this is that there are other 'solutions' which can be described as technology but which are not taken to work. As Pinch and Bijker (1984) suggest "the success of an artefact is precisely what needs to be explained. For a sociological theory of technology it should be the explanandum not the explanans"(Pinch and Bijker 1984:406). If a proportion of the 'user group' I am configuring uses this starting point it is scarcely appropriate for me to undermine the assumption that the concept of technology and the concept of things working are independent, at the outset.

In further defence of my starting point, I could also suggest that you are defining technology with this interruption by suggesting that 'technology' requires the status of 'working' to be technology. Other representatives of my potential user group have asserted that we should take things as we find them, rather than entering into the definitional work ourselves (Barnes and Edge, 1982). Many have suggested that studies both of successful technological development and unsuccessful development are necessary, to investigate fully the social construction of an artefact as working (Callon

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7*Steve* (Woolgar 1994) Why choose this label?

Student For two reasons. Firstly, it follows the work of Ashmore (1989) where a dialogue between student and examiners provides an explication of the 'community' configured in a thesis and demonstrates the struggles and negotiations involved in the production of a thesis. It is therefore part of the process of configuring a 'user group'. Secondly, it expresses the certainty trough (Mackenzie et al 1988, Woolgar 1992) by configuring the author of the chapter as being in the trough - social science students need to be certain the texts they use are credible artefacts. This is in contrast to RSUG, who by being characterised as a producer of these texts will comfortably be able to demonstrate a greater degree of uncertainty.

1980a, Pinch and Bijker, 1984, 1987, Pinch, 1988, Woolgar, 1991a, 1991b). To this end there have been various studies of 'failed technologies' (Braun, 1992, Buchanan, 1992, Torrens, 1992, Todd, 1992). It has been suggested that to enter into the work of defining technology is to miss the fundamentally more interesting feature; namely the social processes of negotiation involved in constructing something as an 'entity' with certain 'properties'; one of these properties it whether the entity is taken to work (Woolgar 1988: 65).

RSUG This is rather a naive response to my interjection. With the introduction of my voice you have been provided with the material to deconstruct the notion of technology developed by SST-1 while still retaining the opportunity to configure the literature of the group I represent to create your questions. Yet, in response, you have lapsed into a defensive position in which you talk of your audience as if they had a 'real' existence independent of the way you are constructing it in this account. What I was seeking in your response is the recognition that the danger in separating these two questions; separating what counts as technology from how something is taken to work, is that it could be taken to imply a claim for a stage in the existence of artefacts, independent of how they are socially constructed. To suggest the existence of artefacts in this way questions the centrality of social construction as an explanation for the form of such artefacts. Social constructivism is one of the central tenets of SSK and SST-1 so to use this assumption would weaken the position of the audience you seek to construct. In your struggles to create credible questions through configuring a 'user group' you need to avoid weakening SSK and SST-1. In addition, may I point out that there are other authors you could use in your work of configuring a user group that would agree with my observation above. For example Pinch, Ashmore and Mulkay (1992) state "technology like all other terms is indexical, it takes its meaning from its use" (Pinch et al 1992:265). This would imply that the notion of 'working' and 'technology' are bound up with each other.

Student I agree that these two questions are linked; that each question configures the other, but this is not the same as saying they are identical questions. They are not identical because they generate different responses and arguments rather in the way the exploitation of different themes in chapter one allowed a different manifestation of my problem. I have selected these manifestations of interest (these questions) to allow me to configure your group in a particular way and locate my work within this 'community' (Cooper and Woolgar 1993b). What I could take from your interjection is that configuring your group includes the need to characterize the possibility of

47

disagreements.[8] In order to do this I need to consider next the 'other pole' of the relationship mentioned at the outset of this chapter; the artefact, which in this case has been identified as the concept of technology. Through examining this other pole, I can characterise the struggles and negotiations of my 'user group'.

Section 2 - Defining Technology: Object or Relationship[9]

Within this potential 'user group', there are those who suggest that technology should be defined by the presence of a tangible physical object, whereas there are others who suggest that the study of technology should be the study of relationships. Various authors have taken different objects as their focus. There has been the study of the bicycle (Pinch and Bijker 1987), the refrigerator (Schwartz Cowan 1985), the bridge (Winner 1985). All proceed from this interpretive starting point and investigate the historical processes which have contributed to a given physical closure..Texts which adhere to this approach focus their study upon the social construction of the form of physical objects. Some focus on the influence of consumers (Pinch and Bijker 1984, Winner 1985, Mackenzie 1985, Schwartz Cowan 1985, 1987, Yoxen 1987) whereas others focus upon individual inventors (Layton 1974, Carlson and Gorman 1990). Akrich (1992) suggests that it is this 'stability' in technical objects which allows them to "become instruments of knowledge" (Akrich 1992:221), as she suggests they translate a stabilized and naturalized set of relationships from one field to another. This assumption is questionable. It could be argued that the stability of form can be interpreted as representing a stabilized set of relationships, but this needs closer investigation to question whether this conflation of physical closure with closure in interpretive possibilities is legitimate.

Mackenzie and Wajcman (1985:3) suggest there are three layers of meaning in the definition of an object as technology. The first they argue is the level of the physical object. However, they argue that 'an object such as a vacuum cleaner is only technology, rather than an arbitrary lump of matter, because it forms part of a set of human activities." They suggest that two further components are necessary for a full definition of technology; human activity and human knowledge... "A computer without

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[8]This connects to one of the central topics of investigation within SSK; the investigation of negotiations over what can count as a 'fact' (Latour and Woolgar, 1986. Mulkay, 1985, Gilbert and Mulkay, 1984).

[9]Please note the resonance of bi-polar constructs object or relationship used in this heading with the bi-polar constructs of representation or distribution developed within chapter one.

.....programmers is simply a useless collection of bits of metal, plastic and silicon...technological things are meaningless without the know-how to use them, repair them, design them and make them." They imply the importance of relationships between people and things. Precisely the same distinction is made by Bijker, Pinch and Hughes (1987:4) drawing upon the account given by Mackenzie and Wajcman (1985).

Although recognition is given to relationships in the *use* of technology, it is clear from the introductory discussions in these collections of papers, that the predominant concern is with the existence of a physical object. Relationships are used to explain the properties of the object rather than relationships being the phenomenon requiring explanation. This is illustrated in the following comment: "the adoption of particular technologies is of long term as well as immediate significance; technologies cannot always be traded at will. Road and rail systems remain - and influence patterns of housing and industrial development long after the designers are dead" (Mackenzie and Wajcman 1985;7). An equivalent argument is put forward by Winner (1985) when he suggests that political systems become embedded in the 'final' form of a bridge. In these accounts, the notion of a relationship is seen as flexible at the inception of the object; relationships are seen as the cause of a particular manifestation. However, such analyses of physical objects construct a conflation between physical closure and interpretive closure. They imply a closure in interpretive form consequent upon closure in physical form. They criticize those who study technology by attempting to understand the consequences of physical form on 'users' as not seeing the most 'important problem'; that is the way technological form is socially shaped. However, those authors, cited above, who explore technology from an object focus exploit physical form in the same way as the authors they criticize. The argument that "road and rail systems remain" (Mackenzie and Wajcman 1985:3), illustrates this conflation between physical form and interpretive form. Who says they are 'road and rail systems'? Akrich (1992) when discussing the stabilizing forces of technical objects illustrate this problem for SST-1 when she states: "We are ourselves no more innocent in this respect than anyone else. For we are able to say that technical objects changed, stabilized, naturalized or depoliticized social relations only with benefit of hindsight...It is only after the event that causes are stabilized" (Akrich 1992:222).

The alternative approach takes an explicit investigative focus on technology as relationships. This does not study relationships in the way described above. Relationships are not constructed as the **cause** of particular manifestations, but as the phenomenon requiring investigation. The study of technology for these authors, involves studying practices which 'configure' (Woolgar 1991a, 1991b) certain

49

relationships between 'object' and 'user'.[10]   Such studies are concerned with the 'seamless web' (Hughes 1985, 1987) of organised and opportunistic relationships involved in the development of technological systems (Latour 1983, 1988a, 1988b, Callon 1980, 1987, Hughes 1985, 1987, 1988 Law 1987 1988 Woolgar 1990, 1992). These studies build upon work which suggests that the notion of knowledge as an esoteric concept independent of its social context should be replaced by concept of power-knowledge (Foucault 1980, Kuhn 1970).

It is interesting to compare the way the SST-1 practitioner is characterized in each of these approaches to what counts as technology. The approach which privileges the object demonstrates its view of SST-1 practitioners in the following comment: "we find that sociologists of technology are actually contributing to the development of technology" (Pinch et al 1987:6). This statement implies that they do not consider sociology as a technology in its own right. They view sociology as *making a contribution to* technology rather than *being* a technology. However, in the approach which views technology as the study of processes rather than objects, the suggestion is that engineers in their day to day work are sociologists. Callon (1987) argues that "we must leave behind the radical difference that separates sociologists and engineer-sociologists"(Callon 1987:92).   One of the consequences of these different characterisations of the work of SST-1 is that the latter approach; technology as relationships, is much more likely to be open to exploring SST-2 as a 'technology of the social' than the object focus, as the relationship focus is already describing its' own activity in these terms.

Two general approaches to defining technology have been configured by my account so far; technology as object and technology as relationships. I have indicated that the latter is more likely to be open to accepting the later characterizations of SST-2 as data. In an attempt to 'mobilise the interest' of both of these 'audiences' I shall take each in turn and explore how the general concerns raised above can be developed to accommodate these interests. The exploitation of these approaches provides differing justifications for the choices made in data reporting. For example, use has been made both of ethnographers fieldnotes and of members' 'textual artefacts'. The first approach (technology as object) can be used to justify the use of members' texts as data and the second approach (technology as relationship) can be used to justify the reporting of ethnographic tracing as data.[11]

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[10] This chapter is an example of such a process.

[11] The decisions in data reporting and justification for the methods used are reported in detail in chapter three.

50

Technology as object

This is the approach which has been most extensively covered in SST-1. There have been analyses of the air tyre bicycle (Pinch and Bijker 1984, 1987), of the form of bridges (Winner 1985), of the self-acting mule (Lazonick 1985), of automatic machine tools (Noble 1985), of word processing (Barker and Downing 1985), of household appliances (Schwartz Cowan 1985, 1987), of missile guidance (Mackenzie, Rudig and Spinardi 1988), of bakelite (Bijker 1987) and of ultrasound (Yoxen 1987) among others. The contention made within these studies is that if a symmetrical approach (Bloor 1976) is taken to solutions which are defined as working and those that are defined as not working it is possible to examine the extent to which social forces are causative of the form at 'closure' (Pinch and Bijker 1984). This balance, it is argued, is essential to actually understanding the processes at work in defining something as successful. Despite the assertion that unsuccessful artefacts need to be explored in the same way as successful ones; that successful solutions should not be privileged by virtue of their success, all of those listed above give accounts of 'successful' solutions set against 'unsuccessful' solutions to specific problems.

For example Pinch and Bijker (1984) make one of the strongest assertions about the need to explain success beyond the technical properties of the artefact: "historians of technology often seem content to rely on the manifest success of the artefact as evidence that there is no further explanatory work to be done" (Pinch and Bijker 1984:406). However, they end up giving an account of the success of bicycles with air tyres based upon the 'realization' of the capabilities of their technical properties. The account is equivalent to those of the historians they criticize, except that they give a social constructivist account of the changing nature of the problem: "For...the protagonists of the air tyre, originally it meant a solution to the vibration problem. However, the group of sporting cyclists riding their high wheelers did not accept this to be a problem at all. Vibration only presented a problem to the potential users of the low wheeled bicycles. Three important social groups were therefore opposed to the air tyre. This was however quickly silenced by the high speed achieved, and there was only astonishment left when it outfaced all rivals" (Pinch and Bijker 1984:427). Hence they present a case to support their argument for the explanatory focus to be the social processes involved, in this case in the changing definition of what is taken to be problematic, but it only reads as naive to suggest that this is independent of the technical properties of the artefact they have put boundaries around and chosen to 'explain'. Indeed, it relies upon some 'objective' property of the object as explanation for the social response. The problem with this account is that it starts with the a current form of something which they define the 'final' or closed form and this 'final form' is taken as technology:. This account does not offer

an analysis of the technology of 'getting about', but instead the technology of a particular representation of what they argue is the bicycle. This latter object is taken to be representative of 'technology' without question. This object is then explored post hoc to explain the formation of this closed form.

This account provides an illustration of the inherent problems with focussing upon the particular nature of an object to uncover the importance of social construction in technology. Firstly, an object focus requires the authors to accept a formulation of something as a 'final' 'working' entity to be able to study it as technology. They argue that they are not doing this; that its closed status as working or not working is incidental to their endeavour. However, when studying an entity such as the air tyre bicycle, one of its most salient properties is that is taken as a successful solution, so to ignore its status as 'working' is to redefine the nature of the entity chosen. Secondly, there is nothing surprising in the claim that social pressures are brought to bear in the design of technological objects (Hamlin 1992).

If technology is conceived at the level of the object, it is only possible to deal with things which by definition either do work, or do not. These authors therefore find themselves in the same position of which they accuse the historians. To explore how "the fridge got its hum" (Mackenzie and Wajcman 1985; 2) when the study of technology requires accepting the defined object as a fridge that hums cannot anything other than an historical account of why that particular solution emerged. It does not allow us to come to any other conclusion than that particular solution, for some defined purposes was 'better' than others. If we start with the artefact in one particular use, we already have the answer of what counts as something working. To illustrate this point further, in Winner's (1985) argument that objects have politics, he suggests that structures such as bridges, pavements or TV's, which have built inequality into social relationships. He claims, "specific features in the design or arrangement of a device or system could provide a convenient means of establishing patterns of power and authority in a given setting" (Winner 1985:36). In making this claim he assumes that there are "given settings" and "established patterns of power" which means that technology cannot be considered as anything but closed in interpretive possibilities.

There have been attempts to address this problem of the conflation of interpretive possibilities with closed physical form. Schwartz Cowan (1987) focusses upon the consumer. She suggests that by placing the consumer at the centre of the problem, objects can be studied by looking at the decisions these consumers make about the available competing equivalent objects (or what she terms technologies). This is included in the section on technology as object because by the time the consumer is introduced in her account, the shapes or shape of any object is already given. In addition

her working definition of the consumer is an entity which exists separately from the producers of object. This is in clear contrast to the work of Woolgar (1992) and Low (1992) discussed later in this section as they describe the construction of the 'consumer' in the process of design. Schwartz Cowan (1987) therefore uses a notion of economic freedom of choice as the social power over physical form. This suggests that the final form involves the response to an either - or question; which to purchase, whether to purchase or not. There is not a conception of users as actively involved in the creation of form, only in the acceptance and rejection of pre-given form.

To conclude for this section, let us relate our discussion back to the original translation questions asked; what counts as technology and what counts as technology working. This approach to technology clearly indicates the requirement for a physical object. Indeed Pinch (1988) suggests that the real work of SST-1 is to submit the most tangible of physical entities to examination through a social constructionist approach. The concern is therefore not with the processes involved in generating credibility; these are taken for granted. The concern is how these processes are translated into a particular object. This therefore means that the idea of technology working is very clear cut: it requires a physical object used, or not used, by a consumer for a particular purpose. This would allow us to use our observations of SST-2 members to address how texts are used or to address how one of the tests developed within this culture have been accepted.[12] However, what this does not allow us to explore is how these 'tangibles' become acceptable to potential variable users for varying purposes, or how these 'tangibles' come to mean different things in the social processes of knowledge work.

Technology as relationships

This alternative approach is much more concerned with the production of organisations and 'force' rather than physical entities. One example of this is the account given by Mulkay, Pinch and Ashmore (1987) of the need for a relationship between medical practice and economics to be constructed if the 'social technology' of health economics is to become credible. Their interpretive focus is upon demonstrating how health economists "recreate within this existing community, as far as possible the interpretive practices characteristic of professional economics" (Mulkay et al 1987:232). The major problem that these authors identify for the success of this endeavour is that it requires existing medical practitioners to identify some failing in their current practice. These authors suggest that this is resolved by separating out medical judgements from

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[12]Such methodological decisions have been addressed in section one of chapter three. These examples are used for illustrative purposes within this chapter.

other judgements within their day to day work.

A second illustration is Hughes' (1985, 1987, 1988) notion of system builders. He argues that individuals involved in the development of technological systems are characterised by their lack of respect for existing knowledge or professional boundaries. He comments that "Thomas Edison so thoroughly mixed matters labelled 'economic' 'technical' and 'scientific' that his thoughts composed a seamless web...Technology and science, pure and applied, internal and external and technical and social are some of the dichotomies foreign to the integrating inventors, engineers and managers of the system - and network building era" (Hughes 1988:13). "Edison conceptualised so audaciously and embarked upon the invention of an entire system because he had a laboratory and staff to draw upon. He integrated men and facilities with his concept just as he did the technical components" (Hughes 1985:41). Hughes' argument is that sociological research which attempts to understand this complex of networks needs also to focus its research on the organisations and relationships such individuals established: its focus of research needs to be as complex as the phenomena studied. He therefore develops an explanation of technology as marshalling of different resources into some form of organisation. To contrast this approach with the object focus discussed above Hughes' takes the system of electricity as his focus rather than the light bulb. This contribution suggests that what counts as technology is the process involved in producing these seamless webs and what can be taken as technology working is the integration of these previously unconnected categories of knowledge and practice. Technology viewed in this way implies that technology working involves the production of new organisations constructed without respect for existing knowledge boundaries.

One similar approach that concentrates upon relationships as technology is the actor-network approach (Callon 1980 1986 1987; Latour 1986, 1987. 1988a 1988b: Law 1986, 1987, 1988). An actor-network is described by Callon, Law and Rip (1986) as "an inter-related set of entities that have been successfully translated or enrolled by an actor that is thereby able to borrow their force and speak or act on behalf or with their support" (Callon et al 1986:xvi). The central concern of studies in this field is to explain the power of science and technology within our society. The argument given by Callon (1986) is that this strength comes because "they (science and technology) are continuously rebuilding society by introducing unpredictable variations and new associations.. more than any other kind of actor, technologists may sometimes be endowed with the capacity to construct a world, their world, to define its constituent elements and to provide for it a time, a space and a history" (Callon 1986:21). However, if we take Latour's (1983. 1988c, 1989) account of the success of 'Pasteur' as an illustration of this we can see instead that the argument upon which these claims

rest is the capacity of science-technology to embody existing social relations into an alternative form which draws strength from existing relationships rather than destabilising them. Latour (1983, 1988c, 1989) argues that the acceptance of Pasteur's work lay in its power to destabilize existing social relationships via the introduction of new actors. Success, he argues (or in our terms - technology working) comes from revealing new entities (in this case microbes) as "essential actors in all social relations"(Latour 1983:157). Pasteur's location in the field, Latour (1983) suggests, allows Pasteur and his colleagues to "learn from the field, translating each item of veterinarian science into their own terms so that working in their own terms is also working in the field" (Latour 1983:145). Latour claims that the success of this lies in the laboratories are "nice technological devices to invert the hierarchy of forces" (Latour 1983:164). However, it appears from the account above that is precisely the incorporation of the existing relationships which generates power. Similar arguments are made about knowledge practices which have seemingly more in common with our social technology of concern in this thesis: as they deploy 'actors' which are conceptual notions such as 'personality'. Hollway (1984) discusses the effectiveness of psychological testing in organisations. She suggests that the "power of psychology is to privilege the individual as the focus of activities which are in fact specific characteristics of corporate organisation. Thus the individual of psychology and the individualization in industry establish a system of mutual support...it is precisely the extent to which occupational psychology does not challenge this assumption... that it works" (Hollway 1984:56).

The final example within this focus upon relationships looks specifically at the issue of 'incorporation'. Woolgar's (1991a) discussion of the useability trials for a computer system in terms of the relationships between machine and user. This investigation claims that the definition of the artefact working resides in the establishment of a 'configured' relationship between 'object' and 'user'.[13] Within his exploration of the development of computer technologies Woolgar suggests that "the whole history of the project can be construed as a struggle to configure (that is define, enable, constrain) the user" (Woolgar (1991a:16). Hence it gives an explicit account, at the level of the physical manifestation, of technology as the development of relationships. This implies that the notion of working technology requires the development of these relationships. As introduced in the discussion of credibility in section one of chapter one, this work has been extended to examine the production of different categories of user based upon

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[13]This is discussed in terms of the reconfigured relationship between 'man' and 'machine' consequent upon the development of information technologies (Woolgar 1985, 1987).

'distance' from the development process. Woolgar (1992) suggests that there is a variation in the credibility of 'objects' be they texts or computers, dependent on the 'closeness' of the user to production. The credibility of these objects is at its highest with users not too close, but also not too distant.[14]

So connecting this to our earlier questions, technology from this perspective involves the study of 'organizing-relationships'. Technology 'working' does not imply an end product with a closed physical form, but instead the processes involved in building connections and reconnections. Within this thesis, we can explore the process of knowledge working: the day to day work with clients or the meetings between members of the culture of SST-2[15] in exploiting this perspective.

Summary of Chapter Two or 'What are my hypotheses?'

This chapter set out to configure a user group through the production of bounded questions. This involved characterizing the nature of the 'audience' (in this case described as SST-1) and the 'artefact' (in this case an account of what counts as technology). So, out of this process, what are my questions, my 'hypotheses'? Has this chapter been successful? What distillations of interest can I exploit? Given my characterization of my 'artefact' into two categories; technology as object and technology as relationship, it would seem appropriate to generate different objectives for this thesis from these two different categorizations. The focus upon relationships is the more appropriate one for my purposes as I wish to use my ethnographic reporting to describe the deployment and transfer of technology, which requires attention to shifting relationships. However, although I have pointed to the problems associated with taking an object as the starting point for investigation of technology, I am not content, within this thesis, to leave the consideration of 'objects' out of my analysis. To claim the existence of objects as irrelevant to understanding the power of technology limits the potential for exploration. However, to take objects as the central defining characteristic of technology is also limiting. I therefore also wish to use this account to investigate the limitations in the current object focus, by examining the place of stability in physical form in the development of shifting relationships

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[14]An example of such a user is a student who uses academic texts as is being attempted in this chapter in the quest to produce a "faithful representation" (Woolgar 1988a).

[15]Such methodological decisions have been addressed in section one of chapter three. These examples are used for illustrative purposes within this chapter.

My first hypothesis is that stable physical form does not imply interpretive closure. The current object focus within SST-1 seeks to support arguments of social construction by studying the particular 'closure' of a physical object. This analysis wishes to explore beyond the social causes of a particular physical closure, by refusing to privilege any one form as *the* closed form. Instead this analysis seeks to 'discover' how the 'production' of objects constructs their 'consumption' and generates shifting patterns of current relationships. This will allow an exploration of the balance of constancy and malleability in physical form and so allow us to investigate the conflation between physical closure and interpretative closure asserted earlier in this chapter as a characteristic of the conceptions of technology within SST-1. This concern with object hence becomes a subsidiary to the focus upon relationships as it asks how do relationships become embedded in artefact and become in turn expressed in the use of these artefacts.

My second hypothesis is that the malleability[16] of 'technology' leads to its' definition as working (Cooper and Woolgar 1993a), rather than its' stability (Akrich 1992). As outlined in the above discussion, the study of technology cannot involve simply describing significant properties. If technology exists as multiple manifest relationships and representations it may not be possible to identify, let alone describe the 'essential' properties of any given technology. The question this raises for this thesis is the extent to which that technology gets its 'form' and its 'status' from its very lack of definitiveness. This questions asks whether it is the capacity for variability in representation which constitutes technology. Could it be suggested that, rather like an amoeba, its malleability constitutes its' existence.

These two hypotheses will be investigated by examining the working practices of the culture of SST-2, both in text and action to examine the ways in which problems and interests are processed; the ways in which the separate concerns of different 'users' are linked together. In doing this I seek to explore the extent to which in order to be credible, technology has both to continue to exist and continually transform its representation. The notion to be pursued is that success depends upon elasticity of representability; a balance of boundary breaking and boundary maintenance. So, to summarize, through the struggles to configure a user group, two objectives have been distilled for this thesis from the general concern with boundaries and credibility.

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[16]Cooper and Woolgar (1993a:16) suggest "that the characterization of audiences is fluid and inconsistent" and that the incorporation of such inconsistent characterisations in the process of development of any artefact is a manifestation of malleability which contributes to the 'success' of artefacts through the fluidity in the construction of audiences.

1: To explore physical closure of artefacts, questioning whether or
not such physical closure produces interpretive closure in the
'use' of objects.
2: To explore the notion of 'malleability' in 'technology' or
application.

Each of the next four chapters (chapters three to six) produces a different representation
of SST-2 exploring different aspects of these questions, using different forms of
ethnographic accounting. Chapter three will act as the methods chapter for this thesis,
exploring the process by which SST-2 is constituted as data for the purposes of this
thesis via the introduction of the role of ethnographer to the membership categories
within SST-2. This involves the configuring of a further relationship; a relationship
with one 'pole' incorporating the user-group as represented by the 'ethnographer' and
the other 'pole' incorporating SST-2 constituted as 'data' as represented by the
'members'. Chapter three, our methods chapter, gives an account of the struggles
inherent in establishing the relationship between ethnographer and members, the next
relationship which needs to be configured for the production of this thesis.

Hence, through the foregoing struggles in this chapter to configure a user group
from within SST-1, what has been constituted is a gap in the literature of SST-1 and a
programme for addressing this gap embodied in the remaining pages of this thesis.

CHAPTER THREE - METHODS OF INQUIRY: INQUIRY OF METHODS

The Aims and Organisation of the Chapter

In chapter one the general problem of boundaries and credibility within the sociology of scientific knowledge (SSK) was explored and central arguments about the balance of representation and distribution in knowledge work identified. In addition chapter one acted as data to interrogate the nature of boundaries in academic knowledge work by breaching (Garfinkel 1984) those boundaries conventionally exploited around an introductory chapter. This breach involved an account from our SST-2 members (data) which would not conventionally be given an explicit voice until much later in the linear construction of an academic text. Chapter two sought to generate an audience or user group for the specific thesis investigation through the production of two focused questions constitutive of the social studies of technology (SST-1). These questions are to what extent the physical closure of an object is productive of interpretive closure of its use and what is the contribution of malleability to technology in application. This chapter also sought to act as data to explore, reflexively, the issues of credibility within academic knowledge work by making explicit this processes of configuration at work in chapter two, rather than leaving them implicit.

This chapter seeks to complete the final manoeuvre necessary before the data can legitimately be deployed: the successful translation of the SST-2 members and activity into the 'subjects' of our inquiry. This chapter would conventionally be entitled the methodology of the thesis, but within the context of this thesis it also seeks to explore the issue of inquiry more generally. This will be undertaken by establishing a relationship between the inquirer, in this case SST-1, the user group configured within chapter two which at this stage includes the author[1] and those who are the subject of the inquiry, in this case SST-2, the members of the culture of consultancy work. As such it seeks to describe an ethnography of the field and engage in an ethnography of the text. There are three separate objectives for this chapter arising from this overall aim.

The first objective, which will be addressed in section one of this chapter, is to outline what was 'done' to this culture and why it was done: to render SST-2 into legitimate data. This involves describing the ethnographic methods used, the practical

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[1] One of the issues that this raises is that the author will be configured into the two groups: SST-1 and SST-2 at different places in the text. This issue is generally glossed as 'going native' by SST-1 and as working in 'collaborative exploration' by SST-2. Chapter six takes this switch as its topic. However, as is outlined in section one of this chapter, this is also relevant within the account of methods as many of the topic's and approaches to investigation grew out of the switch between these two cultures.

reasons for this choice and the process of investigation undertaken. This will be presented as an autobiographical account, not dissimilar in style to the story told by Josephine in section three chapter one.[2] The other two objectives are explored in section two of this chapter. The second objective is to outline the implications for the representations produced in chapter four to six, as a consequence of the data being characterized as ethnographic. This will involve a critical account of the methodological concerns within this orientation to the generation of data. The third objective runs in parallel to this as it involves the examination of the theme of reflexivity, introduced within chapter one, which represents a concern with the nature of inquiry. These latter two objectives will be integrated in section two of this chapter via the construction of a dialogue between the key informant/social analyst and ethnographer/client[3] in which the key informant interrogates the actions and assumptions of ethnographic accounting. This will allow a critical account of assumptions and limitations inherent in ethnographic inquiry to be presented with a 'member voice' subjecting the inquiry to inquiry. The aim in this is to provide a critical account of ethnography which will continue the process of configuring the user group explicitly started in chapter two whilst producing an account which can act as data to provide material to examine the question posed by reflexivity: To what extent is the subject of inquiry constituted by the method of inquiry. By giving the key informant the inquiring voice, or in the terms of my members allowing her a voice as a social analyst,[4] we can examine how a form of questioning constructs a representation, in this case a representation of the methodological problems of ethnographic inquiry.

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[2]Which clearly provides an interesting basis for the comparison of the use different styles of accounting are put to across the two cultures examined in this thesis.

[3]In this context they are ethnographer and key informant or social analyst and client although the relationship continually changes as chapter four illustrates in greater detail. In another context they may be the best of friends.

[4]Social analysis is the name given to the process of inquiry undertaken within SST-2. It refers to a form of 'action research' (Ovretveit 1983) whereby the starting point for inquiry is a problem posed by a client (Rowbottom 1977). The term and activity is developed from one of the progenitors of the SST-2 ideas: psychoanalysis. This will be examined in more detail in chapter six in which a representation of what the ideas of SST-2 'are really like' will be developed.

Section 1 - Methods of Inquiry

In this section an account will be given of the genesis of the investigation from a 'native' relationship with the culture of SST-2 to one of greater 'analytic distance'. The opportunities for undertaking a 'retrospective ethnography' will be outlined and the rationale for rejecting this option given. This will be followed by a brief discussion of the recent alternative methods within SST-1 for generating case study material and the rationale for the decision to collect data explicitly via ethnographic participant observation. Finally an account of the questions addressed chapters four, five and six will be given with an indication of the data used to address these.

From nativity to observation

I first started working as a research assistant within a research and consultancy institution, ICOSA,[5] two years before contemplating the production of this thesis. The work of this institution involved research and consultancy with employment organisations. As my interest, at the time, lay with the nature of employment organisations, being located within an institution which explicitly worked with organisations of this nature in both a research and consultancy capacity was an intriguing opportunity. My shift from 'member' status to 'analyst' status with this institution I consider to be a result of five key factors which are identified below.

The first factor was a theoretical one; a recognition that the study of organisations was not limited to the study of institutions of employment, but that all human activity could be glossed under this heading. I hence recognised that I had the material for my study of organisation in my own day to day interaction with the 'reality' I created for my 'self'.

The second factor was my increasing fascination with the capacity of the institution to generate funding from a client base in order to maintain itself financially, combined with its' lack of success in having texts accepted for publication.[6]

The third factor concerns the nature of communication about ideas within this culture which can best be described by recourse to a vignette from this time. There were

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[5] Institute Concentrating on Social Analysis, anonymized for protection as will be discussed in more detail later in this section.

[6] The publications produced in the time of membership status were Stamp (1989a), Stamp and Baker (1990), Church and Houghton (1991), Stamp (1991), these were all in applied magazines and none were refereed. Stamp (1988) was submitted for publication, but despite favourable reviews was not re-submitted and remains un-disseminated, except as a client report. This issue is referred to in section two of chapter six.

three kinds of texts available; published books,[7] outlines of the approach taken for client or market consumption[8] and tightly controlled internal texts which were all clearly bounded with a front cover and detailed warnings about use and copyright.[9] There was also an absence of any forum for members to exchange texts, no journals or newsletters. However, there were regular practitioners meetings which provided a forum for discussion and on such occasions selected texts would be carefully distributed. Practitioners meetings are regular gatherings of clients and consultant associates of ICOSA who use SST-2 and particulary one of the primary techniques to have developed within this culture: Career Path Appreciation (CPA)[10]. At one of the first of these I attended I decided to present a paper in which was attempting to integrate various ideas that had been circulating verbally and yet found myself becoming increasingly uneasy about the consequences of this decision. I expressed this unease to my closest colleague as a concern about what would be done to my work without acknowledgement if I shared my thoughts. (Indeed, as I write this account, my residual native status is making me feel uneasy about even exposing this experience to a different audience.) To resolve this unease I felt compelled to copyright and strongly protect my text; to the extent of sealing a signed and dated copy within an envelope and posting it to myself as a claim to potentially disputed authority.[11] This package has since been disposed of and the ideas forgotten, but the experience remains a curiosity. Even as a 'native' this

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[7]These will be used as the primary data source for chapter six.

[8]These will form the primary data source for chapter five.

[9]Rather as Woolgar (1991a) discusses about the warnings given on computer artefacts. As will be discussed in more detail later in this section, regardless of their value to this thesis, the majority of these texts have not been used as data, other than in the limited way they are deployed in this section, as access to them was granted on the grounds of membership rather than ethnographer and hence I do not consider it ethical to deploy this information in this context. The only key exception is the front cover of the document denoted as D1 analyzed within chapter five.

[10]This has not been anonymized as it is a public domain technique. CPA is an approach to assessing the ways in which people solve problems. It is argued that the differences in the ways people solve problems is linked to their potential for working at different levels within any organisation's hierarchy. This technique is widely used within industry (trust me on this, I was at the practitioners meetings) but is scarcely mentioned in print. The references available are Stamp (1989c) Church and Houghton (1991) Dodd, Thomas and Macredie (1993). It is not necessary to describe it in detail in this context as, for reasons that will be outlined later in this chapter, its use and development, have not been exploited as data for this thesis.

[11]See chapter six, section one for an analysis of the control mechanisms involved in the citation practices illustrated in the published documents within this culture

behaviour felt extreme and worthy of consideration.

The fourth factor arose from my observations of these practitioners' meetings. I became intrigued by the distributed and flexible quality of membership of this group which raised interesting questions for me about the limits that could sensibly be placed around the work of this institution: questions which concern what happens at the 'edges of organisation'.[12] I felt these could be explored by changing my relationship with ICOSA to operate as a consultant 'satellite'.

The final factor involved in this shift was the 'employability' I experienced within academic departments as a consequence, not of my research or teaching experience, but directly as a consequence of my work in consultancy. If consultancy experience was becoming a general requirement within academic work, then it was possible that the experiences from within SST-2 could have a general bearing upon the way 'knowledge work' was developing.

It was through these differing experiences, together with separating myself away from ICOSA as an independent consultant, that I decided to take this culture, of which I was (and indeed still am) a member, and subject its practices to inquiry.

Retrospective ethnography

This brief narrative above acts as the context for the considerations of method which follow. The extended 'native' experience of this culture referred to above opens the possibility of data available from this interaction which can be described as ethnography: "ethnography entails extended participant observation at a chosen field site, attempting to become part of the tribe. The rationale is that a prolonged period of intense immersion in the culture best enables the ethnographer to experience the world of her subjects" (Cooper et al 1993:4). However, the account of my immersion in the culture of SST-2 given in the previous paragraph, describes a process of interaction which involves unintentional and undisclosed participant observation. The interaction was initiated as participant, only becoming observation two years into the 'immersion'. This poses methodological questions which need examining in this context. There were various options of method open at the stage in which my membership of this culture was being reconstituted as a relationship of inquiry instead of 'mere' participation. The first consideration was whether a 'retrospective ethnography' could be produced out of the recollections and documents obtained during the course of my 'participant' relationship. Such an ethnography would involve the reconstruction of experiences and interactions

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[12]This experience has been transported into SST-1 in the deployment of 'unbounded ethnography' in chapter four and in the deployment of un-final stable objects in chapter five.

from these years to serve as data for analysis. There is potential in such a tactic, but for the purposes of this study it was rejected for two main reasons. Firstly, I had constructed a problem out of my participant immersion in this culture. The extent to which recollections from the 'same' experience could act as data to examine this problem presented questions that I had no wish to address in the context of this thesis, as they would add complexity to an already complicated issue of inquiry and representation. The second consideration can be expressed pragmatically or ethically. I wish to continue a participant relationship with members of this culture. To exploit and report upon interactions and materials provided while my relationship was represented to my colleagues as a member (rather than an analyst) has the potential to damage my continued involvement. I did not consider it legitimate to exploit such information as it was collected without 'consent'. This is keeping with what is argued by Price (1983) to be legitimate partial and partisan reporting within ethnography.

However, retrospective ethnographic data has not been rejected entirely. For the reasons given above, the 'retrospective' information is not the primary source of data, but it has been incorporated into this thesis in anecdotal form, to support observations and points made in other ways. For example, the account of the presentation of the paper given above, or the reconstruction of Josephine's story out of the discussions with colleagues, illustrate the ways in which the early experiences of immersion have been retrospectively reconstructed. Throughout chapters four, five and six such anecdotal material is also deployed, but as supportive of analytic comments, based upon data collected within the reframed relationship of inquiry. The important consideration in the choice and deployment of such evidence is that I do not contravene the 'protection devices' (Woolgar 1991a) operational within this culture. For example, above, I describe the ways in which accounts are 'read protected' with copyright information, boundary pages and restricted circulation. It was noticeable that when I reframed my relationship with this culture many of the texts and interactions became closed to me. It is possible to have taken these changes consequent upon this shift as my primary data source as it would have allowed an interesting and informative exploration of representation and distribution within SST-2. However, I would also experience it as a betrayal of trust and access gained through falsity. I have no desire to engage in such activities and so this promising possibility was closed.

One of the central limitations of this decision to reject retrospective ethnography and the use of information available from this stage of membership, is that CPA, the 'primary artefact' within the culture of SST-2, is closed to the investigation reported in this thesis. This is problematic as it would provide an ideal opportunity to investigate the relationship between physical closure and interpretive openness (representation and

distribution) as it represents the ideas of SST-2 as an assessment technique which can be used across organisational contexts. The materials to examine its production, its 'sale' and its use in interviews are all 'available', but this availability comes to me as 'native', rather than as 'analyst'. The historical accounts, the disputes about fact, the training material, the negotiations about training and marketing, the videos of its application and the reports to clients about the findings from such a technique are all legitimately available to members only. Indeed, one of the conditions of my rights to practice are that I observe these 'ethical controls'. All I can legitimately have access to, as analyst, are the materials used for the assessment technique; two piles of cards and a document for recording observations and interpretations. The discourse underpinning the technique is 'locked' to outsiders. Therefore, if I wished to move completely into analyst, I could breach those rules of membership about access and exploit the documents and videos for the purposes of this thesis, but this is not my objective. An explicit focus upon this artefact is therefore not possible within the confines of this thesis and therefore alternatives have been sought.

However, given my argument above about the potential within this technique to address our questions. I would expect my user group to be interrogating my text at this stage, asking why the author feels so compelled to be governed by the native rules. In response to this, can I point out that in opening the rejection of CPA as a data focus. I am exposing a key tension inherent in the work of participant observation to examination. Rejecting members rules outright would have robbed this account of this reflexive possibility the exposure has offered. As will be discussed in section two of this chapter members (participants) and analysts (observers) are constructed as distinct poles in a relationship. I contend, following Woolgar (1994), that "the importance of ethnography is not so much in achieving a balance between these two poles, as in interrogating and making the constant switch between these poles." Hence my explicated decision *as a member*, not to breach these rules of membership is as much data for this thesis as that presented within chapters four to six and my acceptance *as a analyst* of this decision is an explicit recognition of the constitution of subject through inquiry.[13]

Bounding a case study

The previous discussion has recounted why retrospective ethnography, accept for anecdotal exceptions, has not been the chosen method for the generation of data. To

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[13]The switch between author as analyst and author as member is explicitly used as data to explore 'hardened boundaries' within SST-2 in chapter six.

choose a method therefore required a consideration of the options available to generate appropriate ways of examining boundaries and audiences; the 'topics' of this thesis. Ethnography as a method for focusing upon detailed work is an established practice, demonstrated, for example within the laboratory studies of SSK (Knorr-Cetina 1981, Latour and Woolgar 1986). This focus upon the details of the day to day has been extended to SST-1 (Callon 1980a, Woolgar 1991a, 1992) as it allows the detailed working through of specific examples of knowledge cultures to address questions about the ways in which knowledge is constituted. However, with the developing interest in technological knowledge, alternative approaches to the ethnographic inscription of case study material have been proposed. The approach to investigation developed for this thesis has aimed to take the strengths from these developing alternatives, while retaining the detailed accounts which are the strength of ethnographic method. For this reason, each of the three data chapters that follow will attempt an parallel examination of the question posed and methodology developed to address it.

Since the contention by Latour (1988a) reported in chapter one, that work within SSK/SST-1 needs to examine the maintenance and crossing of boundaries, the idea of 'mapping translations' in technology transfer has been suggested (Latour et al 1992, Akrich 1992). This method works by constituting the trajectories (Law 1987) of these transfers as the significant data points. The maps and 'socio-technical graphs' produced as a consequence, seek to render case histories of development into a reduced form to demonstrate the mobilisation and deployment of actors. The argument for such a tactic is that "a good graph or map is worth a thousand words" (Carlson and Gorman 1992:81) in exploring the third stage of the empirical programme of relativism which following Pinch and Bijker (1984:408) is the study of science into its wider socio-cultural milieu. To identify these boundary or transition points, texts about controversies are identified and analyzed to examine and present the appearance and disappearance of 'actors' (Latour et al 1992:40) in the accounting.

There are two characteristics of this approach which are extracted for the purposes of this thesis. One is that the explicit focus of the data collection is 'transfer'. This suggests that the focus of case study inquiry needs to be these transfer points which are boundaries in meaning or representation and the other is the extent to which texts can be taken as appropriate data. However, before examining these two points in detail it is necessary to identify why the idea of mapping transfer has been rejected as the method used within this thesis. There are several features of the products of this approach, which while it moves towards making boundaries problematic, undermines its capacity to study boundaries in the way required in this thesis. Such techniques act as a demonstration of the power to 'in-corporate': to take other practices in as a whole and

separate body, learnt no doubt from the sciences it describes (for a narrative account of such incorporation see Latour 1983). As Scott (1992) suggests this "methodological exploration represents a clear attempt to develop a new inscription device" (Scott 1992:79). This turns boundaries into the bounded subject for investigation which is in direct opposition to the aspiration of my work. A further problem is manifested in the following attempt to propagandize mapping. Scott (1992) states that this approach allows the handling of large and complex case studies and states that "inscriptions offer opportunities to consolidate and extend recent gains in science when these are clearly needed" (Scott 1992:79). This assertion appears to indicate the advantage of this method for strengthening disciplinary boundaries around the empirical programme of relativism as the explanatory frame, rather than examining the tensions in representation and distribution which have been established as the concerns for this thesis. The desire to produce a closed interpretation of distribution expressed in reducing a complex network of changing relationships into a graphical representation would be appropriate data for our thesis questions but not an appropriate method or processing data to address them as the data used to produce these graphs. the texts. are treated as if they represent some reality about transfer. rather than embodying the struggles in the field for distribution. Callon el at (1986) have suggested that text is one of the main techniques by which interests are incorporated into a structure (Latour and Bastide 1986. Law 1986). The development of socio-technical nets appears to rely upon these texts as if they were not representations. Thirdly, the production of maps and graphs may be worth a thousand words, but it not a thousand words. Rendering data in this fashion loses the narrative power of ethnography.[14] Mapping may render large amounts of information into a reduced form. but much of the capacity for allegory (Clifford 1988) is lost en route.

In developing an approach to generate data I therefore decided to take advantage of the access from my existing contact with ICOSA. but to *change my membership* relationship with SST-2 as well as introducing an analyst component to the relationship. by becoming an associate to the institute and operating as an independent consultant. In this capacity I undertook eighteen months of participant observation of SST-2. In undertaking an ethnographic style investigation of this nature in which the concern is with boundaries and credibility: representation and distribution, it has been problematic to use any of the conventional techniques for bounding the ethnographic focus. Such a problem is identified by Cooper et al (1993) as they suggest geographical distribution within ethnographies of computers raises questions about the unit of analysis appropriate

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[14]See the discussion in section two of this chapter about the authority that comes from narration in terms of the idea of 'really being there'.

within ethnography. Within this study, ethnographic investigation focused upon an 'idea' rather than upon people or places and the investigation has been designed to follow 'traces' moving within and between 'membership locations'. Drawing in the strength from socio-technical mapping about the limitation of study within settings, I have not restricted what counts as a 'member' based upon any bounded location, instead I have followed the work through settings to examine the extent to which as such an attempt would immediately limit the realization of my objective to examine the malleability (Cooper and Woolgar 1993) of technology. Focusing ethnographic investigation upon traces, ideas or knowledge rather than upon people or places allows completely different facets of everyday lives to be 'seen'. Victor Turner (1982) makes just such a point in his work with the Ndembu when he comments upon the necessity to move his focus from the day to day facts of 'village life' to the sound of drums outside the village perimeters. It is a strange phenomenon within this 'culture' chosen that the most striking feature of the geography is multiplicity: each story has a different setting, or more usually a combination of settings. At no time, despite my best efforts, did I find a place to house the study. Instead, the work moved in an unconstrained way from porta-cabin to spare room to building site to personnel office. This culture is contained by no village (Geertz 1973) or laboratory (Latour and Woolgar 1986). Each location is temporary and all locations serve other purposes. Instead of a bounded location as my setting, I have therefore bounded my investigation in two ways. Firstly, by using the limits possible by using the idea of time I have limited what has been collected. Secondly, I have focused upon a set of membership-relationships (Woolgar 1991a, Cooper and Woolgar 1993), which include the ethnographer instead of locations. However, these 'relationships' need to be viewed rather as Eco (1979) describes the limitations of thinking in semiotics: the "classical notion of the 'sign' dissolves itself into a highly complex network of changing relationships" (Eco 1979:49). I have identified various types of membership within SST-2: master, novitiate, practitioner, consultant, client, ethnographer and author to name a few of relevance for the data generated. These are no doubt incomplete. The movement between these constantly reconfigures the nature of what SST-2 is really like. All are in constant operation at any data point. For example, in a consultancy situation, such as that described in chapter four, Josephine holds all these positions and enacts all these relationships within the community. The relationship to SST-2 is master and consultant in her interactions with clients. The relationship to SST-2 is novitiate with ICOSA, the research institute. The relationship with SST-2 is client with her resident ethnographer. All relationships are there

embodied[15] in action and artefact.

In addition, using only ethnographer's transcriptions in a culture littered with members' texts was considered too limited and generated problems of authority (see section two of this chapter) for this account with its aspirations for reflexive accounting. Therefore an ethnography of members' texts as well as members' practices was envisaged. The texts used, given the description earlier of the 'locked documents' in this field, are those that are public, either as marketing documents or as published texts. The advantage of using these artefacts, is that they can be used to represent examples of stable physical entities, which, as we established in chapter two, need to be examined in this investigation of technology. The case study reported in the following chapters therefore involves eighteen months of participant observation, with an equal balance on observations of 'doing' and of 'text'.

The presentation of data

So far I have outlined what is taken to be data and indicated the process by which it has been collected.[16] In the remainder of this section I shall describe the questions that chapters four, five and six (the data chapters) of this thesis address and what data has been deployed to examine each question. The data chapters within this thesis have been constructed to examine the culture of SST-2 within the three themes established in chapter one of this thesis: boundedness, credibility and reflexivity or inquiry.

The key characteristic in the analytic orientation taken is that the switch between member and analyst has been used to generate the methods used. The recognition from experience as a member of SST-2 of the unbounded quality of location has been incorporated into the method used within chapter four: the unbounded ethnography. The recognition from the same experience of the ways in which ideas are re-presented in marketing texts for different purposes has been incorporated into the method used in chapter five which approaches different artefacts as being equally 'final' or 'stable' representations instead of approaching them as artefacts in a trajectory towards a single 'final' form. In chapter six, the switch between member and analyst is taken as the primary focus of analysis to examine how membership status constitutes readings.

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[15]The notion of embodiment is gaining currency within medical anthropology as a gloss for the ways in which knowledge, in this case 'medical' knowledge, is embodied in action. Armstrong (1983) Dreyfus (1972, 1992) Benner (1984, 1989) Woods (1994). It describes a holographic notion where eg the action of a nurse implies the whole community of nursing (Benner 1984) or where blindness is 'cured' through the embodiment of guide dog with owner (Woods 1994). It is similar to the notion of 'performing community' developed by Cooper and Woolgar (1993b).

[16]Ethnography is discussed in more detail in section two of this chapter.

Chapter four focuses upon the second objective set at the end of chapter two through the examination of the characteristics of the working practice of this chosen culture. The question is what features of this working practice are significant in the working of SST-2 and how might these features be made manifest. This therefore represents the conventional reporting of ethnographic data as an account of what the day to day life of members of a culture is like. The data used for this is the inscriptions from participant observation over a two week period across a variety of contexts. Anecdotal evidence is drawn in where appropriate from the retrospective experience to decorate certain points. However, as mentioned above, the use of time instead of place as the boundary of ethnographic investigation is not conventional. Therefore this chapter also seeks to explore whether such an approach is legitimate.

Chapter five is concerned to explore the first objective outlined in chapter two: the relationship between physical closure and interpretive closure. I have mentioned above that one central object, CPA, is not open for this kind of investigation because of the members' rules about protection. I have therefore examined consultancy produced marketing texts as objects with a closed physical form, but without the members' read protect rules. The four texts selected are those distributed during the same period of time as is covered by the ethnographers texts in chapter four. Chapter five examines how the potential for variability in accounting in texts is put to work in this culture to configure members in the explicit attempt to incorporate new members. This chapter is also concerned to examine the extent to which the type of data works for the purposes set, to will explore the implications of constructing and examining the question with the use of this data.

Chapter six is constructed as two sets of readings of published documents: one produced by the author as analyst and the other produced by the author as member. The content of this chapter questions the ways in which credit is hardened in the citation practices in these documents and the extent to which this process of hardening 'locks out' new members.

Summary of Section One

This section has outlined the development of the relationship between ethnographer and field from full member to participant observer in producing this thesis. An account was given of the rejection of retrospective ethnography as the means of data generation for this thesis, followed by an account of the consequences of reconfiguring the relationship with this culture from participant member to analyst member, for what could be taken as acceptable data. A brief outline of socio-technical mapping was given in contrast to the ethnographic approach taken. However, by incorporating ideas from my

participant membership of SST-2 about the flexibility of setting and the recognition of any artefact as one 'stable' form rather than existing as a series of temporary manifestations leading to a final form, two of the identified strengths of socio-technical mapping have been incorporated into this ethnography: the use of text and the absence of setting. Finally, the questions asked of the data and the sources of information used to explore these questions have been outlined. The next section is concerned to subject ethnographic methods: those chosen to generate the data, to inquiry.

Section 2 - Inquiry of method

Key informant Hold on, you write of what you have done, why you have done it and what you are going to do with it in the remainder of this chapter. but what have you done to me? I can see how 'my' story in chapter one has been produced from the discussions we have had, although it in no way reads like my own account would do if you had asked me to write this bit. I have yet to be convinced that 'Josephine's story' is anything other than just one potential way of describing the events. I've told the 'same' story in completely different ways to different people. The only thing which appears to make your rendition any different from another account is that it is written down.

Ethnographer That's a very pertinent observation, Josephine, and goes straight to the heart of key problems for ethnography: how is ethnography different from 'member' activities? and what is the importance of writing (in) ethnography? Indeed, it is these concerns that now need to be outlined in the remainder of this chapter. Many researchers have commented upon these issues. Hammersley and Atkinson suggest "research is not fundamentally different from other forms of practical activity."(Hammersley and Atkinson 1983:15). They further suggest that writing, which is increasingly recognised as central to the activities of members in so many areas, is acknowledged as the central activity of ethnographers. Geertz has suggested "The ethnographer 'inscribes' social discourse: he writes it down. In so doing, he turns it from a passing event, which exists only in its own moment of occurrence, into an account which exists in its inscriptions and can be reconsulted" (Geertz 1973:19). Extending this further it has been stated that "no longer a marginal or occulted dimension, writing has emerged as central to what anthropologists do" (Clifford 1986a:2).

Key informant Well, Joanna, it certainly appeared to be what you spent most of your time with us doing after you left ICOSA. You were always scribbling something. It felt like having a personal secretary whenever we travelled together.

Ethnographer I guess secretaries are the more usual 'inscribers' of organisational cultures. This process of 'inscribing' is indeed central to ethnography and the

interpretations made and used from the outputs of this process definitely need critical examination in a thesis which purports to be an ethnography. This is one of the central problems for ethnography as I have suggested.

Key informant Well, maybe I could help you clarify these problems here by questioning your activity for my perspective? This would alow me to undertake a process which would be similar to the social analysis (Rowbottom 1977, Ovretviet 1983) I would undertake with my clients. It would also be interesting to find out what you have been doing for the past four years.

Ethnographer A typically pragmatic response from you if I may say so. Well, over to you as my key informant, where would you like to start?

Doing ethnography

Key informant Like I said earlier, what do you do and why do you do it? Let me expand on that. I have some ideas about the process as you have been wandering around asking questions and getting under foot. I've also read one of your products about us (chapter one section three). Neither seem to be much different from what I do when I first go into an organisation. In fact the only way it seems to differ is that I start as Ovretviet (1983) suggests with the organisational 'members' perceptions of a problem, whereas you seem to start with a agenda of your own.

Ethnographer As I demonstrated in choosing to present two stories of problem construction, one from SST-1 and one from SST-2, in chapter one of this thesis.

Social analyst[17] OK, so given this, how do you decide what is appropriate to study, given that you don't have a problem predefined for you? And when you have, how do you justify it?

Ethnographer Clearly, we need to take members problems into account: how else would we gain the necessary access to undertake our investigations. You have asked a whole variety of questions in this, some which focus on the activity of doing ethnography, others on the aims of ethnography and yet others which concern how this work is made credible. It would make most sense if I start with answering the questions about practice as the other questions will be shaped by the information from this. So I will start by describing what ethnographers do on a day to day basis.

Social analyst OK, so how do get from following a member around to the set of stories in which they are characterized?

Client To answer that question I need to draw upon the words of many others who

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[17]Please note the shift in ascribed role - these roles are deliberately represented as unstable in this account to make manifest the movement between inquirer and inquired of.

have contributed to the establishment and maintenance of my domain, so my account will frequently defer to the ideas and opinions of those best placed to speak for me. Although, I must point out that "such a tactic only begins to break up monophonic authority. Quotations are always staged by the quoter" (Clifford 1988b:50). The implications of this for the writing of ethnography will be discussed later in this chapter. The first thing is to introduce two ideas which underpin ethnography: the first is the idea of 'culture' and the second is the possibility of engaging with any culture as a 'participant observer'. It has been suggested that "if any technique for field research can be said to be the most characteristic anthropological contribution to social and behavioral science, it is that of participant observation" (Crane and Angrosino 1984:64).

However, let me start with the notion of culture. As has been argued "practically all anthropological reasoning rests on the premise that cultural variation is discontinuous: that there are aggregates of people who essentially share a common culture and interconnected differences that distinguish all such discrete cultures from all others" (Barth 1982:9). The consequences of this for research are explained as follows "the concept of culture I espouse..is essentially a semiotic one. Believing ..that man is an animal suspended in webs of significance he himself has spun. I take culture to be those webs, and the analysis of it not to be an experimental science in search of law but an interpretive one in search of meaning" (Geertz 1973:5).

Social analyst I don't have a problem with that notion. I use it all the time in consultancy as it has a lot of currency with my clients - it expresses the tension between believing that their organisation is unique but that, at the same time, general ideas from theory can be applied to their situation.

Client Good. so you will understand the attempt to produce practices which formalize participation in social life; the second idea introduced above. The development of practices such as participant observation assumes these cultures are similar enough for participation to mean sense can be made by an outsider, but distinctive enough to be worthy of separate attention. Hammersley and Atkinson (1983) stress this in their account of ethnography. They argue that it "exploits the capacity that any social actor possesses for learning new cultures and the objectivity to which this process gives rise. Even when he or she is researching a familiar group or setting. the participant observer is required to treat it as 'anthropologically strange' in an effort to make explicit the assumptions he or she takes for granted as a culture member" (Hammersley and Atkinson 1983:8). Clifford (1988b) discusses the history of this technique and explores the work of such seminal practitioners as Malinowski. He suggests that "the new ethnography was marked by an increased emphasis on the powers of observation. Culture as construed as an ensemble of characteristic behaviours, ceremonies and

gestures susceptible to recording and explanation by a trained onlooker....a distinct primacy was accorded to the visual: interpretation was tied to description" (Clifford 1988b:31). "As the central ritual of the tribe (of ethnographers) fieldwork is the subject of considerable mythic elaboration" (Stocking 1983b:70). The manifestations of these rituals come in the form of stipulations about what an ethnographers should do. For example Fetterman suggests that "learning to speak the language of the natives under study is essential to research" (Fetterman 1989:22) and "the emic perspective - the insider's or native's perspective of reality - is at the heart of most ethnographic fieldwork. The insider's perspective of reality is instrumental to understanding and accurately describing situations and behaviours" (Fetterman 1989:30) and suggests that "participant observation is immersion in a culture. Ideally the ethnographer lives and works in the community for six months to a year, learning the language and seeing patterns of behaviour over time" (Fetterman 1989:45) out of which emerges what is appropriate data. It has also been suggested that: "The ethnographer participates, overtly or covertly in people's daily lives for an extended period of time, watching what happens, listening to what is said and asking questions, in fact collecting whatever data are available to throw light on the issues with which he or she is concerned" (Hammersley and Atkinson 1983:2).

Social analyst So you work with and use what you are presented with at any given time, so that you can quickly fit in and be convincing - to show you have understood your new colleagues, rather like consultancy?

Client Well, not quite, the idea is not that you are credible to the natives. Fetterman (1989) suggests instead that sometimes the questions you ask will appear stupid to key informants and Garfinkel (1984) suggests that the use of breaching experiments, where you deliberately break a cultural rule, can provide important boundary testing data. The argument is more about the quality of experience. It has been argued instead that "participant observation obliges its practitioners to experience at a bodily as well as an intellectual level, the vicissitudes of translation" (Clifford 1988b:24).

Social analyst OK, so the issue is not one of convincing the 'natives' as you so charmingly refer to them, but of convincing those who will read your account that you have 'really' been there. When you talk of experience at a 'bodily level' would an example of this be the account you produced of the occasion when we told you we were going to present you as a consultant instead of a researcher when we took you to BOS?[18]

[18]The visit to BOS is reported in scene five, chapter four. In this account the ethnographer is threatened with having to perform as a consultant at this meeting, rather than as observer.

Client I guess that was a bodily experience, but as I describe in the account in chapter four, the consequence of this experience was to induce a shift from analyst to member. Research into the vicissitudes of translation at a bodily level has explored particularly the subject of pain (although fear and humiliation would be similar I suppose) where it is contended that the essence of this experience is beyond observation - it only exists in participation. Scarry (1985) develops the position that pain is unsharable. She suggests that this generates a problem for comprehension: "a problem that originates much less in the inflexibility of any one language or in the shyness of any one culture than in the utter rigidity of pain itself: its resistance to language is not one of its incidental or accidental attributes but is essential to what it is. Why pain should so centrally entail, require, this shattering of language...It is precisely because it takes no object, that it more than any phenomenon, resits objectification in language" (Scarry 1985:5) However, alternative discussions of pain in ethnography have been produced which suggest that the way "pain is defined determines pain behaviour. Thus given our own linguistic conventions pain defined as a sensation cannot be shared. One can <u>have</u> a pain, itch or throb but one cannot be said to <u>know</u> it and neither can any one else" (Skulkans 1976:207). "Pain is relegated to the biological" (Skulkans 1976:206). She therefore suggests that the view of embodied experience as merely biological is only one way of conceptualising the relationship between what is described as the cultural and the natural. Alternatively, the experience of the "vicissitudes of translation" allows the participant observer access to the way these two are related in any culture.

A similar issue has been identified in relation to rage by Rosaldo (1984). When observing the response of his members to the death of one of their own, he noted that their response was to invade a neighbouring village and kill. In attempting to rationalize this within his ethnographic account, he asked if it in some way provided a compensation or a balancing of loss. The cryptic response he received was that 'a man could say that but, no, they were just so mad'. He kept revisiting this issue and attempting to explain it, but kept getting the same response. He describes not understanding until his wife's death and was filled with a murderous rage.[19]

So your flippant question about my experience when I was called upon to change role rapidly is relevant. The visceral quality of my experience had two consequences for my study. My experience of fragmentation when I realised that who and what I was to the people we met on that day was entirely based upon the events as they unfolded gave me direct access to the central concern with boundary maintenance in your organisation.

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[19] This also raises an interesting issue about the boundaries around an ethnography when reinterpretations are occurring years after the 'real' experience.

It also introduced me to a new focus for investigation. namely the ways in which the 'biological' and 'personal' boundaries are managed through the rituals of dressing and face painting in consultancy.

The particular notion which underpins what counts as data in ethnography is the idea that human experience is sharable at some level and requires an act of 'experiencing-with'. However, the strength of ethnography is that it also requires an orientation to the observed which is in tension. This account so far. only deals with one of the components of ethnography: the idea of participation as 'being'. Of equal importance is the exploitation of analytic distance. Geertz (1983) describes the need for this tension in the following way, generating a very specific role for the ethnographer: "Confinement to experience-near concepts leaves an ethnographer awash in immediacies. as well as being entangled in the vernacular. Confinement to experience distant ones leaves him stranded in abstraction and smothered in jargon. The real question. and one which Malinowski raised by demonstrating that. in the case of 'natives' you don't have to be one to know one. is what roles the two sorts of concepts play in anthropological analysis. Or. more exactly. how each case. ought one to deploy them so as to produce an interpretation of the way a people lives which is neither imprisoned within their mental horizons. an ethnography of witchcraft as written by a witch. nor systematically deaf to the distinctive tonalities of their existence. an ethnography of a witchcraft as written by a geometer" (Geertz 1983:57).

Hammersley and Atkinson (1983) suggest that. for the ethnographer. marginality is a role "from the perspective of the 'marginal reflexive ethnographer' there can be no question of total commitment. 'surrender' or 'becoming'. There must always remain some part held back. some social and intellectual distance. For it is in the 'space' created by this distance that the analytic work of ethnography gets done" (Hammersley and Atkinson 1983:102). An example of what this means in practice from the perspective of the ethnographer is given by Geertz (1983) "when a meanings-and-symbols ethnographer like myself attempts to find out (for example) what a pack of natives conceive a person to be. he moves back and forth between asking himself. 'What is the general form of their life? and 'What exactly are the vehicles in which that form is embodied?'" (Geertz 1983:69) Woolgar (1994) reconstitutes this problem when he argues "the importance of ethnography is not so much in achieving a balance between these two poles. as in interrogating and making the constant switch between the poles the topic" (Woolgar 1994:44).

Key informant I have a personal difficulty with the way this 'analytic distance'. as you describe it. is established by the use of the term 'native'. I find it really irritating and quite demeaning to be referred to as a native. particularly as I'm not sure how you've

decided what I am a native of and which of my activities are data to support this classification. It feels like you have demarcated ethnography from other methods based upon the long-term, in-depth experiences from fieldwork, but you have all of these tricks, one of which is calling me a native, which keeps you apart and somehow gives you more right than me to comment upon what is happening in my life. I wouldn't get very far in my work I can tell you if I referred to my clients as natives. Is it not possible to have distance without patronage?

Ethnographer That is a fair observation, supported by Sharrock and Anderson (1982). However, as Woolgar (1988a) has suggested: "The distinctiveness of the cultural object is axiomatic to the ethnographer's work and her report must testify to the strangeness of the other. In virtue of the strangeness achieved in her report, the ethnographer appears to work at a higher epistemological level than the native...The exoticism of the report is tied to certitude because analytic distance privileges and sets apart the method of the observer" (Woolgar 1988a:27). "Conversely, the more familiar the subject (or the more difficult it is to specify what makes the subject different from us) the less distinctively privileged is the ethnographer's method" (Woolgar 1988a:28). Geertz (1973) deals with this by suggesting that the work of ethnography involves generating an understanding of a people's culture which "exposes their normalness without reducing their particularity" (Geertz 1973:14).

Social analyst Yes, so the use of the term 'native' is one way of establishing this necessary distinctiveness or particularity? It is one way of making the content of your work 'data'? Could you explain in a little more detail what you actually use as data?

Client One of the problems is that anything can really be used as data: "there is a sense in which it is impossible ever to record all the data acquired in the course of fieldwork" (Hammersley and Atkinson 1983:44). Therefore, "the process of field research is potentially endless. One can never have enough conversations" (Jackson 1990:67). It is no doubt for this reason that the 'holographic' (Lawler et al 1985) view of culture has become current; as it allows an idea of whole to be generated from a variety of parts. For example the way the Balinese cock-fight is used by Geertz (1973).

Social analyst So the creativity of your approach is to make more of any event than just an account of what happened?

Client Hammersley and Atkinson (1983) make such a point when they state that "in ethnography the analysis of the data is not a distinct stage of the research...informally it is embodied in the ethnographer's ideas hunches and emergent concepts..The collection of data is guided strategically by the developing theory" (Hammersley and Atkinson 1983:174). So the answer to your question is yes, the ethnographer creates that whole analytically out of the parts. As these authors explain "over time the research problem is

developed or transformed. and eventually its scope is clarified and delimited...it is frequently only over the course of the research that one discovers what the research is really 'about'" (Hammersley and Atkinson 1983:175). It has been suggested that "the problems that the social scientist struggles with in defining her methods are the same problem that from another point of view constitute her subject matter: namely the uncertain relations between accounts of the significance of action and observations and inferences on which those accounts must be based. There is no privileged analytic stance for the social scientist that exempts her from the problems of adjudicating the practical objectivity of the social world. the only advantage that accrues to the researcher...is recourse to a record of action and circumstances"(Suchman 1987:113). This is described as follows: "The ethnographer 'inscribes' social discourse: he writes it down. In so doing, he turns it from a passing event, which exists only in its own moment of occurrence, into an account, which exists in its inscriptions and can be reconsulted" (Geertz 1973:19).

Key informant So we return to the question I asked at the beginning of this section: 'How does this differ from what I do?' All the time at work. I take notes, in my diary, on scraps of paper, in client files on 'phone note pads, all which record information to support my work and my understanding.

Writing ethnography

Ethnographer And as I said, a pertinent observation. The centrality of writing has been recently identified within ethnography and been the subject of much exploration for precisely this reason. "As with all other aspects of ethnographic research, the recording, storing and retrieving the data must be a reflexive process in which decisions are made in the light of methodological and ethical considerations" (Hammersley and Atkinson 1983:173). So the production of data in ethnography involves writing things down and there are many different forms this writing takes: research proposals, fieldnotes, memoranda, interim reports, final reports, articles, books (Fetterman 1989:106).

Clifford (1990) argues that Geertz (1973) opened up the debate by identifying that ethnographers write. but immediately limited the debate by focussing upon inscription and interpretive description. Clifford (1990) suggests that there is a much broader typology of writing within the tradition of fieldnotes from inscription to transcription and description. This is summarised as follows "textualization is at the heart of the ethnographic enterprise, both in the field and in university settings. In an important sense, fieldwork is synonymous with the activity of inscribing diverse contexts of oral discourse through fieldnotes and recordings. Unlike historical research ethnography originates in orality and only makes the transition to writing with difficulty ..the

ethnographic task is one of inscription" (Marcus 1986:264). Clifford (1990) uses the metaphor of the raw and the cooked, developed by Douglas (1966) and has applied it to research data. He suggests that the idea of raw data is inappropriate for research in anthropology "The cooking metaphor, so tempting when it comes to fieldnotes, is inexact because there are no 'raw' texts" (Clifford 1990:58). Instead he suggests that inscription should be described as chopped, descriptions as sauteed and transcriptions as the heated leftovers.

Social analyst So what constitutes data is entirely dependent on the intuitions and abilities of the individual fieldworker?

Client That is certainly an important consideration and studies of fieldnote taking have suggested that this is one of the key tensions in ethnographic work for fieldworkers. "The lack of standard methodology is also revealed in the huge variety of definitions of fieldnotes offered by interviewees. While in our 'corridor talk' we anthropologists celebrate and harvest anecdotes about the adventure and art of fieldwork, playing down and poking fun at our attempts to be objective and scientific in the deep bush, the tension remains because at other times we use our fieldnotes as evidence of objectivity and rigour. Fieldnotes as symbols of fieldwork can capture this tension but not resolve it" (Jackson 1990:26).

Social analyst This must be an extremely difficult tension to work with: to do work that at one and the same time needs to be both 'scientific' and 'subjective'. Doesn't it leave practitioners with a confused sense of just what it is that they are trying to achieve in their work?

Client That is a sensitive observation, supported by research into our practices. "I found a remarkable amount of negative feeling: my interview transcripts contain a extraordinary number of images of exhaustion, anxiety, inadequacy, guilt, confusion and resentment. Many interviewees feel that writing and processing fieldnotes are lonely and isolating activities, chores if not ordeals" (Jackson 1990:10).

Social analyst How is this resolved, if at all, by fieldworkers?

Client Primarily by limiting the scope of the claims made. As Geertz (1973) has argued "anthropological writings are themselves interpretations and second and third order ones to boot. (By definition only a 'native' (sorry) makes first order ones; it's his culture). They are thus fictions: fictions in the sense that they are something made, something fashioned - the original meaning of fictio - not that they are false, unfactual or merely 'as if' thought experiments" (Geertz 1973:15). Indeed the recognition of the fictional quality of ethnographic accounts is now a common place. It has been argued that everyone knows that ethnography is text: "Clifford's central theme has been the textual construction of anthropological authority. The main literary device employed in

ethnographic 'free indirect style' has been well analyzed...and need not be rehearsed here...Advances have been made in our awareness of the fictional...quality of anthropological writing" (Rabinow 1986:243). Geertz (1973) suggests that it is this narrative quality which gives ethnographic writing its strength. He states "it is not against a body of uninterpreted data. radically thinned description that we must measure the cogency of our explications, but against the power of the scientific imagination to bring us in touch with the lives of strangers" (Geertz 1973:16).

Key informant That's interesting and links to a question I wanted to raise earlier. When I was reading 'Josephine's story' it struck me as odd that when you described my work you made no reference to the details of the knowledge I use. I doubt that anyone else, from reading this story in chapter one, would know any more about the content of the work I do. than before they started. Is it not possible to suggest that the text books I use on a day to day basis could be construed. following Geertz (1973), as first order interpretations available for your use as data?

Ethnographer The standard response to this is "if you want to understand what a science is you should look, in the first instance not at its theories or findings and certainly not at what its apologists say about it; you should look at what its practitioners do" (Geertz 1973:5).

Key informant Why? That contradicts what you have said earlier about the importance of the insider's view, what you referred to earlier as the emic perspective. I must admit I am getting very confused by the contradictions that keep appearing in the prescriptions you are giving me about what ethnographers should do. As far as I can see. the people you observed used, read and made sense of books, so why should you ignore these documents. More importantly, how can you be so sure that their content is not relevant to your understanding. You told me it was my view that was important and I am telling you that our own writing must be taken into account.

Ethnographer You are not the first to make this sort of observation about the privilege ethnographers give to their own text as data. " It is no longer possible to act as if the outside researcher is the sole or primary bringer of culture into writing. This has, in fact, seldom been the case" (Clifford 1986b:117). This has been recognised in recent ethnographies of laboratory work where the process of converting action into text is the focus of investigation. Within these studies. however. primacy is still given to the observation by ethnographers of the production of texts. rather than with understanding the contents of such texts.

Key informant So when I complain that you have used your own notes but not mine to write Josephine's story it is a recognised facet of ethnography and one that is considered problematic?

Ethnographer Yes, "it is no longer possible to act as if the outside researcher is the sole or primary bringer of culture into writing. This has, in fact, seldom been the case. However, there has been a consistent tendency among fieldworkers to hide, discredit or marginalize prior written accounts ... the fieldworker, typically starts from scratch, from a research experience, rather than from reading or transcribing. The field is not conceived of as already filled with texts. Yet this intertextual predicament is more and more the case. ... "informants" increasingly read and write. They interpret prior versions of their culture, as well as those being written by ethnographic scholars" (Clifford 1986b:117). Or more simply: "Cultures studied by ethnographers are always already writing themselves" (Clifford 1986b:118). Connerton (1989) has discussed textualization of cultures when exploring memory in communities. He suggests that this activity of rendering culture into text undertaken by anthropologists is part of wider shift in the understanding of interpretation: "Inscription and hence texts were privileged objects of interpretation because the activity of interpretation itself became the an object of reflection rather than simply being practised in a particular context" (Connerton 1989:96).

Key informant So you mean ethnography is becoming aware of its egocentricity in deciding what writing is or is not acceptable data?

Ethnographer Yes. Hammersley and Atkinson (1983) raise the importance of texts other than fieldnotes arguing "written accounts of many sorts are regularly produced in contemporary industrial societies. In many instances therefore ethnographers need to take account of documents as part of the social setting under investigation" (Hammersley and Atkinson 1983:128). They give accounts of Wood (1979) using ethnographic methods to study schools explored school reports to examine the way teacher objectivity was constructed. Zerubavel (1979) and Rees (1981) exploring the importance of rota establishment and medical records in the practice of health care. Similar comments are made within the literature advocating discourse analysis which suggests that texts should be taken as data in their own right (Potter and Wetherall 1987). Following Cicourel (1976), it has been suggested that such documents should be "examined not simply used as a resource. To treat them as a resource and not as a topic is to trade on the interpretive and interactional work that went into their production; to treat as a reflection or document of the world phenomena that are actually produced by it" (Hammersley and Atkinson 1983:137).

The critical use of the documents of members means that it is no longer sustainable to view our own writing uncritically; it can no longer be taken as transparent of the field. "Ethnographic writing is determined in at least six ways: (1) contextually (it draws from and creates meaningful social milieux) (2) rhetorically (it uses and is used by expressive

conventions) (3) institutionally (one writes within and against specific traditions, disciplines, audiences) (4) generically (an ethnography is usually distinguishable from a novel or travel account) (5) politically (the authority to represent cultural realities is unequally shared and at times contested) (6) historically (all the above conventions and constraints are changing) These determinants all govern the inscription of ethnographic fictions" (Clifford 1986a:6).

Arguing that ethnography creates the texts which are described as data, makes ethnography as much a subject as the culture under investigation. Ethnography has been constructed as a subject in a variety of ways. Questions have been asked about the typologies of textualization involved. the way authority is managed throughout the different aspects of textual production and the place of other 'authors' in the products of ethnography. All are based upon a prior assumption that documents are fabrications which are manifestations of a complex of power relations around ethnography's engagement with 'the field'.

Social analyst So where does that leave us?

Ethnographer So far we have examined the tensions inherent in 'participant observation' and the concerns about writing. Bound up with the issues of writing we have identified the privilege given to ethnographic texts. The issues remaining concern the tactics of authority 'configured' into the ethnographic account and the ways in which the authority of accounts can be addressed. This involves critically examining the ways in which 'members' can be incorporated into ethnographic accounts and the ways in which ethnographers place boundaries what can be taken to count as ethnography. In attempting to address the issue of authority, given the predominance of texts in ethnography, much recent work in ethnography has concentrated upon the extent to which ethnographies are produced by multiple authors. It has been suggested that "there is no point in replacing the misleading formula 'participant-observation' with an equally simplistic 'participant-inscription'" (Clifford 1990:53). The point is not, he argues, to describe with increasing accuracy what ethnographers do. Instead he suggests that the exploration of writing in anthropology brings to the foreground far more complex social processes within ethnography which focus upon relationships within the field. rather than the work of the author. as the central and significant component of the work. This exploration requires a critical evaluation of the way authority is managed in the writing of ethnography. This has resulted in a shifting focus of study: "an emergent trend in reflexive anthropology is the joint project of writing self-consciously experimental ethnography together with the study of ethnography as writing" (Ashmore 1989:50). This serves to reconfigure the understanding of the act of participant observation. Clifford has suggested that the original conception of this role is that "out of this

experience emerged in unspecified ways, a representational text written by the participant observer....this version of textual production obscures as much as it reveals" (Clifford 1988b:34-5). However he suggests that "it is worth taking seriously its principal assumption: that the experience of the researcher can serve as a unifying source of authority in the field" (Clifford 1990:35). Expanding this contention he states "Experiential, interpretive, dialogical and polyphonic processes are at work discordantly in any ethnography, but coherent presentation presupposes a controlling mode of authority" (Clifford 1990:54). The central recognition is that ethnography cannot exist without such 'authority'; the concern is not to put a value judgement or morality on ethnographic practice but to recognize that the act of authority is essential and therefore is an appropriate focus for study in its own right. As Clifford (1990) states: "Authority is neither good nor bad in itself, but it is always tactical. It enacts power relations" (Clifford 1990:58).

Being (in) ethnography

Key informant Hold on, I didn't mean where does the previous discussion get you. I meant where does that leave us, your 'members'? Could it be argued that my experience of being patronised is a manifestation of the power relations involved in the production of Josephine's story?

Ethnographer Yes and your capacity to voice your concern in this chapter, I hope, makes you realize that this discussion is an attempt both to make explicit those processes and to shift the power relations. As stated in the introduction to this chapter, that the purpose of the section we are currently constructing is to subject inquiry to inquiry; to engage in a reflexive examination of the ways in which both of 'us' are constituted through the production of 'ethnography'.

Social analyst But we are not both constituted with equal power. In addition there appear to be serious problems of credibility associated with such self-criticism. Such a position, it seems to me, makes it impossible to sustain the legitimacy of any interpretations you make.

Client That has been one of the standard concerns with attempts to work in an explicitly reflexive way (Ashmore 1989). However, Clifford (1986a) suggests "once 'informants' begin to be considered as co-authors and the ethnographer as scribe and archivist as well as interpreting observer, we can ask new critical questions" (Clifford 1986a:17). A similar assertion is made elsewhere: "By casting doubt on the claims of ethnography, by drawing attention to the constructed nature of ethnographic fictions the way is opened for a critical assessment of the ethnographic method, its claims to authority, the circumstances which give rise to its prominence" (Woolgar 1988:27).

Hence the way authority is claimed becomes the object of ethnography rather than an invisible. taken for granted process within such work. The practical consequences of this can be summarised in the following observation: "because post-modern ethnography privileges 'discourse' over 'text' it foregrounds dialogue as opposed to monologue and emphasises the cooperative and collaborative nature of the ethnographic situation in contrast to the ideology of the transcendent observer" (Tyler 1986:126).

Social analyst Hence this dialogue?

Client Well. not entirely - this form of presentation is indeed predicated upon the possibilities raised so far in this discussion. Clifford (1986a) identifies a variety of modes of authority in anthropological writing: experiential,[20]interpretive,[21]dialogic and polyphonic.[22]"Clifford's main thesis is that anthropological writing has tended to suppress the dialogic dimension of fieldwork. giving full control to the anthropologist. So. as Clifford would argue our dialogue represents our recognition of this new form of authority for "once dialogism and polyphony are recognised as modes of textual production. monophonic authority is questioned. revealed to be characteristic of a science that has claimed to represent cultures" (Rabinow 1986:13). As Clifford (1986b) has stated: "once all meaningful levels in a text. including theory and interpretation are recognized as allegorical (referring to other meanings and interpretations) it becomes difficult to view one of them as privileged. accounting for the rest" (Clifford 1986b:103). However. it must be pointed out that "to say ethnography is composed of discourses and that its different components are dialogically related is not to say that its textual form should be that of a literal dialogue" (Clifford 1988b:44).

Key informant What do you mean the 'form of a literal dialogue' - does that mean we shouldn't just write up the transcript from our discussions. but should some how edit and re-arrange it?[23]

Ethnographer No. it is not a practical concern but a conceptual one. "If interpretive authority is based upon the exclusion of dialogue the reverse is also true: a purely dialogic authority represses the inescapable fact of textualization" (Clifford 1983:135).

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[20]This is illustrate in chapter four where continual reference is made to my notes and recollections.

[21]This is the style of accounting suggested by Geertz (1983) earlier in this discussion and is represented in the data reporting in chapter five.

[22]As is exploited here and also within the dialogue produced for chapter six.

[23]In chapter one. section one, the ways in which the exploitation of dialogic form to give the impression of a reality independent of the text are discussed within the general exploration of literature within SSK on about reflexivity.

Experimentation with literary form merely enacts different types of power relations, rather than eradicating such relationships. For example, Rosaldo (1986) describes how an author "goes on to buttress the authority of his document through the strategy of novelistic realism" (Rosaldo 1986:79) and states that he "deploys the false authority of polyphony, his voice and peasant voices equally heard by citing in italics, passages that represent direct quotations from the past" (Rosaldo 1986:82).

Social analyst What do you consider to be the consequences of this debate for our discussion?

Ethnographer This discussion of ours is not a 'literal dialogue' because it is written. All the comments I have used from you and from my other co-authors (such as Clifford and Rosaldo) are clearly controlled by this text as "such a tactic only begins to break up monophonic authority, quotations are always staged by the quoter" (Clifford 1988b:50).

Key informant Oh....?

Ethnographer You have a problem with that?

Key informant Yes! You start by introducing some space in this account for the interpretations of those 'studied' ie. me, but come to the conclusion that I am not 'real' because you have control over how and where I express myself: you seem to be saying that it is yet another tactic of authentication, rather than a real co-interpretation. This thing you call reflexivity seems to keep us out rather than giving us the 'space' you claimed we had at the beginning of this section.

Ethnographer To a certain extent that is a valid description of the argument so far: the work called ethnography cannot escape textualization - indeed, it has no existence without it (as no doubt many doctoral students have had cause to regret) and yet to write with you active implies an authenticity beyond this text of a discussion or exchange which this account represents. So indeed, this is another tactic for gaining credibility.

Key informant Well, it could have happened like this. Constructing the account was certainly 'real' - trying to make sense of all these other authors and organize their quotations was 'real', if frustration and irritation is any indication. They didn't just fall into place.

Ethnographer I would agree with that. The discussions in chapters one and two, and indeed this chapter, have been concerned to demonstrate the extent to which texts are constructed. However, there is another important consideration which your protest raises: namely the ethical question this raises for ethnography which concerns how informants are represented within the documents produced; to what extent can they be represented as sense making participants rather than as subjects to be made sense of.

Social analyst If that is what you are interested in you will certainly learn something

of relevance to your own field by looking at the work we do. If we do not take into account how our readers think, they throw our work into the bin and employ another consultant.

Ethnographer To state that begs one of the key questions we are addressing in this discussion: namely to explore what counts as 'taking into account'. In this context the issue of 'taking into account' is explored in terms of the academic and scientific problems of representing diversity within text. As Clifford (1988b) asks "any continuous ethnographic exposition routinely folds into itself a diversity of descriptions. transcriptions and interpretations by a variety of indigenous 'authors'. How should these authorial presences be made manifest?" (Clifford 1988b:46). There are various examples from the anthropological literature of the nature of these authorial presences. The presence of multiple authors of fieldnotes is discussed by Clifford (1988b) in relation to the work of Rosaldo (1980) who describes sitting in a bored trance writing down what his informants say as 'disposable' texts "only after leaving the field...does he realize that these obscure tales have in fact provided him with his final topic. the culturally distinctive Ilongot sense of narrative and history. Rosaldo's experience of what might be described as 'directed writing' sharply poses a fundamental question: Who is actually the author of fieldnotes" (Clifford 1988b:45)? The multiplicity of authors in the production of a final ethnographic text is made most explicit in the work of Turner (1967, 1982): "Turner's published works vary considerably in their discursive structure. Some are composed largely of direct quotations...overall Turner's ethnographies are unusually polyphonic. openly built up from quotations" (Clifford 1988b:49). These represent an attempt to meet the prescription for ethnographic writing "we better understand the ethnographic context as one of cooperative story making that in one of its ideal forms would result in a polyphonic text. none of whose participants would have the final word in the form of a framing story or encompassing synthesis" (Tyler 1986:126).

However. as I have mentioned above it is not a question of making explicit the extent to which informants control what is produced. This is "no longer news. Many ethnographers have commented on the ways both subtle and blatant. in which their research was directed or circumscribed by their informants" (Clifford 1988b:44) assures us. Indeed to describe research as circumscribed by informants is to imply that there is somehow something separate and real about a culture which is hidden from view. In fact this whole question is in danger of returning to the original concern with the accuracy of representation rather the exploration of representation. The following comment about authorial presences indicates this. Clifford (1988b) states: "Ethnographic discourses are not in any event. the speeches of invented characters.

Informants are specific individuals with real proper names - names that can be cited. in altered form when tact requires" (Clifford 1988b:50-1).[24]

Clifford (1988b) suggests "ethnography is invaded by heteroglossia. This possibility suggests an alternate textual strategy. a utopia of plural authorship that accords to the collaborators not merely a status of independent enunciators but that of writers. As a form of authority it must be considered utopian for two reasons. First the few recent experiments with multiple author works appear to require. as an instigating force. the research interest of an ethnographer who in the end assumes an executive editorial position...second the very idea of plural authorship challenges a deep Western identification of any text's order with the intention of a single author" (Clifford 1988b:51). Hence. Clifford is suggesting that the accurate representation of the meaning making process in producing ethnography effectively dismantles 'text' as a coherent and meaningful phenomenon. To put it another way. the requirement for explicit plurality of authorship. he suggests. undermines authority. So we have a reprise - in chapter one the same concern within SSK was raised by Latour (1988a) who argued for the inherent equality of all texts and all accounts accepted as 'just another story'. He also suggests similar methodological prescriptions for better writing when he suggests that the criteria for successful reflexive accounts would be that "we could write texts which would at once be craftily written. scrupulously true. which would not make readers believe that what was reported was exact and which would still be interesting" (Latour 1988a:166).

Key informant Interesting for whom? The idea of doing an ethnography comes from outside any culture and yet Clifford (1986b) implies that plural authorship fails because there is no force. internal to the culture. to express their 'culture' in this form. What arrogance. maybe 'members' would chose to interpret and present their own culture in a different form - maybe they would prefer to commission some advertising or a novel or a piece of sculpture. You say I beg the question of what counts as 'taking into account'. may I suggest that the account you have just given does the same.

Ethnographer This point is well made. However my purpose in using the comment from Clifford (1986b) was to illustrate that the question of authorial presentation can become yet another exercise in making ethnography more 'accurate'. In the account of ethnographic writing given so far the concern is with representation of 'real' events. However. the nature of what is 'real' has changed. It used to be a concern with an accurate account of a culture but now the important reality is the complexity of

[24]Although I am not so certain of this contention - hence my use of disembodied role and embodied voice to destabilise position and replace it with characters.

authorship. The way authorship is characterised in the story told becomes the new criterion of credibility. The existence and presentation of these co-authors becomes the 'new culture' of the ethnographer.

Key informant But how can anyone know whether or not I am real or not from reading this thesis?

Student I guess I could take you to the viva (see Ashmore 1989), but of course that still does not guarantee that you have said what I have described you as saying. It does not even mean that the flesh introduced at the viva is the reality represented in this text. But there is a serious point to this question you raise as described by Clifford (1986b) "the new tendency to name and quote informants more fully and to introduce personal elements into the text is altering ethnography's discursive strategy and mode of authority" (Clifford 1986:109). Pragmatically, this means this thesis gains credibility by using tactics which exploit your active presence rather than using those which invoke a distance between this text and your existence. These are a new set of conventions whose development could be explained by the following comment from Geertz (1973) "interpretive anthropology is a science whose progress is marked less by a perfection of consensus than by a refinement of debate. What gets better is the precision with which we vex each other" (Geertz 1973:29). The representation of our voices as shifting depersonalised roles, rather than as personalised objects is an attempt to both employ this 'new culture' without falling into unquestioning acceptance of a convention for the representation of multiple authority.

Bounding ethnography

Social analyst How can you write for your readers in such a way as to take all these concerns into account and still produce a convincing and well defined account of my culture?

Ethnographer "The data of ethnography make sense only within patterned arrangements and narratives" (Clifford 1986b:119) and there is an inevitable partiality in ethnographic research which is determined by the boundary decisions made by observers throughout the process. This needs to be acknowledged and worked with as a "self-conscious serious partiality" (Clifford 1986a:8). With ethnography, as this section of this chapter has laboured to point out, we are representing our cultural creations[25] in text. We are therefore committed to expression through narrative. Given this, as Latour (1988a) suggests, that for two main reasons, there will always be alternative stories,

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[25]The term 'our cultural creations' is used to describe two things; that they are created cultures and that they are created by our culture, the community of 'ethnographers'.

because such stories are always of their time and of their context. Firstly, as Clifford (1986a) suggests there is no such entity as a complete knowledge of any culture. When discussing the work of Price (1983) he suggests "there is no corpus of First Time knowledge and no-one, least of all the visiting ethnographer, can know this lore except through an open ended series of power laden encounters" (Clifford 1986a:8). Secondly Latour (1988a) argues, any narrative lives or dies by the readers interaction with it. Obviously, the implication of this is that one of our most important decisions is how to present what we have chosen to record for our examiners. Investigations of styles of reporting have suggested that the style most preferred by evaluators is that of a generic novel elaborated by specific events and interpenetrated with analysis (Lofland 1974).

Best friend I trust you will build this knowledge into the decisions you make about the presentation of later chapters.

Ethnographer Well, it is certainly a factor: "A reflexive awareness of ethnographic writing should also take account of the potential audience for the finished product..audiences may require different forms and styles of writing" (Hammersley and Atkinson 1983:227). Indeed. "recognizable sense, or fact, or methodic character, or impersonality or objectivity of accounts are not independent of the socially organized conditions of their use" (Garfinkel (1984:3). Garfinkel (1984) has emphasised the implications of this for ethnography suggesting that "it is intrinsic to the breakup of monologic authority that ethnographies no longer address a single type of reader. The multiplication of possible readings reflects the fact that 'ethnographic' consciousness can no longer be seen as the monopoly of certain Western cultures and social classes...recent literary theory has suggested that the ability of the text to make sense in a coherent way depends less on the willed intention of an originating author than on the creative activity of a reader" (Garfinkel 1984:52).

Key informant This raises again a question I asked at the outset of our discussion in this section of this chapter and which has not yet been satisfactorily answered. How do you know what you are going to study? And how did you decide that we had a separate culture worthy of study? And how do you know when you have studied it?

Ethnographer These questions are further manifestations of the problems discussed in different forms in chapters one and two. However, within the context of this third chapter, there are methodological concerns that your questions raise connected with the concerns about boundaries invading so many areas of activity in the social sciences. Haraway (1991) asserts "an argument for pleasure in the confusion of boundaries and responsibility in their construction" (Haraway 1991:150) in the development of social science-technology. The specific focus of such questions within ethnography is the boundary around what gets observed and interpreted and what does not. We have

explored above many of the issues this generates about ethnographic writing once the field work has commenced. However, your question also raises the role of the observer in inventing the boundaries which separate one entity from another as having the possibility of a discrete culture. As Woolgar (1988a) suggests "The frontispieces to the great classics in anthropological field work are a motif for the self-confidence of a bygone age; matter of fact photographic records of the world on which they report. The observer is notably absent from these photographs" (Woolgar 1988a:16). In this account (Woolgar 1988a) these anthropologists operated as if the distinctiveness of the culture was bounded by some reality independent of their activity in the field. This is rather as suggested by Geertz (1973) "anthropologists don't study villages...they study in villages" (Geertz 1973:2). hence invoking the assumption that boundaries used by anthropologists were not of their making.

This assumption of the self-evident nature of boundaries around cultures has been questioned. Clifford (1988b) "with expanded communication and intercultural influence. people interpret others and themselves in a bewildering diversity of idioms - a global condition of what Mikhail Bakhtin (1953) called heteroglossia. This ambiguous. multivocal world makes it increasingly hard to conceive of human diversity as inscribed in bounded. independent cultures" (Clifford 1988b:22-3). So clearly your question is an extremely important one as it points to my active role in creating both you as a member and in creating your particular culture. As Clifford (1986a) has stated "the historical predicament of ethnography. the fact that it is always caught up in the invention. not the representation of cultures" (Clifford 1986a:2). He continues: "Cultures are not 'scientific objects'...Culture and our views of 'it' are produced historically and are actively contested. There is no whole picture that can be 'filled in'...culture is contested. temporal and emergent" (Clifford 1986a:18).

One recent example of the observers role in boundary production comes from the critique (Thomas 1990) of the exploration of the use of technological systems by Suchman (1987) who explored views about the way human beings should work: "The view. that purposeful action is determined by plans. is deeply rooted in the Western human sciences as the correct model of the rational actor" (Suchman 1987:xi) and. she further argues. in the way such ideas have become embedded in design realities. Her purpose in undertaking this study was to develop the alternative view that the everyday use of technological systems depends upon emergent behaviour. or as she describes it "situated actions". Her suggestion is that artefacts should be self-explanatory. By this she refers to "the extent to which someone examining the artefact is able to reconstruct the *designers intentions*" (Suchman 1987:17). To do this. she commences ethnographic fieldwork by placing a boundary around a specific artefact which she then video

recorded. She suggested that the chosen artefact failed because it had assumptions about the rationality of human thinking built into its design. However, it has been suggested (Thomas 1990) that the 'failure' of this artefact was predicated upon the boundary created by this ethnography, rather than being a generalizable fact about design cultures.

So to return to your question about how to focus and bound my investigation, my somewhat unsatisfactory answer is that the production of a boundary or a starting point is both the essential requirement for a knowledge project and its inherent weakness: the assumption that cannot stand up to critical investigation. This is not a new observation. Many philosophers (Wittgenstein cited in Brand (1979), Hume (1888) have highlighted this through many generations of intellectual work. For the purposes of this thesis, all we can hope to achieve is an enacted recognition of this and a responsibility for the boundary we have created (Haraway 1991). This has been attempted in this thesis by creating boundaries explicitly in two ways. The boundaries created by the questions developed which are outlined and discussed in chapter two, emerged out of membership of the culture of SST-1, our user group. The boundaries created by the location of investigation, which are outlined and discussed in the first section of this chapter are based upon understanding transported from my membership of SST-2 into my membership of SST-1 to create unlocated ethnography. Hence choices made about bounding what is studied and what is presented are 'political' decisions about meaning rather than 'scientific' decisions accuracy of representation. I can certainly not argue for a different construction on the basis of this work.

To conclude for this section, it sought to raise and evaluate the critical concerns for ethnography as a method for subjecting the working practice of SST-2 to inquiry. The discussion is organised around the themes of doing ethnography, writing ethnography, being in ethnography and bounding ethnography. It was constructed to indicate the extent to which the subject of inquiry (either SST-2 or ethnography) is constituted by that inquiry (a different SST-2 and a different account of ethnography would have been produced for different purposes). The consequence of this discussion is that the data reported in chapters four to six need to be explicit about the ways in which the choices of inquiry have constituted the findings produced.

Social analyst I think this claim for the achievements of this section is spurious and would argue that while this dialogue demonstrated the distance maintained between analyst and member for the purposes of inquiry, it has also operated to sustain this distance rather than remove it. The account appeared to use 'voices' from many ethnographers but very few members.

Discussion of the Chapter

The purpose of this chapter was to provide a descriptive and critical account of the methodological decisions made for the production of this thesis. The material discussed in both sections of this chapter highlighted the ways in which 'members' are configured in text to constitute them as appropriate data. The discussion of the transition from member of SST-2 to observer of SST-2 (and member of SST-1) in section one, highlights how 'data' can become locked in this process. The construction of a dialogue between various disembodied roles in section two illustrates how inquiry is constitutive of both subject and analyst and of the relative instability of these positions in ethnographic accounting.

The central theme for SST-1 in this account was how reflexivity about inquiry operates. The central issue emerging from section two is that such 'conscious writing' appears to work to incorporate writers and readers into the text but instead is used to add strength to the claims made. It addresses an audience of ethnographers despite claims for 'democracy' with members. Reflexivity can be constituted from this account as a mechanism for maintaining an analytic distance by making analysis a further subject of inquiry.

In the three following chapters we have many different representations of our chosen culture of inquiry deployed, which are aimed at addressing the questions about the malleability and stability of technology, raised in chapter two. However, these representations of SST-2 also exploit and problematize the choices made about appropriate forms of inquiry. Chapter four questions the distributed nature of SST-2 as an example of a consultancy culture. This chapter also examines the contribution of 'unbounded ethnography' or 'ethnography without setting' in constituting this account of the 'distributed nature' of SST-2. Chapter five explores the nature of flexible boundedness in this culture by concentrating upon the relationship between closed physical form and interpretive possibility by looking at stable artefacts used to incorporate new members at the margins of membership. In addition, this questions the contribution of the particular view of stability taken for the constitution of the artefact and the constitution of boundaries as 'flexible'. Finally, chapter six is an explicit account of the tensions between the interpretations made by author as member and author as analyst. This tension is used to examine the nature of 'locked boundaries' between SST-1 and SST-2 as evidenced within the published documents from the culture of SST-2. This method is used to examine the contribution of inquiry to the constitution of 'hard' or 'locked' boundaries between SST-1 and SST-2.

CHAPTER FOUR - THE UNLOCATABILITY OF WORK: CONSCRIPTING ORGANISMS FOR DISTRIBUTION [1]

The aims and organisation of the chapter

So far we have bounded a problem for this thesis, produced a set of credible questions to configure a specific audience and explored the reflexive questions of constituting any practices as data. In parallel to this we have exemplified the work of bounding, credibility management and reflexivity in our academic culture, SST-1 to address the questions established in chapter two.[2] This chapter aims to act as the first 'conventional' data chapter by exploring the working practices of consultancy, as illustrated by SST-2, as a potential discrete culture from SST-1. Underpinning the decision to analyze the material pertinent to our members working practices is the aim of exploring the questions raised by the second of the objectives articulated at the end of chapter two. This objective expressed the need to explore the notion of malleability in technology. The hypothesis underpinning such questions, following Cooper and Woolgar (1993a), suggest that the malleability of technology is a significant factor in constituting audiences. This hypothesis, is in contrast to assertions that it is the 'resistance' (Latour 1989) or the 'stability' (Akrich 1992) of 'technology' which contributes to its credibility. SST-2, our culture in question, as has been discussed in chapter two, can be conceived as a 'social technology' (Hollway 1984,1991). If this hypothesis is legitimate, SST-2 will be characterised by such malleability and evidence to question this hypothesis should be present in the minutiae of working practice. In addition, there should be evidence in this minutiae of when the limits of malleability; ie.

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[1] Conscription is a term coined by Akrich and Latour (1992) in a glossary for potential use within the actor network approach. They suggest that this term refers to everything that exists outside that given in 'script'; for them it describes what exists **with** script. However, in this context of this thesis, the term is used in a different way. Con-scripting is used, following its Latin origins, conscribere, to describe the activity of 'writing together', 'enrolling' or 'enlisting' (Hanks 1979). As will become clear throughout this account, the notion of conscripting is developed as a central analytical construct in understanding the culture of application. The use of the term 'organism' follows Haraway (1991) and her notion of technology as boundary breaking organisms which comprise various different types of entities.

[2] This analysis of SST-1 'SSK has remained embedded in the accounts in chapters one, two and three as the conventional 'function' of these chapters have been allowed to take precedence in the accounts produced. In chapter seven, a summary discussion of the ways in which the culture of SSK SST-1 has been characterised as data for this comparison of conventional and consultancy academic cultures will be given along with a similar summary of the characterization of SST-2.

boundedness are deployed. This chapter therefore draws upon ethnographic[3] inscriptions (Clifford 1990) as such data will allow this concentration upon the minutiae of working practice. As the concern within this chapter is malleability, it seemed inappropriate to take a single setting as the boundary of the investigation. Instead it was necessary to develop an alternative approach to generating an appropriate unit of ethnographic analysis. The accounts given within this chapter therefore draw in a wide variety of settings and the decisions about what to include have been bounded by two factors: time and the involvement of the ethnographer with another member of SST-2. These two factors of time and ethnographer involvement are also explicitly exploited in chapter five and chapter six. In ethnography generally, they are bounding factors, but conventionally are treated as implicit constraints upon what is transcribed.

The descriptions used within this chapter come from two weeks of the ethnographer's engagements with members of this culture, hence the participation of the observer becomes one key linking factor for what gets reported within the time constraints set. This chapter is structured into six scenes from these two weeks. Within these scenes details of such features as location, membership, dialogue, techniques, artefacts and self-presentation are given within a broader narrative about the development of member relationships. These scenes are constructed from notes and minutes[4] and as such there is no claim for the precise re-presentation of dialogue or the complete rendition of each event. One of the consequences of being explicit about the boundaries used to construct the account is the recognition that accounts are partial. Therefore the transcription of events into ethnography is constructed as stories within stories with none sufficient unto itself and none with the final word (Latour 1988a). Boundaries are used to enable representation, rather than to claim a definitive version. There are three types of story told. One involves an account of 'happenings' taken from field notes. These are constructed exploiting 'time' as the logic for the structure. A second type of story involves the use of other data notes which connect the content of each scene to other observations or comments from the retrospective ethnography. The final type of story comprise the analytic notes which make explicit the structuring and organising processes used by the ethnographer in producing this rendition of SST-2 designed to address a specific hypothesis in a specific context as outlined above. In its first draft, these

[3]The decision to use an ethnographic approach was discussed in section one of chapter three, as was the changing role of the ethnographer from participant to ethnographer exploiting (and being constrained by) greater analytic distance.

[4]These represent observer and participant inscriptions; although in the scenes that follows it will become clear that both types of inscriptions are produced by the 'ethnographer'.

different types of story were all segregated from each other with headings and indentations. These headings and indentations were intended to act as controlling mechanisms on the reader to constrain the available readings. However, they have been reworked to become implicit parallel narratives running throughout the account. The account has hence been designed to demonstrate the "three characteristics of ethnographic description: it is interpretive; what it is interpretative of is the flow of social discourse; and the interpreting consists in trying to rescue the 'said' of such discourse from its perishing occasions and fix it in perusable terms" (Geertz 1973:20). The six scenes are as follows:

Scene 1: Although presented first, this is the final account in the time series represented in this context. It describes a discussion between three 'consultant members', whose association for this work we shall describe as 'Inquest', together with the ethnographer, about the plans for possible future involvements with potential clients. Introduced in this scene are three consultants, two companies, one ethnographer, one 'office' location, several communication artefacts (faxes, books, reports, computers, printers) one garden, several indoor plants and a Persian cat. The three consultant members are Frederick and Georgina who have not been introduced before and Josephine who has appeared in this text earlier as our story-teller in chapter one and our key informant, social analyst and best friend in chapter three.[5] The two firms are described as BOS Ltd which is an organisation involved in distribution and haulage which was seeking help with management development, and AM Investments which is a financial institution wanting support with the introduction of development centres.

Scene 2: This involves the ethnographer located in a different room, this time a room with two functions; dining and working. This scene reports on an interaction between two of the consultant members, Josephine and Georgina, introduced in scene 1. Their discussion concerns the scheduling of a visit to a potential client, BOS Ltd, first mentioned in scene 1. This scene locates the working practices of SST-2 as explicitly distributed within electronic artefacts and so raises the issue of the 'unlocatability' of SST-2.

Scene 3: This scene introduces the ethnographer as secretary and student visiting ICOSA for a practitioners' meeting. This account describes details of discussion from a practitioners' meeting concerning the authorization to use CPA. This introduces one further location, ICOSA, referred to in chapter three, section one, a different type of member: a practitioner and seven named practitioner members. These different named practitioners also indicate that this category of membership is indeterminate. One of

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[5]She also appears as one of the authors of chapter six.

these practitioner members is our ethnographer who acts as secretary and another is Frederick who was introduced in scene one as a consultant member. The other members are James and Ruth. independent consultants and Rebecca and Patrick from ICOSA and Anthea, a trained practitioner from one of ICOSAs client organisations. The characteristic of the culture which emerges from this account is the deployment of locked boundaries illustrated in the discussions and the way in which other potential members and locations such as Steve and CRICT⁶ are mentioned, but locked out of the account.

Scene 4: This scene describes the process of travelling to the meeting first mentioned in scene 2 with BOS Ltd. Our consultant members in this scene are Josephine and Georgina and our ethnographer is introduced in this scene as trainee consultant. This develops further the reading of unlocatability for this culture as it locates the working practices of SST-2 in various forms of transport.

Scene 5: This scene describes yet another location, the client's offices. This gives an account of a discussion between two newly introduced 'client' members of SST-2 from BOS Ltd. Sam and Stephen, and two consultant members of SST-2. Josephine and Georgina and the ethnographer, this time as scribe. In this account the working practices involved in conscripting at the margins⁷ of membership are explored, together with insight into the deployment of flexible boundedness.

Scene 6: is in the same locations as those reported in scene 2, reporting upon developments within BOS Ltd and involves arranging the meeting reported in scene 1. This scene provides an insight into the fragility and transferability of membership at the margins.

Scene 1 : Conscripting consultants

It was late one Thursday morning and I was sitting in the offices of a small 'consultancy firm', named Inquest associated with ICOSA. With me were three people discussing the production of a report for their latest venture. This meeting had been arranged to discuss earlier work in the light of new contacts. They are Frederick, a man in his 50's, Georgina, a woman in her 50's, and Josephine, a woman in her 30's. The last of these is my main collaborator in the ethnographic work. In my notes I have recorded that the two women were "dressed very casually in leggings and loose fitting sweaters". Frederick, I describe as "conventionally casual in corduroy slacks, shirt and

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⁶Centre for Research in Innovation Culture and Technology, not anonymized for the purposes of this thesis

⁷The use of the concept marginality is borrowed here from Turner (1982) who follows the work of Van Gennep (1960), in examining the rites and rituals of transition in membership status

jumper". Strangely enough, although I remember the meeting well, I cannot recall how I was dressed myself, the notes do not stretch that far. Please note the establishment of ethnographic credibility by the use of details in these fieldnotes. For example, the statement that it was Thursday morning and the acknowledgement of things not noted. The purpose of this meeting can be described as a 'social hardening' of electronically distributed work as it involved meeting in one location to produce a report based upon interaction that had already been through phones and faxes.

As mentioned earlier, this ethnographic account deliberately rejected the use of a setting as a means of bounding what could count as data. In 'locating' work in the wires when describing the purpose of this meeting we have the first example of the constitution of culture without locatability. We also have the first indication of the malleability we are examining in this chapter in the shifting of representations of SST-2 through these different electronic communication artefacts.

The place where I take the first story up is with Georgina suggesting "we've had a query about development centres from A M Investments, one of my clients; they're already using the software and are pleased with it so we have an advantage. We could work out a way of presenting these ideas..." Frederick responded quickly by saying that he knew nothing about development centres... "and I'm not sure they are what we should be doing" he asserted as he leant back on his chair and looked through the patio doors to the beautifully planted garden outside.

Indeed maybe I should turn the story at this point, to introduce the place; the location of this event. This meeting is situated in the spare room of Georgina's home. A detached four bedroomed house in south-east suburbia - with gravel drives and village pubs. This spare room has been set up as an office - its function as a 'working' environment instead of a 'living' environment denoted by the significant presence of office artefacts. Portable computers open and winking sit on desks next to folders containing their two dimensional offspring, while random leaves of paper litter the desk space. The laser printer sits waiting in the corner, the phones ring an arms length away, but the magnetic tape is left to collect the input. Meanwhile the fax, sitting next to the patio doors, burbles periodically with no apparent concession to human agency and spews its shiny rolled offerings onto the carpet. The three consultants and ethnographer are arranged around two desks, each sitting on chairs that rotate. Arranged between each, in addition to these artefacts are barriers of wire trays, each containing a plethora of planned activities, almost aggressive in their reminder of everything else that could be done. It appears as if the human beings in this room have no separate existences from these machines surrounding them. Together, I have noted in my diary, these various 'separate' 'entities' appear as if they comprise a system for producing documents. In

addition, representatives from the other side of the patio doors have made their way into this environment. dropping leaves at random, winding their way through in-trays and around cupboard handles, lending a decided air of 'natural' disorder to the documentary chaos already described. Indeed the only participant that appears to retain its boundaries intact, with any sense of permanence or coherence, is the Persian cat who sits uncompromisingly upon a pile of papers almost as desk decoration, with apparent security in her role. The relevance of this to the question we are addressing in this chapter is to explore the extent to which these unbounded 'relationships' between entities (people and things) which are rhetorically maintained as distinct (Woolgar 1991a), is one feature of the culture of consultancy. Is the unbounded organism [8] indicated in this account, part of the malleability of technology? Can the notion of an organism comprising 'animate' and 'inanimate' parts contribute to our discussion of boundedness within this thesis?[9]

"What do you mean by suggesting we shouldn't do this work?" asks Josephine.

"Well I'm just not sure that it's right for the organisations I want to work with" Frederick explained "My job as a consultant is to get them to explore the consequences of deciding to use such an approach, not doing it for them."

"That's all very well, but not what they want and we won't get the chance to do anything if we tell them what they are doing is wrong.." stated Georgina somewhat acerbically. "That's not what I said" muttered Frederick in an undertone while Georgina continued "...what they've asked for is a brief statement about our approach to development centres and what we would do if they hired us. The question is, do we want to apply the Stratified Systems Theory or not?"

"It seems a useful focus" Josephine responded "and we could potentially use some of the ideas we produced for BOS."

"Well," Frederick acquiesced. "I suppose CPA is appropriate for people interested in development so we could use it as the centrepiece for any work we recommend."

"OK" said Georgina "start talking" as she rested her hands on the winking keyboard on the desk in front of her.

And so, yet again in this interaction with its closing assertion, we have evidence of

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[8] A similar point about the characteristics of modern organisms is made by Haraway (1991) when she describes the existence of cyborgs as organisms of animate and inanimate parts.

[9] This can be compared to the account and appendix by Woolgar (1991a) about the involvement of hard and squidgy bodies in the production of the text.

the 'conscripting'[10] organism. malleable in composition, but in this incidence. comprising computers, printers, typists and talkers, rendering SST-2 as text for a particular event.[11]

Summary of Scene 1

Within this scene we have introduced the variety of 'members' of this culture. These include those expected; the people and the ethnographer. and those unexpected: the client organisations. the conscription boxes and their paper products. the plants and the animals and their detritus and the office and garden. We have also introduced the potential areas of malleability or unboundedness within this culture in identifying the 'organisms' that exist as various different 'members' become conscripted together in configuring SST-2, in this scene for 'consumption'. In constructing this ethnographic story in this way it becomes apparent that substantive information has not yet been made available to the reader. For example we could ask "Who are BOS Ltd?" "What other sites has the author visited?" " What significance is there in introducing the cat[12]?" I trust the these will be clarified as the conscription of readers is developed through the next scenes.

Scene 2 : Working in the Wires

This story is located in two rooms. in electronic lines and plastic boxes. It was transcribed two weeks prior to scene one. I am sitting this time in Josephine's spare room. designed for rapid transformation between social eating and private working space. At this time the room fulfils its role as office with the table pushed up against the wall. littered with 'conscription' boxes. When I arrived it held a dining function and following a hasty cup of coffee in this format. my first participant activity of the day had been to move the furniture: in the terms of this discussion. to exploit the inherent malleability within this room to configure our working space. This involved heaving the table into the corner of the room and lifting the computer. printer. fax. telephone and

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[10]Conscription is a term used within this thesis to describe the idea of 'writing together with'. It is discussed in greater detail in chapter five as the process of writing together with 'clients' is explored via the analysis of textual manifestations of SST-2. The term is introduced in this chapter to denote the relationship between 'people' and 'things' in these accounts.

[11]The document produced from this meeting is analyzed in chapter five as D4.

[12]Recent work in medical anthropology (Woods 1994) has identified the process of embodiment between animals and humans in healing. specifically in accounting for the development of boundary breaking 'monstrosities' of dog-men in healing a 'blind sense of self'.

answer machine from the window sill and floor where they had been hiding from the guests at yesterday's dining table, on to this newly configured 'desk'. The conscription boxes were lodged on half of the available space and very rapidly the remainder was littered with their progeny as out of bookshelves and side boards hidden files and folders emerged. Josephine sits again on a moveable chair sifting between these various items of script and chatters to me. She informs me that she is waiting for a call from Georgina: The telephone rings. As Josephine answers, her cat crawls into her lap and starts purring noisily[13].

"We have an appointment Jo" I hear Georgina's disembodied voice announce through the phone switched into 'meeting mode' "One of my clients wants to know what else I do apart from individual assessment, they've been sent details of CPA and a schedule of costs and want to explore how it may work for them." "OK. What day?"

My mind and note-taking wandered as the details of meetings and preparation are entered into until I realised that they were advocating a 7.00 am start. Proper commitment to my study will of course mean that given the opportunity I would go with them. Josephine puts the 'phone down: "I'm meeting Georgina first thing tomorrow morning to discuss this and will be visiting BOS two days later. You're welcome at both if you wish - we'll introduce you to the boys from BOS as a trainee consultant if you want to come." "Unfortunately," I explained "I have to go to ICOSA tomorrow...Is it OK just to come to your client's offices?" Josephine looked at me dubiously and said that she would need me to "have my head round our chat" as, she explained as "we can't have you sitting there being completely dumb - it would make us look stupid." She then reassured herself by stating, "surely you've done enough consultancy to carry it off." Josephine then asked "Are you going to the practitioners meeting at ICOSA? I'd forgotten that was tomorrow." "Yes," I replied, "I'm taking the minutes." "I was supposed to be going," Josephine said, "could you give my apologies for me and describe the work that Georgina and I are doing with BOS in my absence please - and explain that this meeting is more pressing?" "Of course."

[13] The role of animal companions in self-employment strikes me as an interesting topic of study as the two consultants converse. Do we have simians and cyborgs (Haraway 1991) in this workplace? This thought was committed to the margins of my fieldnotes -my doodles- but never reached the status of an actual topic. A demonstration of all those aspects of potential cultural rendering that are abandoned in the course of generating an account.

Summary of Scene 2

In this scene we have further demonstration of the unlocatability of this culture as it moves from room to wire to planned activity. In parallel the room in which the ethnographer is located transforms from dining to working as the visibility of conscription boxes is raised. In addition, this scene raises the malleability of what the role of an ethnographer is taken to be during the course of working practices; furniture mover to ethnographer to trainee consultant to minute taker to messenger.

Scene 3 : Bounded Conscription

I arrived at ICOSA the following morning at 8.30 am and went into the porta-cabin which was open and up the stairs to their offices. As usual the door to ICOSA was locked, a feature which always irritated me, but now was relevant data for investigation. In chapter three section one, I discussed the use of CPA as a potential focus for data analysis and also the internal documents associated with its production, but rejected them in this context as I was not prepared to breach the members rules about using 'locked documents' as data. There is an interesting parallel here with the first line presentation of the locked door to ICOSA. This is a particularly interesting boundary marker in a practice which has been so characterised by malleability in the previous two scenes. It took several minutes for Rebecca, the research assistant at ICOSA, to answer my call. She let me in and told me to make myself at home by offering me the desk in her room where I had worked when I was employed at ICOSA. I wandered to the kitchen to make myself and Rebecca a cup of coffee and sat down to wait for the other practitioners to arrive. "There are only eight of us today..." Rebecca commented. "Seven." I contradicted. "Josephine can't come today, she's got an urgent meeting with Georgina." "Oh, OK. How's your doctorate going?" Rebecca asked. "It's hard work, but I'm going across to CRICT to see Steve after the meeting today, so it's a reasonably efficient uses of my time today."

By 9.30 am the remaining five practitioners had arrived and the meeting convened. The other practitioners were Patrick, a member of ICOSA who was chairing the meeting, Anthea, a member of one of ICOSA's client organisations and Frederick, James and Ruth, all independent consultant practitioners. Patrick opened the meeting stating that the purpose was to reach a way forward for the accreditation of CPA. The practitioners were arranged within a very bare room within the porta-cabin around a table. The room had tables and chairs, but nothing else, no telephones, no presentation media, no posters, no connection with any other place save the door and window. I note here the use of my words which emphasize containment within which the meeting was

conducted. We then participated in an agenda driven discussion, which started with an information exchange and progressed to cover royalties, the structure of the unit, the training and accreditation of practitioners. My responsibility was to record and organize the discussion into appropriate minutes (compared with the production of field notes a much more explicit act of representation). The following extracts give an insight into the substantive issues raised in this context.

James asked what is the ruling over royalties going to be: "where would the royalties I would be expected to pay go?" Patrick responded by suggesting that there would be the introduction of a development fund into which profits would be fed for the production of new techniques and to support valuable work, although, he stressed, any techniques developed via these funds would be copyrighted to the person developing them. Anthea interjected saying there would be problems putting such an agreement into practice as there were likely to be conflicts over the use of CPA. She requested clarification of how conflicts were to be dealt with, who would make decisions and to have this put in a documentary contract. Patrick stated that the final decision would rest with ICOSA. "But who is ICOSA?" asked Ruth. "Of the people here, myself, Rebecca and Joanna" Patrick responded. Please note the shift of ethnographer from analyst to member at this stage.

Later in the discussion this issue reemerged as a concern with accountability. James asked "Who is the unit accountable to, is there a management committee, what is the ultimate decision making body?" Patrick said that there would be no difficulty in practitioners having access to financial information from ICOSA but James argued "my point is not really related to the accounts, but whether the unit was well run - what levels of accountability are there?" Patrick reminded him that ICOSA currently operated within the university sector, so there were no problems. Ruth asked if the unit was primarily interested in research to which Joanna (and now I am the observed subject of my own fieldnotes) replied that the interest was with both research and consultancy. Ruth suggested that this could be an issue because it would make a great difference to the remaining practitioners if the unit was to concentrate more heavily either on research or consultancy. Patrick stated that if the unit got more consultancy work than it could manage, ICOSA would pass it out to practitioners on sub-contract. He added that the royalties may be used to publicize the unit and if the benefits from this are felt work may pass to practitioners.

Frederick asked how training of practitioners was to be organised. Ruth agreed this was important as she was currently training two in-house practitioners at one of her client organisations and was concerned that the trend was only to allow training through ICOSA. Patrick stated that the approach was one of the right to sanction: if you trained

someone who ICOSA accepted then there was no problem. James protested; "We need to clarify this, we are not running a training school, our training is within the constraints of the work we do with our clients and we have our own standards for that work. My question is whether I need validation to do this now or not." Rebecca remarked that in ICOSA trainees internal to organisations have a contract which states that if the person moves out of that organisation they are no longer a practitioner and suggested that James and Ruth take a similar tactic. However, Ruth raised again the issue about the right to train, asking if this implied two levels of practitioner and how new trainees would be accredited. James, in developing this point queried whether there would be a charge from ICOSA for such accreditation to which Patrick responded that it was being seriously considered.

There is still no resolution to this problem, almost as if the lack of clarity is acting as a method for exclusion, as it means that no-one is definitively mandated to use the practice.

Summary of Scene 3

The compelling quality of these accounts is the evidence for 'locking mechanisms' in this work. This is expressed in the location, both its entrance and the quality of the meeting room and in concerns with authority and recognition in the discussion.[14] In this account the boundedness is indicated with terms such as royalties, accountability, accreditation, standards and contract. This is in contrast to the quality of the work presented in scenes 1 and 2. The role of the ethnographer in this scene has disappeared incorporated in full membership of ICOSA. The final evidence of this 'locked' quality is given in those locations and members locked out of the account; those characterised as Steve and CRICT.

Scene 4 : Mobile Homes

On this occasion, the location of this culture was the various modes of transport used to travel to BOS Ltd. We left my house in Josephine's car and arrived at Georgina's for 8 am. I'd made an effort with skirt and blouse and had scraped my hair off my face, but still looked like I did not see this time of day very frequently. Georgina greeted me with an abrupt "I have a jacket that will go very well with that skirt - do you have a lipstick or do you want to borrow mine?" which clearly indicated that my attempts at appropriate presentation had fallen somewhat short of requirements. A

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[14]The boundedness of ownership in this culture balanced with the openness for client application is the substance of the exploration, based upon the public domain texts in this culture, presented in chapter six.

breaching experiment (Garfinkel 1984) possibly I thought. as a post hoc rationalisation.

As I read through this transcription. I notice how the activity of the ethnographer increasingly becomes the focus of observation with increased 'participation'. In the first scene. it is the clothes. words and intention of others which form the story's content. now the ethnographer's are remembered and recorded. Certainly the clothes that these two wore gave a significantly different message from the clothes worn in other environments in which I had seen them working when I had always described their clothes as studiously informal. However. today Georgina was dressed in a check skirt. silk blouse. tailored black jacket and expensive jewellery. Josephine was wearing an extremely short skirt. high heels and a bright blue jacket. Both were wearing makeup - another first. The only unifying elements appeared to be the briefcases which were the same slightly shabby articles that went with them everywhere. I have no recollection of ever seeing Josephine or Frederick without these black bags. Even when my quest for understanding took me to Sainsbury's with Josephine after one meeting. she asked me to carry her briefcase around the shop with me as. she stated. she was worried about leaving it in the car.

As well as the observed geographical dispersal of this culture. there appears to be an elasticity in self presentation. or self boundary marking. related to context. The only things that appear to remain the same are their briefcases and their animals. Do these items supply the boundaries around the work that they do? There is an interesting question to be asked about the symbolic function of the shabby. faded bags they carry: these items seem to exist the same across contexts. acting as 'containers'. both practically and symbolically. "Is my work so different in form?" I see jotted in the margins. My practice of ethnography appears to have the same lack of geographical location as ascribed to this culture: ethnography is also distributed throughout locations and alters its form of presentation accordingly and my note book may be the equivalent 'stable' artefact. or black bag to indicate I am at work.

"Right. in the car. we need to catch the 8.35 to be in town in time. we'll brief you on the way." Georgina declared. sorting through the contents of her briefcase then looking at me. "They've received a copy of these." she said thrusting two documents into my hand. she had located in her briefcase and shepherded me out of the room. The document was an account of Stratified Systems Theory (SST-2) and Career Path Appreciation (CPA) prepared previously by Frederick. the other was the amended version of the same document. sent at a later date from Inquest.[15] I recalled some of the

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[15]These member documents (ascribed the names D1 and D2) are analysed in chapter five which examines the consultancy documents and the exploitation of 'variability' (Gilbert and Mulkay 1984) or malleability (Cooper and Woolgar 1993) for what I have described in this thesis as con-scription

chats we had had at the time of the composition of these documents which had centred on my questions about how these documents had been produced. Therefore in preparing for my discussions with members, I had not produced 'readings' of these documents which would prepare me to talk sensibly about their contents to 'clients'. I doubted that an account of the forces that had contributed to each document existing in this form would be a credible alternative in this particular context.[16] I had of course read the material and had been taken through the CPA process, and was in the process of being trained to use this technique. I had watched others and had taken care to become fluent on the subject for my 'members'; but suddenly I had new 'members' who knew less than me about these practices and were seeking advice. Again we have a manifestation of the unlocatability of this culture; a meeting with individuals who were members today by the 'relationship of use' they occupy, who may not be members tomorrow; indeed, one of them was me.

On the way to the station I read through the documents. Georgina and Josephine discussed other business opportunities in the front of the car. No doubt I should have been taking notes of this discussion, but my preoccupation with my own performance was pushing such notions from my head. All I can remember when I picture the car is the gentle drone of conversation and the incantation resonating of 'modes' and 'levels'.[17]

When we were finally seated on the train, Josephine and Georgina started preparing me for the meeting. Georgina began by explaining that BOS was a longstanding client of hers in the area of psychometric assessment, but a recent discussion she had had with the systems manager had raised the concerns that BOS had about management development. On inquiring I was told that the work of a systems manager in this instance was to take responsibility for the computer support for what is described as management information.

Apparently this firm had recently acquired a new chairman who had been talking to the various different trading companies and components of this organisation, widely

[16] In my role as analyst, the forces of production are an appropriate reading, but they do not 'work' in my position as 'member'. Chapter six provides an account of distributed readings of stable artefacts (public domain texts) by representing the readings of author as member alongside readings of author as analyst to examine how these stable artefacts can be differentially interpreted.

[17] Mode (Jaques 1968) refers to the path of cognitive development that an individual can be located within; it defines the level in a hierarchy the individual will eventually be able to reach. Level (Jaques 1956) refers both to the current cognitive capability of an individual available to be deployed at work and the complexity of a given task. The assumption is that level of work and level of capability need to be balanced. This involves changing work role over time. For a more detailed account of these concepts within the context of CPA see Stamp (1989).

publicising his commitment to training and the need for continuous improvement. Georgina explained that her contact had arranged this meeting in response to the pressure this chairman had generated.

Josephine then started talking saying "Yesterday Georgina explained that this is a very fragmented organisation.."

She was interrupted with "Well fragmented is not the right word, it implies that they have no clear identity which is not right. What I meant was that BOS is divided into lots of different companies; in order to do their business, they need to have lots of different outlets, each of which are different companies and therefore have to present and act as separate entities."

"And you said yesterday, that they have been allowed to develop their own operational procedures?"

"Yes, Sam was saying what a problem it's causing them - cos they don't know how to compare the people they have across companies...."

"Sam is the systems manager" said Josephine looking at me and continued "so we decided this may be a useful route in to show what the ideas in SST can do; by promising something to explain and solve this difficulty....it depends how it goes, we may ask you to describe some of the ideas if it seems appropriate, but just listen." During this I felt like I was being actively constrained in the fulfilment of my duty as ethnographer. How could I maintain an analytic distance when I may be called upon to perform at any minute; to talk like a native - how could my scepticism suddenly switch into certainty?"

We left the train and climbed in a taxi which took us to BOS Ltd. As I climbed into the fourth vehicle of the morning I reflected upon the distributed nature of this culture and recalled an earlier comment from Georgina which resonates with this observation. Once, when I was questioning her about the use of her home as a working space, Georgina suggested that it had often crossed her mind that she would be better off buying a mobile home and living and working from such a vehicle. This, she pointed out, would also allow her to take her office to client sites.

Summary of Scene 4

In this scene we have further evidence of unlocatability in the work reported in this scene indicated in four forms of transport. We also have evidence of the malleability of membership as characterized by the switching relationship of the ethnographer and the introduction of marginal members.

Scene 5 : Conscripting clients

So we arrived at the office building which housed our contact. which was one of the many office blocks which denote a work environment. As we entered. Georgina hurried towards a man who had entered the building just ahead of us and smiled. They shook hands and she turned and introduced him as Sam. I remembered this as the name of the systems manager and smiled when I was introduced as a junior consultant who had been brought along for the experience.   As Georgina chatted with our new acquaintance, Josephine mentioned that it would be very helpful if I could keep detailed notes of this meeting as. she explained. we were likely to need to produce a summary document as the next stage of our work. She smiled and saved me "we wouldn't expect you to talk on our behalf about our work, keep silent and keep records as you usually do." Our new acquaintance nodded to the woman on the reception desk as she completed our identity tags and handed them to us in turn. Interestingly. these identity tags could be taken as indicating our marginal status in this context.

Our new acquaintance then took us up into the heart of the building. This description is used intentionally as there was an intensely visceral quality to this building. My experience of this environment was that it destabilised my expectations about inside and outside; a reflexive construction I wondered. Yet again the disruption of boundary appears to characterize the quality of location this culture inhabits. In this situation the boundary between 'inside' and 'outside'. between 'natural' and 'technological'. The entrance appeared to have no ceiling and it was possible to see many of the floors above. Throughout, plants grew and water cascaded. all contributing to the sense of being inside something living rather than manufactured. This impression was strengthened by the experience of travelling by lift. As we walked into the glass box. the initial quality was of a very dark container. but as our journey to my next location for this culture commenced. we emerged out of the darkness into a veritable jungle. Waterfalls cascaded over the lift and everywhere was densely planted. We continued to the top floor where. laid out below us. inside the building was an outside world of trees. mud and running water.   While we were in the lift. Sam and Georgina discussed the problems he was having with retaining experienced supervisors in one of the companies he had been working with.

Walking out of the lift reminded us that we were in a building as two corridors lined with doors came into view. Sam took us to the personnel offices to meet Stephen. the training executive. As we were introduced. he explained that he had been asked to see the personnel director at some time today so may have to call the meeting to an end at any stage. "However. I hope we have enough time to cover what we have scheduled to discuss" he reassured us. He then led us into his room. The room was strangely

impersonal, with the invisible oatmeal quality of tasteful but bland office decoration. There was nothing living within the room: no signs of activity of any kind. He seemed to acknowledge this, saying that as he was responsible for co-ordinating the training function across all the operating companies, he did not spend that much time at this office, but did most of his work on the move. "I only really need this room for meetings like this. Mostly, I meet in other people's offices." Another unlocatable work practice. As my participant observation developed I has observed little stability in the location of the work of my members and I had wondered if a 'client member' would work in a fixed location - but clearly this was not the case. Similar unlocatability was demonstrated in the marginally enrolled members of SST-2.

Stephen then started seating people. I was very reassured to discover that my status as trainee appeared to have rendered me relatively invisible. There were only four chairs in the room and so he asked Sam to go and get another one for me which was placed slightly behind Georgina's chair. In the meantime he arranged coffee for us. When this arrived, he relaxed back into his chair behind the desk and turned towards Georgina and asked her to start talking. "Well really, Stephen, we are hear to listen to you and your account of the situation. Until we understand this we can't hope to offer you appropriate information." Georgina stated, gently handing the responsibility back to him. This was returned in the same manner with Stephen nodding his head and asking "What is your current understanding then?"

"Can this be taken as an example of the unboundedness of the ideas in use?" So ask the notes in my margins. Knowledge does not appear to be presented as a product by either party, but as a dialogue over understanding. Is this process an example of the gentle production of a legitimate shared question which includes all parties? As the following account develops we can question how the final problem comes to count as appropriate for all participants.

Georgina then looked across at Sam, appearing to indicate that what she understood came from him and inviting interruption from him if necessary, and started talking. "You have a new chairman?..." and she paused waiting for confirmation "and he is concerned about the development of managers in BOS?.." Again a pause then she continued "and your problem is that you need some coherent way of approaching the development of managers which takes into account the very diverse nature of the businesses they are involved in and the wide variety of organisations that employ them..." Stephen interrupted and said "that's a very concise and accurate picture" at which point Georgina turned to face Sam and explained that her understanding had come from him and that she was just repeating what she had been told.

"What does this disclaimer achieve in this process of establishing a question?" I see

written in the margins of my notes. This appears to be a key example of conscription, to claim to speak for another participant. It also demonstrates giving away the ownership of understanding in this process of establishing a shared question; a spoken conscription of members. "Where does it leave the consultant and their 'ideas'?" I note to myself.

Stephen then picked up the account and started to give further details. "All aspects of the business are having to think about improvement because of the new chairman, but my area is receiving particular attention because he has been so public in making training an issue. So far, I have visited various colleges and universities throughout Europe to find people that could help both with understanding management development and providing such programmes." In my notes I see reference to this 'remote' member': the interest of the new chairman.

Sam interrupted with "there are key problems for this company. There are so many different organisations in our company and all want to hold onto their best people. It's difficult to get them to think about the needs of the whole corporation, and they tend to keep all their information informally, so nothing is standard and there is nothing centrally kept, so all the development done in this organisation is fragmented." He stopped and looked at Stephen "Don't you agree" he asked "that we need an approach that overcomes this problem?" "It's a very real concern" Stephen acknowledged "Is that clear?" he asked, turning to Georgina. She nodded and suggested that it would be a sensible time to introduce some of the ideas that she and her colleagues had been working with recently as these would "shed some light on the way we would approach your situation" she turned towards Josephine (and for one panic stricken moment I thought she was going to ask me to talk) and smiled.

Josephine focused upon Stephen and began to speak. "The problems you are experiencing within and between organisations could be helped by the ideas in Stratified Systems Theory for two reasons. This gives a way of thinking about the differences in the ways that people develop and some ways of standardising understanding of organisational structure. It means that very different organisations can be compared for the purposes of development, without having to take away their individual differences. This is obviously important for the success of your business. You don't want, as a central function, to go in and tell them how they should be organised; you want to accept each organisation the way they are, with all the differences involved and set up your systems to support this variety..."

See how she appears to make their current organisation acceptable within her approach. This makes the problem how they can accommodate what is.

Sam interrupted enthusiastically and said "Yes, this is the issue of culture, this is a very important consideration as far as we are concerned." Josephine nodded saying:

"Precisely, cultural differences between firms are important for their viability but can cause people in our profession some difficulties."

See how she builds upon the conscripted question by creating a boundary around an inclusive group of professionals, harnessing the independent enthusiasm of one listener. Please forgive my repetitious use of the urging for you to "see" - it merely indicates my exploitation of the experiential authority of observation.

She looked at both for confirmation and then asked "So if I can cover two areas briefly, it may explain how this can help?" Sam and Stephen inclined their heads in agreement and she continued: "Most organisations gear up their development programmes for those people which we would describe as developing along mode IV. The majority of graduates fall within this path of development and as most programmes are set up for this group, intuitively organisations have planned for this rate of development. However, organisations have always been aware that people develop differently: most selection and development is based upon this recognition. The problem has been how to understand and more importantly predict what these differences are and what rate of development any individual will feel comfortable with."

This appears to be a negotiation about what is to be considered problematic and resolvable. SST-2 does not appear to be presented as a fixed entity, instead it appears to be moulded to suit a particular point.[18] For example, in this account it appears that the theoretical material is first configured in order to create a problem that can be accepted. It is then being reconfigured again as a separate entity, which creates a 'gap' which means only the consultant can do something about the problem. Here the negotiation process has shifted: a shared problem has generated a gap in the organisational resource to deal with it. This has generated a need for a change on the part of a prospective client if they are to retain the problem intact.

"This concentration, in most organisations of providing for mode IV" she stated turning to look at Sam "has meant that those people developing along a path who need more time in each level than people in mode IV are considered failures because they do not appear to keep up. However, the people who fall within mode III will be the operational bedrock of any organisation and a failure to attend to their development needs will mean that organisations do not make the most of the people they need to actually deliver and co-ordinate the quality of goods and services which the company relies upon to stay viable."

"Is this negotiation communicating an idea or is it equivalent to an exercise in

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[18] The variability in the representation of SST-2 in marketing documents forms the basis of the analysis presented in chapter five.

obtaining credibility for a particular understanding of how an organisation may work?" Another note in my margins, to which my considered response is that communicating an idea is constituted by the audience generated for it as is discussed for academic social science in chapter two.

Josephine continued: "And the same is true for those people who develop slightly more rapidly and ideally want to spend less time in each level. They feel bored with the rate of development offered by the standard programmes and so are likely to withdraw or leave. This can have serious implications, as it is these people an organisation needs for its future strategic work. It is increasingly being recognised that people do need to be developed in different ways based upon their different needs." She paused at this point and looked across at Sam. "This relates to the comments you were making about moving people between different companies. It is appropriate to move those in mode V around because they need experience of different contexts and organisations to develop fully. But it is less important and may even be inappropriate to move those within mode III in this way as they will develop better within a single context."

She now appears to be making a problem already identified potentially more complex than originally envisaged by incorporating the problem Sam had raised earlier. This allows him to hold his original idea about an appropriate response, but at the same introduces the idea that there may be unforeseen difficulties in doing this.

"But none of this is much use unless you have a way of differentiating between people early enough to ensure that they are offered development appropriate to their rate of growth. It was for this reason that CPA was developed. This is the technique we have been telling you about for assessing capability." Georgina interrupted and exclaimed "What would you think about a technique where you only have to assess your managers once and be able to know their future potential. How does this compare with development centres which need to be run for all of your managers once every two years?" "That would be very interesting" commented Stephen and Sam nodded stating "I have serious reservations about development centres in any case."

Georgina congratulated him upon this statement saying "That is very wise, their use tends to be very unclearly thought through."

Josephine took this opportunity to take the story up again "it's because they tend not to take fully into account the organisational context that managers work in. The second benefit of our approach is that it gives a description of levels of work, which allows you to compare organisations in terms of these different levels, and so compare the different jobs in them. This idea of levels of work is useful for two reasons. It allows you to give a clear description of the ways different levels of management work and the different contributions that each makes to gear your input up to managing the

transitions between them effectively. It also allows you to know when you move people between organisations whether you are giving them similar or more complex work."

Sam leant forward and asked "Could you give me some examples of how you've used it and how you would think of starting its use at BOS?"

"Well" Josephine responded "It is difficult to answer your first question in any but the most general terms because obviously I cannot breach client confidentiality."

And here we have a deployed boundary around what can be included in this negotiation. what purpose can this serve at this stage? A separation between fully incorporated client members and loosely connected client members?

"No" Sam agreed "I wouldn't want you to do that." "However," Josephine stated. "in general terms, I have used both the model of levels of work and CPA in different ways. One project involved looking at the relationships between different organisations on a construction site to see how best to manage the boundaries between these different firms.[19] With another organisation, I have been involved in the assessment of senior managers for a programme of organisational divisionalization and the development of regional offices.[20] Basically, in this work, we are in partnership with a client. being very much concerned with the problems you are facing and working on them collaboratively." Georgina nodded her head vigorously. "The only thing which is standard about our approach at Inquest is that we start by assessing what the most pressing problems are for our client in discussion with them. From then on, everything we do is geared to these needs." "So I would suggest that you only start with something small. because you will need to build commitment internally for what you are doing, so maybe a group of managers from one organisation could be offered the opportunity for assessment. or alternatively we could begin by profiling the organisational structure in one of the companies." Josephine offered. Georgina picked up the thread saying "But of course this would have to be very much in partnership with yourselves. We. at Inquest. are not in the business of telling you what to do. but with providing you with advice and support for the decisions that you have to make. As Josephine said. it is a partnership with yourselves."

She paused and looked at both of them and then asked "Can I ask you what stage you are at with this exercise?" Stephen replied: "We have seen a lot of colleges and are beginning to think about which ones would be able to help in delivering the development that we require. It's still very much at the planning stage. The way things move around

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[19] See Josephine's story in chapter one. section three for a more detailed account of this example.

[20] This is a 'locked' example as it draws upon documents about CPA which I have chosen to exclude for the purposes of this thesis.

112

here, is that things move very slowly until a decision is made and things are wanted yesterday." Sam nodded "that's very much how it works." "It would be very useful if you could write down what we have discussed today in one or two pages, so I can explore some of these ideas with some other senior managers. I don't want to tell them myself as I might not be accurate. Is that possible?" Stephen asked. accepting the consultant member as possessing a type of knowledge as distinct from that held in their organisation. Georgina nodded "Indeed, and if it would be helpful, we would be more than happy to come back and run a small presentation with you. But certainly we will produce a short document[21] from our discussion today." Stephen smiled "Thank you very much for your time. I shall look forward to receiving it."

Summary of Scene 5

The account in this scene gives an indication of the processes of conscripting marginal members through negotiation about the content and authorship of a shared problem. It also gives an illustration of the impermanence of representations of SST-2 in this process as it is subtly changed to move the focus from a shared problem to a consultant solution. Boundaries are deployed throughout this account of conscripting at the margins in various ways: the use of a named consultancy organisation and client organisation, the use of identity tags, the asserting of a group of professionals and the distinction between potential and actual 'clients'. The implicit construction of a conscripting organism is made explicit through the request for a documentary summary of the meeting as a supplement to those already despatched.

Scene 6 : Working in the wires - reprise

This is again at Josephine's house with the room arranged for work. I was interviewing her about the decision making process involved in conducting client interviews for a potential data chapter when the phone rang. The answer-machine received the call as we continued our discussion. Then Georgina's disembodied voice emerged from the machine: "Jo, I've some very irritating news, Sam and Stephen have been made redundant. I was chasing up the document we sent last week...." At which point Josephine interrupted our discussion with "excuse me" picked up the phone and switched off the machine. "Hello. Georgina. I'm here, but didn't want to be disturbed without good reason, so what's happened?"

I was hence effectively cut off from this conversation hearing only the occasional "Uh-huh," and "OK." The only substantive comments were:

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[21]The document analyzed as D3 in chapter five.

"Well, its forced us to write some accessible material about management development for future clients."

"I'll see you tomorrow with Joanna, and Frederick is coming too?"

"Maybe we can use this work with A M Investments."

Summary of Scene 6

This illustrates the shifting nature of membership at the margins and the fragility of associations in these marginal spaces. This is indicated particularly in the presumed transferability of the transcriptions produced between marginal members. In addition, this indicates the areas 'locked' to the ethnographer's gaze in the process of 'observation'.

Summary discussion of unlocated ethnographic inscriptions

In the six scenes presented in this chapter there are key features which need to be extracted for emphasis. The primary characteristic in these accounts of the working practices of 'members' of this culture is the manifestation of unlocatability, contrasted at certain points by the deployment of boundedness. The analytic construct developed from this is the notion of 'conscripting' (see footnote 1). Unlocatability emerges in scene one in the symbolic construction of work space signified with the proliferation of communication boxes within a domestic environment and in the merging of facts, artefacts, roles, practices and people into what have been termed 'conscripting organisms' following Haraway's (1991) notion of the cyborg. This is an 'entity' which is built through the deconstruction of accepted boundaries.

Scene two elaborates upon this by demonstrating the reconfiguration of working space and its mediation via relationships with artefacts. In this scene, the work itself becomes located in the relationships between human, animal, space and artefact, with the humans, places, animals and artefacts 'in-corporated' into distributed work.

Scene three, based at ICOSA, provides a striking contrast with these earlier scenes in that the location is literally as well as figuratively locked. Embodied in this scene are those aspects of the culture within which boundedness, expressed by locks, royalties, accreditation and standards, is deployed. In addition to this, evidence of the members locked out of the accounts given in this chapter by the ethnographer, are indicated. Mention is made of a visit to the doctoral supervisor on the same day as the practitioners' meeting, but no account of the supervision (see foreword) is given. The relationship between student and supervisor is locked out of this account, despite the claims made elsewhere in this thesis (chapter one, sections two and three and chapter

two) about the contribution of these members (student and supervisor) in the constitution of this culture.

Scene four returns the emphasis to unlocatability as it describes the movement inherent in the work of these members through the literal and figurative idea of transportation. It also illustrates some of the shifting presentations of self (dress and make up) and of role (ethnographer to trainee consultant) in the work of conscripting.

Scene five extends and develops these ideas of 'transportation' by presenting the contingent quality of knowing. in this case in the marginal, or liminal, spaces of membership. The negotiations about problem and potential action described in this account give insight into the work of conscripting new members. Of particular note is the 'authorship' of understanding being given to the client - their organization, their problems. their resume of the situation. Within this scene, however, there is evidence of flexible boundedness, in contrast to the 'locked' boundedness characterised in scene three. This flexible boundedness appears to be exploited to constitute differing 'communities' (Cooper and Woolgar 1993a) or in the terms developed for this chapter differing 'conscripting organisms'. It could also be suggested that there is the boundary between outsiders and SST-2 members which are constructed as, including the 'clients' as professionals. working as analysts of organisations. There is also a boundary separating this marginal client who is not yet 'conscripted' from other clients who have been fully conscripted into SST-2. illustrated in the notion of confidentiality. Finally. associated with this latter point, is the distinction between the negotiated nature of the problem. described at the outset of the discussion reported in scene five. which incorporated all participants and the exclusive nature of the solution embodied in a developed relationship between consultant and client. discussed at the closing stages of the meeting described in scene five.

Scene six completes the narrative deployed for the purposes of this chapter. indicating the fragility of 'membership' at the margins (Turner 1969) or the liminal (Van Gennep 1960) spaces in this distributed culture and the assumed flexibility of representations within this culture in the claim that the work undertaken with one client could be translated to another.

As stated in the introduction to this chapter, the question was whether malleability would be demonstrated within the working practices of this culture, how this might be manifested and how boundedness may be deployed. In addressing this question it appears that unlocatability is a ubiquitous feature of this culture, expressed in membership status, location, artefact and self-presentation. It is also evidenced in the continual reconfiguration of the 'conscripting organism' observed and in the malleability of the deployment of boundedness to include and exclude. This suggests that

malleability is indeed a key feature of this culture of application. In support of this it is also interesting to note that the deployment of boundedness can be seen as malleable. One type of boundedness was particularly evident within this account: that which was characterised as flexible and deployed in an unlocatable way and as giving form to a particular conscripting organism at a particular time but was open to emergent reconfiguration. The flexibility of this type of boundedness was particularly evident in the consultant - client engagements which form the content of scenes five and six, which, we can argue, lie at the margins of membership.[22] Within the account in scene five, boundaries appear to be exploited to include or exclude the 'client members' at different stages of the discussion. Within scene six the transfer of focus from one client to another gives further indication of this. This relationship between malleability and flexible bounding has been incorporated in the concept of 'conscripting organisms'. However, there also appeared, from the account in scene three, to be evidence of locked boundaries in parts of this culture, but with the 'evidence' available from an account such as this, it is not possible to do more than raise it as requiring more attention.

Methodological questions

In this discussion, it is necessary to make reference to the methodological approach taken. It is not possible to make claims for 'unlocatability' and assert the existence of these 'conscripting organisms' without recognising the work of the method chosen in constituting these findings. Given the emphasis within the ethnographic fieldwork, upon tracing members through locations, with the only unifying member being the ethnographer, we have been able to constitute a culture independent of setting. The strength in the method selected is the capacity it gives to constitute distributed culture in the fashion reported in the foregoing account. In the fabric of the method we have incorporated the possibility of distribution and in the texture of the account given substance to this. Does this method work? For the purposes of this thesis, it works admirably as it allows a specific type of story to be 'revealed' about members and it makes explicit the role of the ethnographer in linking what is narrated, without setting the ethnographer in centre stage or robbing the narrative of the strength which comes from 'actually being there'. However, it can be argued that this methodological focus also conceals as much as it reveals. Underpinning the activity reported in each of the

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[22]There are interesting resonances here with the work of Van Gennep (1960) and Turner (1969) concerning the idea of liminal spaces and the mechanisms by which these liminal or marginal spaces are managed through rite and ritual. A detailed comparison is beyond the scope of this thesis, but would bear more detailed consideration. There has also been investigation of the work described as marginal in science (Wallis 1979) which concentrates upon rejected knowledge.

accounts in the scenes presented are documents written by members other than the ethnographer. produced and used within each of the scenes produced for this chapter. For example in scene one. the work this 'conscripting organism' is involved in is the production of a document to be distributed to a client. In scene two it is suggested that another client has received another document. Scene three. based at ICOSA refers to written contracts of accreditation. In scene four the ethnographer is characterised as using one of the other member's documents as a preparation for a meeting. Finally, in scene five the outcome is the request for a summary document. The exploitation of an ethnographic account based entirely upon analyst transcriptions silences these incidences of 'culture already writing itself' (Clifford 1986b). This method can be argued to work in that it configures a particular constitution for this culture and in doing so, makes other possibilities invisible. For example, what it fails to do. as was indicated by my supervisor in his 'particular reading of this work' is provide a method which can "generate an overview or description of the history of SST-2 and its take-up" (Woolgar 1994) which means issues such as the "diversification, controversies and reception by academia" (Woolgar 1994) of the 'real' SST-2 cannot be addressed. This unboundedness means that some of the conventional expectations of an SSK analysis of a practice are not forthcoming. The next two 'data' chapters attempt to address this without resorting to producing a boundary of explanation around SST-2, but instead by providing an analysis of the textual representations of 'itself' that this field has produced. Chapter seven, in providing the coda to this thesis. will address this methodological problem of explanation more directly. in the bounded characterisations of SST-1 and SST-2 it produces to contend that they are both equivalent and distinct.

For more general purposes it is possible to argue that the constitution of this as an appropriate method is indicative of a more general unlocatability of working practices. It could be argued that the existence of this method is further evidence of a shift in view towards unbounded working practices. I could ask whether my focus upon unlocatability in this culture, chosen for this ethnographic work is not only to be seen in this culture. For example, mention was made in scene four of the possible equivalent unlocatability in ethnographers' working practices. Is this unlocatability to be seen as part of the culture of Western working practices and workplace. As the boundaries of the Western body are becoming increasingly questioned and the body is revealed to be "other than a stable experience" (Armstrong 1983:xi. Foucault 1977. 1989) could it be suggested that a similar deconstruction of the boundaries around Western working practices is necessary? Is this thesis beginning this work?

Further investigations

In the two following chapters, the relationship between distribution and boundedness will be addressed further. These two additional data chapters are concerned to examine the first hypothesis proposed in chapter two: that physical stability need not imply interpretive closure. Exploring this hypothesis within SST-2 requires an examination of the way boundedness is deployed in 'conscription'. Two types of boundedness, characterised as flexible or locked, have been suggested from the material recounted in chapter four. The data, constituted by the activity of rendering SST-2 via ethnographic inscriptions, exploited in chapter four, allows us to reveal a culture distributed in its working practices, but does not allow us to explore the nature of stability or address the relationship between stability and interpretability. Such a method means that these inscriptions have concentrated upon the day to day activities of 'members'. To allow us to focus upon stable representations we need to examine members' interpretations as data. Chapters five and six will take these two types of boundedness in turn and concentrate upon members own writings of their culture and working practice for data.

Chapter five will explore flexible boundedness by concentrating upon the nature of the stabilised representations (the texts), produced by this distributed culture of conscripting organisms, for 'marketing' (Grafton-Small 1987) SST-2. Four documents, produced in series and despatched to marginal members as a series, will be analyzed for the representation of SST-2 that each potentiates. The documents used for chapter five are those described in the scenes produced for chapter four. Each document is taken as equally stable, rather than as existing in a trajectory towards a final, closed form. Chapter six is concerned to address whether there is a 'locked' quality to certain boundaries. As was mentioned in chapter three, CPA would be the ideal focus for examining such a question, however, the ethical choices about the data available make this problematic. This means that the locked nature of boundaries around documents and practices excludes them from the gaze (Foucault 1989) of non-members. Whilst this absence can be taken as data for this subject, it provides only limited insight. Therefore in chapter six, this question has been addressed tangentially, by constructing a discussion between author-as-member and author-as-analyst, of the readings each produces of the published texts, available in the library that both SST-1 and SST-2 share, representative of SST-2 as evidenced by the daily use of these texts by members. As such, this is constructed without breaching the rules of membership and by exploiting the author's residual member status to generate 'readings' and 'misreadings' in seeking to explore the areas closed to conscription.

CHAPTER FIVE - CON-SCRIPTING AT THE MARGINS: AN EXAMINATION OF THE RELATIONSHIP BETWEEN STABLE FORM AND INTERPRETATIVE POSSIBILITY

The Aims and Organisation of the Chapter

In this chapter, the aim is to explore artefacts with stable physical boundaries to examine how such boundaries are deployed in the process of conscripting at the margins. In chapter four the day to day working practices of the members of SST-2 were described in a series of 'scenes' taken from two weeks ethnographic involvement with a distributed set of members, operating from various categories of membership such as consultant, client, practitioner, ethnographer. From the account in chapter four, the notion of the 'conscripting organism', following Haraway (1991), was developed to encapsulate two observed features of this culture; the unlocatability of work manifested in various of the working practices of this culture and the variable and shifting incorporation of various ostensibly discrete 'entities' into working bodies comprising differing people, roles, techniques, animals, locations and artefacts. With this observation, came the associated contention that one type of 'boundedness'[1] was used in constituting such 'conscripting organisms', a type of boundedness that was also flexible and deployed in an unlocatable way. Such boundedness, it was suggested, gave form to any particular conscripting organism at a particular time but was open to emergent reconfiguration. The flexibility of this type of boundedness was particularly evident in data describing the consultant - client engagements given in scene five of the previous chapter. Such engagements were characterised within the summary discussion of chapter four as being at the 'margins' (Turner 1969, 1982) of membership, or being 'liminal' (Van Gennep 1960). The aim of this chapter is to explore the nature of this flexible boundedness in more detail, by concentrating upon those artefacts which, it can be suggested, are deployed in managing the members at the margins, the document which explicitly use the capacity of texts "to act at a distance" (Latour 1988a).

As mentioned in chapter three, the primary artefacts available for this type of investigation are the marketing documents (Grafton-Small 1987) existing within this culture as their 'function' (described by members and documented in scenes two, four and five of chapter four) is to introduce potential 'clients' to the ideas in SST-2. The use

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[1]A second type of boundedness was also identified which is characterised in the account in chapter four as 'locked'. The examination of such boundedness will be left until chapter six which will construct a dialogue between author as analyst and author as member to explore the potential for readings (or misreadings) across those boundaries constituted within this thesis as locked.

of such artefacts is not without methodological difficulties and before describing the documents used as data and the analytic framework developed for the purposes of this investigation, it is necessary to raise the key problems with the proposed investigation. These problems concern the nature of `stability` as constituted within this chapter, the suitability of documents as artefacts for the purposes of the investigation proposed for this chapter and the relevance of existing approaches to the analysis of accounts.

The Constitution of Stability

To claim that this chapter aims to explore artefacts with stable physical boundaries begs a key question; namely what can be taken to count as stability. Hence our initial questions must be what constitutes stability in physical boundaries and which physical boundaries are taken as stable and important in such analyses? To answer this it is useful to revisit one of the central discussion points raised within chapter two, the legitimacy of taking a physical object as central to defining something as technology. One of the characteristics of analyses of facts and artefacts, which such approaches demonstrate, is a conflation of `stability` in form with a `final` form. If a form cannot be construed by an author as final it is not treated as if it is `stable`. For example, the study of the social construction of the bicycle (Pinch and Bijker 1984, 1987) works with the air tyre version as if it the only `stable` version, because they take it to be the final version. The study of the social construction of a scientific fact (Latour and Woolgar 1986) treats the `physical` products from experiments (print outs and notes) as if they are fluid contributors to the final form of the fact. These physical precursors are not constituted as possessing any `stability` (in contrast to the `final` version), even though their `form` is exploited in its capacity to act as a certain sort of data by the authors. What emerges in such accounts is an implicit assumption that the `form` of an end-point is the only manifestation of closure or `stability`. This conflation between stability and finality allows stories to be constructed which demonstrate the progressive `hardening` of representation through various social processes. For the purposes of this chapter, a different orientation to stability is constructed to raise a different sort of question and to allow a different form of story to be told. The starting premise for this account is that all representations can be taken as equally hard or `stable`. This allows comparisons between the representations constructed through the exploitation of stability through time to be undertaken which can allow an examination of the deployment of stability in the process of conscripting at the margins.

Documents as artefacts

The 'stable' artefacts exploited for this investigation are those used to conscript 'clients': the 'marketing' documents referred to in each of the scenes in chapter four. but never exploited as data in themselves in chapter four except for descriptions of the ways in which they were incorporated into working practice. As such, this current chapter involves an exploration of the first question articulated at the end of chapter two: what is the relationship between stable physical form and interpretive possibility. However. there is a methodological concern. To what extent can members' documents allow us a greater understanding of the nature of this flexible boundedness. Can they allow us access to the relationship between a stable form and the malleability of potential interpretations about membership. To articulate this interest in an alternative form. this study, by investigating textual artefacts, is concerned to explore whether SST-2 in the 'hardened' representation of a report is simultaneously 'softened' or made malleable to conscript marginal members. However, it could be argued that textual artefacts are inherently 'soft' or interpretable compared with other artefacts and therefore the use of text may not be suitable for this purpose. Indeed, text is used as a metaphor (Ricoeur 1971, Morgan 1986, Cooper and Fox 1990) for other types of artefact to suggest their interpretability. Woolgar (1992) in comparing computer artefacts with textual artefacts suggests that one of the key differences between the two is that the uncertainty about computer artefacts reduces with users removed from the site of production, whereas the uncertainty experienced about textual products remains equally uncertain regardless of 'distance' from 'production'. As such, the assertion that a report is a 'hardened representation' could be questioned. However, there has been considerable investigation into the social processes involved in 'inscription' and the importance of textually rendered understandings as socially constructed transparent representations of fact (Latour and Woolgar 1986) and in such contexts are treated as if they are hard. After all, what is harder than a fact?[2] In addition it has been suggested that computer artefacts are inherently unstable in the interpretations made of them depending upon proximity to production (Woolgar 1992).[3] I start with the view of text as being

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[2] Which links to the hardest test case argument within SSK about which practices are likely to represent the hardest test case for social construction. Collins (1982) Woolgar (1991c) Ashmore (1989). See footnote 5 in chapter two. If text could not be taken as hard it would not be so central to the investigations within this field.

[3] To address this point I shall divert into anecdote from within the workings of SST-1. At a presentation of the uncertainty trough (Woolgar 1992, cited above) in April 1994, it was stated that when presenting the idea of the difference between text and computer artefacts residing in the inherent uncertainty in texts. a challenge was made by a computer scientist in the audience who suggested that from his perspective texts were generally more credible than computers. This challenge was explained by locating the

equivalently stable or hard as other possible artefacts.[4] The rationale for asserting the appropriateness of texts in this context however, does not rest entirely upon considerations such as those outlined above. In this account I am working with reports as emerging reconfigurations. I take no individual report as a final word or a definitive representation, and indeed, if ethical issues about breaching membership rules did not intrude, as discussed in chapter three, section one. I would draw different types of artefact into this exploration of stability in representation. I hence do not construct the emergence of reports as a 'trajectory' towards a solution generally accepted as finished. This is in contrast to the many of the studies of technology discussed in chapter two, which provided accounts as to why an end 'solution' was accepted or not. I would suggest that we could see the same quality of emergent reconfiguration in representations of transportation eg. bicycles (Pinch and Bijker 1984, 1987), in representations of text eg. computers (Woolgar 1992), in representations of electricity eg. refrigerators (Schwartz Cowan 1985, Mackenzie and Wajcman 1985) and in representations of locations eg. laboratories (Knorr-Cetina and Mulkay 1983, Latour and Woolgar 1986) and as such text is not inherently different from other stable products.

Documentary analysis

The exploitation of documents as data is not new. Various ethnographic accounts draw explicitly upon members documents (Rees, 1981, Zerubavel, 1979). The use of such data sources is recommended in the general introductory accounts of ethnography (Hammersley and Atkinson 1983). The analysis of the content (Mostyn 1985) of documents has been exploited for example in various historical accounts of constitution of the ill and disciplined body (Foucault 1989) and the relationship between power and knowledge (Foucault 1980). Within SSK/SST-1 such analyses which are characterised by Ashmore (1989:46) as a move away from a concern with the analysis of action and belief into an analysis of discourse; namely an approach with "no method" (Potter and Wetherall 1987:175), which aims to demonstrate "how accounts of these things (events, beliefs) are manufactured" (Potter and Wetherall 1987:35). Such analyses have "manufactured" (Potter and Wetherall 1987:35) a distinction between empiricist and

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computer scientist in an 'uncertain' relationship with computers. However, it is as appropriate to explain this by locating the author of this distinction between text and computer as close to the site of production of text and hence uncertain in his relation to text - and generalising this uncertainty as a property of text rather than authors.

[4]Although this is possibly because I am a student and therefore distant, but not too distant from the site of production of text based artefact. Hence I am clearly located within the trough of certainty in relation to the texts deployed for this thesis, and would therefore be bound to find them hard.

contingent accounting for error in scientists talk (Gilbert and Mulkay 1982, Mulkay and Gilbert 1984), and an account of high variability in accounts within scientific discourse (Potter 1988, Mulkay and Gilbert 1984).[5] The analytic orientation in this chapter differs in one significant respect from that outlined for discourse analysis as the emphasis of this investigation is not with the members of a "core-set" (Collins 1981) producing and consuming accounts, but instead on the production and consumption of accounts by distributed members as illustrated in chapter four. Hence an analysis of these documents seeks to address questions which concern the manoeuvres that can be read into each of these stable representations about the process of conscripting. It also seeks to ask questions about the shifting nature of these struggles as manifested in the deployment of variable stable representations. The concern is therefore also with variability in accounting, but in contrast to the studies referred to above, the 'fact' of variability in accounting is not the focus. Instead the questions about the nature of variability involve focusing upon the representations of 'community' (Cooper and Woolgar 1993b) in each document and asking to what extent these explicitly variable construction can be read as attempts at managing the process of conscription. In this chapter, by using the textual products of our consultant members as they seek to conscript at the margins, we can argue that this chapter approaches the organisms conscripting these documents, as engaging in a form of practical discourse analysis aimed at the margins of their culture in deciding what how to reorganise textual presentation to diverse and distributed audiences. Or to constitute it within the discourse of discourse analysis, this chapter seeks to investigate if and how members exploit the potential for high variability in accounting to produce different conscriptions of marginal members. The following analysis can therefore be described as an analysis of members' constitution of discourses in artefact. The focus of analysis is not on how these members accounts are produced but instead with what can be described as the potential for 'production and consumption' (see chapter one, section one for a discussion of the constructs of production and consumption within SSK/SST-1) for conscripting. Hence our questions concern whether and how these manufactured representations may conscript readers and in so doing, open the possibility of reconfiguring the boundaries of membership.

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[5]This latter argument has been contested by Ashmore (1989) in his discourse analysis of SSK, in which he argues SSK demonstrates low variability in some of its key claims (namely the existence of the high variability of scientists' accounts).

Data sources

To explore these questions, this chapter draws upon four documents as data. These documents were produced over a four month period aimed at the members in the margins.[6] They are the consultant documents distributed to the two clients, BOS and AM Investments, introduced in chapter four. They are as follows:

Document 1 (D1) This provides a general introduction to SST-2 and CPA written by Frederick in the capacity as a 'consultant' member. This document is mentioned in scene 4 of chapter four in the context of its' use by the ethnographer in preparing for the meeting with BOS. It is also mentioned in scene 2 as one of the documents sent to BOS.

Document 2 (D2) This provides a general introduction to Inquest, the name given to the consultancy endeavour, incorporating an introduction to SST and CPA, produced by Inquest. This document was despatched to BOS and AM Investments when they each first contacted about the possibility of meeting as mentioned in scenes two and four of the previous chapter.

Document 3 (D3) This provides a summary of the discussion with BOS recounted in scene five of the last chapter as requested by Stephen at the end of this meeting.

Document 4 (D4) This provides an account of development centres for AM Investments 'written' by the conscripting organism described in scene one of chapter four.

The rationale for selecting these document is that they represent one category of 'unlocked' document within this culture and they were obtained from the field over the same time period as the accounts provided in chapter four and exploit the ordering of time also used in chapter four as being deployed in managing the margins. They are also the documents referred to in the accounts in chapter four, but their content is never explicitly examined hence their use allows us to examine comparatively what 'story' would emerge about this culture from using 'member' inscriptions rather than analyst inscriptions. As reports, they can be construed as possessing some stability and hence meet the needs for a stable physical object to begin exploring the relationship between form and interpretation. As they exist in the context of the account in chapter four, they also provide material for us to question whether an analysis of reports can be used effectively to investigate 'conscription' at the 'margins'.

These documents are therefore taken as a 'series' of artefacts, numbered in chronological order. This is both the order of their production and the order in which they were distributed to the marginal members introduced in chapter four. They are

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[6]As mentioned in chapters three and four, there are certain documents 'locked' as members only and these have been excluded from this investigation.

approached as events in time which may be able to illuminate the way in which variability in accounting may conscript members. This approach uses the data rather in the way that time lapse photography demonstrates processes of change out of multiple frozen images. Each document can be viewed both as a 'representation' in itself and as re-configuration of a previous one in a different temporal context. By examining them in this chronological fashion, we can explore if variability in accounting is deployed and question whether any moves identified generate reconfigured 'problems', reconfigured 'clients' and a reconfigured SST-2.

Framework for analysis

To process the text from members documents as data an explicit analytic framework[7] has been developed. It was stated above that these stable objects would be examined for the variability incorporated into these conscriptions of SST-2 in terms of the 'community' (Cooper and Woolgar 1993b) each enacts. This analytic framework incorporates various dimensions into two categories, each of which can be compared over time. The two main categories exploited within this framework are boundedness[8] and users[9] which are a further manifestation of the themes permeating this thesis.

The remainder of this chapter is divided into two sections using these two categories. Section one explores boundedness as it is made manifest through each of these documents and section two explores users as they are made manifest, in a similar fashion. Under the heading 'boundedness' introductions, structures and endings are explored within each document. This includes an examination of the first page, the closing comments, the opening and closing statements and the structural features such as length, sectioning and ordering across each document including features such as changes in size, emphasis and position. Under the heading 'users', an examination of the way 'people' as 'authors', 'subjects' and 'stories' are deployed in each document is undertaken and the implications that can be suggested from these features about the

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[7]Documentary content analysis involves the exploitation of such processes of classification (Mostyn 1985) and according to Lofland (1974) the structured form of accounting which follows these introductory remarks is that preferred by examiners.

[8]Explored as a theoretical theme within SSK in chapter one, which also acts as data for the analysis of the deployment of boundedness within problem construction within SSK/SST-1. It is also examined in relation to the activity of ethnography within section two of chapter three.

[9]This is explored as a theoretical theme entitled credibility within SSK in chapter one and entitled configuring a user group in chapter two. Chapter two also acts as data to examine the process of configuring users within SSK/SST-1. Chapter three, section two examines the configuration of users within ethnography, when exploring the forms of authority deployed within ethnographic accounting.

'conscripting organisms' created to incorporate marginal members are developed. Throughout these accounts inferences about the changing constructions of knowledge, client and consultants will be drawn.

For those readers who prefer findings presented in reduced form, various summaries of the findings from these documents along various dimensions are given in tables and figures throughout the text. Table 5.1 summarizes the findings from the dimensions used under the heading boundedness and table 5.2 summarizes the findings from the dimensions used under the heading users. In addition figures 5.6 and 5.7 illustrate the changes in size content and proportions of the documents. Finally, table 5.3 gives the analytical inferences about the chosen analytic dimensions.

To summarize, this chapter takes each member document as a stable artefact and examines what conscripted membership can be inferred from the account in each. As these documents are a series produced over time, the changing inferences about conscripted membership represented in each document allows us to examine how variability may be deployed in the conscripting process. Any variability between stable representations in turn allows us to examine whether a form of flexible boundedness can be inferred from the deployment of these documents aimed at the margins. Hence the questions explored in this chapter address the first objective given at the end of chapter two which suggests the need to focus upon the relationship between physical stability and interpretive stability, which is an objective distilled from the hypothesis that physical stability does not imply interpretive closure. In addition, this chapter seeks to illuminate the consequences for the constitution of the culture of SST-2, of the methodological decision to approach the 'changing' artefacts of members as if they represent 'stable' physical entities.

Section 1: Boundedness

The starting point for this analysis is the first page of each document which, it can be suggested, positions the reader in relation to the document. Exploring the 'title' pages allows us to examine the shifting way invitations to read are managed and infer what they could mean for the readers' potential relationship with the 'knowledge' contained within. A more implicit boundary matter is how these documents express in their content, their rationale or purpose. Therefore the implicit and explicit accounting given in the text for explaining to a reader why they should read and how they should read, will be examined to see if it adds a further dimension to this exploration of boundedness. These will be followed by an analysis of the structuring used in each document. This has been examined by looking at the way the documents are ordered and by focussing upon the use of length, figures and headings.

First sight of each document

The title page of D1 gives indications about potential readings of this document. This page can be taken as operating as a boundary to the contents in two ways. It acts as physical barrier as it is primarily blank paper with a title and a brief account which can be read as acting to distance the reader in relation to the contents. As the following will indicate, a reading of distance is constructed via the reference to experts, the undisclosed nature of the knowledge and the request for a controlled reading.

It has a first page upon which there is a prominent heading "CAREER PATH APPRECIATION" followed by three sentences. The first sentence:

"This description of Career Path Appreciation has been prepared by Fred . . ., an Organisational Development Consultant."

Text Sample 5.1

appears to construct CPA as an 'entity' which can be described. This message could encourage the reader to approach the following text as factual information. It also can be read as implying a particular 'authority' on this subject, and one with potentially more than the reader. Indeed, the next sentence extends our potential reading of 'authority' by incorporating member 'experts' as resources.

"It is based upon a number of papers produced by Dr . . ., Director of ICOSA, xxxx University, and others, published and unpublished.

Text sample 5.2

This can be read as strengthening the 'entity' status or 'factual' quality implied for the remaining contents and invokes the notion that to disagree with the contents would not just involve a disagreement with the author of the document, but also institutionalised expertise. An additional potential implication for reading, of referring to published and unpublished papers could be that readers will be given access to as yet undisclosed knowledge. The final sentence on this gives an explicit request for control on the use of the document (see Woolgar 1991a):

"This paper must not be copied or reproduced in any way without permission."

Text sample 5.3

This could be taken as giving permission for reading but requiring contact with the author before communicating it in any way, which could be read as suggesting there is a

need to control the content of the paper by 'authorising' readers.

These initial sentences. it can be inferred. act to conscript a novitiate. by constituting authorial separation. It could be suggested that this simultaneously includes the potential reader (by authorising reading) and distances her (by retaining authority). This can be inferred as placing a reader in transitional space (Woolgar 1992).

If we now consider the other three documents selected an interesting transition in potential reading is implied in that D2 and D3 the cover page has a heading which is closely followed by the main text. so they have no equivalent covering page to that described for D1.   D2 is introduced as follows:

FOREWORD

THE STRATIFIED SYSTEMS THEORY

SST is a model of organisation. which looks at different levels within organisations in terms of
the way decisions are made
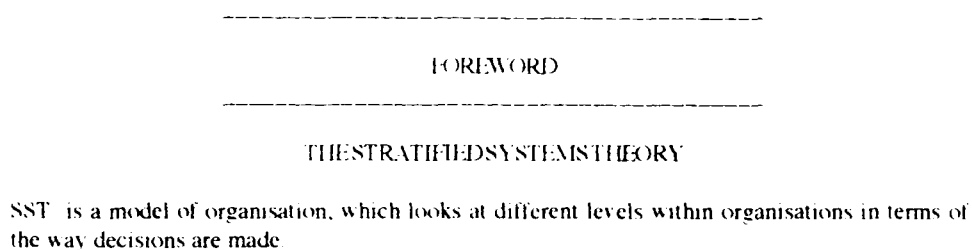
Figure 5.1: D2 First Sight

D3 starts in similar style:

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SECTION I

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ABOUT INQUEST

We are a small and progressive Consultancy specialising in Managerial and Organisational
Development and closely linked to several leading academic centres conducting research in this
field.
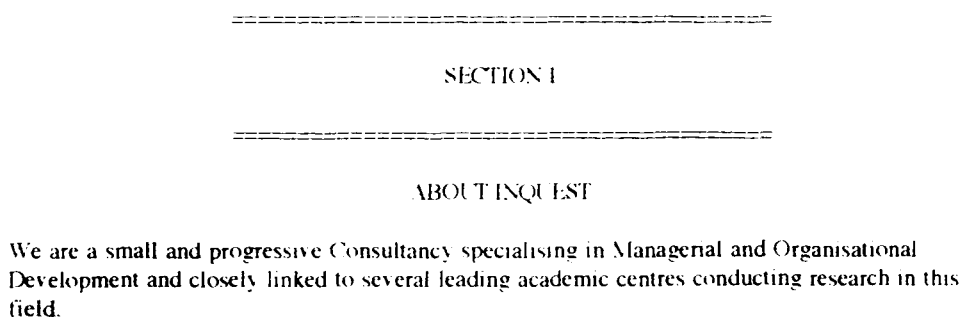
Figure 5.2: D3 First Sight

What potential relationship with readers could these starting points, illustrated in figures 5.1 and 5.2 generate with readers in comparison with that suggested for D1? Firstly, both D2 and D3 could be read as less controlling, compared with that established in D1 as they allow the reader immediate access into the text and its contents (note the first sentence of D2 and D3 given in the two above figures). This implies that

this structure could have been produced for greater access in contrast to the implied control of reading given by the first page of D1. However, D2 and D3 do appear to have some similarities with D1. For example, the sentences at the beginning of D2 and D3 could be read as using similar techniques to 'authorize' the content of the document as those used on the front cover of D1. They can both can be read as suggesting there is an authority of expertise separate from the reader. For example, in the first sentence of D2, (see figure 5.1) it could be suggested that D2 invokes the authority of knowledge as an entity by stating "SST is..". In D3, (figure 5.2), the authority of 'research' to authorize the following content is invoked. However, because of the way D2 and D3 commence, this could be interpreted as less protective of the knowledge than D1. This gives the first evidence of an exploitation of variability in accounting deployed within member documents.

As figure 5.3 indicates, a further variation can be inferred from studying D4. In this instance the text opens with a letter, which refers explicitly to a 'story' about a relationship between consultant and client beyond the specific contents of the document.

D ... G .....
Executive Consultant
A M Investments

Dear D.....

Following our telephone conversation yesterday, I am now forwarding the information concerning Development Centres and as requested, will send the original on to you in Newbury today. I trust this information will be sufficient at this stage

With kind regards

Georgina S.......
Director

Figure 5.3 D4 - First Sight

This letter can be seen as acting to focus upon a single person as reader. It can also be taken as suggesting that the contents of the document are subordinate to the 'real' story taking place outside the text.

Hence, this dimension of first sight suggests a shift away from establishing absolute knowledge in the 'description' in D1 to D4 where there is an acknowledgement of text as partial, embedded in a wider 'story'.

The rationale for reading the document

This dimension explores the potential readings of purpose within each of the documents used within this analysis. D1 gives a rationale for reading on the first page of text when it states:

"This document provides details of CPA, explains what it is, how it is carried out and some of its important uses within business and industry."

Text sample 5.4

This use of words appears to indicate that information specific to a particular domain of knowledge will be imparted. Given that this is asserted on the first page, it could suggest the rendering of all that follows into an account of a tangible product with specific facts. In addition, the content of the document prior to this explicit statement is geared to asserting the factual status of this knowledge with assertions such as:

"This comprehensive theory..."

"A further discovery..."

"Properly used, SST CPA is a powerful tool"

Text sample 5.5

All these statements can be inferred as reinforcing the authority exploited on the first page as discussed earlier (see text samples 5.1, 5.2 and 5.3). My contention therefore is that all the introductory elements in D1 can be taken as asserting SST-2 and CPA as bounded, discrete entities and in doing this the role or space it configures for the reader tends to be that of the novitiate.

D2 comprises some of the same text as D1 but without the cover page. In its place it adds two pages of 'foreword' prior to the 'description' of CPA. This foreword to D2 can be taken as a summary of SST-2:

"Level 1 is the work of..."

"The model identifies the way in which these different levels are set up in organisations..."

"there should be an optimal gap of one level..."

Text sample 5.6

However, it can also be read as providing problems which can be inferred as attempting to induce a level of concern in a potential reader and to provide a rationale for further reading on this basis. Concern appears to be generated in the above statements by the introduction of unexplicated concepts. Later statements in D2 appear to hint at the unforeseen dangers in not understanding these concepts:

> "the 'flatter and leaner' organisation is supposed to be better, but the many
> articles and books on the subject do not offer any coherent reasons as to why this
> is the case"

> "It is the capability of people to make decisions that organisations invest in. It
> is therefore essential that organisational structures allow this capability to be
> deployed, otherwise they are simply wasting their investment."

Text sample 5.7

This means that the form of words used to describe SST-2/CPA appear to invoke the same authority as that given in D1. However, as the position of this description is shifted within the document to follow a 'foreword' as con-text, these words and forms of authority can be interpreted as producing a subtly distinct rationale for readers, based upon how SST-2/CPA could be used in the context of organizational problems.

In addition we have statements which could imply warnings of danger (Douglas 1966) exploited in these chosen boundary dimensions. In D1 the warnings were given about the unrestricted use of the knowledge and were expressed as a need for 'authorised' readers (see text sample 5.3); the foreword in D2 instead implies danger from not understanding and applying this knowledge. It is therefore not surprising that this foreword in D2 goes on to provide a rationale for reading the document:

> "SST provides a rational and valuable basis on which to make decisions in all
> areas of restructuring and growth."

> "Identifying an individual's current and future level of capability is accomplished
> through the process of Career Path Appreciation. So, having gained information
> concerning the structure, nature and levels of work within a given organisation,
> individuals may therefore be effectively and appropriately matched to jobs, both
> currently and over the long term."

Text sample 5.8

The rationale for reading implied in D2 suggests the existence of problems which SST-2/CPA can solve.

The movement between D1 and D2 on this dimension can therefore be understood as a change in rationale from establishing knowledge as entity in D1 to establishing knowledge as potential solution in D2. Hence in D2, a subtle transition can be deduced

in the nature of the rationale which appears to require the potential reader to connect the contents of D2 to their own experiences. It can be inferred that D2 still creates CPA and SST-2 as discrete entities, as in D1, but in D2 they are established as entities with the potential for application. This manoeuvre from D1 to D2 could be construed as a variability in accounting which creates space for the reader to interpret potential applications rather than to accept knowledge as novitiates. The shift is one to make the more document more permeable to the reader as an active interpreter, in particular as an individual with problems. Hence it configures the reader's role as negotiator as well as novice.

A further variability in accounting is evidenced in the implied rationale for reading in D3. The account in D3 can be inferred as creating a relationship of partnership between reader and writer more completely than that in D2 as negotiation between equal participants (compare with the discussion reported in chapter four, scene five). The explicit statement of purpose in D3 (see text sample 5.9) is connected to the aspirations of the consultants (rather than being linked to the substance of the knowledge as in D2) and the relationship between consultants and clients sought:

> "Our purpose is to contribute to this country's success by helping businesses and industries to grow and prosper"

> "some time ago we felt it very important to analyze our work ..... in order to be clear about our own roles and capabilities"

> "a partnership of trust and confidence between consultants and those individuals who can influence and bring about strategic change within the client organisation..."

Text sample 5.9

These opening comments can be taken as configuring the reader of the document as a significant individual within a client organisation and construe the relationship of client with consultant as the focus of the document. From this it is possible to suggest that the rationale of this document is to establish a relationship between reader and writer as a 'partnership of equal' clients and consultants. However, the other implicit purpose in in account in D3 (see text sample 5.10) which 'configures' the reader is the type of power that is retained by the writer/consultant - the power that comes with knowing and disclosing (or not):

> "consultants obviously hold a privileged position within a client organisation and much of the information they receive is sensitive."

> "information must not be passed direct from the consultant to any individual who was not included in an agreement, even if this person is at top management level and specifically requests it."

Text sample 5.10

A warning can be inferred again in these boundary dimensions: in this case it is a warning about the power of consultants in terms of what they know. I have suggested that in D1 this use of warnings has been directed to a struggle to establish the knowledge as an entity, and in D2, to establish knowledge as solution. The implicit conscription in D3 appears to be the struggle to establish knowledge as property.

In D4, the contents of the letter (see figure 5.3), appear to express a rationale for reading as based upon an agreement made outside the text; the action of a specific client considering the consultant position on a particular theme of the client's choosing. As stated earlier, it alludes to a relationship beyond the document with this particular action as a response to a client initiative. When discussing these documents with Georgina, it became clear that D4 had been despatched by fax and then posted, all at the request of this client. The form and process of the presentation of this document contribute to a possible reading that the purpose of the text is to express action rather than to act as a representation of knowledge.

In summary, this analytic dimension of initial boundaries appears to generate a shift in the position for the marginal member from a novitiate reader in D1, to a novitiate user in D2, a partnership in D3 to a choice whether to join or not in D4. Each document uses a different sort of warning to strengthen this position, and constitute the knowledge in different ways; as an entity in D1, as a solution in D2, as the property of a consultant in D3 and as potential action in D4. Two further boundary dimensions will now be explored to see if similar themes emerge; the document structure and the endings.

Document structure

This analytic category appears to confirm the inferences drawn so far and allow us to examine how issues of structure constrain and enable readings of membership in that there appears to be a shift from the rational linearity of the report format, to a less ordered structure which offers 'bite-sized' portions of text. In D1, as has already been discussed, this structure is asserted initially, in the use of a covering page (see text sample 5.1). However, in addition to this title page we also have an 'Introduction', and then sections entitled 'What CPA provides', 'What CPA measures and assesses', 'What CPA involves' and 'Uses of CPA' and finally a 'Conclusion'. The same structure is used in D2, but with the addition of a foreword. The characteristic of this is that each section can be constituted as linking onto those that have gone before in linear rational report format.

However, D3 has a different structure. The sections in this document are as follows: 'About Inquest'; 'The Stratified Systems Theory Incorporating Career Path

Appreciation'; 'Case Illustrations Involving the Use of SST/CPA'. The text is still divided into sections, but in this document we are presented with three which can be taken in parallel as each can be read as standing on its own, without reference to or dependence on the others. Hence my suggestion that D3 exploits the structure of the 'bite-size' pieces. In comparison with the sections in D1 and D2 which exploit linearity, the linkages between the sections in D3 can be read as being less linear and more explicitly open to ordering by the reader. The same structure is exploited in D4 which is divided into the introductory letter, a section entitled 'Development Centres' and an appendix entitled 'The Stratified Systems Theory Incorporating Career Path Appreciation'.

It therefore appears that there is an explicit transition between D2 and D3 from the linear report format of expository writing to attempts at generating parallel accounts, which can be inferred as being connected in less controlled ways and by the reader. If we refer to the point made earlier about the documents used as data, this shift is at the point where the document is sent following a meeting, rather than prior to meeting. Hence D3 and D4 can be construed as documents conscripted with specific marginal members, rather than as conscriptions for more general marginal members. These differences in ordering indicate a similar trend to that identified earlier in this section, with the shift away from a closely authorised and controlled account which can be inferred as conscripting a dependent role for marginal members to a more open conscription.

The same process of reducing control can be inferred from the length of the documents, from the use of figures and from the use of headings. The length changes from ten pages in D1 and D2 down to seven pages in D3 and four and a half in D4. Figures are used to support the knowledge presented in D1, which has both a figure of modes and a table of levels and also in D2, which includes a table. However, there is no use of these devices in D3 and D4. This is also the case with the use of headings as there is a gradual reduction in the levels of heading used throughout these documents. D1 uses three levels of headings to segregate the text, D2 and D3 both have two levels of headings and in D4 there is one.

Endings

The final dimension within the general heading boundedness is the analysis of the way in which each document ends. If we look at the endings to these documents, which can be taken to represent the manoeuvres made to achieve the transition out of text, similar patterns are also evident. Both D1 and D2 end in the same way (see figure 5.4) alluding to an action beyond the text. However to explore this, the different opening to

D1 and D2 need to be taken into account as these indicate the type of interaction that is being referred to. For D1, we have argued that the introductory boundaries act to establish the existence of SST-2/CPA as a discrete entity and the reader as novitiate. Therefore the implication of this ending is that there is more to be learnt by contacting this number and the dependent role can be seen to be perpetuated. However, we argued in contrast that D2 was directed towards conscripting the potential for negotiation about problems, this ending acts as an invitation to discuss problems and solutions.

FURTHER DETAILS MAY BE OBTAINED BY CALLING 019 578 6798

Figure 5.4. The end of D1 and D2

The ending to D3 is as follows:

END OF DOCUMENT

Figure 5.5. The end of D3

This makes no reference to any contact beyond this text or any potential action, but instead appears to refer to the discretion of the reader to take action as appropriate rather than a particular course being defined for them. Finally, D4 ends by placing the information about CPA as an appendix to the document, in support of the letter which establishes a relationship existing outside text.

Summary of Section 1

From the study of these boundary dimensions there appears to be a series of general shifts in focus from D1 to D4. Comparing the cover of D1 with the initial sentences in D2 and D3 gives some illustration of the subtle variability in accounts deployed within members documents. Variable ideas of authority and danger are used to conscript different relationships between clients, consultants and knowledge in the deployment of variable accounts. D1 deploys the authorities of institutions and research to suggest knowledge as entity and implies danger in the manoeuvres made to control the readings. D2 deploys similar authorities, but also suggests the reader has a role in problem construction which introduces the idea of knowledge as solution and the

135

implied danger in not applying this knowledge. D3 constructs a partnership between consultant and client where the authority is equal. However, danger is suggested in the knowledge held by the consultant. Finally, in D4, the authority is located with the client and the possibility of a relationship between consultant and client bolstered by the implied story existing outside the text given in the exploitation of a personal letter. This variability from D1 to D4 suggests a shift from what can be described as 'expository authority' to what can be described as 'narrative power' (see chapter one). D1 can be constructed as exploiting report style 'boundedness' to invoke authority whereas D2 and D3 can be constructed as occupying a transitional position between 'reports' and 'stories'. D4 completes a further shift in invoking a story outside the text. In brief, the introduction becomes increasingly client focussed, the knowledge increasingly subordinated to the work that can be done with it, the structure less controlled and linear and the ending increasingly insubstantial. In addition, the shifts in accounting between D1 and D4 generate different problems, locate power with different parties and conscript at the margins of this culture in subtly different ways. At the outset of this chapter the question raised was whether and how the manufactured accounts from this culture could be taken to work at changing the boundaries around membership. The analysis in section one tends to suggests that there is a softening of boundaries as members become closer to being conscripted which is has been characterised as a shift towards application and action and away from bound knowledge. This could support an interpretation that application requires the softening of boundaries and the exploitation of interpretation or allegory.

These dimensions are summarised in table 5.1.

Dimension	D1	D2	D3	D4
First sight	1. Covering sheet 2. Warning about unrestricted use. 3. Establishing authority	1. Heading 2. Foreward straight into text 3. No authors	1. Heading 2. Section straight into text 3. No authors	1. Letters 2. Allusion to external relationship 3. Restricted to named reader
Given Rationale	1. To provide details of CPA	1. To establish organisational problems 2. To describe CPA	1. To introduce consultants. 2. To introduce work of consultants	1. To respond to a clients request 2. To provide limited information
Length	10 pages	10 Pages	7 Pages	4.5 Pages
Ordering	1.Rational Report 2.Linear sections	1.Rational Report 2. Linear sections	1. Segregated 2. Parallel connected section	1. Segregted 2. Parallel heirarch-ical section
Figures	Table & figures	Table only	None	None
Headings	3 Levels	2 Levels	2 Levels	1 Level
Endings	Extends novitiate relationship	Encourages negotiation about problem	Leaves choice with reader	Subordinates knowledge to application

Table 5.1 - Transitions in Boundary Dimensions

Section 2 - Users and use in text

This section will explore the content of each document and examine the way 'people', whether represented as 'authors', 'subjects' or 'stories' are exploited to produce possible readings of users for the members at the margins and so may be taken as having implications for conscripting. This also explores the how SST/CPA and its use is deployed and described within each document. To a certain extent the following will be repetitive of the issues raised in section one, but with a different emphasis. These components are summarised in table 5.2 at the end of this section.

Representations of People

The way representations of 'people' are incorporated into an account can be inferred as being of importance in the authority claimed for that account. This has been discussed in relation to the production of polyphonic ethnographic accounts in chapter three, section two. The same issues are relevant in this context as it was demonstrated in this account of people as sources of information and authors in D1 which worked to generate a particular sort of relationship between reader and text; a relationship which struggled to retain the power with the document rather than offer it into the hands of the reader.

Exploring the representations of 'people' through D1 to D4 produces a more detailed illumination of the variability in representations of SST-2/CPA written by this culture. It also illustrates the implicit manoeuvres made in text by the consultant users of this 'social technology' to encourage clients to also become users, by creating the space to locate them in differing ways within the account.

As has already been described in section one, D1 takes the rational report format as its model for authority and in line with this, configures an author at the outset and exploits sources as its 'powerful people' in the text (see text samples 5.1 and 5.2). This, it has been argued conscripts a relatively powerless position for the reader. As the text in D1 progresses this message appears to be extended to exploit further power relationships as the following assertions indicate.

"Properly used, SST CPA is a powerful tool which enables organisations to select individuals for a position, or series of positions, which effectively match their capability throughout their entire working life "

"CPA is conducted during a two hour session with a highly trained Consultant"

"The information is presented in a confidential report which may or may not be shared with the individual"

Text sample 5.11

138

These again offer the reader the subordinate positions. They constitute a relationship between 'a highly trained SST-2/CPA practitioner' and an 'individual' and a relationship between 'organisations selecting people' and an 'individual'. Individual 'people' in the text can be read as 'subject'. All these examples can be taken as demonstrating that 'representations of people' are deployed in the account to establish differences in power - there is nothing which appears to establish equality or exchange - the nature of authority deployed in this document suggests an attempt to control.

This is also apparent in the use of stories in D1 as these are kept to a minimum. The quality of these stories is as small bits of 'data' (rather like the quotations used in this chapter) or as sample problems deployed to support the authority of author/ practitioner/ organisation:

"the organisation may wish to select a General Manager for today with the ability to take over the role of Chief Executive within five years. So, the organisation would need an individual currently at level IV and capable of moving to low level V in five years."

"many people respond to CPA with comments such as 'It's the first time in my career that someone has really understood how I feel about my job and my future'."

Text sample 5.12

In D2, as has already been stated, the existence of an author has been removed which can be interpreted as initiating a different use of representations of people. In section one of this chapter, it was suggested that this could be taken as encouraging the beginnings of a dialogue between writer and reader. This is extended beyond the text by the invitation to telephone; to make it a 'real' negotiation by the use of speech (see figure 5.4). However, as has already been stated above, after the foreword, D2 is identical to D1 hence text samples 5.11 and 5.12 are also evident in D2. It was argued above that the foreword made a difference to the role offered to the reader at the outset; this can also be argued for the remainder of the document. The introduction of this relationship as negotiation introduces a different way of characterising relationships. While the structured qualities of the text in D1 are still present, the position open to the reader in D2 can be inferred as having shifted. In D1 the author was aligned with the dominant 'people' in opposition to the reader. In D2, the reader, by taking the opportunity offered to align herself, through the shared definition of problems, with the writer, can in turn also align herself with the powerful people deployed in the following text; the analyst and the organisation. This suggests that the sample quotations given in text sample 5.11

and 5.12 can potentially generate different readings.

In D3 the situation has shifted again. As with D2 there is no author, in D3 there are also no experts deployed. The representation of people in D3 involves the explicit presentation of roles, aspirations and the articulation of areas of expertise. Stories make up a significant proportion of this document and provide representations of people at work. Hence it is the process of working together that can be read as being emphasized. In the first section of the document, which introduces the consultancy this is demonstrated in the following comments:

"The relationship (between client and consultant) focusses upon the exchange of ideas and concepts, the consultants channelling information and passing on expert knowledge to assist the client in making informed decisions relating to the strategic aims and objectives of the organisation."

"whichever models or tools we use, we use in full knowledge of their strengths and limitations. We understand the underlying concepts on which they are based and the significance of practitioner expertise."

"We are committed to on-going self development, both as individuals and as a business entity. Our code of ethics impacts upon all our practices and relationships and our progress to date reflects the standards to which we work."

Text sample 5.13

This representation of 'active' people in text, rather than invoking them as authors or sources outside the text evidences a shift towards what has been described in chapter three, section two as polyphony. A similar trend is apparent in the use in D3 of four stories or case histories, which instead of being reduced into small fragments as in D1 and D2, fill one section and can be read as invoking the power of narrative in expressing accessible ideas about application, for people working together. Rather than 'speaking for the text', in this situation it is most effective to let it speak for itself. Thus case study two is reported intact.

Due to a large new potential market in one specific area, the M.D. decided that dividing the existing company into two separate operational components would improve overall profitability. He therefore planned to create two Boards of Directors for the two new entities by drawing on as many of the existing employees as possible.

All those currently working in Level III roles and above in the company were offered the opportunity of CPAs. These identified an abundance of underused capability within the company which could be appropriately deployed in the developments suggested by the M.D.

continued.........

Discussions were held between the M.D. and the consultants about the abilities of the key people, and recommendations made about the preparation necessary for these people to fulfil the key strategic roles at Levels IV and V.

Workshops for the new boards were designed and run to explain the transition involved in moving from Level III operational roles to Level IV strategic roles and to explore the consequences of so many people within an organisation making this transition at the same time. These events drew very heavily on the SST framework to provide those attending with a model for understanding their situation.

Despite the major upheaval of so many simultaneous transitions, with the prior investment in preparing for this development, both new companies are operating effectively in what is a very difficult market.

Text sample 5.14

Hence the representations of people in the content of D3 indicate more space for the readers and can be read as offering a much less controlled conscription than in D1 and D2. In line with this, the content represents and articulates a closer contact with 'client' interests and action. Clients are represented as active and effective in these narratives which, by the nature of their form are themselves accessible. This shift takes on a different manifestation in D4, which is a direct response to a specific client question. As already mentioned, the use of a letter generates people in a particular, wider relationship, which is constituted as more far-reaching than anything embodied in the text. The story and the people, rather than existing within the text, can be construed a wider that the text and hence contain this particular document.

These transitions are described in brief in table 5.2 over the page.

Representations of SST-2/CPA

The final key content issue involves the location and emphasis given to component parts. Figure 5.6 summarises the breakdown within each document and figure 5.7 demonstrates the shift in each component across documents. These two figures demonstrate in graphical form the varying content of the four documents. An equivalent transition to that identified in section one between D2 and D3 is evident here. SST-2/CPA moves from being described as an entity to it being described in action.

Dimensions	D1	D2	D3	D4
Use of people	1. Author 2. Sources 3. Author domin-ant in text. Client action outside text	1. No author 2. Sources 3. Consultant dominant in text. Client action outside text	1. No author 2. No sources 3. People active in text (both consultant & client)	1.Sender & recipient of letter 2. No sources 3. Consultant active in text. Client active outside.
Use of Stories	Contained tightly within text as illustration of points	Contained in text as illustration of problems	Dominant form of presentation	Document part of a wider narrative

Table 5. 2 Transition in User Dimensions

As is illustrated in the figures on the following pages, the whole of D1 is concerned with CPA, in line with all that has been discussed earlier about its struggle to establish this as an entity. For the purposes of this discussion, we are concerned to explore how this changes in later documents. To do this we must therefore give an account of the emphasis taken in this initial document. Above, the titles given to the different sections used in D1 were described which suggested that these covered how measurements are produced:

"Mode is the term used to express a judgement about the rate of development of capability of an individual and thus potential"

"The important factors in this test are the strategies adopted by the participant to achieve the problem solution rather than the actual solution itself."

"The CPA process identified , as it were, the 'size' of an individual and his her capability to undertake a particular size of job."

Text sample 5.15
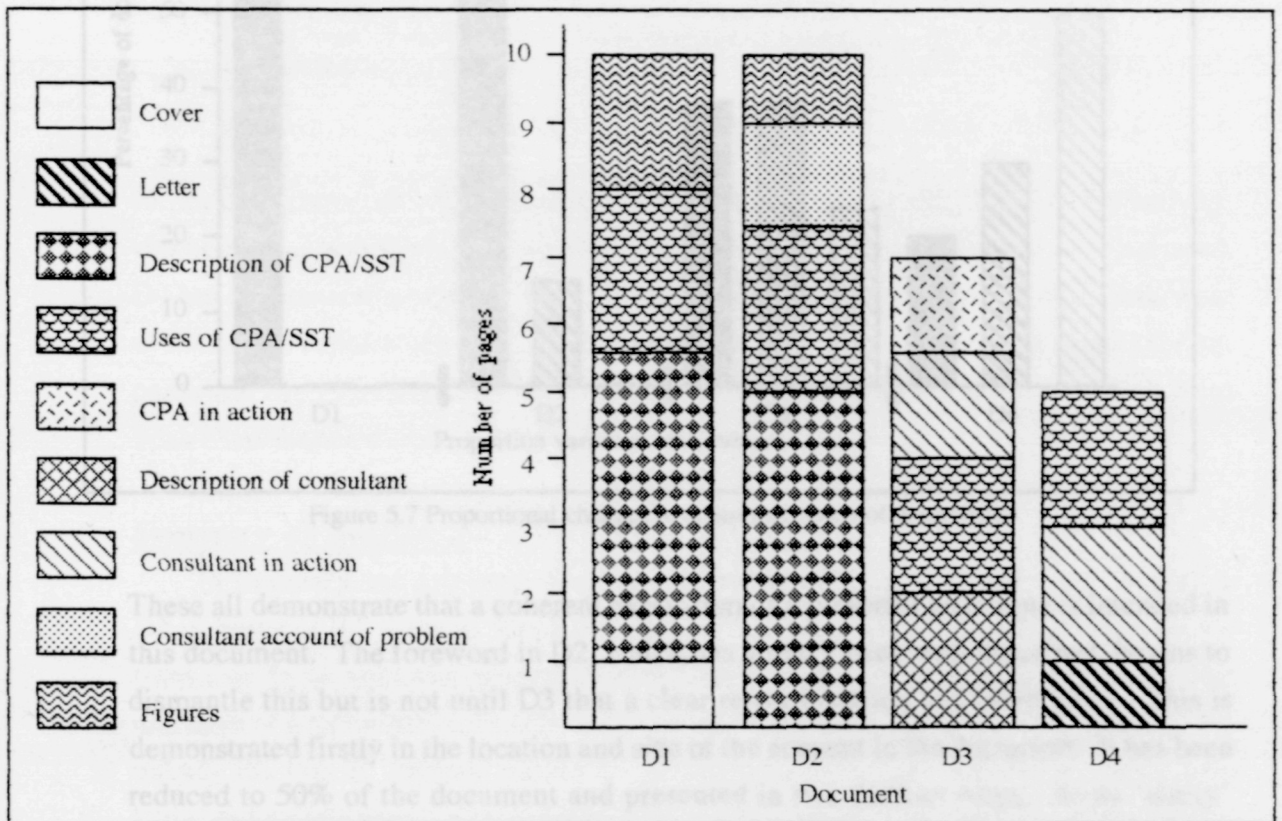
Figure 5.6 The contents of the documents

and how these can be used by an organisation.

"CPA is particularly valuable in the design and implementation of long term career development programs"

"In major reorganisations, CPA gives sufficient insight to ensure their correct positioning."

"Used in management development, CPA can help to make the distinction between changes that occur in people as their capabilities mature and changes that may be needed in personal or environmental factors."

Text sample 5.16

143
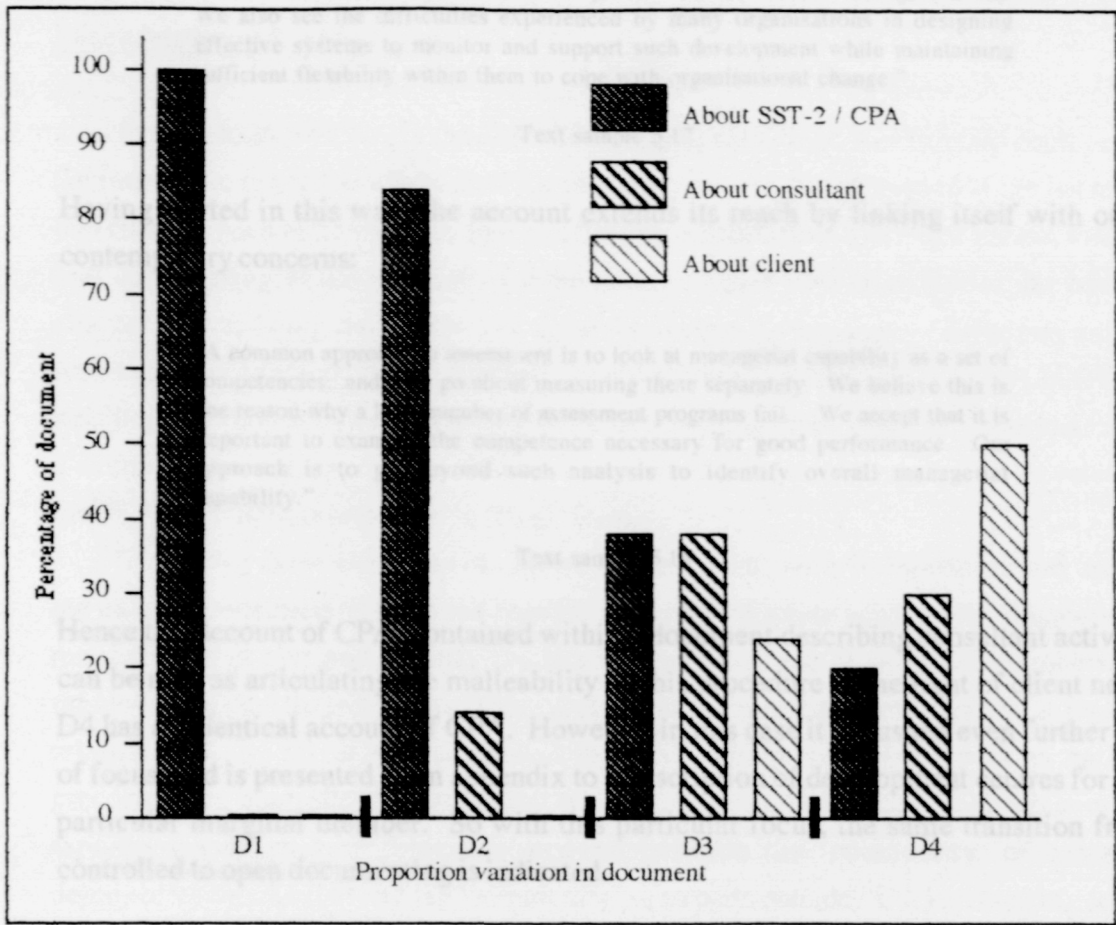
Figure 5.7 Proportional changes to component parts of documents

These all demonstrate that a coherent exposition of a powerful technique is intended in this document. The foreword in D2, which has already been well described, begins to dismantle this but is not until D3 that a clear re-presentation has taken place. This is demonstrated firstly in the location and size of the account in the document. It has been reduced to 50% of the document and presented in two distinct ways. As an 'entity' SST-2/CPA appears in the middle of the document, contained by the active descriptions of consultants working with this practice. This reinforces the messages, discussed earlier, that knowledge is asserted as property in this document. However, it is also presented 'in action' in the case illustrations which comprise the third section of this document (see text sample 5.14). These suggest that CPA is mobilised in this account, not as a discrete entity, but as solutions to problems. This emphasis is also evident in the middle section devoted to CPA. In comparing this account with that given in the two previous documents it is clear that no mention is made of the process of measurement or assessment. The whole account is designed to describe and solve problems which is made clear right from the first paragraph shown overleaf:

144

"We see development as a continuous process for individuals and organisations We also see the difficulties experienced by many organisations in designing effective systems to monitor and support such development while maintaining sufficient flexibility within them to cope with organisational change "

Text sample 5.17

Having started in this way, the account extends its reach by linking itself with other contemporary concerns:

" A common approach to assessment is to look at managerial capability as a set of competencies and then go about measuring these separately We believe this is one reason why a large number of assessment programs fail We accept that it is important to examine the competence necessary for good performance Our approach is to go beyond such analysis to identify overall managerial capability "

Text sample 5.18

Hence this account of CPA, contained within a document describing consultant activity, can be read as articulating the malleability of this procedure in the light of client need. D4 has an identical account of CPA. However, in this case it is pushed even further out of focus, and is presented as an appendix to a description of development centres for one particular marginal member. So with this particular focus, the same transition from controlled to open documenting is indicated.

Summary of Section 2

In summary, the category of 'using' indicates a shift in representation from D1 to D4 in terms of the ways in which both people and ideas are put to work in the text; a transition from authorial control over the text, to text participating within a wider narrative of a relationship. People in D1 are implied either to be active authorial experts outside the text or 'subject' within it. In this way, a separation between people who know and people who are known about is constructed. With the removal of an explicit author in D2, there appears to be a shift which allows the potential for the experts outside the text to incorporate the reader, making the reader one who knows. D3, by exploiting narrative appears to make people active within the text and illustrates the action possible with the ideas. In this way the separation between outside the text and inside is weakened. This is further represented in D4 which construct's the action as a client's decision, completely removing the expertise from the domain of the author. The same pattern emerges in the representation of SST-2/CPA as it appears to be constituted as knowledge in D1, as solution in D2, as property in D3 and as action in D4.

Discussion and conclusion

In this chapter we have examined the changing patterns of membership deployed in the four stable textual artefacts used for this analysis. As was discussed at the outset of this chapter, such texts were thought to offer the possibility of gaining a greater insight into conscripting at the margins of membership, which was identified at the end of chapter four as being one of the key areas for further investigation. Selecting a time series of such artefacts, it was claimed, would allow us to examine the ways in which stability and variability in accounting work in managing these margins. This approach was contrasted with approaches that have viewed cultural artefacts (such as bicycles or facts) as 'soft' until represented in 'final' form.

Exploiting these examples of culture writing itself, with boundedness and use as the analytic constructs, it has been possible to explore discrete accounts of membership relationships in text and identify the key changes in these accounts of membership relationships constituted by the inferences about the temporal nature of the marginal relationship. In D1, it was suggested that SST-2/CPA was claimed as an entity, presented in a controlled report format which constructed authorities and subjects. A separation was inferred from this analysis between the 'community' of subjects deployed within the text and the 'community' of experts outside. D2, by changing some of the structural features of the representation, appears to reconstruct SST-2/CPA as offering solutions. The foreword introduction of organisational problems appeared to work at configuring a relationship of negotiation between different classes of member. People as subjects were still deployed in the text, but the 'community' developed outside appeared to be extended to a negotiation between potential members. In D3 the focus appeared to be upon establishing SST-2/CPA as the property of certain members. However, the boundary between the 'community' in the text and the 'community' outside the text evident in D1 and D2 appeared to be weakened by the removal of a linear report structure and the use of narrative throughout all areas of the textual representation. D4 extended the shift in D3 by explicitly locating the text as one participant in a wider relationship outside its contents.[10]

In these changes there have been shifts in authority from the author initially in D1 to the reader in D4, shifts in the power base to parallel the shifts in authority and shifts in the types of warnings used to manage these marginal spaces. In D1, the warnings

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[10]One of the fascinating things about this analysis is the extent to which members of this culture appear to use the various characteristics of text, which have been the focus of reflexive analysis in SSK, as explicit tools for conscription across membership boundaries.

concern the need to be authorised to read, in D2 the warnings concern the failure to use SST-2/CPA, in D3 the warnings concern the sensitive nature of consultant knowledge and in D4 there is no evidence of warning. These are summarised into two analyst classifications in table 5.3 below.

Dimensions	D1	D2	D3	D4
Inferred purpose	To establish knowledge as entity	To establish knowledge as solutions	To establish knowledge as property	To demonstrate knowledge in action
Inferred power centre	Consultant centred document	Consultants power to solve problems	The consultant client relationship	Client centered document

Table 5.3 Inferred transitions in 'community' in documents

From examining these stabilisations and shifts between them over time, it could be suggested that conscripting at the margins involves the management of liminality, identified by Van Gennep (1960) as a state where anything or nothing is possible and requires both stasis and transformation to be managed. Such areas of cultural life, according to Douglas (1966) involve the need for rituals and rites of purification and incorporation. It could be argued that the transitions, stabilised into the textual artefacts, represent the rituals of conscripting a change in membership. These changes indicate variability in what Cooper and Woolgar (1993b) have referred to as 'performing community'. It is possible to argue that the importance of these documents and the changes in them over time is that they provide representations of community in transition. It could further be suggested documentation is an important part of managing this liminal space whereby text is not used to harden ideas into fact (Latour and Woolgar 1986) but by softening membership boundaries via conscription into extended communities.

However, as with all such renditions of data it is important to acknowledge the extent to which the constitution of the subject matter has predicated the 'findings'. It is only by examining textual artefacts all as equally stable representations rather than as a trajectory that has made such an account of the 'softening' properties of text in

conscription possible. So has this reconfiguration of artefacts as equally stable worked? I would argue that, to the extent that it allows an alternative view of changes in representation as deploying explicit variability rather than indicating failed technologies, it has worked, both in that it has allowed one type of insight into the cultural products of our members and it has indicated for our readers the possibility of examining representation as a process of membership rather than as an outcome of social processes. At the outset of this chapter it was suggested that this exploration may allow us to address the hypothesis, given in chapter two, that stable physical form did not imply stability in interpretation. To address this hypothesis it is necessary to indicate that this analysis allows us to reframe the ideas behind the hypothesis. As has been suggested, such a hypothesis relies upon a conflation between stable form and final form; a conflation which this chapter has removed. With the notion of a final form, we can suggest that any stable form are representations deployed temporally and spatially within the process of membership. So to approach the hypothesis directly, this analysis would suggest that stability in form does not imply interpretive closure because stability in form does not imply the closure of 'performing community' (Cooper and Woolgar 1993b).

Further investigation

In chapter four the unlocatability of work practices was examined within this culture in a series of time bound narratives from various members in various settings. In addition to the insights this account gave about the expression of malleability within this culture, it also identified two types of boundedness. As boundaries are one of the primary subjects of this thesis, these two types of boundedness have formed the focus of the remainder of the data analyzed. In this chapter, the flexible boundaries used in the process of conscripting at the margins have been examined. In chapter six, the final conventional data chapter, those boundaries characterised as locked in the account produced for chapter four, will be addressed. This next chapter will exploit the switch in authorial relationship with the chosen culture between author as analyst and author as member to attempt to address the place of locked boundaries within this culture, and the contribution of investigation in their constitution.

CHAPTER SIX -LOCATING THE AUTHOR: THE 'LOCKED BOUNDARY' BETWEEN AUTHOR AS ANALYST AND AS MEMBER

The aims and organisation of the chapter

The purpose of this chapter is to examine further the deployment of boundedness identified in the exploration of working practices of SST-2 in chapter four. Chapter four described, in some detail, evidence for flexible boundedness. This notion has been addressed in greater detail in chapter five. However, the exploration in chapter four also suggested that there may be a second type of boundedness deployed within the working practices of this culture; a boundedness that was characterised as 'locked' or 'hardened'. Two key examples of this have been given so far in this thesis. The possible significance of 'locked' boundedness in this culture was raised in the discussion in chapter three, section one, which outlined the author's unpreparedness to breach certain member rules about disclosure of ideas and so locked certain aspects of this culture from the analytic gaze. This hardened quality was also suggested in the ethnography of this culture from the content of chapter four, scene three, in which a meeting was reported as located in a locked environment organised to discuss standards, royalties and monitoring. In addition, a further indication of locked boundaries appeared in this scene in the reference to those potential members 'locked out' of the account by the ethnographer's ideas about who could be considered legitimate members of the culture in question. The location of the doctoral thesis and the supervisor were mentioned within this scene but excluded from the detailed narrative that followed. These examples raise key questions for our investigation of audiences and boundaries, as it is questionable whether this evidence of hardened boundedness is an artefact of the boundaries established for the ethnographic focus taken, rather than 'what SST-2 is really like'. It could be argued that these 'findings' represent the thesis conventions (Ashmore 1989) of establishing a boundary between the explainer and the explained and hence the suggestion could be made that the 'hard' boundary is constituted in the process of SST-1 'explaining' SST-2. This problem can therefore be examined at the 'boundary' between author as analyst and author as member. This problem of 'locked' or hardened boundedness can therefore be taken as a manifestation of one of the central problems for ethnography (see chapter three), namely the need to make the switch between the poles of analyst and member one of the key topics for ethnographic accounting.

Before outlining how this investigation will be conducted, it is useful to contextualize this chapter with a summary of the progress of the thesis questions at this point. In chapter two, two objectives were configured for the conventional 'data'

chapters of this thesis, in the process of configuring a specific user group characterised as SST-1. The objectives were to question the role of malleability in the applicability of technology and to question the relationship between stable physical form and interpretative possibilities. Each of these objectives has been addressed by the material presented in the two previous chapters. The first question about malleability was explored in the ethnographic inscription of fieldnotes in chapter four, to give accounts of the working practices in this culture of application. This investigation identified the ubiquitous nature of malleability in the working practices of SST-2, expressed in location, presentation and membership. The concept of the 'conscripting organism' and the concept of the 'unlocatability' of the culture of application were developed to characterize these 'findings'. In addition, the account in chapter four was contrasted with ethnographic approaches which use the setting to bound an investigation, which because of their starting point cannot constitute such accounts of unlocatability. The second question concerning the relationship between stable form and interpretability was explored in chapter five. The marketing (Grafton-Small 1987) documents used by this culture over the same time as the scenes reported in chapter four, were each examined as stable representations or artefacts of the culture of SST-2. The representations of marginal membership implied in each artefact were identified and the changes over time in these representations were explored. The investigation suggested that the process of changing stabilisation of representation encouraged the incorporation of marginal members via the 'softening' of text to extend a reconfigured community. This was contrasted with approaches which approach artefacts in a trajectory as inherently 'soft', progressively contributing to a final 'hardened' form. The consequence of these investigations is that conscripting organisms, conscription, unlocatability, malleability and interpretability have been constituted as key features of SST-2. However, in both chapters, methodological considerations were raised about the extent to which the analytic orientation taken in each chapter was constitutive of the analysis produced. In chapter four the conventional boundary within SST-1 around ethnographic fieldwork; the setting, was breached to suggest an ethnography of traces. In chapter five the conventional boundary of the trajectory, used within SST-1 to suggest the progression of artefacts to a final form, was breached to suggested the equal status of all 'stabilisation'. These breaches in methodological approach are important considerations within the context of the problem for this chapter as it has been argued in chapter three that the decisions about analytic orientation taken were based upon the retrospective understanding of this culture gained by the author prior to the conception of this thesis. It was contended that the conception of ethnography without setting and stabilisation without finality have been imported into SST-1 by translating ideas across the boundary

150

between SST-1 and SST-2 through the author's changing membership relationship with each of these 'discrete cultures' constituted in the production of this thesis. It is this switch in authorial membership between membership of SST-1 and membership of SST-2 that will be taken as the focus for the investigation that follows, as it provides content appropriate for addressing the 'hard' or 'locked' boundaries between SST-2 and SST-1.

However, this presents a problem for this account: how can this boundary between SST-1 and SST-2, be explored and still remain intact, given that both approaches are concerned with the production of explanations? This concern resonates with the problems of 'hybridisation' between approaches raised in chapter one, section two. If both cultures seek to explain, how can we explore the boundary constituted between them without reducing one culture to the other? The danger for our work in this chapter, if such a reduction is produced, is that one culture becomes enclosed in the other and in such a process, the boundary between them, which is the topic of our investigation, shifts out of focus. In attempting to address this problem, this chapter has been constructed as a pair of readings, one constituted by the author as analyst, Joanna, and the other constituted by the author as member, Josephine. These readings allow each type of member to 'speak for herself'. Therefore, in section one of this chapter an account of readings produced by Joanna (analyst) is given. The contrasting readings produced by Josephine (member) are given in section two. However, this it again not straightforward as one of the boundary mechanisms used by members within SST-1 which deployed to sustain analytic distance, is the concept of 'going native'. This is a colloquial term to account for the bad methodology used by SST-1 members in generating inappropriately uncritical accounts of observed members' activities[1]. It is therefore not an appropriate tactic for this chapter merely to present the readings of the 'member' as member without recourse to the interpretations of SST-1, as this will risk accusations of 'going native'. However, the 'nature' of SST-2 makes this characteristic of SST-1 reasonably unproblematic. The investigations reported in chapters four and five suggest that negotiation with the margins about forms of explanation is a key aspect of working practice within SST-2. Therefore by constructing Josephine's reading in section 2 of this chapter as a dialogue between her as member and Joanna as analyst, it is possible to manage the boundary warnings about 'going native' deployed by SST-1 while retaining intact the working practices of SST-2 with un-conscripted members. To summarise therefore, a central concern for this chapter is to address boundedness, which

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[1]To support this assertion, I ask SST-1 members to recall the use of this term as applied to their own work in various situations, either by others as a statement of methodological concern or by oneself as a recognition of the limitations of analysis. My own awareness of this was particularly developed at the DARG meeting at Brunel in 1992, the data about which is still awaiting analysis.

was first examined in chapter five, in more detail by focusing upon questions about how conscription may work to harden particular readings.

As evidenced by the above paragraph, there is one further problem to be addressed; namely what specific material is available for generating readings from member and analyst. It would have been possible to have submitted the documents used in chapter five to a reading by Josephine as a conscripted member of SST-2, but, as these documents were selected to represent working practices directed at the margins, it would be possible to suggest that the content of these would be inappropriate for questioning the existence of 'locked' or hardened boundaries. Indeed, based upon our analysis of the documents used in chapter five, we constituted these documents as working to soften boundaries. Therefore, the public domain, published documents which can be taken as representative of SST-2 culture have been selected for this investigation instead. Their key feature as generally distributed texts made them appropriate for this exploration in two important ways. Firstly, they were available to any reader and could therefore, with legitimacy, by read by an analyst from within SST-1, without such an analyst having any other relationship with SST-2. Secondly because they are published as academic texts they could potentially represent some of the fixed aspects of the culture of SST-2.

In order to undertake such an exploration, seven books have been identified as the key public domain texts. This has been based upon two sets of observations. Firstly, they were available in the library which supports the culture of SST-1 and so met the requirement to be available within the culture of SST-1. Secondly, from the fieldwork with SST-2, it was clear that the following texts were used regularly as reference by conscripted members of SST-2 and were given place in the shelves of text books supporting their work across locations. The seven books are as follows:

Jaques, E. (1956). The measurement of responsibility.

Jaques, E. & Brown, W. (1965). Glacier Project Papers.

Jaques, E. (1976 & 1986), A General Theory of Bureaucracy.

Evans, J. S. (1979). The Management of Human Capacity: An
Approach to the ideas of Elliott Jaques.

Jaques, E. with Gibson R. O. & Isaac D. J., (1978). Levels of
Abstraction in Logic and Human Action.

Jaques, E. (ed), (1980). Health Services.

Jaques, E. (1989). Requisite Organisation.

These seven books have each been 'read' by a members of SST-1 and SST-2 and these readings will be outlined in the two sections that follow. In section 1. the readings will be those of the author as analyst, alternatively described as a member of SST-1. characterised as Joanna. This account draws upon the recent interest in the use of bibliometric techniques such as citation analysis (CA) for allocating credit for academic or scientific output. Such approaches are being increasingly used for assessing performance in science (Woolgar 1991d. Hicks and Potter 1991). An analytic framework is developed from a brief exploration of the practice of CA to allow an analysis of the ways in which credited output are managed within the published documents from SST-2. This analysis questions whether there is any indication of the processes of 'hardened' or 'locked' boundedness manifest for SST-2 within their citation practices. In section 2, the author as member of SST-2, characterised in this account as Josephine, is allowed to 'talk back' (Mulkay 1984,1985). She suggests an alternative focus for an analysis of hardened boundedness in her culture from within these published documents; the ideas themselves. She argues that the nature of the ideas can be taken as artefacts which have been progressively hardened through social analytic work, and claims they are described as hardened artefacts in the documents selected for this chapter. This second section is constructed as a dialogue between Joanna and Josephine for the reasons discussed above.

Section 1 - Analyst Readings of Published Documents: Citation Practices

Joanna: In this section I wish to exploit the public domain texts outlined above, to begin an exploration of locked boundaries within this culture, by questioning the way in which authorial credit for ideas and evidence of communication within SST-2 is managed within these texts. This can be described as an interest in this culture's citation practices. The rationale for this investigation is to question whether a hardened boundary around this culture can be identified through an analysis of these practices. Published texts, taken as evidence of performance, are increasingly becoming the subject of investigation as scientists are called to account for their work (Martin and Irvine, 1983; Hicks Martin and Irvine, 1986; Nederhof, Small and Crane, 1989). Various bibliometric methods have been developed which share a focus upon the extent to which authors cite and are cited. The concern for studies which use these bibliometric techniques is to measure the quality of output. As Woolgar (1991d) states: "The key assumption in citation analysis is that the citation is an indicator of quality (influence, impact: I use all three terms interchangeably here); that is, the quality depends on the extent to which it is used" (Woolgar 1991d:230). Underpinning this use of bibliometric

techniques is an attempt to allocate credit to specific authors based upon the extent to which there is evidence of communication to other authors made manifest in citation practices. Hicks and Potter (1991) suggest the relevance of such measurements is that "citation confers credit, or indicates that communication has taken place" (Hicks and Potter 1991:480). The significance of bibliometric studies for SSK has been examined by Hicks and Potter (1991), both in terms of developing a bibliometric citation index for the core-set of authors in this field and in terms of deconstructing the account of science as producing and consuming finished texts which the use of bibliometry assumes. They suggest that CA of this nature takes no account of the social processes involved in the production and acceptance of texts for publication.

It would therefore have been an option to undertake a bibliometric citation analysis (BCA) of authors within SST-2. However, two sets of factors suggest this is not useful. These factors reflect the themes which have been developed through this thesis; the themes of boundedness and credibility. The boundary problem is that for a 'field' to be amenable to BCA it is necessary to define a boundary around a knowledge practice: "for citation analysis to get under way the first step is to form a bounded field so that papers can be counted in or out" (Hicks and Potter 1991:476). They demonstrate this bounded field for SSK by identifying a core-set of authors for SSK. However as Hicks and Potter (1991) suggest, there is a problem with this in that "techniques of surveillance such as CA, lead to normalization; they classify and provide indices of normality..... these categories move from a necessary analytic device to normative index for further self-regulation" (Hicks and Potter 1991:487). They suggest instead that SSK would call into "question the whole idea of disciplines existing as natural, real free-standing entities" (Hicks and Potter 1991:476). The idea of a bounded field for the culture investigated in this thesis has been seriously questioned in the ethnographic analysis presented in chapter four which argues that one of the primary 'characteristics' of SST-2 is its unlocatability. Therefore it would be problematic to undertake conventional BCA for SST-2, despite the evidence from this ethnography that it is awash with texts, as SST-2 cannot be constituted as a field in the way necessary. It is impossible to put any other than the most arbitrary of limits on it.

The second problem is the requirement that the reporting practices within such a bounded field have to exist in a certain form to count for BCA. As Woolgar (1991d) suggests "citation analysis enjoys an institutional legitimacy...the value of citation as measures (of something) is socially sanctioned" (Woolgar 1991d:321). If texts do not exist in a credible form, they are not classifiable and so cannot be counted. For BCA to operate, it is necessary for texts to be ascribed to different authors within a field. We have already indicated above that a field cannot be accepted as an unproblematic

construct for this culture. In addition the notion of authoring is also problematic as the concept of the 'conscripting organism' suggests. This was developed in chapter four to describe the shared authoring process identified within this culture. To use methods such as BCA within this culture could contribute to what Woolgar (1991d) has suggested the danger with these techniques could be: "the perceived success of this measurement technology will come to be taken as the basis for claims that quality as measured by citation analysis is what quality is" (Woolgar 1991d:324). Subjecting SST-2 to this type of analysis is to bring to bear a socially constructed set of measures of authorial credit which may have no relevance within the practice of these 'members'.

The unusual character of SST-2 as a knowledge community; its unlocatability, the evidence of conscripting organisms (chapter four) and the malleability in its representation at the margins (chapter five), would suggest that the application of BCA would bring an inappropriate external set of measurement criteria to bear. These criteria assume quality of output can be assessed by counting the number of individual contributions within a field, as this will indicate the level of credit and communication evidenced in culture's texts. An additional concern which this comparison between SST-2 practices and the assumptions in BCA raises is the extent to which any practice can justifiably be assessed using these criteria. As mentioned above and earlier in this thesis, SSK has pointed to the importance of texts within scientific practice, but not as evidence of individual performance but instead as data to examine the social processes involved in the production and consumption of these texts. On this basis, Woolgar (1991d) has suggested that citation practices should bear sociological rather than bibliometric analysis. The aim in this section is to undertake such an analysis of citation practices within SST-2, but not by using BCA. Instead the social processes implied in the authoring and crediting practices will be analyzed. To do this, I need to reconfigure the problem constructed by the practice of BCA to take account of the distinctive nature of boundedness and authority within SST-2. The question for this section is therefore how authoring and referencing practices within SST-2 operate in the context of a query about locked boundaries. As there is no bounded field in the sense required, it is necessary to generate an alternative way of producing a boundary to undertake investigation. To do this we will exploit one of the key differences between the natural sciences and the social sciences, and use the books outlined in the introduction to this chapter as data, for, as Hicks and Potter (1991) remark "books are of little importance generally in natural science, but are of great importance in social sciences and humanities" (Hicks and Potter 1991:461, Nederhof 1989, Small and Crane 1979). Within this account the boundary generated for this analysis is around those authored public domain books used on a regular basis by the members of the community.

However, in the list of texts outlined in the introduction, there is one primary credited author; without colleagues to communicate through the written form, it is questionable whether there is any scope for an analysis of citation practices as there are no other authors to cite. In addition, as mentioned in chapter three, there are no journals for the textual output from this 'culture'. One significant observation, of note in this context, was the existence of boxes of books, never read, with an analysis of social services departments undertaken by a group of authors excluding Jaques. Copies of this book (Rowbottom, Hey and Billis 1974) appeared on none of the members' shelves. When I asked if I could have one, my request was treated as bizarre; as if no reason could be found for wanting such a book. As this book falls outside the members' category of useable text, this book is excluded from the analysis that follows, however, it will be discussed in the conclusion to this section. Therefore the questions to be asked of these public domain texts are: How are these artefacts conferring credit through this pattern of authorship? What techniques of referencing are used? How many authors exist within the field? What relationship is represented between these authors in these texts? The analysis of these questions is developed under two headings which again resonate with the themes established for this thesis at the outset; the themes of boundedness and credibility. The first analytic category is entitled the boundaries of authorship and second is entitled the referencing of acknowledgement and communication.

The Boundaries of Authorship

The first issue, mentioned above, is that all published documents make some mention of Elliott Jaques, either as main author, main editor or as subject in their surface presentation. If this surface authority of the public domain texts are used as the primary data, it would be possible to infer that SST-2 is synonymous with Jaques. This could suggest that in these documents credit can be interpreted as being carefully controlled. This control is made explicit in that copyright is retained by Jaques in all documents, despite the fact that in many cases papers have been previously published in a format whereby copyright is given up.

However, this surface pattern appears to cover a much more complex pattern of authorship in these published representations of SST-2. In the Measurement of Responsibility (1956), which is the earliest text in this field, Jaques appears as the author of the document, but acknowledgement is given to the works council at Glacier by naming each of the members of this council at the beginning of the book as having been instrumental in the theoretical development. Hence Jaques can be interpreted as

having been positioned as the narrator of a joint story[2] rather than an 'author'. In Glacier Project Papers (1965), the managing director of Glacier, Wilfred Brown, appears as named author with Jaques. The acknowledgement given in the foreword of Measurement of Responsibility (1956) appears to have been converted into an explicit role in authorship. Examining the contents of Glacier Project Papers (1965) it appears that this book incorporates a selection of papers produced by different authors, used for teaching and disseminated in various forms elsewhere. This distributed work appears to be distilled and converted into a 'public' format within SST-2 under the heading of these two authors. This suggests the possibility of a process of 'incorporation' in citation practices which could be compared with the conscripting practices identified in other aspects of this culture in chapters four and five. The question this raises is the extent to which this process of incorporation fixes a single author as the 'public face' of SST-2. A General Theory of Bureaucracy (1976), is single authored by Jaques and is described as the distillation of the work at Glacier. In this book the work has been completely subsumed under a single author which does suggests that 'incorporation' or 'conscripting for publishing' may involve 'hardening' the boundary around a credited authority.

The Management of Human Capacity: An Approach to the ideas of Elliott Jaques, authored by Evans (1979), is the only text that does not have Jaques as a named author. This is an articulation of the work described in the previous book and appears to represent the possibility of other authors speaking for SST-2 in the public domain. However, the explicit mention of Jaques in the title and the following comment from the forward give an indication that similar forces constituted this document: "In the course of making final corrections I have become aware of a .... problem. In the effort to do full justice to the ideas themselves I have not always distinguished the contribution of Jaques himself from that of others...the book tends, by implication to gloss over the importance of the contributions and formulations of Jaques' many collaborators" (Evans 1979:ii).

These 'collaborators' are given a more distinctive voice in the two following texts: Levels of Abstraction in Logic and Human Action (1978) and Health Services: their nature and organization and the role of patients doctors nurses and the complementary professions (1980). In both of these Jaques' authorial role is constructed as that of primary editor and contributor. In addition, both these books are divided into a series of chapters contributed by a number of different participants. In these texts we have a further indication of the process of conscripting and incorporation taking place. In

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[2]Which could be described as a form of polyphony. Compare with the discussion of polyphony given in chapter three section two.

Levels of Abstraction (1978) Jaques is presented as the primary editor with two co-editors also named on the front cover, but in smaller font towards the bottom of the page. If we explore the individual chapters listed in the book, these two less prominent editors account for eleven of the nineteen chapters, whereas Jaques is credited with five chapters, including the boundary chapters of introduction and conclusion.[3] The remaining three chapters are provided by authors not listed as involved in editing: Stamp, MacDonald, and Rowbottom and Billis. This suggestion of 'incorporated' authors conscripted into the text is also evident in Health Services (1980). This again has the legend 'edited by Elliott Jaques with...' In this case there are a total of nine authors of seventeen chapters subsumed into this one published document. Five of the seventeen chapters are contributed by Jaques alone and a further one is co-authored with Tolliday. The other authors incorporated are Cang, Rowbottom, Billis, Bromley, Packwood, MacDonald and Hey.

The final text on our list of public representations of SST-2 is Requisite Organisation (1989) makes no acknowledgement of multiple authorship and locates credit for the development of SST-2 with Jaques. Jaques is the only author, and all the texts discussed within this account are described as being written by Jaques with no further reference given to the work of other authors.

There is an interesting repeated pattern through these published documents, where texts are authored by Jaques with complex incorporation of other authors are followed by later accounts of SST-2 which claim Jaques as the only author. The single authored General Theory of Bureaucracy (1976) follows the two books mentioned as published from the Glacier Project and the single authored Requisite Organisation (1989) follows Levels of Abstraction (1978) and Health Services (1980).

This analysis allows us to infer a process in citation practices within the published representations of SST-2 which ascribes credit through the activity of conscripting, incorporating polyphonically and establishing authority. The first two have been introduced earlier in this thesis. Conscripting is a concept to describe the process of writing together (described in chapter four) and incorporation is a concept developed to describe the ways these multiple authors are taken into a representation (described in chapter five). These can both be inferred from the evidence presented for this analysis. However, there appears to be a further process deployed in citation practices within these published documents. This process involves the establishment of credit by shifting from polyphony, via incorporation to monophonic authority as it would suggest that the incorporation practices for published documents work not to soften the

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[3] See chapter one of this thesis for a discussion of the introduction as boundary.

boundaries around membership, as was argued for 'marketing documents' but to harden the boundaries around ownership. The evidence of this aspect of citation practices within this culture suggests that published representations of SST-2 can be taken as socially hardened versions which ascribe credit. The 'work' of bibliometric citation analysis it could be argued has been completed prior to the distribution of these published representations of SST-2. The question this raises for the next analytic category of referencing practices used, is the extent to which credit is established at the expense of the acknowledgement of or communication with other authors. This analysis may give some indicators about the acceptability of these representations of SST-2 within social science. This links to the concerns raised within Josephine's story in chapter one, section three. To investigate this further, this analysis shall now turn to an examination of referencing practices within these published documents.

Referencing acknowledgement and communication

Taking each of the texts in turn, the pattern that emerges in the referencing practices is again the predominant authority of Jaques with some reference to other incorporated authors identified in the analysis above. Other authors, from outside the field are drawn in, in a seemingly arbitrary fashion. In Measurement of Responsibility (1956) there are no references at all; no acknowledgement is made of any previous academic work that shaped or contributed to the development of these ideas. The 1975 re-issue of this includes what is described as the 'Glacier bibliography'; a post hoc collection which at that time comprised 34 texts, the majority of which were written after the first publication of Measurement of Responsibility. 18 are references to Jaques, 8 to Brown, 1 reference to Jaques and Brown jointly and four further references, one to Raphael and three to Hill. Klein is also referred to in the index but no full reference is given.

In Glacier Project Papers (1965) the referencing is divided into three forms; (i) the Glacier project series which is placed at the beginning of the book, (ii) the bibliography of the Glacier project and (iii) the index. The second two appear at the end. The Glacier project series includes a series of published books all of which relate to the work at Glacier; these include five under the sole authorship of Jaques, two under the sole authorship of Brown, two under their joint authorship and two further texts, one by Newman and Rowbottom and one by Richardson. The bibliography of the Glacier project is equivalent to the papers described in the Measurement of Responsibility (1956) discussed in the previous paragraph. This includes 38 papers; 17 accredited to Jaques alone, 8 to Brown alone, 3 to them jointly, 1 to Jaques and others 3 to Hill, 3 to Rice, and 2 to these authors jointly. Finally, an interesting use of naming is used in the index. Jaques and Brown are listed together with Darwin, Einstein, Galileo, Keynes and

Newton.

In General Theory of Bureaucracy (1976) we have the nearest to the referencing style I would expect if conventional referencing were deployed in these selected texts. There is still the Glacier series at the front which is equivalent to that described in Glacier Project Papers (1965) discussed above, but the reference to authors other than Jaques and Brown has been removed. In the bibliography at the end of the text however, there appears to be a recognition of the work of other authors, outside SST-2, not acknowledged in previous texts. 267 references are listed. 33 of the bibliography of the glacier project are incorporated within this with two titles allocated to Billis, four to Brown, six to Evans, one to Hill, 14 to Jaques, three to Rowbottom, one to Stamp and two to Brown and Jaques jointly. However, when the remaining references are explored there is little consistency. 47 are references to organisational and management literature, but this accounts for less than one fifth of the listing. There is the equivalent to the index in the last text appearing a full references. Examples of the authors drawn in are as follows; Durkheim, Engels, Garfinkel, Freud, Bion, Goffman, Klein, Levi-Strauss, Lewin, Merleau-Ponty, Merton, J S Mill, Marx, Weber.

Levels of Abstraction (1978) is similar to General Theory (1976), but shows an interesting shift in the focus for referencing into a single reference list. Of the 73 references, 16 are from authors named in the previous texts discussed; five from Jaques, four from Rowbottom, three from Isaac and O'Connor, one from Gibson, one from Evans, one from Brown. Of the rest 12 relate to organisations, 13 to development and the remaining are random associations with various bits of work. There is no project series listed at the front of the text but in the main reference list, there is one reference authored by an institution. This approach is developed further in later texts.

The approach to referencing institutions is also used within Health Service (1980) but this makes clearer the acknowledgement to institutions. At the outset, there is reference to the Institute series compared with the Glacier Project series mentioned for earlier texts. The references at the end of this published representations of SST-2 are divided into 'official reports' and a bibliography. In the 'official reports' there are 39 listings and in the bibliography there are 69. Of the 69 references within the bibliography, 22 are from incorporated authors from within SST-2; six from Jaques, one from Brown, one from Brown and Jaques jointly, three from Cang, three from Rowbottom, two from MacDonald, one from Stamp, one from Evans and four from the institute. Again the remaining are random references to widely disparate academic fields.

The final text, Requisite Organisation (1989), does away with references all together, but instead offers a list of 14 'previous books by Elliott Jaques' at the outset.

Other authors are acknowledged by four of these in parentheses. At the end 15 'additional readings' are recommended which comprise seven references to Jaques alone, three to Jaques with other authors, one to Brown, one to Richardson, one to Segal and two to Stamp.

This suggests there is a limited indication of acknowledgement and communication outside the published representations of SST-2 from the evidence of referencing in citation practices within SST-2 which limits the acknowledgement of the contribution of other ideas. The only consistency that appears through the referencing within these published documents is that referencing appears to support the inferred allocation of credit to a single producer claimed through the authoring process discussed above. In turn, this raises a question about the extent to which the boundaries established around published documents within this culture are closed in contrast to the flexible boundaries evidenced in the practice in 'unauthored' marketing texts. In the context of this analysis it is of note that the lowest level of accessibility was inferred from the marketing document with a named author.

Summary of Section One

Considering the question about 'locked' boundaries which is the central concern for this chapter, from this analysis, there does appear to be a locked boundary around a specific named author as credited with 'representing' SST-2. There appears to be a complex pattern of authorship in this field. In these texts many other authors are incorporated in the documents. In these published texts we can see a further manifestation of what has been described as a 'conscripting organism' in chapter four. The incorporation of various 'authors' into a single text appears to provide a set boundary around a representation of a particular 'organism' at a given time. Indeed what emerges is a diversity of authors, but one that is controlled, contained and subsumed under the overall authorship of Elliott Jaques. An interesting contrast to this is the deployment of authors as a core-set, as discussed in the citation analysis of SSK. The analysis of the citation practices of SST-2 suggests that this culture builds into its representations for external audiences the relationships, communication and contribution before distribution, under a single authorship. This is suggestive of a deployment of flexible boundedness in these documents in the incorporation of authority into public documents and a deployment of locked boundedness in the establishment of credit. Rather than the existence of a series or 'core-set' of separate authors, as one would expect to find when exploring citation practices within SST-1 (Hicks and Potter 1991) there appears to be an hierarchy of authors incorporated into one 'body' in the documents presented for publication. In SST-2 the 'relative importance' of authors

appears to be embedded in the published documents and hence the form of the documents can be taken as representing the relations of authority within SST-2. In contrast BCA assumes that a measurement of textual output can give an indication of the quality of work. The evidence from this culture suggests that citation practices may represent previous decisions about 'authority'. In parallel with this the referencing practices show a limited indication of communication with the 'outside' in the published texts within SST-2. This in turn tends to limits the acknowledgement of the contribution of other ideas to the approach and potentially additional contributions that could be made.

This analysis suggests that the openness of SST-2 characterised in the practices transcribed in chapters four and five in not evidenced in these conscripting practices for publication in SST-2 and hence flexibility cannot be inferred from the processes surrounding ownership or the articulation of what counts as knowledge. This right appears to be 'hardened' or 'locked' in the textual citation practices identified and analyzed. This appears both to 'harden' credit with one author and 'lock' many potential academic members in the margins out as there is no connection made with their interests and acknowledgement made of their contribution. In this context, the response to my request to see the unused published book Rowbottom, Hey and Billis from the box in the corridor potentially takes on meaning. This document has no reference to Jaques in title, it exploits a more conventional referencing practice and there is also a critique of this text in sociological review (Whittington and Bellaby 1979), this is the only such review of the work of SST-2 I have been able to find in the social science literature. This analysis therefore indicates that the emphasis given in published documents within SST-2 to ownership in at the expense of articulating acknowledgement to the work of others and the possibilities for communication. As such 'hardens' the boundary between SST-2 and academic social sciences such as SST-1 (me).

Section Two - Member Readings of Published Documents: Hardened Artefacts

Josephine: That account was a strange starting point for looking at our documents, to look at the references and not directly at the ideas or knowledge central to SST-2. All your accounts in this thesis of SST-2 seem to suggest that our approach is taken to work or not because of the processes around its use, rather than because of any inherent properties of the knowledge itself. Your focus in section one of this chapter, for example, was what are the social processes inferred from our referencing and authoring practices (in your terms, what is malleable) rather than what **we know** (in your terms,

what is locked). The concept of, for example, a mode or of a level, I would argue, is an 'artefact' that has been progressively 'hardened' through encounters and writings such as those that you describe in chapter four and five. You mention that Callon (1980) makes just this point about the physical limitations of the battery car despite social conditions being extremely favourable. He suggests that no amount of social construction could have worked because the engineers could not persuade the battery cells to do what was required of them.

Joanna: Backsliding realism, which begs the question how 'what was required of them' was established.

Josephine: There you go again. Everything you have described so far in this ethnography, has concentrated upon the 'social' properties of my work practice, which inevitably means that primacy has been given to malleability. However, if you are trying to develop a thesis where malleability and stability are inherent qualities in technology you need to explore the 'stable' features of my culture - those things that travel with us in our 'shabby black bags' (chapter four, scene four).

Joanna: It is very strange to have my carefully constructed problems and the inherent subtlety of the manipulations I have made for credibility reduced into a few brief sentences. It doesn't really do justice to the work so far achieved in this thesis.

Josephine: Well, now you know how I feel when you treat me to an ethnographic exposition. I've merely returned the compliment with a piece of social analysis.[+] As Rowbottom (1977) describes, and I think it is relevant for our dialogue at this stage, "in social analysis an 'action' approach is inevitably adopted..If the actors themselves are fundamentally unsure about the material under consideration..the researcher must abandon any pretence of 'objective study'. He must join with those same actors in the difficult job of analyzing, clarifying, identifying alternatives and predicting consequences. He must be concerned not just with the facts but with values and choices. In short he must join in what can best be described as 'collaborative exploration'" (Rowbottom 1977:50).

Joanna: Why must the analyst do all of those things?

Josephine: Because we are concerned to be able to operate as if we are members of the organisation to understand what is happening. In your terms, we want to 'talk like

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[+]The description of the method within SST-2 for working with clients. See Rowbottom 1977, Ovretviet 1983.

natives'.5 The reason you even need to ask this question is that you are so concerned to maintain an analytic distance that you cannot engage with the concerns of those people you are studying. This is illustrated in your refusal to address the ideas we use. I thought that when you came to analyze our published documents you would at least address the ideas within them, but yet again I find that you exploit your 'analytic distance' to look at our authoring and referencing practices (which have little meaning for us) rather than at the ideas themselves. I think if you took a different approach you may be able to find locked boundedness in our approach from examining our ideas.

Joanna: I'm not so sure, but I have a compromise suggestion to make. We discussed giving voice to different authors in ethnography in chapter three, section two. It appears that such a manoeuvre is no longer an interesting theoretical issue for our account but is instead becoming essential for our management of the data. As we discuss the production of these accounts, you are becoming increasingly involved in writing this ethnography and also in defining what are appropriate objects of study. As you insist that these published representations of SST-2 are central to your culture and its writing of itself, there is clearly something important to learn from your reading of them. What I suggest, is that you use these texts to explain to me the work that you do. Draw on anything you consider to be significant to explain why you approach things in the way that you do, rather in the way I drew on my resource of ethnographic authors in chapter three, section two to explain my approach to you. As you do this 'native accounting', I can apply the ethnographic orientation of analytic strangeness to what you select.

Josephine: There you go with your analytic distance again, but OK. It's quite a difficult task you have set me though, where should I start, what do you want to know?

Joanna: This reminds me of our visit to BOS (chapter four, scene five) - you need a problem, in order to start talking about your subject.

Josephine: No I don't have a problem, you do. Surely, if you are trying to explain something new to someone, you need to find out what they understand before explaining what you know to a newcomer?6

Joanna: Alright, you can explain to me why Frederick said "it's all you need to know" when I asked him why he used SST-2 as his approach to organisational

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5I would suggest that this can be interpreted as a form of practical reflexivity within SST-2, which exploits researchers awareness of the similarity between their inferential processes and those of their collaborators to produce acceptable solutions. This is in sharp contrast to the approach to reflexivity taken within SST-1. The characterization of these two cultures as distinct in these ways will be developed for the coda to this thesis produced for chapter seven.

6Another example of practical reflexivity?

development.

Josephine: SST-2 is an explanatory framework used for understanding employment organisations and making direct interventions into the structure, systems and people that comprise such organisations. It describes the nature of relationships within employment structures and how these relationships should work. The particular relationships that are considered are: the relationship of an individual with the work they are required to do, the relationship between different levels of work, the relationship between levels of work and levels of pay, the relationship between individuals in different levels of work in terms of the accountability and authority held by different members and the relationship between current capability and future potential. These build into a comprehensive theory of healthy functioning organisations.

Joanna: OK, OK Lets unpack that a bit - why does the idea of a healthy functioning organisation seem significant to you?

Josephine: Well, the idea of the potential for health suggests that there are problems which are solvable.[7] However, because SST-2 studies relationships, rather than individuals or jobs, it doesn't deny the potential complexity of the problems. But, despite that, it also provides a simple way of conceptualising them.

Joanna: How do you know it's simple?

Josephine: The evidence of this for me is the frequent response from clients that I really understand the problems they experience; so I guess what I mean is that it is accessible. It allows me to explain myself in a way which is understood.

Joanna: How do you know that is not because you listen well and feedback what people are saying to you. If you consider the argument developed in chapter five, where I suggested that the 'marketing' accounts are used to soften the boundaries of membership around your culture to conscript at the margins, could this response not be a consequence of the process of 'softening' knowledge which I have already identified from your documents? Why does it have anything to do with these ideas you insist are the central artefacts within SST-2?

Josephine: That's a helpful question, because to a certain extent of course you are right, it is the way I listen. However, in my opinion it is the ideas that SST-2 offers which allow me to listen and hear in a way which makes my understanding accessible. In chapter four and five you described the ways in which your method 'created' your findings. For example, you suggested that the decision to use unbounded ethnography constituted the finding of unlocatability. I am making the same argument about the analytic concepts in SST-2. One significant factor, as far as I am concerned, is that

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[7]Compare with the analysis of D2 which constitutes SST-2 as solutions given in chapter five.

SST-2 does not view the various problems of contemporary bureaucracies as inherent to bureaucracy: instead the problems are located in our current inability to understand and generate 'true' bureaucracies' - ones that are based upon getting all these relationships balanced. SST-2 assumes that bureaucracies and the relationships within them are a given and natural part of the social world, which can be understood and acted upon.

For example, this is illustrated by Jaques (1989) who asserts: "You may think, as is all too commonly believed that organization or 'too much organization' undermines the innovative adaptability and initiative you would like to have. It is bad structure which does so. Good organization does not. In modern industrial societies most business work is done by means of one type of hierarchical organization. It is the structure and function of organizations of this type which I shall be addressing. These organizations are shrouded in haze - let us take up the task of dispelling the haze" (Jaques 1989:1).

Joanna: I think you may be right, these ideas do have some important statements about your 'culture'. This has raised all sorts of questions for my study. Can I refer you back to your assertion, reported in Josephine's story in chapter one section three, that this model 'works' and relate it to this comment above about 'bad' bureaucracy. I think some clarification of what something working means in your culture can be drawn from this. There appear to be three notions about organisations embedded within this quotation, the idea of a diseased state, a healthy state and the possibility of a cure by intervening with 'understanding'.

Josephine: Yes, I mentioned that earlier. As a theme it is developed later by Jaques (1989) in the same book: "It has become a widespread activity these days to try and formulate 'the new type of organisation for the information age'... that is a fruitless endeavour. My argument is that the world does not need some new type of organization to replace the accountability hierarchy, but rather that the accountability hierarchy is the one and only type of organization within which associations of any kind can employ people and that we have never properly understood or used it" (Jaques 1989:3).

Joanna: The idea of the 'health' of an organisation connects with wider concerns within sociology and anthropology. It could be that with our current Western bio-medical (Foucault, 1989, Turner, 1972, Young, 1981, Dreyfus, 1972, Haraway, 1989, Woods,1994) view of dis-ease in all aspects of our lives (ie not just for bodily health but the very shape of the body and society) these are the underpinning notions which, it could be argued, are essential if an approach is going to work at the level of making sense to potential users. You are tapping a wider cultural expectation about the relationship between health and dis-ease.

Josephine: I'm not sure what you mean, you're moving away from the content of

the ideas again to some abstraction which makes no sense to me.

Joanna: I guess that is a fair comment, although I did say that I was going to take the orientation of analytic strangeness to what you chose to present. This is how Hammersley and Atkinson (1983) recommended members documents should be used. This means that I cannot take things you write at face value but instead look to what underpins their construction.

Josephine: But surely your interpretations have to make some sense to me.

Joanna: Well, not really, as far as my field is concerned, your understanding is not itself a sufficient guarantee of accuracy or credibility. [8]

Josephine: So that's fundamentally different from the way I use the information I am provided with in my work, in my attempts to engage in 'collaborative exploration' or I think what you have referred to in the chapters four and five as 'conscripting'. You told me in chapter three, section two about the developments in ethnography towards polyphony as giving voice to 'members' concerns. These ideas made sense to me when involved as an analyst trying to explain the work other people are involved in. I therefore thought that polyphony was similar to the idea of 'collaborative exploration' in social analysis. If you keep concentrating on the approach of 'analytic distance' my presence is only really as another subject of study.

Joanna: Explain what you mean.

Josephine: You devoted chapter three, section two, to highlighting the trend in ethnography towards recognising 'polyphony' and chapter five to examining the way SST-2 deliberately exploits 'polyphony' in what you have termed 'conscription at the margins'. I am suggesting that you have learnt nothing about your own work within SST-1 from this investigation of us, but you insist on seeing my culture as different from rather than similar to your own. But if it will keep you happy, I will respond to your request to explain myself. My methodological approach; social analysis, uses the ideas in SST-2, to interpret what people say about their experiences of work. But if my interpretations make no sense to these people, I assume it is the interpretations at fault not their understanding. Polyphony we use as a resource for understanding, not a critical problem.

Joanna: I can accept to a certain extent what you are suggesting, but surely you would agree that outsiders can legitimately see things about a group which is not

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[8] As our concern in this discussion is with the deployment of 'locked boundedness' it is intriguing to note that this effectively locks the 'natives' out of debate within SST-1.

accessible to that group?[9] For example, it appears to me that the idea of a cure in SST-2 involves separating the diseased from the optimal states, even though both are seen to exist simultaneously and in the same entity. This raises questions about the development of this approach, and which other knowledge practices have been incorporated into this organisational theory (all be it without acknowledgement as discussed in the previous section of this chapter). This very much follows the recent work on the way disease has become located as a battle within bodies that can be accessed and understood by the way in which a trained practitioner 'gazes' (Foucault 1989) upon the body. There is a large anthropological and sociological literature which examines that way that the bio-medical view has permeated and come to dominate western cultures. Your use of ideas of disease suggest that this sociological and anthropological literature can be applied to understanding your field. The important factor in this study is the extent to which these incorporated assumptions about disease and cure configure your relationships with your clients in a culturally acceptable way.

Josephine: Yes, of course outsiders can see things which they consider legitimate, but it doesn't make them legitimate for everybody. Your way of seeing involves you connecting these ideas of health and illhealth to one set of ideas from sociology. You have emphasised for yourself this may offer confirmation of some theoretical work on bodies. However, this is of little interest to me as I wish to improve the experiences of people working in organisations. However, your suggestion that by offering to 'diagnose' problems and how they can be solved means we are tapping into a wider expectations of our clients is a useful insight because it indicates how we could make our work as accessible as that offered by consultants who offer pre-packaged solutions for all organisations. You may well have given me a useful angle.

Joanna: I raise the issue not as a practical one but as a critical one. However, focusing upon your 'practical' concerns for a moment, the quotation: "In modern industrial societies most business work is done by means of one type of hierarchical organization. It is the structure and function of organizations of this type which I shall be addressing. These organizations are shrouded in haze - let us take up the task of dispelling the haze" (Jaques 1989:1) which started this discussion gives me a hint about the absence of academic acceptance for the work which you commented upon in Josephine's story in chapter one section three. The style of this text is certainly not designed to encourage the standard academic audience to have much sympathy, and supports the suggestions from my analysis of you citation practices given in the previous

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[9]Emic - etic debate raised in section on 'doing ethnography' in chapter three, section two and also informs the rest of the dialogue in this section.

section of this chapter. For example compare it with the opening sentence of chapter one from this thesis which struggles for such credibility: "As an introductory chapter (Ashmore 1989), the aim of this chapter is to establish as legitimate a particular construction of a research problem (Callon 1980a, Knorr et al 1980, Woolgar 1981, Law 1986a, Woolgar and Ashmore 1988, Ashmore 1989)." (Dodd 1994:1). Unsubstantiated assertions such as those exploited by Jaques (1989) are not the bedrock upon which academic credibility is built.

Josephine: Before you make too much analytic capital out of this, I must point out that Requisite Organisation (Jaques 1989) expresses no particular objective to address an academic audience; it seeks its readership explicitly from the Chief Executive Officers (CEOs) of organisations by providing a manual for organisational structure, rather like you might buy a manual for your car. One of the characteristics of my approach is that the ideas are oriented towards providing practical advantages for people at work. For many of my colleagues there is a weariness about addressing academic audiences in the face of repeated failure. This lack of credibility has been identified as a problem however, as the account in my story, chapter one, section three indicates. The rationale for this concern is that the lack of academic credibility limits the general acceptability of the ideas within SST-2 for some potential clients. In section three chapter one we discussed the development of recent attempts to address this problem. A group of us have started meeting to discuss SST-2's lack of profile and how to address it and an interesting illustration came out in one of our discussions.

One colleague of mine was describing the early development of SST-2 within a health services project. A meeting had been arranged to review the work, which was attended by the clients of ICOSA and by two senior scientific officers from the Civil Service. My colleague stated that an account of the work was presented which described how much had been completed and the developing analyses of development needs for the organisation. One of these scientific officers from the Civil Service responded by asking whether or not the work could be replicated. The astonished reply from my colleague, having spent six months working in a variety of different health care departments and hospital locations was: "Why should I want to do it again?" He knew that the idea of replication is used to assess the credibility of results, but to suggest that such a complex set of interactions could be replicated is truly ludicrous.

Joanna: I have encountered similar responses to problems of this nature in the course of my fieldwork with you. The question it raises for me is why was it thought that the implication of this question was that the work needed to be done again? Everybody knows that is not what replication means. There is an interesting analysis of the social negotiations around what counts as adequate replication in the SSK literature.

Many authors in SSK have devoted their studies to understanding how something comes to count as a replication (Collins 1975, 1985). Indeed, this form of questioning has also been applied to SSK and what counts as replication in our work (Ashmore 1988, 1989). For your 'practical' purposes, these studies from SSK indicate that a more careful negotiation about what replication might involve would be a more productive approach for you and your colleagues. To try and explain this more accessibly, you remember the struggle to get the results of CPA follow-up dated published?

Josephine: Yes, the papers were sent in various different forms to various different journals and they all refused to publish.

Joanna: No they did not refuse to publish, the reviewers produced the criticisms expected of readers in their position about the theoretical discussions and methodology outlined in the paper because these reviewing readers did not consider that these had been adequately explained. Example comments from the reviewers of Journal of Occupational Psychology were:

> "Burns and Stalker, Lawrence and Lorsch draw attention to the need to deal
> with uncertainty at lower levels in organisations"
> "The description of the task seems insufficient to permit replication"
> "the procedure is offered as a basis for making decisions about people. It
> ought to have something to say about possible error in measurement.

These can be interpreted as comments from others interested in organisations and assessment asking for more information to link to the contents of the paper with their own understandings. However, the paper was never revised or resubmitted to this journal. Instead, these comments were interpreted as rejection and the paper was sent to a different journal. If your culture had a greater understanding of my ideas from SSK an awareness of the social processes at work in the achievement of scientific credibility would offer your members alternative strategies for managing paper submissions such as these.

Josephine: This is interesting as the idea the SST-2 is scientific is one of the central claims within the texts we are exploring. For example, there is a strong assertion that SST-2 provides a scientific approach to the study of organisations: "what is needed of course is a solid scientific foundation upon which to build an effective organization - in the same way that you [10] rely so firmly upon the natural sciences for your technological

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[10]This book comprises text which addresses the reader as if she is spoken to. This can be interpreted as exploiting the reality of the oral exchange. This has been discussed in chapter one, section one, in the context of dialogic forms of writing within SSK/SST-1.

advances" (Jaques 1989:9). This book then goes on to claim that SST replaces much management development 'propaganda' in an equivalent fashion to the replacement of alchemy by science.

Steve: (Woolgar 1994) Sounds like Jaques (1989:9) is invoking a classic traditional objectivist philosopher's conception of science, which is entirely ignorant of social studies of science.

Joanna: Yes, scientific work does not claim directly to be scientific - instead it applies a general set of rules which allow readers to infer the quality of the science involved. I would expect the claims about the status of the work to be much less certain. Instead this reads like the construction of science from those outside: a statement of belief in science which has none of the reservations which would characterize a practitioner.

Steve: (Woolgar 1994) Joanna, your rebuttal of this should not focus upon what scientists say about themselves. There are many versions of science: who is to say that the one which some scientists sometimes use for specific local purposes is the most valid?

Josephine: That's a good point. Within SST-2 I think it would be argued that the legitimate 'version' of SST-2 as science is that it is relevant and useful to organisations and people; that it makes sense and allows them to take practical action.

Steve: (Woolgar 1994) But, how, for whom, on what occasions?

Josephine: It is argued that SST-2 makes sense because what underpins the structure of organisations is the existence of regular, predictable differences in the way that human beings approach problems. Indeed, the use of the work 'requisite' in the text I have referred to is chosen to imply that this form of organisation is 'required by the nature of things'. There is one order, expressed in the social world - which in this case is the world of work - which is appropriate to the way human beings are. The model described by SST-2 is an account of the way in which differing patterns of human growth in 'executive capability' are correctly translated into social relationships. This is described particularly effectively by Evans (1979) "the essential Jaques hallmark, it seems to me, lies in the fact that he has the nerve to regard some men as more gifted than others in a very fundamental way. He sees people as unequally, rather than equally endowed with a certain general quality ...he calls executive capability" (Evans 1979:26). Organisations, it is claimed, are external expressions of this inequality.

Joanna: Hold on, that's not the point that Steve was raising. I would like to take an analytic view of this to demonstrate the restricted categories of 'people' deployed as having the legitimacy to 'make sense' of SST-2. The first example is the account of the paper submissions and reviewers reports given above. I would suggest that this was

evidence of members within SST-2 not writing or acting in a way which encourages potential journal audiences to make sense of SST-2. The second example is the category that I can be taken as representing. I am sure you are aware that, with my starting point in ethnography and my allegiance to SSK, which assumes that knowledge is a product of social relationships, rather than descriptive of it. I cannot accept these comments of yours at face value, but instead need to subject them to critical examination. This would involve an investigation into the ways in which 'human beings' and their 'endowment with a certain general quality' are constructed by SST-2 and how these constructions allows certain things to be questioned within SST-2 and not others.

Josephine: Well, I could begin addressing that question by describing one of the key ideas this theory works with. At its centre, it uses a definition of work as "the exercise of discretion within prescribed limits in order to achieve a goal within a maximum target completion time" where "balancing the pace of the work against the quality of output is at the heart of the process of work" (Jaques 1986: 103). Human beings are thus envisaged as decision makers. The prescribed limits are the rules and regulations which bound the ways in which work can be approached by individuals. The exercise of discretion is the psychological experience of work; mulling things over, teasing things apart, deciding upon a course of action and then dealing with the uncertainty about whether the decision was appropriate. This is described by Jaques: "the term work refers to activity, to behaviour, to that human activity in which people exercise discretion, make decisions and act so as to transform the external physical and social world" (1986:101). The prescribed limits and the exercise of discretion each define the other; there is no need to make any decisions if there are no boundaries. For example the target completion time has a direct consequence for the felt weight of the discretionary activity. "The problem in work is never simply to achieve an object never mind when; it is to achieve an object in a limited time. If no time target is set, then in fact there is no felt need" (Jaques 1986:102). In any experience of work therefore, these two are in tension.

This definition/description of work is the bedrock upon which the account of different levels of work in this theory is developed. Although all work comprises limits and choices, these limits and choices are not the same for every one or all work. SST-2 argues that there is a regular pattern of natural differences between individuals in their need for limits and choices (Jaques 1986, 1989; Stamp 1988; Isaac and O'Connor 1978). This pattern serves as the explanation for hierarchy. It is argued that these systematic differences in work are reflected in different levels of pay and status (Jaques 1956, 1961). The identification and description of these differences provides an understanding of how people come to be organised hierarchically (Jaques 1986,1989,

and Clements 1991). Hierarchical organisations have developed out of the need for these differences between people to be managed.

Joanna: Hold on there, a lot has been covered in that short exposition. I want to clarify a few points. You are suggesting that people making decisions is the key variable in the effective functioning of organisations?

Josephine: That is right........

Joanna: and you are suggesting that it is possible to reduce all the ways people may make decisions into a set of categories which can be applied to all hierarchical organisations?

Josephine: Yes - seven categories to be precise.

Joanna: And you are suggesting that these are 'natural' differences which account for differences in status and pay.

Josephine: I'm afraid so.

Joanna: I'm intrigued to know where these ideas have come from, could you give a brief history of their development.

Josephine: Yes certainly. These ideas developed out of Jaques (1951, 1956, 1965) work with the Glacier project from the 1940's to the 1970's. This involvement "had it's roots in the concern of the then new managing director ....to place the operation of the company on as advanced a technological basis as possible, in all fields - production methods, product development, administration, organisation and manning" (1965:29). One area where particular attention was required by the client was the system of dealing with pay differentials and pay disputes between the different departments and operating units within the company. Jaques (1956) describes the process by which grappling with this problem led to the development of what he calls the 'time-span of discretion' instrument. The specific question was "how to determine the appropriate payment and status for individuals and for the work they do" (1956:3). In addressing this problem, Jaques describes them coming to the conclusion that some objective framework was necessary for measuring work because "although there is a scale in terms of money for expressing amount of payment, there is no equivalent measure for individual capacity or for level of work" (1956:4). The other major factor that impinged on their thinking was that while intuitive judgments could work for specific disputes, they were too rough for "negotiations affecting numbers of people in widely distributed establishments" (1956:5). The problem therefore was to find a way of introducing a system of pay differentials which could be implemented in a wide variety of settings by producing a model which could be abstracted from the specific details of any given dispute. It was out of this problem that Jaques developed calibration of work on the basis of the 'time-span of discretion.'

Joanna: Well, if the problem the client defined as one of accurately and objectively delineating relative status and payment, it is scarcely surprising that a theory of levels should have been developed.

Josephine: Can I pick you up on the use of the term 'objective' as this is of central importance. Jaques (1956) argued that wage negotiations "evoke powerful emotions - emotions about economic security and about the value of one's own work as compared with that of others" (Jaques 1956:4). He therefore suggests that the development of an objective approach could eradicate many of the problems associated with these emotional concerns.

Steve: (Woolgar 1994) This resonates with the ideas in Taylorism. To what extent do these texts refer to or discuss the vast literature on the sociology of organisations? If he does not, this may be one source of academic antipathy.

Joanna: Well, Steve, as the first section of this chapter discussed, the referencing practices within these published documents do not address the existing literature from other areas of social science, except in the most random of ways. From Josephine's account given above, the argument appears to be that the detached quality of research is used to reduce day to day working practices to a limited number of categories. Its almost as if the 'power' or 'credibility' available from the existence of social science is deployed without any acknowledgement. Josephine, to explore this in a bit more detail can I ask how a model was identified to fit all these pay disputes?

Josephine: Jaques (1956, 1965) focussed upon two aspects of work; time and the felt 'weight' of work. I've talked a bit about discretion in work which this approach suggests "it was solely the discretionary content that entered into what was experienced as level of work ... to the extent that a person was capable of doing his job and experienced at it, he tended not to perceive that he was using judgement or exercising discretion. Basically, the implication was that pay needed to be equated with responsibility and that time may be one manifestation of this. Drawing upon the observation that people in more senior positions were paid less frequently and had to give longer notice, it was proposed that "there might be a measurable relationship between size of responsibility and the time over which it is carried" (Jaques 1956:22). Research therefore started by asking each individual and her/his manager about "the period of time that resources were committed by decisions" (Jaques 1956:25), in the course of an individuals work. Jaques describes finding a degree of similarity between the estimates managers made with those of their sub-ordinates. He also found that the assessment varied based upon the seniority of the position examined. More senior positions were described as committing resources for longer periods of time. So based upon this evidence, Jaques decided that time as a measure would be a suitable way of

calibrating and comparing the responsibility of different jobs. However, this was not to suggest that, at this stage, 'time-span' was viewed as being an inherent property of a job. Instead the length of time an individual has to carry the responsibility for a decision before it is reviewed was seen as an external manifestation of "a high degree of intuitive sensitivity in people: sensitivity about the level of work they are discharging ...and the rates of pay appropriate to that level" (1956:119). Extrapolating from this Jaques suggests the "members of the firm were - without being aware of it - operating a systematic set of principles governing status and grading. Because they were unaware of these principles, they had difficulty in implementing them with consistency, and hence trouble arose" (Jaques 1956:73).

Joanna: So Jaques is claiming to make explicit the 'reality' which every one knows is there, but has not quite described or understood properly. He then claims that time-span is a 'metric' for comparing the responsibility of positions within this 'reality' that everyone knows?

Josephine: Well, to a certain extent, although as the work has progressed, the way time-span is described has changed. I'm not quite sure why. Interestingly, no one uses it as an idea in consultancy any more, it doesn't really work, although it was the starting point for SST-2. Levels are diagnosed now on the basis of the way people process problems and solutions rather than on any measure of time.

Joanna: I was just thinking that I had no recollection of the use of this idea of time-span in the documents I analyzed for chapter five. The focus on these 'marketing' documents was on the model of levels of work and capability and the processes involved in assessing these levels.

Josephine: Time-span is still reported in the published representations of SST-2. However, the way it is described has changed. Jaques (1986) suggests that: "The finding that measured time-span .. corresponds to subjective feelings of level of work, is like the finding that the measured length of a column of mercury corresponds to subjective feelings of warmth" (Jaques 1986:111). Evans (1979) shifts this slightly by stating: "In the case of the thermometer we know that the lack of a perfect relationship between its readings and our experience is due to faults in the criterion - to errors in our subjective judgement - and not to faults in the instrument" (Evans 1979:81). More recently, there has been another shift: "Time-span .. is an objective fact, since it is an objectively stated decision of a manager .. time-span measures are non-falsifiable because managers are committed objectively to the target completion times set" (Jaques 1989:16).

Joanna: My understanding of what you have presented so far is that it seems to indicate a very carefully managed separation between analyst and analyzed. You accuse

me of analytic distance, but you appear to use the same tactic in your work. These descriptions of time-span seem to suggest that while the discretionary and intuitive components in the work of people studied are seen as the significant features, the same is not the case for the work of the analyst. This assertion of time-span as a 'fact' appears to deny that the observer also 'works', or in your terms 'exercises discretion'. It implies that the analyst is engaged in a qualitatively different process - one which is not inherently subjective in opposition to the emphasis on subjectivity in the work of the observed people. You have commented upon my tendency to maintain an analytic distance from your work. This account you give suggests that despite your claims to the contrary within your working practices, the same distance is exploited between your expert members and client members. I would like a rendition of these ideas and their development to understand these processes in your culture in some more detail. Could you write me a brief account of the ideas you use.

Josephine: Of course, this will be the first 'real' authorial space I have in this thesis.

Josephine's exposition[11]

In the following account I wish to demonstrate the constancy of ideas at the centre of our approach by outlining the ways in which they have developed. As mentioned in the discussion with Joanna, the notion of time-span gave a linear metric for arranging jobs in relative size, regardless of context, which could be correlated with payment. As Jaques (1970) suggests: "it appeared as though there existed in people's minds a pattern of rates expected for level of work done and that this pattern was made manifest by stating level of work in maximum time-span terms" (Jaques 1970:46). This is also described as "an unrecognized system of norms of fair payment" for any given level of work, unconscious knowledge of these norms being shared among the population engaged in employment work.

"The assumption that people get paid for what they do, rather than their needs or any other factor is surely a notion borrowed from his clients interests and embedded as an unquestioned assumption in the study. As the problem was defined by the managing director of the company it is safe to assume that he would not be looking for objective support for equality in payment?" scribbled Joanna in the margins

However, it was felt that exploring the implications of this linear scale could contribute beyond the immediately identified problem of pay disputes. Jaques suggested

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[11]This title is used in direct contrast to the idea of Josephine's story introduced in chapter one to indicate that at the stage of explanation, an expository style rather than a narrative is deployed.

(1956, 1965) that at certain points on this linear scale there was what he refers to as a change of state. Indeed. Jaques compares this to the changes of state observable in water at certain critical temperatures.

And now he is borrowing ways of constructing the world validated by the physical sciences as a supporting metaphorical justification.

There were two pieces of research data which suggested that this view might be viable. The first was that jobs described as having time-spans below three months were never viewed as being 'managerial' regardless of job title (Jaques 1956, 1965). The second was that, when asked, employees had very clear ideas about who their real manager was (Evans 1979). This rarely corresponded with the individual placed immediately above them on any organisational chart. Jaques (1956) therefore decided to ask some more questions about employees' intuitive ideas about their relationships with other people and with their comfort with the work they were asked to do. Based upon this questioning he suggested that there were clear aggregations of jobs between particular time-spans. He argues that these discrete aggregates varied based upon the cognitive complexity involved in exercising discretion in an appropriate way for the complexity of the work set. Confirmation that these boundaries described discrete states was taken from two types of report from employees. The first was that an individual's 'real manager' tended to be identified as the first person above them in the hierarchy whose work fell within the time-span grouping above their own. The second was the report that job changes within a band were experienced as an increase in the quantity of work to be done whereas changes across these bands were described as promotions.

And yet again we have an operationalization of the client view that development at work is both linear and discontinuous - nothing in this appears to question why something is viewed as problematic. Organisations appear to be taken as 'real' entities, rather than as human projections.

This investigation led Jaques (1965) eventually to suggest that there is a regularity, consistently found in field studies, which suggests that a structure underlies bureaucratic organization of managerial strata with consistent boundaries inherently recognizable by employees within these strata.

This constant reference to the credo of face validity is also an intriguing aspect of the type of authority this culture exploits.

So there have been two assertions made about individual experience of fairness at work; that there is a regular depth structure to organisations and that people have an unconscious idea about fairness within these. There was one further component which was necessary to make this model complete; the articulation of differences between people in the way they approached problems and solutions which mirrored the differences in work already described.

Without there being fundamental differences in individuals, differentials at work would be related to various other factors associated with people obtaining positions. There would therefore be no natural legitimacy in paying differentially - it would clearly be other social factors at work.

This was of crucial importance as Evans (1979) points out "ultimately, then the only real justification for the hierarchic structure of executive authority is to be found in the hierarchic structuring of human capacity" (Evans 1979:23).

So they are aware of this themselves.

So, drawing together the evidence about the time-span of discretion, the human sense of appropriate value for the work deployed and the nature of discontinuities between aggregates of jobs in terms of cognitive complexity Jaques decided to investigate the development of capability. The payment progression of many different individuals was collected and mapped over time, within the framework of time-span discontinuities. This produced a series of groupings or what are now described as modes. This term describes the rate of individual development through the levels identified within organisations. Hence Jaques (1986) postulates an uneven distribution of capacity within the population which he argues, as with all human attributes develops over time. He is suggesting that there are steps in the progression which exist in the same order for all people, but that people are born at different stages, develop at different rates and hence progress differentially through these stages.

Based upon this shift from to a concern with organisational structure to innate human capabilities, the recent work has focussed upon the development of techniques for assessing current capability and its potential growth (Baker and Stamp 1990, Jaques and Cason 1994). These techniques and their dissemination have been the focus of your investigation of our work to date.

Concluding discussion for section two

Josephine: Is that helpful?

Joanna: Yes, from your account of the contents of these books I can identify the same pattern of 'con-scription' emerging from this material as there was from the ethnographic data used earlier.

Josephine: That surprises me, I thought I had introduced enough to demonstrate that, while the way we present our knowledge may be malleable or open to 'con-scription' to use your terms, there is a collection of constant ideas at the centre of our approach.

Joanna: I both agree and disagree. My disagreement is that, in itself, this account is another demonstration of the malleability of your knowledge boundaries. In this case your account has been mediated by being part of this chapter with me as your audience. The problem you have addressed for SST-2 in this context is how to include these ideas in something called ethnography. You appear to have dealt with this by presenting the ideas 'historically', which gives me the necessary access to interpret them sociologically. However, I agree that there is a constancy in this field, although I doubt it is the constancy you envisage. The constancy I have become aware of is the way the initial social relations have become embedded in the ideas. The existence of this 'portable client' from the beginnings of this work as 'censor' to future activity and model building, means that the <u>malleability</u> of boundaries to marginal 'client' members is one of the key <u>constant</u> features. Indeed, Georgina's comment in the visit I described in chapter four, scene five: "the only thing fixed about our approach is that we start with a client problem" clearly articulates this.

Josephine: Yes, you are right, it was not at all the way I intended. My concern was to demonstrate the fixed framework of ideas about levels of work, capability and payment which I use as a reference point for problems on a daily basis at work.

Joanna: I am not denying their constancy, but the point I am making is that they are not interesting to me as 'constant artefacts'. What is much more interesting for me is the extent to which each of these different notions is a re-presentation of the original social relationships, established at Glacier, incorporated into the development of SST-2. I am suggesting that this incorporation of 'client' interests is both the strength and the weakness of the model; it has a pre-configured notion of an acceptable user which opens it for some but it also shuts other audiences out.

If I can return to the quotation from Jaques (1989) which you choose to start this exposition, it is clearly a requirement for the reader to 'believe' in the legitimacy of hierarchy to apply these ideas. Later on you asserted that any reader using this text needs a 'scientific' basis for developing their organizations. These are two requirements

which you describe at the start of the relationship between original client and 'social analyst' in the quotation from Jaques (1965) This quotation mentions both the desire for technological advance and the importance of hierarchy. as it is the managing director who is the client. So, I would suggest that you have presented the 'resistant' qualities of this model; I would argue that they are the resistance of embedded social relationships and certain types of problem, expressed by certain types of people in certain types of position which have been converted into a 'portable' abstraction - rather in the way Latour (1983) describes Pasteur's exploitation of the existing relationships in the 'field' and which I think is manifested in your day to day work.

Josephine: Alright, I concede, I cannot make you see things in my way.

Joanna: But surely the point is not to agree but to debate, criticize and develop?

Summary exposition from author as analyst

Joanna: From these two distinct sets of readings from two distinct 'authors': authors which represent the switch between analyst and member positions in ethnography, we have different characterisations of the boundary around explanatory frameworks. From section one, we have a locked boundary as characterised by the author-as-analyst, who suggests that there are locked boundaries operating within the culture of SST-2 which harden authority or credit for the ideas with one particular author. This she suggests, is at the expense of referencing practices which would convey acknowledgement or the potential for communication and hence these practices also make operational a locked boundary between SST-2 and other social science practices such as SST-1, which the author-as-analyst represents. This pattern is contrasted with the patterns characterised in chapter four and five and leads to the conclusion that certain 'marginal members'. described as clients, are privileged in the conscripting practices within the culture of SST-2. at the expense of central or 'core-set' members.

In section two, the author-as-member offers an alternative way of reading the same documents to examine locked boundaries within the culture of SST-2. She suggests that these documents allow a focus upon the ways in which ideas have become hardened. The dialogue which this suggestion produces, outlines the way in which the historical relationships and concerns at the Glacier company, where SST-2 is reported as originating, have become hardened into the conscripting practices of SST-2, in terms of which marginal members are privileged. In addition, this dialogue suggests a locked boundary operating within SST-1, to keep the 'natives' out; the claim that 'native' understandings are not an important source of credibility for an interpretation, compared

with the explicit use of 'client' understanding in 'collaborative exploration' as legitimating the interpretations made using SST-2. This use of client understanding, it has been suggested, can be read as a form of practical reflexivity at work within SST-2. This contrasts with the use of reflexivity within SST-1, as discussed in chapter three, which works to maintain a boundary around inquiry and so maintain a distance between analyst and member, by focussing upon the inferential problems of the analyst as referent. As such, from these two accounts of these 'distinct' knowledge cultures, we can constitute SST-2 as working reflexively to take the members into inquiry and SST-1 as working reflexively to take the authors into inquiry. This suggests that 'reflexivity' can be understood as one mechanism for conscripting the audience privileged by a specific knowledge culture.

Hence from this analysis, locked boundaries at work in both SST-1 and SST-2 are made evident. However, having constructed two distinct authors for this chapter; author as analyst and author as member, it is scarcely surprising that such boundaries have emerged between the two. This is a further manifestation of the interests animating the production of this thesis; the extent to which the boundaries we construct constitute the world we inhabit. In claiming to start with two distinct authors, or parents as they were described in chapter one, section two, it has been necessary to establish that they are distinct for the purposes of this thesis. We could argue that the evidence of locked boundaries in the culture of SST-2 which excludes SST-1 as marginal members, while incorporates 'clients' as privileged marginal members is an inherent property of SST-2. In addition, it would be possible to suggest from the evidence in this chapter, that SST-1 also works to exclude SST-2, by constituting them as 'natives' in contrast to the referenced members incorporated throughout this text as citations who, it could be claimed this text works to conscript. However, we cannot avoid responsibility for the construction of the boundary (Haraway 1991) established between the two, which works throughout this thesis to enable claims to be made about what each culture; SST-1 and SST-2 are really like. This constructed boundary, which has provided the material to develop this thesis, forms the subject of our final chapter, chapter seven which seeks to explore the claims and characterisations exploited in the production of this work.

CHAPTER SEVEN - TAKING A RESPONSIBILITY FOR THE CONSTRUCTION OF AND A PLEASURE IN THE CONFUSION OF BOUNDARIES: A CODA TO SST-1 AND SST-2

The purpose of this chapter is to synthesize the themes identified within our problem area; boundaries, credibility and reflexivity with the 'data' deployed throughout the arguments developed within this thesis. In no way does this seek to be a statement of what has been 'achieved' or a conclusion to what has been 'discovered' in the preceding chapters. Instead it offers a coda to the work which is "a passage, long or short, at the end of a piece or movement, which extends the ideas which have already received logical or symmetrical expression and brings the work to a satisfying conclusion" (Westrup and Harrison 1984:132). In this respect, this chapter acts as yet another boundary deployed within this work; a boundary which contains and represents all that has been exposed so far in chapters one to six as a single piece of work and a boundary between this piece of work and the context within which it is to be read. However, before commencing this discussion it is necessary to ask why use a coda. In selecting such a way of characterising an 'ending' for this thesis, the notion of a conclusion has been rejected. The rationale for this is that a conclusion provides too 'locked' a boundary to close the text. Instead an approach to endings was wanted which articulated this chapter's function as an ending while not claiming a finite quality for the ending provided. As such the 'ending' is as operational in constituting the 'user group' for this thesis as is the manoeuvring in the previous chapters. A coda was developed for our configured 'user group' within SST-1 to represent the implication that further interpretation and representations are possible beyond the particular coda produced. As an indication of this, an alternative ending for this work, written for SST-2, is provided in appendix 1.

Our task therefore is to outline the writing developed in these preceding chapters in order to represent it in this unifying way. However, in the context of this thesis, this is not offered as a final statement of 'what has really been explored' in this thesis or an exposition of 'what is the point of it all'. Instead the production of this summarising outline follows Haraway's claim for cyborg imagery, as I contend, this thesis, can be conceived with such imagery; "there is no drive in cyborgs to produce a total theory but there is an intimate experience of boundaries, their construction and deconstruction...cyborg imagery can help express two crucial arguments ... first the production of totalising theory is a major mistake which misses most of 'reality'..second, taking responsibility for the social relations of science and technology..means embracing the skilful task of reconstructing the boundaries of daily

life...cyborg imagery can suggest a way out of the maze of dualisms in which we have explained our bodies and our tools to ourselves" (Haraway 1991:181). Hence the following short coda makes no claim for a totalising conclusion or a general theory of technology but instead provides a reprise to the many ways in which boundedness has been constructed for this thesis. I cannot claim to review all the boundaries as this is not possible. To engage in the task of identifying all the boundaries used implies that they are all existing self-evidently within this thesis waiting to be observed. Such an assumption undermine the use of cyborg imagery which would alternatively suggest that the boundaries in and of this thesis will be redrawn as the cyborg within which is rests and which it represents transforms and re-conscripts its margins.[1] However, I shall identify those boundaries to be explored in this coda. The boundaries at issue are those between SST-1 and SST-2, the boundaries between data and explanation, the boundaries around membership, the boundaries between formulations of the problem indicated by the existence of different chapters, the boundaries involved in the construction of this as a thesis, the boundaries between temporal events, the boundaries between different participants, roles, settings, authors, artefacts, theories and practices. With these, at each moment in this thesis boundedness is constructed and reconstructed.

This coda will explore this construction of boundedness in this thesis, both to exploit the potential within the writing for understanding boundedness in knowledge work and to follow the suggestion made (in chapter one, section two, page 28) by the 'narrator' in this thesis following Haraway (1991:150), to take a responsibility for the construction of boundaries. In constituting an entity, a powerful action is taken. Taking responsibility in this context is interpreted as accepting that our work will construct entities; we cannot separate 'ourselves' from this consequence. However, taking responsibility simultaneously involves destabilising the entity constituted by reference to our own creative work. This concept is hence similar to Ashmore's (1989) assertion that there is no 'escape' from the conventions of writing.

So what boundaries have been put to work in this thesis and what characteristics of daily life have they allowed us to construct and envisage? A primary one, I would claim is the boundary we have placed around 'our members', contained by the term SST-2, to allow us to constituted them as data, as subject, within the 'cyborg' constructed (or in the terms developed in this thesis, conscripted) for our work. From constituting such a boundary in this fashion we have been able to create the notions of unlocatability, conscription, the conscripting organism, flexible boundedness, locked boundedness and

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[1] In addition, even without this constraint 'in principle', 'in practice' such an exercise would require another thesis to be written (compared with the analysis of Woolgar's 'writing of the problem' by Ashmore 1989).

practical reflexivity. These are the main 'findings' produced in chapters four to six of this thesis. Without the conscripted separation between the cultures of SST-1 and SST-2 and the potential for an explanatory relationship being constituted in this separation, such artefacts could not have been given shape. Above, it was suggested that cyborg imagery allows us to 'take responsibility for the social relations of science and technology' Haraway (1991:181). My reading of this is the need to avoid constituting the relations of science and technology as 'entities' which can be described 'accurately' and then 'judged' for their 'morality', but, instead to work with them and within them with reflexive responsibility. Within the context of this coda, this allows us to explicate the potential in this explanatory separation without it being a 'problem' to be solved or 'fault' to be removed, but, instead as a resource of the 'daily life' of social relations in science and technology, which can be constructed as contributing a central role in the conscription of our new notions outlined above.

Let us dwell for a moment then on describing the characteristics for SST-2 constituted by the notions created out of this work of explanatory boundary construction. In chapter four we were presented with scenes from the daily working life of SST-2. These scenes transported us through distinct locations, on different modes of transport, to observe various characters in shifting roles discuss diverse subjects with multiple agendas. It was claimed, on the basis of this ethnographic transcription, that unlocatability was one of the primary characteristics of SST-2. In developing this 'unlocatability', the additional notion of the 'conscripting organism' was also produced to give some 'form' to 'formlessness'. The idea of the conscripting organism was used to describe the variable incorporation of 'entities' (people, roles, locations, artefacts) for writing together. The boundaries deployed around these organisms were identified as flexible in that the constitution of such organisms was described as temporally emergent. As an example of such temporal emergence, the newly conscripted idea of flexible boundedness became the subject of chapter five. This chapter deployed the idea of conscripting at the margins and examined a series of marketing documents for the ways in which representations of SST-2 may configure certain membership positions for 'clients'. It was suggested, based upon the analysis of these documents, that the potential for variability in accounting was deployed within these changing accounts to 'soften' representation for conscription at the margins. However there was also a second form of boundedness characterised in chapter four; a boundedness described as 'locked' in chapter four. Later in the discussion it was described as 'hard' which became the subject of chapter six. 'Locked boundedness' was identified at two points in the working practice of SST-2, at its 'core', both in the reported discussion of legitimacy to practice (chapter four) and in the establishment of authority (chapter six). This latter

example was the focus of the analysis of citation practices in chapter six which suggested that authority operated by 'incorporating' a core set of authors under the authority of a single published reference. However, this locked boundedness was also identified as a characteristic of the boundary between SST-2 (our members) and SST-1 (our analysts). This was both in the evidence of practices (CPA) locked to the gaze of SST-1 because of their observer status (chapter three) and in the use of terms such as 'native' and 'analytic distance' which served to render illegitimate the readings of SST-2 of the SST-1 interpretations (chapter six). The use of these terms was contrasted with the use of 'practical reflexivity' deployed in the notion of analysis by 'collaborative exploration' identified in section two of chapter six within the working practices of SST-2.

Hence this last characterization of SST-2, its deployment of 'locked boundedness' allows us to introduce the possibility of exploring the second suggestion made by our narrator in chapter one, section two, page 28; to take pleasure in the confusion of boundaries (Haraway 1991:150), as we have made the boundary established between SST-1 and SST-2 unstable in this final analytic exercise. In suggesting the lockedness of SST-2 to SST-1 is one of our significant 'findings' invites us to examine the transportation of these constructed notions, hence confusing the boundary which enabled the possibility of explanation. Let us commence this confusion by examining another set of boundaries used in this thesis: the boundaries that constituted our three themes introduced in chapter one; boundedness, credibility and reflexivity. As suggested in the foreword, two parallel structures were used to organize the writings in this thesis: the linear report format and the juxtaposition of accounts of our two cultures along these three themes. Let us examine how were each theme was used to constitute certain characteristics for SST-1 and SST-2. Boundedness is our first theme. In chapter one it is claimed the thesis produces an illustration of boundedness within SSK/SST-1 by indicating how a boundary was established around a credible problem. This boundary, it was suggested rested upon the form of accounting used. This was demonstrated by exploiting an alternative form of accounting to demonstrate the limits of tolerance for forms of accounting within SST-1. This can be contrasted with the constitution of SST-2 in chapter four as having an unbounded nature or being 'unlocatable'. This was developed particularly within scene five, which demonstrated the incorporation of the problems of outsiders into the construction of problems. I would suggest that in each of these accounts, boundedness was demonstrated in configuring a legitimate problem. However, there was a distinctiveness between the two accounts in what could be included and excluded. In chapter one, section three demonstrated that a narrative, multi-vocal construction of the problem was 'locked out'

of SST-1. Alternatively, in chapter four, scene three, other academic departments were locked out of the work of SST-2.

Struggles for credibility, the second theme of this thesis, were explored for SST-1 in chapter two and for SST-2 in chapter five. In chapter two the struggles to constitute SST-1 as audience were presented and in chapter five the deployment of marketing documents from SST-2 to generate new clients. Despite the location of these two as audience or data for the thesis, very similar processes of configuring audiences are apparent. These two accounts of the struggle for credibility worked to characterize the nature of each knowledge culture in relation to the user each configured. In both of these accounts is was suggested that the nature of these knowledge cultures (both SST-1 and SST-2) was constituted by the use to which it was put for the purposes of the thesis.

Finally reflexivity in inquiry was illustrated in chapter three for SST-1 and in chapter six for SST-2. Similar activities of making members voices explicit in the work were evidenced in both SST-1 and SST-2. In chapter three this was discussed as the concept of polyphony within SST-1 and in chapter six this was discussed as the concept of collaborative exploration. However, a contrast between SST-1 and SST-2 was constituted using this theme of reflexivity. It was suggested that polyphonic writing as demonstrated in chapter three, acted to make the work more credible to readers from within the core of SST-1, not to convince those being studied of the accuracy of the representation whereas 'collaborative exploration' is constituted for SST-2 in chapter six to describe the act of convincing clients of understanding through joining in with the inferential work of solving problems.

Our comparison of the constituted distinction between SST-1 and SST-2 along these three themes begins the deconstruction of these cultures as separate by suggesting that they are both similar and distinct. This comparison suggests that boundedness, credibility and reflexivity operate in both and are at work in both, but that they work to configure distinctly patterned communities. To confused this boundary further, the relationship between member and analyst or between data and explanation will be outlined. Three illustrations of this relationship will be used. One illustration of this relationship lies in the account of the struggles to configure SST-2 as suitable 'data' in the accounts of problem construction in chapters one and two. A further illustration of this relationships lies in chapters three, four, five and six which make explicit the switch from member of SST-2 to analyst of SST-2. The third illustration involves a reconstruction for this chapter of the 'data' about SST-1 given in chapters one, two and three. The notion of conscription, developed from the use of a boundary around SST-2 is used in the context of this chapter, to explain SST-1. This involves a second switch in status, from 'member' of SST-1 operating as an analyst of SST-2 to being an analyst

of SST-1 (with an undisclosed or uncertain membership status for the author of this thesis). The contribution of this to the boundary confusion sought lies in advocating a further switch in membership: a switch from member to analyst of SST-1.

In constructing SST-2 as our data, considerable conscripted negotiation about the status of this bounded grouping has been deployed. Initially, in chapter one, the general context of concerns with boundaries around the work of science and technology was deployed in section one under the three themes of this thesis; boundaries, credibility and reflexivity. At this stage a problem constructed by SST-2 was included as section three. The claimed purpose for the inclusion of this account was to exemplify the problem construction processes deployed in section one of the same chapter. However, within the task we have set for this chapter, it can be claimed that the inclusion of a problem, constructed by our members, at this stage of the thesis gives evidence of the extent to which the problem was 'transported' from within the culture of our members. In addition, in claiming evidence for such 'transportation' it also allows us to create notions to 'explain' the process of shifting configuration of a problem from that given in section three in chapter one, to that given in section one. In giving voice to the members in this context, the 'silence' of the voices of the 'natives' in conventional problem construction becomes loudly proclaimed.

Chapter two offered another insight into the process of constructing this boundary around our members. The account of 'configuring a user group' suggested that producing an audience for this thesis, required the production of 'members'; SST-1 was brought into existence in the same process as constituting SST-2 as members. Chapter three added an additional insight to this process, by making explicit the authorial shift from membership of SST-2 to membership of SST-1. Of particular note within this account (and developed in chapters four and five) is the contention that the two key methods used in this study were transported across with this membership switch. The method of 'unbounded ethnography' used in chapter four, which it is claimed, allowed the constitution of 'unlocatability', was claimed to be a product of the authors experience as member working without a fixed geographical base. The assertion of stable form without the encompassing notion of a trajectory towards a final form, which was used as the orientation towards marketing documents in chapter five, was claimed to be a consequence of the author-as-member's involvement in the explicit reconfiguration of accounts of SST-2 for different purposes. These explicit accounts of the switch across this boundary indicate that such confusion over boundedness, while being rhetorically troublesome in thesis production, is central to the creation of 'daily life' in knowledge work. This all suggests that placing a boundary between SST-1 and SST-2, with this potential for explanation is not a 'straightforward task' of operationalizing 'self-evident'

boundaries but instead is another example of the work that both SST-1 and SST-2 are engaged in.

But, let us confuse this boundary further, by asking the extent to which those notions, produced as a consequence of this boundary can be transported to the culture of our new members, the practitioners of SST-1, by referring to the evidence available from what has been described as the ethnography of text. Let us take chapters one, two and three in turn as each have been claimed as data on the working practices of SST-1 and examine the extent to which we have evidence of a process of, for example conscription. Only a single illustrative example is used in this context, as the purpose is to generate a coda, not a further thesis. This coda offers a recursion to our introduction, not to go through the summarising what was established but to deploy the new entities constituted by this thesis and so indicate how this thesis has reconfigured the problem it originally established. Chapter one, it is claimed, offers data about boundedness, as it is argued, the conventional formal expository style operates to establish a firm boundary around the construction of a problem. This is contrasted with the narrative style of problem construction deployed in section three, which it is claimed uses a more narrative style incorporating authors of many different interests. However, if we use our notion of conscription, developed in chapter four, it is possible to suggest that our claims in chapter one about the style of writing used in chapter one, section are merely one possible way of characterising the work. Instead, our notion of conscripting organisms would suggest that a multitude of entities have been variously deployed in constituting a softened boundary for a potential readership, by offering them a variety of different positions within this text. To illustrate, counting the references deployed on the first five pages of the thesis, allows us to suggest that twenty five different participants are configured as active and as having a potential interest in thesis. Could it be suggested that this is the equivalent to the processes of conscripting at the margins identified for SST-2 in chapter five; the incorporation of various members? If so, one key distinction that could be claimed in that this conscription in the first five pages of this thesis, is aimed at the 'core-set'. Re-analyzing chapter one in this context could lead us to suggest that SST-1 involves conscripting at the core of it s culture, in comparison with SST-2 as conscripting at the margins Exploring the application of the notion of conscription to SST-1 further, chapter two claims to act as data to exemplify the approach taken to claiming credibility for the central set of questions for this thesis. Again, using the notion of the conscripting organism developed through the boundary of explanation deployed in this thesis to re-construct this data, it could be claimed that this chapter is the next in the series to chapter one, and works to conscript by converting the 'interest' conscripted in chapter one into a 'gap' in chapter two but a gap which requires a

solution. This has distinct resonance with the analysis made of marketing document 2 used as data in chapter five. In turn, chapter three makes the textual contact with SST-2 as members, and it is claimed, represents data about the issue of reflexivity within SST-1. However, using our notion of conscription, it is possible to suggest alternatively, that the work of chapter three is equivalent to marketing documents 3 and 4 in chapter five, which worked to conscript a particular action as appropriate given the gap identified. It could be argued that the advocacy of alternative textual styles invoked to 'give voice' to the members to legitimize the analytic process undertaken as democratic, whilst never having to step outside the power of the explanatory relationship invoked for the production of this thesis.

So, we could use the new entities created through this thesis, to offer a way of characterizing SST-1 and SST-2 as similar and distinct, similar in their deployment of conscription, and distinct in the focus of this conscription; with SST-2 focussing conscription at the margins and SST-1 focusing conscription at the centre (the core set). And so, to rewrite the thesis, to subject my analysts to the constraints of membership? But that is another story, for who can know then what notions could be created from this reconstructed boundary until it is conscripted? And who knows how these reconstructed notions will illustrate the limitations in the work of this thesis?

So what are the consequences of this responsible and confused construction of boundaries between explainer and explained? A set of interesting entities created to allow us to make claims about what our members' culture is really like, whilst refusing to sustain the essential nature of this culture. A constructed distinction between explained and explainer not retained intact and a constructed explanation of our explainer which also does not remain intact. A multiple set of characterisations of SST-1 and SST-2 as working practices whilst never stepping outside to give accounts of the background, diversification, controversies and reception of our members' work. This instability comes with cyborg imagery, and it is its strength. The strength is the reflexively responsible creation of new 'entities' for conscription into our variable and emergent organisms. In this case we have created starting entities such as consultancy and academia, boundedness, credibility and reflexivity and have deployed these to create further entities, the entities of unlocatability, conscription, flexible boundedness, locked boundedness, softening representation for conscription, practical reflexivity, unbounded ethnography and stable form without finality. The importance of these created entities is our capacity both to transcend our established distinction between academia and consultancy by arguing for their sameness in the activity of conscripting whilst simultaneously exploiting this established distinction to configure our two cultures as conscripting differentially, one at the core and one at the margins. Hence, in keeping

with the claims of this thesis, these newly created entities allow us to maintain our constructed boundaries, to produce a stable representation, whilst simultaneously breaching our constructed boundaries, to soften our findings for distribution. Minimally, this thesis can be constructed as data for its own claims.

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Section Two - Other Actors Conscripted into the Thesis

This listing represents those unpublished source deployed throughout this thesis, to supplement the published sources given in the previous section. This list has been divided into four categories: Characters, Roles, Organisations and Practices.

Characters:

Josephine - who appears as the narrator of SST-2's problem in chapter one, as key informant in chapter three, as consultant participant in chapter four and as author as member in chapter six.

Steve - who appears as supervisor, member of SST-1/SSK asking those irritating questions representative of such work in chapter one, sections two and three, chapter two, chapter three and chapter six. He is represented as a member of SST-2, closed from the account in chapter four.

Joanna - who appears as interviewer in chapter one, as participant in chapter four and as analyst author in chapter six.

Frederick - who appears as consultant and practitioner member of SST-2 in chapter four and as author of D1 in chapter five.

Georgina - who appears as consultant member of SST-2 in chapter four and as a reference in chapter six.

Rebecca - who appears as practitioner member of SST-2 in chapter four

Anthea - who appears as client practitioner member of SST-2 in chapter four.

Ruth - who appears as consultant practitioner member of SST-2 in chapter four.

James - who appears as consultant practitioner member of SST-2 in chapter four.

Patrick - who appears as practitioner member of SST-2 in chapter four.

Sam - who appears as client marginal member in chapter four.

Stephen - who appears as client marginal member in chapter four.

Roles:

Academic - deployed in chapter one to represent conventional problem construction in SSK/SST-1.

Narrator - deployed in chapter one to represent emergence of textuality in this chapter.

Representative of SST-1 User Group (RSUG) - deployed in chapter two to represent the configured audience for this as a thesis.

Student - deployed in chapter two and chapter three to make explicit the nature of the authorial role within this text as a thesis.

Key informant - referred to throughout and used explicitly in chapter three to construct a voice for the members to question inquiry.

Ethnographer - used explicitly in chapter three to answer the members' questions about inquiry and deployed as a member of SST-2 in chapter four.

Social analyst - used to describe the members' of SST-2 in their attempt to understand the work of SST-1 in chapter three section two.

Client - used to describe the ethnographer accepting the role of explained in chapter three, section two and to describe other users of SST-2 understanding in chapters four and five.

Best friend - used in the discussion constructed in chapter three, section two, to represent all those other relationship not deployed in this dialogue.

Trade Contractor (TC) - used in chapter one section three to describe the one of the client roles within SST-2.

Zone Coordinator (ZC) - used in chapter one section three to describe the one of the client roles within SST-2.

Construction Manager (CM) - used in chapter one section three to describe the one of the client roles within SST-2.

General Manager - used in chapter five to describe one of the client roles within SST-2.

Chief Executive - used in chapter five to describe one of the client roles within SST-2.

Executive Consultant - used in chapter five to describe one of the client roles within SST-2.

Chairman - used in chapter five to describe one of the client roles within SST-2.

Director of ICOSA - used in chapter five to describe one of the guru roles within SST-2.

Glacier Managing Director -used in chapter six to describe one of the authorial roles within SST-2.

Glacier Works Council Member -used in chapter six to describe one of the authorial roles within SST-2.

Journal of Occupational Psychology Reviewer - used in chapter six to describe unconscripted member of SST-2.

Civil Service Scientific Officer - used in chapter six to describe unconscripted member of SST-2.

Organisations

Discourse and Reflexivity Group (DARG) - used as source of data for SST-1 in chapter six.

Centre for Research on Innovation, Culture and Technology (CRICT) - deployed in chapter three and four as outside the bounds of SST-2.

Institution Concentrating on Social Analysis (ICOSA) - deployed in chapter three, four, five and six as academic organisation representing SST-2.

Inquest - used in chapter three and four as consultant organisation representing SST-2.

BOS Ltd - used in chapters three, four and five as a marginal client member of SST-2

AMI Ltd - used in chapters four and five as a marginal client member of SST-2

Glacier Metalwork - used in chapter six as original client member of SST-2.

Practices:

CPA - an assessment technique referred to as falling within SST-2, but locked out of the analysis.

Social Analysis - a method of inquiry deployed by SST-2 which involves 'going native'.

Ethnography - a method of social analysis deployed by SST-2 which avoids 'going native'.

CM - a form of construction organisation use by clients of SST-2

JCT - a form of construction organisation avoided by clients of SST-2.

APPENDIX ONE - EXECUTIVE SUMMARY FOR ICOSA:
AN ALTERNATIVE CODA TO THE THESIS

<div align="right">

Joanna ......
CRICT

</div>

Josephine ....
Research Fellow
ICOSA

Dear Josephine

Investigation of academic dissemination - executive summary

Enclosed is a copy of the summary report from our exploration of the culture of your group. This concentrates on identifying why you may have limited success with academic audiences and how you may go about addressing this problem you have identified for yourselves. As requested it is a brief account of the main findings of the research. Many apologies for the delay in sending this report. I have been so immersed in the writing of the thesis associated with this research, that it has been difficult to change my approach and write this brief summary in a way that it suitable for your needs. I think I am now clear of the constraints of my social studies of technology audience and trust the following makes sense. Please accept my apologies in advance if there is any excessive verbiage and do not hesitate to contact me should you need clarification on any point.

Present it to your boss in whatever form you consider appropriate - I am happy to be removed from the named authors should it help matters, or remain if you consider this appropriate.

Thank you for all your help in this investigation.

Yours

Joanna

INVESTIGATION OF ACADEMIC DISSEMINATION WITHIN ICOSA
EXECUTIVE SUMMARY

1. Background and Method

1.1 Members of ICOSA identified that their credibility with academic audiences was a problem for their continued existence and initiated a working party to investigate this problem. This research was undertaken in this context.

1.2 Ethnographic investigation of the working practices of various associates of ICOSA, who all use SST or CPA in some form, was undertaken to highlight what factors contributed to the lack of attention paid to these ideas within academia.

1.3 In particular, the discussions held and documents produced were analyzed to identify how academic audiences could potentially be better addressed.

2. Findings

2.1 Consultants using SST and CPA appeared to be able to present their ideas to potential clients in a fashion which gave space for employees of client organisations to understand and make sense of the applicability of the ideas put forward. They also appeared to be able to test the validity of these ideas in the context of their own experience and impact upon the emphasis given by the consultant in light of this experience. This was made evident both from the discussions observed (see chapter four) and in the marketing reports produced by consultants (see chapter five). This does suggest that users of SST and CPA do have the ability to communicate their ideas successfully to outsiders.

2.2 Analysis of the historical development of SST (see chapter six, section two) suggests that this capacity to communicate with potential clients was established at the outset, in that SST was developed from a set of original client concerns.

2.3 However, in the analysis of the published documents from SST (see chapter six, section one), it appeared that emphasis was placed in these documents upon accrediting a single author with 'ownership' of the model. This was manifested in citation practices which appeared to have little coherence and referencing which could be construed as excluding potentially interested academic parties.

3. Implications of the results

3.1 These results from the field observations and marketing documents, suggest that SST offers an appropriate set of problems in an appropriate form for client audiences.

3.2 However, the authoring practices observed within SST suggests that public domain documents offer no 'problems' for academics to engage with and in addition, breach the accepted form of presentation. SST therefore does not interest this potential audience.

3.3 SST practitioners are operating within a community of 'clients' and offer knowledge in the right form and of the right content to address what I have described as 'marginal' members. However, these marginal members receive attention at the expense of establishing a core of mutually interested investigators, which would be the characteristic of academic practice.

4. Potential solutions

4.1 It is first necessary to decide, in the light of this research whether continued emphasis on the 'marginal' audience is sufficient or whether users of SST wish to develop practices to address academic audience more successfully.

4.2 If the latter option is selected, this research would suggest that to generate an academic audience, it is necessary to produce a new set of writing practices and a particular grouping of colleagues, to raise questions about the content and methodologies used within SST.

4.3 Successfully implementing this option would also involve SST and CPA practitioners identifying the publishing practices of the audiences they seek to address and submitting this newly developed writing to the process of review. This review process allows the voices of the academic audiences to be incorporated into the work, hence making it more interesting and relevant to members of this selected audience when published.

Joanna Dodd
September 1994