

Rethinking Society and Space:  
Neighbourhood, Locality and Region in a  
Changing South Africa

by

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## Abstract

The central concern of the thesis is to develop concepts through which the relationship between society and space can be understood. It is argued that the concepts of society and space themselves need to be rethought. In fact deeply discontinuous processes are at the root of agency, society and space. These discontinuities are "patched over" by various narrative devices which allow for the emergence of coherent agents, social rules and homogeneous human space-times. Furthermore the processes by which this coherence emerges are fundamentally linked. Particular forms of agency are therefore linked to particular kinds of social system and particular patterns of space-time.

It is suggested that the connection between society and space can be understood from two interlinked perspectives - that of the *paths* of individuals and organisations and that of the *spaces* and times of interaction. These concepts are then used to analyse the processes of social and spatial change in South Africa.

It is argued that the discontinuous processes argued for in the theoretical section underpin the processes of change empirically observed. The spaces of apartheid were never as uniformly "black" or "white" as its architects would have liked. Furthermore other social processes were as important in shaping South African neighbourhoods, localities and regions. Indeed, it is the availability of these other models of interaction which gave the spaces of apartheid their discontinuous character.

The processes of social change can also be viewed from the perspective of changes in the projects and paths of South African agents. In particular it is argued that the emergence of new spatial actors (such as civic associations) had an important influence in determining the way that change occurred. The interaction of these actors led to the emergence of new capacities, new social rules and new spaces.

## **Acknowledgements**

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## **Declaration**

Except where explicitly indicated to the contrary, this study is the original work of the author. This dissertation has not previously been submitted in any form to another University.

# Dedication

This thesis is dedicated to Nozipho, Georgina and Jesse, who taught me more about what it is to be a human being than most academic treatises.

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# Introduction

To understand social change it is necessary to simultaneously comprehend its spatial underpinnings. This statement seems at one level so *obvious*. The system of apartheid has always been inextricably connected with a particular geography - the spaces of group areas, of influx control and of bantustans. A change in the social relations should therefore necessarily involve spatial processes.

This empirical observation is bolstered by an impressive corpus of theoretical literature arguing that spatial relations are integrally involved in the reproduction and transformation of social relations (e.g. Soja 1980, 1989; Harvey 1982, 1985a, 1985b, 1989; Sack 1980, 1986; Gregory and Urry, eds. 1985; Thrift 1983). Although the arguments presented in this literature are eminently persuasive, in the final analysis the connection between society and space still seems elusive.

The problem is not so much that it isn't clear that there is *some* connection, but that on reflection it becomes less and less clear what "society" and "space" in themselves mean. How then is it possible to understand the effect of "space" on "society" if one is unsure what "space" and "society" refer to in this context?

What started off as an attempt to comprehend the process of social and spatial change in South Africa therefore quickly slid into an investigation of some of the core concepts of social theory. The results of this process are presented below.

The central argument of the thesis is that concepts such as "agency", "society" and "space" are based on discontinuous processes. Furthermore, the process through which these discontinuities are "patched over" to constitute a human being as a unified *agent* is at root the same process as that which leads to the stitching together of a *social system* and homogeneous *space-time*.

The fact that the existence of concrete agents is inextricably linked to the existence of particular social relationships and particular kinds of spaces, means that those forms of social theory which posit "agency", "society" or "space" in the abstract, and then wonder how they can be brought into relationship with each other, are tackling the problem from the wrong end.

Indeed, one of the byproducts of decomposing the concepts of agency, society and space, is the realisation that each one of these concepts can also be thought of as layered. Agency, for example, turns out to be an achievement not only of individual human beings, but in the correct circumstances also a property of organisations. This in turn raises the possibility of finding agents within agents. Similarly it is possible to find social "sub-systems" within social systems and space-times within space-times. Furthermore, the interactions between collective agents is simultaneously also always an interaction between individual agents; similarly the most all-encompassing "macro-social system" is based on micro-social interactions; and global activity is also always local.

However, because of this nested structure, even the most all-encompassing forms of social order are based on the chaotic processes underlying the emergence of agency, social system and space-time and are thus vulnerable to disruption, reconstitution or transformation. It is this relationship between chaotic underpinnings and emergent order which helps to explain how both social stability and change are possible.

The relationship between change and continuity is, of course, of particular interest to a South African living and writing in the early 1990s, particularly one schooled in the resistance politics of the 1980s. Many of the certainties of that period have been overturned: the white ruling class did finally hand over power relatively peacefully; the overthrow of apartheid did not lead to the establishment of socialism; the eradication of poverty seems a distinctly longer term project. Momentous political changes have occurred but in other spheres of life there is the distinct impression that it is "business as usual".

The Marxist-functional theories which predominated in the anti-apartheid movements of the early 1980s ill-equipped people to anticipate any of these events or to deal with them effectively. This does not mean that the "liberal" individualist alternative is any more persuasive. Arguments that the requirements of a modern economy would inevitably undermine the racist resolve to cling onto power do not explain why change happened when it did, with the speed that it did, or with the particular form that it took.

Where structuralist accounts have difficulty in explaining change and innovation, individualist theories have problems in explaining the persistence of social relationships (particularly "irrational" ones). The mixture of change and continuity therefore presents problems to all kinds of social theories.

A profound dissatisfaction with the intellectual tools available for analysing *simultaneously* change and continuity was therefore one of the major impulses leading to the ideas expressed in this thesis. A second antecedent was a concern with the role of space and spatial relations. A close involvement with the local political terrain and research into the dynamics of neighbourhood change had convinced me of the importance of the spatial component of social change, but here again the intellectual tools bequeathed by the "localities" debate proved to be inadequate<sup>1</sup>.

The thesis is therefore focused on questions about the nature of agency, society and space; the relationship between necessity and contingency in social processes; the way in which individual projects and social interactions are structured in space-time; and others of equally abstract ilk. Although the questions may be abstract, the processes at issue are very real and intricately involved with the constitution, maintenance and transformation of power relations.

The thesis is structured into four parts. Part One deals with the concept of agency. The traditional, or Cartesian, model of the purposive agent is criticised and as an alternative, Dennett's model of "pandemonic" brain processes is outlined. This model of human consciousness can easily be transferred to organisational decision-making processes as well.

Part Two investigates the idea of society. The section begins with the contention that most forms of social theorising assume that the nature and structure of interactions is given or determinable prior to the interaction itself. This contention is challenged. It is argued that in Bhaskar's version of structuration theory it leads to an incipient dualism between agency and society which ends up negating the overt aim of structuration theory by writing the agent out of social analysis.

Taking agency seriously implies that social rules should not be thought of as mechanically applicable formulae, but rather as paradigmatic examples of behaviour. Rules therefore become, to some extent, context dependent - it is the particular set of roles and relationships within a particular situation which will suggest what rules become salient. Furthermore there is no guarantee that different people will see these in the same kind of way. Some semblance of social order is imposed on this process by the fact that human beings tend to interact continuously with particular groups of other individuals. Through various feedback processes some provisional consensus about acceptable and expected behaviour can emerge.

Part Three deals with the role of space. The discussion is initially contextualised by exploring some of the natural scientific treatments of space-time. Human space-time paths are then considered in more detail. It is argued that the idea of a body with a life-path is crucial to the constitution of a self and therefore of agency. The supposed continuity of lived experience is, however, not a given, but is constantly constructed and reconstructed out of shorter space-time path segments. To put it crudely, our life-path seems continuous because various discontinuities are stitched over in our memories.

Spatial and temporal relations also enter into the interactions between people. Defined spaces and times arise because they help to co-ordinate inter-personal projects. Through the whole structure of these, an abstract sense of space-time emerges - the sense of an individual as occupying a particular position within space (geography) and time (history). This position, in turn, is integrally bound up with the sense that one has of one's life-path and therefore of the kind of agent that one is.

Part Four attempts to put some flesh onto these issues within the context of South Africa. It is suggested that the social system of apartheid, and the racial agents that it required, were sustained by a network of spaces at the level of neighbourhoods, localities and regions. In line with the contention of the first three parts of the thesis, it is suggested that there were always dissident projects even within the most dominant forms of agency (such as the South African state); there were always dissonant social interactions; and there were spaces and times that were at variance with the dominant geography and history. When these contrary streams became amplified, it led to the reconstitution of agents, the social system and space-time.

The chaotic (or "fractal") underpinnings of South African spaces is therefore one of the strands which is explored. Another way of looking at this is that there were always more things "going on" within South African spaces than apartheid social theory would have suggested. For example, there were ethnic and class processes too. Other models of how people could (or should) interact were therefore also in place.

Paralleling the different kinds of agency and social processes occurring within South Africa's spaces, there have been different *theoretical* attempts to define neighbourhoods, localities and regions. Indeed, Part Four is organised around a reflection on some of these accounts.

It is argued that while these theoretical attempts all highlight important processes, they do not succeed in defining the object that they set out to pin down. Indeed, abstract definitions of neighbourhoods, localities and regions are not possible, precisely because of the fractal nature of human space-times and the consequent splicing and interlacing of different projects and social interactions.

Nevertheless (as residential apartheid showed) certain projects attempt to homogenise space in particular ways. Indeed, the organisation of a particular space *as an actor* (e.g. the nation-state, or a civic association) has important effects - on other actors and on social relationships. Spatial organisation can therefore be seen as intricately involved with the generation and contestation of *power*. Some of these issues are briefly explored in the South African context

and in Pietermaritzburg in particular.

The fact that there should be an intimate relationship between power and spatial actors is quite intuitive when approached within the framework presented above. If agency, social system and space-time are *necessarily* linked, then the genesis and existence of a particular form of agency is tied to particular kinds of space-time. If this space-time is destroyed, then the associated agent is destroyed. This suggests that conflict over spatial forms of organisation will be an inextricable part of any political conflict.

Part Four therefore extends the theoretical work done in the first three parts by placing the relationship between agency, social system and space-time into a dynamic framework. The necessity for doing so is that the achievement of agency, social order and a homogeneous space-time is not an individual one, but arises from various positive and negative feedback effects in the interaction of concrete individuals. This feedback can either confirm the salience of particular definitions of agency, society and space-time or serve to undermine it.

Through such feedback effects the inconsistencies and discontinuities can either be smoothed over, or they can be amplified until they lead to more global change. In this perspective macro-systemic change and micro-systemic change are not different kinds of things, but continuous with each other.

Some of the positions advanced in this thesis are, of course, quite congruent with various post-modernist positions: the idea of agents being constituted and reconstituted through various processes; that social order is not a simple given; that there are "subversive" spaces.

Nevertheless the fundamental thrust of the argument is not post-modernist in inspiration, because I do not want to leave the analysis at a simple deconstruction of the dominant categories. Ultimately the assumption is that *better* explanations of society are still possible and necessary. Abdicating responsibility for understanding what is happening in the world and where necessary agitating for changes, is a profoundly reactionary impulse in a context where

power is very unequally distributed<sup>2</sup>.

The position from which this particular thesis departs is the kind of "critical realism" popularised by Bhaskar. Since this is no longer the most fashionable kind of position to adopt, it is probably necessary to sketch out the core arguments and show how they can be defended against or differentiated from some of the leading other contenders. This is done in an addendum to this introduction.

In conclusion, the thesis aims to present a new set of images and metaphors for looking at society. Instead of the image of the "billiard ball" universe in which human atoms bounce against each other under the control of social "forces", it presents a picture in which complex (as opposed to simple) constituents interact with each other in complex, discontinuous and often surprising ways.

## Addendum: Philosophical underpinnings

The approach of the thesis is based on the assumption that the following broad propositions are defensible:

1. There is a (natural and social) reality, which is (in a sense to be explored) knowable.
2. The existence of this reality is independent of its knowledge by the theorist.
3. All items of knowledge are provisional and revisable.
4. The processes by which our knowledge of reality changes, is a social one, involving critiques of existing concepts, but is ultimately justified with reference to experience.
5. The task of the social scientist is ultimately not merely that of interpreting the world, but of helping to change it.

These propositions are based on the position that Bhaskar describes as "critical realism". However it is not sufficient to simply assert that the project of rational explanation is still viable, or indeed, that it is the only *possible* project for social science. This requires an argument, if only a brief one. In particular it is necessary to distinguish the position above from that of empiricism (and its positivist variant) and to show in what way it can deal with some of the post-modernist challenges.

### Anti-empiricism

The cornerstone of the empiricist project is the attempt to deal with the problem of Cartesian doubt by finding a solid basis for knowledge. This is done by attempting to ground knowledge in primary sense experience. This equating of experience with reality has been termed the "ontic fallacy" by Bhaskar:

It consists of the effective ontologization or naturalization of knowledge, the reduction of knowledge to being or its determination by being, in what may best be regarded as a species of *compulsive belief-formation*. (1989, p.157)

Critical realism accepts that there is no basis for knowledge which is simply "given" or determined by reality. All processes of acquiring knowledge involve interrogating reality on the basis of conceptual schemata (some of these will be "wired" into our brains) and theories.

Besides the idea that knowledge can be firmly embedded in reality (i.e. without being subject to sceptical doubt), empiricism also commits what Bhaskar calls the "epistemic fallacy", which is the belief

that ontological questions can always be reparsed in epistemological form: that is, that statements about being can always be analysed in terms of statements about our knowledge (of being). (1989, p.13)

A good example of this fallacy is Hume's rejection of natural necessity, because the necessary connection between cause and effect is not given in experience:

When we look about us towards external objects, and consider the operation of causes, we are never able, in a single instance, to discover any power or necessary connexion; any quality, which binds the effect to the cause, and renders the one an infallible consequence of the other. We only find, that the one does actually, in fact, follow the other. (Hume 1975, p.63)

Because all that we *know* from experience is that one event follows the other, this is the only reality that exists.

Empiricist and positivist accounts of science have inherited this Humean account of causality. Consequently an important component of such theories has been the interpretation of scientific explanation in terms of the deductive-nomological model (Hempel 1966, pp.49-54). This model states that the endeavour of science is to subsume particular events under ever broader natural laws. The structure of a particular explanation will involve the deduction of the particular outcome which is to be explained from the general law and statements describing the initial conditions.

A feature of the deductive-nomological model is that there is in principle no difference between the *explanation* of a particular event (after the fact) from its *prediction*. Both involve

this subsumption of event-statement under general laws.

The empiricist view of science can therefore be characterised as involving the following key assumptions:

1. The task of science is to explain the occurrence (or non-occurrence) of particular *events*.
2. Causal explanation takes the form of showing that there is a constant conjunction of particular kinds of events.
3. Science is the process of establishing ever more general laws, i.e. regular patterns in the sequence of events.
4. Scientific explanation involves subsuming the description of a particular event under a general law.
5. Explanation is equivalent to prediction.

Bhaskar has argued that this empiricist account cannot make sense of key components of scientific practice, in particular, *experimentation*. This practice only makes sense if it is assumed that the causal connections which are isolated in the laboratory are also operative outside (Bhaskar 1978, pp.33ff). Why experiment if constant conjunctions of events are simply given? But, Bhaskar argues, outside the laboratory, constant conjunctions do not occur as a rule. For example, objects that are lifted from the surface of the earth do not always fall back - satellites, for example, remain in orbit. The purpose of laboratory conditions is to eliminate the operation of forces that will counteract the particular causal interaction that is under investigation. This shows, however, that a distinction has to be made between the constant conjunction of events (produced and observable only in the laboratory) and the causal processes which underlie them (and which are assumed to operate also in non-experimental situations).

There are two further points that Bhaskar draws from this argument. Firstly, a distinction needs to be made between *open* and *closed* systems. In closed systems - such as those produced in the laboratory - the causal mechanisms will always produce the same effects

because the operation of other confounding causal mechanisms have been excluded. In open systems - where many different causal mechanisms operate simultaneously - a particular causal mechanism may or may not generate a particular outcome. This does not mean that the causal mechanism is no longer operative, e.g. gravity does not cease to operate on a plane when it is airborne! The second point flows from this. Bhaskar argues that causal laws should be interpreted as *tendencies* rather than constant conjunction of events (Bhaskar 1978, p.50).

If causal laws describe the operations of *mechanisms*, which continue to operate even if they are not observed or experienced to be operating, what sort of entities are those? Bhaskar argues that generative mechanisms exist as the causal powers or liabilities of things (1978, p.50). In other words, causal laws describe the ways in which real objects behave (Harré and Madden 1975). Now objects behave the way they do, because they have a certain *nature* - e.g. dynamite has a liability to explode because of its chemical structure.

Bhaskar argues that this indicates that reality should be understood as stratified. The identification of a causal mechanism at one level (e.g. dynamite when lighted will explode) involves a reference to the nature of the object concerned. The explanation of why this nature (i.e. the chemical structure of TNT) should produce the causal effects that it does will in turn be explained with reference to the causal powers and liabilities of more elementary objects.

Furthermore it needs to be noted that since the explanation of the behaviour of objects is grounded in their nature, this connection must be understood to be a *necessary* one - e.g. it is necessary that dynamite should explode (given the right circumstances); if it did not have this liability it would not be dynamite. In this way realism allows for a distinction to be drawn between constant conjunctions of events which are accidentally produced and those which are the result of causal factors, whereas Humean empiricism fails to sustain such a distinction.

Once it is conceded that the purpose of science is to understand the operation of real causal mechanisms (whether they are *experienced* to be operating or not), the question arises as to

how we obtain knowledge of these. Bhaskar argues that:

Typically the construction of an explanation for, that is the production of the knowledge of the mechanisms of the production of, some identified phenomenon will involve the building of a model, utilizing antecedently existing cognitive resources (not already employed in the description of the domain in question) and operating under the control of something like a logic of analogy and metaphor, of a mechanism, which *if* it were to exist and act in the postulated way would account for the phenomenon in question (a movement of thought which, following Hanson, may be called 'retroduction'). The reality of the postulated mechanism must then, of course, be subjected to empirical scrutiny. (1989, p.19)

Bhaskar's analysis thus separates what he calls the *intransitive dimension of science* - i.e. the real objects and mechanisms which science seeks to discover - from the *transitive dimension*, which consists of our theories and concepts with which we try to understand reality. Critical realism asserts the non-identity of these dimensions. Furthermore, the transitive dimension does not "mirror" or "correspond" in a simple way to the intransitive one. Indeed Bhaskar suggests that:

[Critical realism] entails acceptance of (i) the principle of *epistemic relativity*, which states that all beliefs are socially produced, so that all knowledge is transient, and neither truth-values nor criteria of rationality exist outside historical time. But it entails the rejection of (ii) the doctrine of *judgmental relativism*, which maintains that all beliefs are equally valid, in the sense that there can be no rational grounds for preferring one to another. (Bhaskar 1989, pp.23-4)

On the basis of this analysis of scientific practice, Bhaskar argues for *naturalism*, i.e. the thesis that the social sciences can be scientific in exactly the same way as the natural sciences, although the subject matter and methods of investigation of the former differ from those of the latter (1979, p.3). He states that:

[T]he essential movement of scientific theory will be seen to consist in the movement from the manifest phenomena of social life, as conceptualized in the experience of the

social agents concerned, to the essential relations that necessitate them. (1979, p.32)

The details of how Bhaskar argues this position will be explored further in Chapter 3.

For the moment the critical realist position can be summarised as follows:

1. Critical realism depends on a *thing*-ontology rather than an *event*-ontology. The task of science is to understand the way in which things (e.g. particles, fields, organisms) behave and interact.
2. Causal processes are grounded in real mechanisms. The link between cause and effect is a necessary one, but only in closed systems will there be a constant conjunction between cause and effect.
3. Science is the process of moving from observed patterns to the mechanisms and structures which produce them. This is a social process and never yields final and complete knowledge.
4. An event is explained if it is possible to show how it was produced through the operation of certain causal mechanisms.
5. Explanation is possible without prediction.

### **The problem of reflexivity**

The attempt to ground knowledge that is evident in the empiricist project has come under attack from "postmodernist" theorists as well. The key point that has been made is that there is no such thing as unmediated knowledge - there are no elementary "given" facts or experiences. This has been expressed in different ways by different theorists. Rorty, for example, attacks the correspondence theory of truth. He argues that to say that a statement is true because it corresponds to reality, is not any more enlightening than to simply say that it is true. The problem of the correspondence theory of truth is that it assumes that we can talk about *why* certain statements are true. This, however, assumes that we have an objective position from where we can survey both our statements, theories and conceptions and the world "in itself", to see if they match or do not. The problem is that this judgement about

whether there is a correspondence or not will in turn be based on our theories and conceptions. As Rorty argues:

[We must be careful not to suggest] that one can separate the tool, Language, from its users and inquire as to its "adequacy" to achieve our purposes. The latter suggestion presupposes that there is some way of breaking out of language in order to compare it with something else. But there is no way to think about either the world or our purposes except by using our language. ... It is impossible to step outside our skins - the traditions, linguistic and other, within which we do our thinking and self-criticism - and compare ourselves with something absolute. (1982, p.xix)

A related point is made in Derrida's philosophy. He argues that signs cannot refer to something completely other than themselves, i.e. they are not transparent. Expressed in the concepts of semiology: there is no signified which is independent of the signifier (Lawson 1985, p.98). Because no pure meaning (or pure reference for that matter) can be distilled from the sign, "Derrida opens up the vista of an endless play of signifiers, that refer not to signifieds but to other signifiers" (ibid). As the meaning of a sign is generated in relation to the web of other signifiers, Derrida makes the claim that 'there is nothing outside of the text'.

This claim has a wider meaning than simply to say that in the reading of a text we should not take into account anything extraneous. For Derrida would wish to say of life 'there is nothing outside of the text'. There is nothing beyond the play of differences of the signifiers. There is no 'real' experience, no pure consciousness. At an ontological level there is no realm that does not lie within the play of the signifiers. (Lawson 1985, p.106)

Because we cannot talk about our relationship to the world from a point outside language, i.e. the interplay of signifiers, the "underlabouring" project of Western philosophy as evidenced in the work of Hume and Kant is deeply problematic. The aim of this project was to provide secure foundations for scientific practice. In the work of Kant, for example, it involved an attempt to establish the way the world had to be for it to become an object of knowledge for us. Nevertheless the argument that our relationship to the world has to take a particular form

is itself an assertion about the world and must therefore presumably be subject to the argument. In other words, the theory needs to be able to theorise itself.

This problem of reflexivity has been encountered constantly in Western philosophy (Lawson 1985). It has been a very obvious failing in accounts such as those given by the young Wittgenstein in the *Tractatus Logico-Philosophicus*. In this work Wittgenstein attempted to draw a limit to thought, or rather - not to thought, but to the expression of thoughts: for in order to be able to draw a limit to thought, we should have to find both sides of the limit thinkable (i.e. we should have to be able to think what cannot be thought). It will therefore only be in language that the limit can be drawn, and what lies on the other side of the limit will simply be nonsense. (Wittgenstein 1961, p.3)

In attempting to draw the limits between sense and nonsense, however, Wittgenstein ended up with a theory, which itself transgressed those bounds, as he himself acknowledged:

My propositions serve as elucidations in the following way: anyone who understands me eventually recognizes them as nonsensical, when he has used them - as steps - to climb up beyond them. (He must, so to speak, throw away the ladder after he has climbed up it.) (1961, Proposition 6.54 p.74)

Even accounts which do not attempt anything as grand as laying down the overall contours of truth and falsity, sense and nonsense, knowledge and non-knowledge and which acknowledge their own limitations run into problems of reflexivity. For example, the statement that "all knowledge is transient and limited" seems to make an absolute and unlimited claim itself. Similarly the idea that "all knowledge is produced within a social context" is itself an assertion which is produced within a particular social context.

There are various ways of attempting to deal with this pervasive phenomenon. The most radical response can be seen in the works of Nietzsche, Heidegger and Derrida, who embrace it and allow it a central place in their theories (Lawson, 1985). This accounts for the somewhat paradoxical nature of their writings. Ultimately, however, it is not tenable to remain trapped within the confines of reflexivity. As Lawson argues:

To remain in the self-denying chaos generated by the *paradoxes* of reflexivity is not merely uncomfortable, but unsustainable. For the vortex annihilates all meaning. As a result those who have written in recognition of the impact of reflexivity can sometimes give the impression of an excessive self-consciousness, in which the text either appears to deny that which it asserts, or engages in systematic qualification - one might say hedging - to avoid making any assertions at all. (1985, p.125)

There are other ways of dealing with the problem of reflexivity, without placing it at the centre of one's writings. Rorty, for example, refuses to be drawn into a discussion about what constitutes "Truth":

When [pragmatists] suggest that we not ask questions about the nature of Truth and Goodness, they do not invoke a theory about the nature of reality or knowledge or man [sic] which says that "there is no such thing" as Truth or Goodness. Nor do they have a "relativistic" or "subjectivist" theory of Truth or Goodness. They would simply like to change the subject. (1982, p.xiv)

In simply talking about beneficial and non-beneficial ways of speaking, Rorty dodges the reflexive moment. Presumably he would think it *beneficial* to assert that there are topics that we should avoid (that is why he is making the statement), but he does not have to explain why it is beneficial other than the fact that it avoids paradox, i.e. he does not have to *ground* his assertion by any appeal to the ultimate nature of Reality or Truth.

This Rortian manoeuvre helps to highlight what is wrong with the problematic of reflexivity. The central concern of Western philosophy, as evidenced in the work of Descartes, Hume and Kant, was to establish an indubitably certain foundation for knowledge. A key assumption in this enterprise was that statements such as "The sun is rising" are either TRUE or FALSE. TRUE statements were assumed to be true for all time and at all places. The problem of epistemology therefore was to establish what kinds of statements were TRUE, and how we could obtain KNOWLEDGE of them. The items of KNOWLEDGE obviously had to be TRUE and therefore unrevisable.

Attempts to delineate the borders between TRUE and FALSE statements clearly ran foul of the problem of reflexivity, because statements such as

Only statements based on sense-experience are TRUE,

or Sense-experience is the only source of KNOWLEDGE,

immediately invite the question whether they are TRUE or how we can KNOW them. However, if we abandon the assumption that there are two separable domains of statements (into TRUE and FALSE) or that KNOWLEDGE is absolute and non-revisable, the problem of reflexivity becomes more tractable.

This can be seen by considering the statement "The sun is rising" again. In the absolutist version, this statement would have to be irrevocably TRUE or FALSE. As a matter of fact, the statement would probably have to be judged FALSE, because a statement such as "The earth's rotation is now at a point where the sun becomes visible to an observer in place X" would have to be judged TRUE instead. The fact that the assertion "The sun is rising" is not TRUE, does not mean that it isn't true, in the common-or-garden sense. The fact that one wishes to deny the usefulness (or the existence) of the distinction between TRUTH and FALSITY does not mean that there is no truth or falsity<sup>3</sup>.

The dedicated postmodernist might try to use the reflexive argument at this stage and say that the claim

(1) It is not useful to talk about TRUTH and FALSITY

itself makes an absolute assertion. The critic would therefore suggest that I am committed to the position that

(2) It is TRUE that it is not useful to talk about TRUTH and FALSITY.

This is, however, not the case. I *am* committed to the position that

(3) It is true that it is not useful to talk about TRUTH and FALSITY,

but if I am asked whether statement (1) is TRUE or FALSE, I would simply repeat that this distinction is not useful, and if the interlocutor were to persist with the line of questioning, I would have to adopt the Rortian manoeuvre of changing the topic of conversation.

In other words, the problem of reflexivity only arises if one is already committed to the distinction between TRUTH and FALSITY. If one refuses to do so, no paradox arises. The reason why this solution has been baulked at by other philosophers, is that it means abandoning the idea of KNOWLEDGE. However, just as it is possible to have true statements without TRUTH, it is possible to know things without KNOWLEDGE. Similarly, Derrida's argument that signs are not transparent, establishes that it is not useful to talk about REFERENCE (in the sense of an unambiguous immediate process of bringing the signified into focus). This does not, however, mean that we cannot refer to the world.

The postmodernist challenge shows (by means of *reductio ad absurdum*) that TRUTH, KNOWLEDGE and REFERENCE are not useful concepts. This does not show, however, that there are not true statements, that we cannot know things or refer to the world. The establishment of truth, knowledge and reference will always be provisional and revisable, rather than final achievements, but no less real ones for all of that. In refusing to acknowledge this, postmodernism remains curiously trapped in the thrall of TRUTH, KNOWLEDGE and REFERENCE.

Indeed, the problem goes deeper than this. Postmodernism emphasises the reflexive moment, i.e. the fact that we cannot think about the world outside our own thought patterns, language and culture. It argues that traces of the author cannot be expunged from the text - our view of the world is precisely that: a view from a particular position. This insight has, however, been taken too far, for example, in Derrida's insistence that "there is nothing outside the text". This is an example of what Bhaskar has termed the epistemic fallacy, i.e. the fallacy of assuming that statements about reality can always be analysed in terms of our knowledge of reality. The fact that we know about the world as a result of our experience does not imply that there would not be a world in the absence of our experience; because we understand and think about the world in the terms of the play of signifiers within our language, it does not mean that there is no world outside this play of signifiers. It does not even mean that we cannot talk or think about the world in the absence of human beings (e.g. in prehistory). As Bhaskar notes in a critique of Rorty:

A picture has indeed held philosophy captive. It is the picture of ourselves or our insignia in any picture - the picture as invariably containing our mirror-image or mark. Philosophical post-narcissism will be evinced in our capacity to draw non-anthropomorphic pictures of being. (1989, p.147)

## Knowledge and Power

The problem of reflexivity has emerged in yet another guise. Foucault has argued that the way in which disciplinary boundaries work, the way in which statements are assessed within particular disciplines as being "true" or "false" is not neutral with respect to power within the society. Indeed, he goes so far as to argue that:

The important thing here, I believe, is that truth isn't outside power, or lacking in power: contrary to a myth whose history and functions would repay further study, truth isn't the reward of free spirits, the child of protracted solitude, nor the privilege of those who have succeeded in liberating themselves. Truth is a thing of this world: it is produced only by virtue of multiple forms of constraint. An it induces regular effects of power. Each society has its regime of truth, its "general politics" of truth: that is, the types of discourse which it accepts and makes function as true; the mechanisms and instances which enable one to distinguish true and false statements, the means by which each is sanctioned; the techniques and procedures accorded value in the acquisition of truth; the status of those who are charged with saying what counts as true. (in Rabinow, ed. 1984, pp.72-73)

This passage seems to make almost a structuralist point along the lines that truth or otherwise of a statement is *determined* by society. Now clearly the way in which science operates as a social process conditions who is recruited into the ranks of science professionals, what sort of questions are deemed to be scientifically interesting, and the standards according to which scientific production is tested by peer review. That this has a major effect on what is regarded as scientifically established is clear. It is demonstrated, quite admirably, for example, in

Gould's study of the "science" of craniometry and intelligence testing (Gould 1981).

What Foucault's argument points to is a twofold way in which society conditions "truth":

- (1) It determines the relative weight that different pronouncements about the nature of the world will carry. For example, in modern societies the assertions by people labelled "scientists" will carry more weight about the way in which the cosmos functions than those of "priests".
- (2) It affects how the enterprise of "science" itself is carried out.

Despite the undoubted "truth" of this argument, this does not establish that the truth of a statement is itself determined by society. To put it another way, even if social practices act as blinkers or even distort the way that reality is perceived, at the end of the day there is still a process of perception involved. It is because of this fact that the troublesome anomalous cases exist. Preconceptions and ad-hoc arguments may help to explain such anomalies away (as Gould shows in the case of craniometry), but their existence also lays the basis for scientific contestation and change.

Foucault's argument therefore does not establish the inevitability that "truth" has to reflect dominant interests. As in the earlier discussion, the fact that there is no non-ideological or innocent truth, does not mean that there is no truth, i.e. that there are more adequate or more beneficial ways of talking about reality than others.

## Conclusion

The postmodernist challenge, particularly in the form posed by Foucault, needs to be taken seriously. Truth and science are not innocent and the intellectual, theorist or scientist has to constantly ask herself how the enterprise that she is engaged in relates to the dominant forms of power in the world. This is, however, not a question that the theorist herself can answer with finality - that would involve the impossible task of establishing the limits of her own

thought.

The work tackled in the rest of this thesis is therefore presented with the requisite amount of humility - I do not claim that it is TRUE, but certainly do regard it as being true. The intention of the thesis is to develop concepts which allow us to speak in more beneficial or adequate ways about reality than competing theories do. This does not mean that it will be the last word on the subject.

Nietzsche, in trying to grapple with this same problem of wanting to assert the limitations of his own work but committed to the problematic of TRUTH gave this injunction to his disciples (by way of his spokesperson Zarathustra):

Verily I beseech you: depart from me, and guard yourself against Zarathustra! And better still be ashamed of him! Perhaps he had deceived you... (cited in Lawson 1985, p.7)

I am in the more fortunate position of not having to expect complete acceptance or complete rejection in offering this work up for critical appraisal.

### Notes:

1. The work on local politics and local change is contained in my M.A. Thesis (Wittenberg, 1991).
2. Of course the judgement that power is very unequally distributed is an assessment based on particular theoretical assumptions!
3. It should be noted that the fact that one wishes to deny the usefulness of the distinction between TRUE and FALSE statements, does not necessarily mean that one wishes to deny the law of the excluded middle - i.e. if one asserts that a particular statement is true one is thereby committed to asserting that its negation is false. The fact that one concedes that the statement is true, rather than TRUE and therefore that the negation is not FALSE, does not mean that one is not committed to asserting that the negation is, indeed, false.

## Part One: The fractious self

The actions of creative individuals must clearly be placed at the centre of any account that attempts to explain social and spatial change of the order that South Africa has experienced. Nevertheless the concept of agency has proved problematic in a lot of social theory. In structuralist accounts, for example, the active individual has simply been written out of the record. Instead individuals have been interpreted as "Träger" or bearers of social relations, i.e. pawns of broader social forces. In the case of certain brands of Marxism this attitude has been exacerbated by a crude form of materialism which insists that blind causal processes are the only operative forces in nature and in history.

Such attempts to dispense with agency run into the reflexive problem of accounting for how they themselves originated. Structuralist theories clearly did not simply get written by blind historical processes! At least, it would be difficult for any author (including the author of this thesis) to take the view that their particular work had to be written in its particular form as a matter of *necessity*.

The fact that each of us undoubtedly has the experience of being in charge of our own projects, and that the way in which we act makes a difference to societal developments, has led to accounts in which the concept of agency becomes privileged. Rational choice theories, for example, simply take agency for granted. This, however, introduces the problem of accounting for the origin of this creativity. After all, human beings do not emerge as fully fledged agents on this earth. We learn to act in particular ways and are influenced by the prejudices of our parents and society.

An adequate theory of agency must therefore satisfy the twin requirements of being true to the feeling that we are in charge of our own lives, while at the same time showing how agency *emerges* as a result of various causal processes. A third requirement that may be added to these, is that this theory should be congruent with what we know about the functioning of human brains. This task will be attempted in this section.

In the first chapter it is argued that the Cartesian view of agency, which lies at the core of rational choice theories, for example, is not tenable. Instead, Dennett's pandemonium theory of brain processes is presented. Dennett argues that the essence of neural working is that various bits of information processing all occur in parallel. There is therefore no single source or origin of human decision-making within the brain.

He suggests that, in fact, the brain should be thought of as an unruly coalition of different neural processing centres. While many features of cognition and decision-making can be explained in these terms, it does not seem to explain consciousness, particularly since the latter feels like a "flow" rather than a multiply branching process. Dennett argues that consciousness is, in fact, intricately bound up with "auto stimulatory" processes. In a sense it is the brain *talking to itself*.

One of the purposes of "talking to oneself" is to remind oneself of who one is and what one is doing. Agency and the self therefore emerge as features of the internal feedback loops between neural processing centres. Dennett describes the "self" as a narrative fiction - nevertheless as a fiction which has very real effects, because it lays the basis for longer term purposive action.

In the second chapter, it is argued that this account of agency can be transferred almost wholesale to organisations. Provided that the organisation in question has the requisite internal communication process, we can legitimately ascribe certain forms of agency to it.

This, however, implies that there are emergent effects of social interactions which cannot be predicted from the separate preferences or projects of the constituent members. This immediately introduces a dynamic element into the analysis. The possibility of change is, of course, implicit in this account in any event, since the "pandemonic" decision-making processes underpin the emergence of individual (and hence also of collective) agency.

## Chapter 1: The emergence of agency

Given that I wish to defend a version of materialism (realism), this chapter will be concerned with elaborating a concept of agency that can account for our subjective experiences, but at the same time shows how consciousness emerges out of the operations of various causal processes. In the process it will be argued that our intuitive concepts of agency are fundamentally flawed. Instead of the agent being "given" as a coherent entity with coherent preferences and projects, agency arises out of chaotic internal debates between different parts of our brain. The appearance of coherence is partially due to subsequent readings that we impose on this process and partially due to the fact that certain coalitions of these brain centres manage to keep control of our activities for long enough to make the idea of a unified agent convincing.

To reach this conclusion, I will first present in sketch form the canonical view of agency, which is illustrated quite clearly in "Rational Choice" theories of society. I will then argue that the assumptions on which this view of agency is based are fundamentally flawed and will then present an alternative view, based on Dennett's work (1993).

### Rational Choice Theories

These theories are based on the idea that many (if not most) social interactions can be explained on the basis of strategic choices made by individuals. These choices should be thought of as maximising the "utility", i.e. the expected benefits, to the individual based on that person's set of preferences.

There are two key assumptions underlying this approach. Firstly, it is supposed that at each point in time there is a well-defined and well-behaved<sup>1</sup> set of preferences. The importance of this assumption can be seen by imagining that two "agents", say Bob and Jane, with widely

differing preferences co-exist in the same body. Each time a decision has to be made Bob and Jane fight about whose preferences will determine the decision. As a result of this the body in question will be seen to be making very inconsistent decisions, depending on who is in charge. Indeed, there may even be situations in which no clear decision can be made, because there is no clear winner! In this situation Rational Choice Theory would not be very useful, because even full knowledge of the preferences of Bob and Jane would not be sufficient to predict or explain particular decisions.

Secondly, Rational Choice Theory assumes that preferences exhibit stability over time. It is not necessary that they remain constant (indeed, Elster countenances changes in them), but if the set of preferences were to change too drastically or capriciously, Rational Choice Theory would cease to have explanatory power.

Underpinning the idea that preferences are coherent and relatively stable is the common-sense notion that each human body corresponds to a "person", i.e. a coherent entity that *has* certain preferences (but not others) and that persists over time. This concept seems completely natural particularly because it corresponds to our understanding of ourselves. It is self-evidently clear that *I* am an agent with well-defined preferences and that *my* actions are the result of choices which *I* have made as a result of these preferences.

The idea that there is a "self" resident in us who perceives things, knows certain facts, desires various objects or states of affairs and plans and executes actions to achieve these is fundamental to virtually all Western philosophy. When Descartes persuaded himself that he could doubt the existence of the world or even the existence of his body, the one fact that he could not doubt was the existence of the "I" which was doing this thinking - "cogito, ergo sum".

Despite this impressive pedigree, Dennett has persuasively argued that the concept of the Cartesian self is incoherent (1993; see also Hofstadter and Dennett 1982). A key problem of

Cartesianism is to work out how the self relates to the human body. If it is interpreted as being a "mind" which is distinct from the body, this leads to the "body-mind problem" which has exercised Western philosophy for the last few centuries. If it is accepted that the mind is not distinct from the brain, the problem becomes how to localise the Cartesian self within the body.

Intuitively this does not seem to present any problems. We just need to be able to trace through the paths of perceptual input from the "outside" right through to the point at which this input becomes available as conscious information to the person and before it is used in decisions (e.g. to move one's limbs) which then are communicated via another set of neural channels to the outside. The "self" would be located wherever the channels of input terminate and the output channels begin.

The power of this picture is based on the fact that we clearly *do* distinguish between *ourselves* and the *outside* world on the basis of where this information processing happens. As Dennett points out:

The naive boundary between "me" and "the outside world" is my skin (and the lenses of my eyes) but, as we learn more and more about the way events in our own bodies can be inaccessible "to us", the great outside encroaches. "In here" I can try to raise my arm, but "out there," it has "fallen asleep" or is paralyzed, it won't budge; my lines of communication from wherever *I* am to the neural machinery controlling my arm have been tampered with. And if my optic nerve were somehow severed, I wouldn't expect to go on seeing even though my eyes were still intact; having visual experiences is something that apparently happens *inboard* of my eyes, somewhere in between my eyes and my voice when I tell you what I see. (1993, p.108)

Nevertheless Dennett argues that the image of the "self" as the terminus of neural processes is incorrect. Indeed, there is no such end point.

## Dennett's Multiple Drafts Model of Consciousness

The alternative to this Cartesian terminus is Dennett's "Multiple Drafts model" of consciousness, which he sketches out as follows:

According to the Multiple Drafts model, all varieties of perception - indeed, all varieties of thought or mental activity - are accomplished in the brain by parallel, multitrack processes of interpretation and elaboration of sensory inputs. Information entering the nervous system is under continuous "editorial revision." ... These editorial processes occur over large fractions of a second, during which time various additions, incorporations, emendations, and overwritings of content can occur, in various orders. We don't directly experience what happens on our retinas, in our ears, on the surface of our skin. What we actually experience is a product of many processes of interpretation - editorial processes, in effect. They take in relatively raw and one-sided representations, and yield collated, revised, enhanced representations, and they take place in the streams of activity occurring in various parts of the brain. (1993, pp.111-2)

As a model of how neural processing occurs, Dennett's account is not exceptional. It is well known, for example, that different aspects of visual perception are processed separately. There are, for example, specialised areas in the visual cortex dealing with colour, form and motion (Zeki 1992). Where Dennett's model diverges from other accounts which are still under the influence of a residual Cartesianism, is that he argues that there is no need for these separate discriminations to be put together again to create a whole picture somewhere else in the brain:

[O]nce a particular "observation" of some feature has been made, by a specialized, localized portion of the brain, the information content thus fixed does not have to be sent somewhere else to be *rediscriminated* by some "master" discriminator. (1993, p.113)

This seems to be a counter-intuitive idea. After all my visual perception of the book shelf in

front of me is undoubtedly a unified one. I see it as a brown, stationary, oblong object with various coloured rectangles (books) on top of it. I am not conscious of perceiving the brownness separately from the shape. Nevertheless the idea that these separate discriminations have to be recombined somewhere in the brain to give a holistic picture is based on a false image. It is the Cartesian image of a little agent sitting somewhere inside our head that is doing the perceiving. The problem with this image is that it doesn't resolve the paradox of perception, it just defers it by one step, because how does the Cartesian observer perceive the picture? Presumably the Cartesian self must somehow have an internal representation of the picture which is how it is able to perceive its unity. This means that that picture must be somewhere inside the Cartesian observer and again the different aspects of the picture will need to be brought together - to be unified by yet another observer within the observer<sup>2</sup>.

The fact that the individual bits of neural processing are not reassembled, does not mean that they just stay where they are. Instead, they become available to other processing centres of the brain as sources of input - to generate new or revise existing information. The activation of the motion detection centres of the visual cortex may, for example, stimulate the motor cortex which in turn instructs the eye muscles to move to get the stimulus which triggered this perception into clearer focus. If it seems clear that the object in question couldn't have moved, the original perception is revised. Similarly, the shape and colour discrimination centres may activate the conceptual centres of the brain which in turn may stimulate the vocal cords to mouth "bookshelf".

The question still remains as to how all these different parallel neural processes relate to our experience of consciousness. Dennett argues that the onset of a particular content-fixation does not mark the onset of consciousness of the content concerned. Instead it is an open question whether any particular content that is discriminated will eventually appear as an element in conscious experience.

These distributed content-discriminations yield, over the course of time, something *rather like* a narrative stream or sequence, which can be thought of as subject to

continual editing by many processes distributed around in the brain, and continuing indefinitely into the future. This stream of contents is only rather like a narrative because of its multiplicity; at any point in time there are multiple "drafts" of narrative fragments at various stages of editing in various places in the brain.

Probing this stream at different places and times produces different effects, precipitates different narratives from the subject. If one delays the probe too long (overnight, say), the result is apt to be no narrative left at all - or else a narrative that has been digested or "rationally reconstructed" until it has no integrity. If one probes "too early," one may gather data on how early a particular discrimination is achieved by the brain, but at the cost of diverting what would otherwise have been the normal progression of the multiple stream. Most important, the Multiple Drafts model avoids the tempting mistake of supposing that there must be a single narrative (the "final" or "published" draft, you might say) that is canonical - that is the *actual* stream of consciousness of the subject, whether or not the experimenter (or even the subject) can gain access to it. (1993, p.113)

## The Pandemonium Theory of Speaking

The Multiple Drafts model explains how our perceptual experience is possible, even in the absence of a Cartesian observer. In the case of actions, however, the model does not yet look convincing. After all, we often do have the impression that *we* decide to do certain things and then do them. If there is no Cartesian self, where is the locus of this decision-making?

Dennett, in discussing the generation of speech acts, contrasts two models, the "bureaucratic" and the "pandemonium" theory of speech production (1993, Chapter 8). The former assumes that there is a Cartesian self that decides to make a particular pronouncement. This decision is then communicated to the various speech control centres in the brain where the words and the sounds that will make up the utterance are finally assembled. The features of this account

are that (1) the content of the speech act is fully determined by the Central Conceptualiser; and (2) because the entire *meaning* of the utterance is already fixed, the subsequent layers of neural processing cannot add or deviate from it (otherwise the Cartesian self would not be the only place at which decision-making about content occurs). This means that the flow of subsequent processing must be construed as the mere execution of commands already decided upon. The task of such sub-routines would simply be to find the most appropriate means to give effect to an executive decision.

The problems with this account are twofold. In the first instance, there is a question about how the Conceptualiser relays the decision to the next layer in the bureaucratic chain of command. If the message is already formulated in English, this clearly leaves the subsequent processing steps with nothing to do. This means that the content of the thought has to be fixed in some other way, say in Mentalese. This, however, raises the question how the Conceptualiser gets to find the right expressions in Mentalese to fix the content of the utterance which is in the process of being generated. Clearly we are on the verge of an infinite regress here, with Conceptualisers within Conceptualisers.

The second problem lies in the way in which the decision to speak is translated into the actual utterance. Since the entire *meaning* of the utterance is assumed to be fixed by the Cartesian self, the subsequent steps of neural processing have to be thought of as happening purely mechanically - in terms of some fixed program or set of instructions. This, however, contradicts our sense that the process of putting our thoughts into words is perhaps the most creative part of the entire exercise.

The Pandemonium Theory is offered by Dennett as an alternative way of looking at the problem of speech-generation. He asks us to imagine the brain as being made up of myriads of word-demons. At the base level, these demons are just in the business of producing noises - any kind of noises, such as "BEEEEEEEEEEEP" or "AAAAAAHHHHHHH". The activity of these demons stimulates others, that try to modulate these noises and string them together.

The result of this will still be gibberish (but easily recognisable gibberish) such as "Bee-bah-ba-loo-la". Further demons detect patterns in this gibberish, and start shaping it into recognisable English words and phrases: "The beer, look at that! buttered toast, Oh well". On this basis other demons get stimulated to make additional discoveries which leads to yet better forms of verbiage, until a whole sentence emerges: "Dennett's pandemonium theory of speech-generation is quite a scream". While this process has been happening, however, other candidate sentences have been brewing in parallel such as "When we speak, words just 'pop' into our head" or "Have you read a good thesis lately?" At the end a winner emerges and the following sentence is uttered (or written in this case): "In this theory, this sentence, to some extent, gets to say itself".

Dennett's account might be captured in the image of a class full of unruly children who have been posed a problem or asked a question by their teacher: "We want to say something clever about making sentences. Now who has any suggestions?" Each member of the class shouts their particular suggestion at the top of their voice. Some contributions will be irrelevant, such as "I want to go to the loo" or "Bob is hitting me". Out of this jumble of possibilities, the teacher will select the best message.

This process of generating the utterance need not take very long. Dennett notes that:

We can suppose that all of this happens in swift generations of "wasteful" parallel processing, with hordes of anonymous demons and their hopeful constructions never seeing the light of day - either as options that are *consciously* considered and rejected, or as ultimately executed speech acts for outsiders to hear. If given enough time, more than one of these may be silently tried out in a conscious rehearsal, but such a formal audition is a relatively rare event, reserved for occasions where the stakes are high and misspeaking carries heavy penalties. In the normal case, the speaker gets no preview; he and his audience learn what the speaker's utterance is at the same time. (1993, p.238)

One problem with the account as presented, is that it still makes provision for a judge (or teacher), that poses the initial problem and judges the adequacy of the final result. Dennett suggests that this problem can be overcome by replacing the central judge with a whole flock of "content demons".

We can imagine this as being the situation where the teacher has been replaced by a whole panel of specialist experts. Each panellist addresses her own concerns to the class:

"I am feeling irritable. Who can suggest a cutting comment?"

"I want to show how brilliant I am. Who can suggest a really clever opening line?"

"This is an academic debate. How can I show that I understand the conventions of this discussion?"

"I need a Ph.D. What can I say that will persuade the examiners that I know what I'm talking about?"

We can imagine that none of the suggestions put forward by the class will match all of the myriad concerns of the panel of experts/judges. However, at some stage a coalition of the experts will be satisfied and will accept the proposed utterance, perhaps over the resistance of some of the panellists. ("But that sentence is not clever enough!")

Pandemonium can be taken a step further. In the model just considered, it is assumed that there is a clear distinction between the panellists and the class. The panellists frame the "communicative intentions" while the class attempts to meet them. Dennett suggests that one might consider models

in which words and phrases from the Lexicon, together with their sounds, meanings, and associations, jostle with grammatical constructions in a pandemonium, all "trying" to be part of the message, and some of them thereby make a substantial contribution to the very communicative intentions that still fewer of them end up executing. At this extreme, the communicative intentions that exist are as much an effect of the process as a cause - they emerge as a product, and once they emerge, they are available as standards against which to measure *further* implementation of the intentions. There is

not one source of meaning, but many shifting sources, opportunistically developed out of the search for the right words. ... What this brand of model suggests is that in order to *preserve* the creative role of the thought-expresser ... we have to *abandon* the idea that the thought-thinker begins with a determinate thought to be expressed. (1993, pp.240-41)

This idea is supported by the fact that there are words that just "demand" to "say themselves". This is often because they have a "ring" to them - they sound "deep", witty or pithy. Sometimes such sentences are uttered even though on careful analysis it turns out that they do not "mean" what one might have intended. In some situations this is because one has unwittingly made a faux-pas<sup>3</sup>. It is, however, also possible to "discover" that one has made an utterance which is a lot more profound or witty than even oneself had intended. Indeed,

As E.M. Forster put it, "How do I know what I think until I see what I say?" We often do discover what we think (and hence what we mean) by reflecting on what we find ourselves saying - and not correcting. So we are, at least on those occasions, in the same boat as our external critics and interpreters, encountering a bit of text and putting the best reading on it that we can find. (Dennett 1993, p.245)

The scope of the pandemonium model can be extended beyond the case of speech generation to all other intentional action. As Dennett comments:

We must build up ... resistance to the temptation to explain *action* as arising from the imperatives of an internal action-orderer who does too much of the specification work. As usual, the way to discharge an intelligence that is too big for our theory is to replace it with an ultimately mechanical fabric of semi-independent semi-intelligences acting in concert. (1993, p.251)

Just as we often discover what we think by reflecting on what we find ourselves saying, we often discover what our preferences are by reflecting on what we find ourselves doing - and not stopping ourselves from doing. The fact that it is *our* action will give *our interpretation*

of our preferences a modicum of persuasiveness although it doesn't give us privileged access to the source of our action.

The model of the rational agent as a Cartesian self that has a well-behaved set of preferences on the basis of which she makes various choices is therefore thoroughly misleading. As Dennett notes:

Although we are occasionally conscious of performing elaborate practical reasoning, leading to a conclusion about what, all things considered, we ought to do, followed by a conscious decision to do that very thing, and culminating finally in actually doing it, these are relatively rare experiences. Most of our intentional actions are performed without any such preamble, and a good thing, too, since there wouldn't be time. The standard trap is to suppose that the relatively rare cases of conscious practical reasoning are a good model for the rest, the cases in which our intentional actions emerge from processes into which we have no access. Our actions generally satisfy us; we recognize that they are in the main coherent, and that they make appropriate, well-timed contributions to our projects as we understand them. So we safely assume them to be the product of processes that are reliably sensitive to ends and means. That is, they are rational, in *one* sense of that word. But that does not mean they are rational in a narrower sense: the product of serial reasoning. We don't have to explain the underlying processes on the model of an internal reasoner, concluder, decider who methodically matches means to ends and then orders the specified action; we have seen in outline how a different sort of process could control speaking, and our other intentional actions as well. (Dennett 1993, pp.251-52)

## The Evolution of Consciousness

Dennett's argument is that perceptions and decisions are due to multiple and parallel processing centres in the brain. These semi-intelligent "demons" or "homunculi" when acting

in concert produce the effects that we normally ascribe to the "self". Nevertheless this model does not explain why the notion of the Cartesian self is so persuasive. When I try to pay attention to what seems to happen "inside my head", I have the distinct impression of a serial flow of "thoughts". I do not experience pandemonium. I know that there are multiple things going on in my head: I'm thinking about how to write these particular sentences; at the same time I'm listening to a CD (Neil Young's "Harvest Moon") and at various stages I catch myself humming along; I'm also aware of a vague itch in my toes and am jiggling my feet together to get rid of it, while tapping the feet in rhythm to the music; sweat is forming on my forehead and at various times I run my hand across my forehead and through my hair to deal with this sensation. Nevertheless I find it difficult to pay *attention* to all of these simultaneously - my consciousness seems to flip-flop between them, but generally there does seem to be something of a "flow" rather than a "pandemonium" of thoughts and impressions in my head.

In order to explain these subjective feelings, Dennett gives an account how the phenomenon of "consciousness" may have evolved. He notes that with the emergence of the first "replicators" (living beings) on earth, one can, for the first time, talk about "interests". Broadly (and anthropomorphically) speaking, if those simple replicators "wanted" to continue to replicate, they had to avoid "bad" things (which would induce death) and look for the "good" things (required to sustain their fight against entropy). The existence of the organism therefore creates a point of view from which the world's events can be assessed as being favourable, unfavourable, or neutral. Successful replicators will be those that develop efficient mechanisms to seek the first, shun the second and ignore the third (Dennett 1993, p.174).

One of the ways of doing this is to develop methods of *anticipating* problems - getting out of harms way and into more desirable areas. This requires the ability to *control* one's activities in time and space, i.e. a nervous system. It is also predicated on the ability to accurately distinguish *yourself* from the *external world*. Indeed any enterprise of self-preservation is dependent on the definition of boundaries. As Dennett observes:

if you are setting out to preserve yourself, you don't want to squander effort trying to preserve the whole world: you draw the line. (1993, p.174)

Ultimately this self-recognition must be achieved by myriad "blind, mechanical" routines (p.176).

In the process of evolution, organisms "discovered" (by means of natural selection) various tricks to avoid harm. For example, when human beings are confronted with objects that suddenly loom in their view, they duck. This response is "hard-wired" and is due to the fact that over millions and millions of years it proved advantageous to duck looming things - because they were likely to hit or pounce on you (p.178).

Other specialist tricks exist. For example, human beings, like many animals are highly sensitive to patterns with a vertical axis of symmetry (p.179). It is suspected that the "full alert" response which this triggers is due to the fact that in nature the vast majority of objects exhibiting vertical symmetry are other animals, and that only when they are looking at you. As Dennett observes:

Becoming informed (fallibly) that another animal is looking at you is almost always an event of significance in the natural world. If the animal doesn't want to eat you, it might be a potential mate, or a rival for a mate, or a prey who has spotted your approach. (pp.179-80)

The fact that this response mechanism might, on a few occasions yield false alarms (e.g. in the presence of an abnormally symmetrical bush) is a small price to pay for the overall advantage of having such a system.

The accumulation of such systems clearly provides benefits to the organisms that possess them. Chief among these is an increased ability to *represent* the world. These representations can be very rudimentary, in the sense that a ducking-response merely "depicts" the regularity "looming object - being hit". More complex forms become possible with the emergence of *plasticity* in nervous systems, i.e. the capacity for the brain to be somewhat rewired during

the life-time of the organism, or for the organism to *learn* various things.

Some of the variability in a brain is required simply to provide a medium for the moment-to-moment transient patterns of brain activity that somehow *register* or at any rate *track* the importantly variable features of the environment. Something in the brain needs to change so that it can keep track of the bird that flies by, or the drop in air temperature, or one of the organism's own states - the drop in blood sugar, the increase of carbon dioxide in the lungs. Moreover - and this is the fulcrum that gives genuine representation its leverage - these transient internal patterns come to be able to continue to "track" (in an extended sense) the features they refer to when they are temporarily cut off from causal commerce with their referents. "A zebra which has caught sight of a lion does not forget where the lion is when it stops watching the lion for a moment. The lion does not forget where the zebra is" (Margolis). (Dennett 1993, p.191).

Although there are clear benefits to be had from this growth in brain power, there are also important costs. The first of these is in terms of its energy requirements: "the brain is an expensive organ to maintain; it usurps a disproportionate amount of the energy (glucose) extracted from food" (Milton 1993, p.74). Consequently the organism has to trade off the benefits of acquiring additional brain capacity against these costs. Milton (1993) has argued that the problems of maintaining an adequate diet in the tree-top environment which our primate ancestors inhabited, set up strong selective pressures favouring the evolution of larger brain sizes. These ancestors relied on a strategy of foraging for only the highest quality plant parts - ripe fruit and immature leaves or only the low-fibre tips of those leaves. In this strategy a good memory (i.e. a good representation of the world) was a decided asset - e.g. to remember the exact locations of trees in the forest that produced the most desirable fruits, to recall the shortest routes to those trees and to remember when these trees were likely to bear ripe fruits. Growth in brain size was not the only viable evolutionary strategy: various monkey species developed adaptations to their gut, to enable them to feed on lower quality plant materials<sup>4</sup>.

Besides the energy costs involved with increasing brain power, the proliferation of specialist sub-systems raises the problem of higher-level control:

with increased functional plasticity, and increased availability of "centralized" information from all the various specialists, the problem of what to do next spawned a meta-problem: what to *think about next*. (Dennett 1993, p.188).

This problem could be partially overcome by means of "pandemonium" style decision-making, with shifting coalitions of the sub-systems achieving temporary control over the body. The key feature of such a mind, however, is that it would still have a relatively short "attention span" and would have a tendency to be distracted by various features of the environment. The specifically human feature of being able to embark on relatively long-term, creative (as opposed to hard-wired) projects, such as writing a thesis, would be beyond its capacity.

The increasing complexity and flexibility of the brain, however, also provides new opportunities. A key feature of evolution is the tendency for organisms to discover novel uses for organs which were developed for other purposes. Dennett suggests that one of the key "discoveries" made by our primate ancestors was that they could to some extent solve the scheduling problem of "what to do next", by "talking" to themselves, i.e. by using the brain in new ways.

The phenomenon of "talking to oneself" could be useful in circumstances where one specialist processing centre had knowledge which would be of use to another processing centre, but the neural circuits between them were not adequate to move this information across. By getting the one centre to stimulate the speech-production centres and thus "talk out loud", this information would become available to the centres responsible for auditory processing and maybe in that way to the centre that originally needed the information. This process would set up a "virtual" neural circuit between the source of information and its ultimate destination, via the mouth and ear. With practice (and evolutionary adaptation), this habit of "talking to oneself" could become internalised - so that the speech production centres could directly communicate such "internal messages" to the speech recognition centres without needing to

actually vocalise them.

Such internal dialogues could be particularly useful in talking oneself through a particular task. If one heard a series of commands from someone else, about how to perform a certain kind of task (e.g. making a stone axe), it would help if every time one had to perform it again, one could rehearse these steps. The habit of talking to oneself "out loud" or "internally" would therefore lay the basis for the execution of more elaborate projects.

The trick of talking to yourself therefore has two potential benefits. Firstly it enhances the problem solving capacity of the brain, by providing another set of "virtual" channels by which the different processing centres in the brain can communicate with each other. Secondly, it facilitates the emergence of longer term projects, through the mechanism of constantly rehearsing and vocalising the set of instructions. Another way of making this point is to say that a particular coalition of "demons" in the brain is able to keep control for longer, by the trick of constantly restimulating the brain in appropriate ways. This process of constantly reminding oneself of what one is trying to do ("Write a thesis! Write a thesis!") serves to piece the relatively fleeting brain states together over time, to provide some continuity.

The cost of this strategy, however, is that the power and speed of the brain - based as it is on multiple and parallel processes - becomes to some extent yoked to the speed of the internal dialogue. Since this is based on a channel (vocalisation) which operates essentially in *series*, only one brain-state-auto-stimulus-brain-state feedback loop can be accommodated in this channel at any one time. The internal dialogue will therefore inevitably have a serial character too. In this way the internal dialogue starts taking on some of the character of "consciousness" - although as yet in quite a rudimentary form.

## The Social Construction of the Self

The mechanism of the brain "talking to itself" clearly presupposes that there is some *language* in existence in which this talking can happen. In this sense the evolution of consciousness must go hand in hand with the evolution of language.

Dennett is of the opinion that language is a relatively recent human acquisition and one which post-dates the period in which hominid brains ballooned from ape-like size to their current dimensions. Leakey and Lewin (1993), by contrast, argue that in fact language acquisition occurred relatively early and was a major factor in the increase in brain size - although the language capacity evolved in order to allow our ancestors to build better mental models of reality, rather than primarily as means of better communication (p.245).

What in this reality imposed this demand for better systems of representation? Milton (1993), as indicated earlier, has argued that foraging as a survival strategy requires a sophisticated neural apparatus. Nevertheless, Leakey and Lewin argue persuasively that perhaps the most complex feature of primate reality is the behaviour of other primates:

What is it that makes primate social life so complex that it demands "sophisticated cognitive abilities"? In a word, the principal element is *alliances*. ... If alliance networks were permanent structures within a troop, it would be difficult enough for individuals to cope with their intricate connections. But they are by no means permanent. Always looking to their own best interests, and to the interests of their closest relatives, individuals may sometimes find it advantageous to break existing alliances and form new ones, perhaps even with previous rivals. Troop members therefore find themselves in the midst of changing patterns of alliances, demanding yet keener social intelligence to be able to play the changing game of social chess. (1993, p.287 and 289-90)

Studies of various primates have shown the intricacies of such social networks and have also indicated that the animals know very well how these networks and patterns of relationship

function within their troop.

The importance of alliances is that, as in all of nature, "success" among primates (evolutionarily speaking) is measured in reproduction. For females success is measured in the number of offspring that they are able to raise to maturity; while for males success depends on the number of offspring that they can father. The latter in turn depends on the number of mating opportunities. Both of these "objectives" are mediated in the primate troop by alliances.

In higher primates, the greatest reproductive success (in both males and females) is shaped much more by social skills than by physical displays, either of strength or appearance. The complex interactions of the primate social nexus serve as an exquisite sorting system, in which the individuals with an edge in making alliances and monitoring the alliances of others may score significantly higher in reproductive success. (Leahey and Lewin 1993, p.293)

Clearly to succeed in this environment, the primate brain has to be able to represent and "track" not only each of the individuals in the troop, but also the current relationships between them. Importantly, the accuracy of "modelling" these relationships is dependent on being able to represent *oneself* as well. The knowledge that "John thinks that I am his friend and will come to help me" is of a different order to the hard-wired knowledge that a pain or a desire (for some food or sex) is one's own. It requires one to be able to objectify oneself to some extent. The more developed this self-concept is, i.e. the more information is attached to it, the more accurately the social interactions can be depicted.

Experiments with mirrors indicate that at least chimpanzees and orangutans among the higher primates have such an objective picture of their identity. The test is very simple: it involves familiarising the animal with a mirror. Then a spot is placed on the animal's head. If the animal touches the spot after again looking at itself in the mirror this is evidence that it recognises the image as its own (Leahey and Lewin 1993, p.298).

Another way in which the accuracy of social interactions can be represented, is by depicting the *projects* of the other animals, i.e. their wants and desires. Some of this knowledge is quite simple (and is probably hard-wired into us): all animals want to eat and to procreate. Some preferences can be observed or learned, e.g. that the dominant male has a preference for certain kinds of food. Other knowledge is, however, much more difficult to obtain. In the context of shifting alliances, it would, for example, be a major advantage to be able to anticipate an imminent double-cross.

The simplest way that the human brain has developed of dealing with this problem, is the capacity of putting yourself in the position of another person. You simply ask yourself, "What would I do, if I were X?" Leakey and Lewin have suggested that "consciousness" was precisely a mechanism to help achieve this aim (1993, Chapter 17). The problem with their account is that they seem to see the acquisition of consciousness as the acquisition of a new brain structure<sup>5</sup> instead of as a particular way of using the brain. Nevertheless their insight seems quite important.

It is important to note that the question "What would I do, if I were X?" can only be answered if the first part of the question "What should I do?" is answerable. It was argued in the last section (following Dennett) that the trick of talking to oneself is a prerequisite for the emergence of coherent longer-term projects. The next trick that the brain would need to learn is to attach these projects to its self-representation, so that it does not merely rehearse to itself a set of instructions ("Be friendly to John") but tells *itself* to do various things ("I should be friendly to John"). The brain would then need to develop the understanding that in the same way in which various projects are attached to the "I", such projects can also be attached to other individuals.

If the brain has developed the architecture to represent the projects of the "I", it would also be able to represent the imputed goals of other individuals. The simplest way of doing this would probably be to simply *project* ones own wants and desires onto other individuals and

then to correct these imputed preferences in the light of contrary experience.

Clearly language is crucial to all these processes. The evolution of language should therefore be seen as proceeding in tandem with the process of developing individual projects (i.e. developing a "self"), improving the brain's capacity to model social and hence strategic interactions and developing social interaction itself (through the development of inter-personal communication). Language itself would have evolved from the forms of vocalisation characterising other primates. There is now some evidence to suggest that these are not merely "hard-wired" stimulus-response mechanisms, but rudimentary forms of communication. In a study of vervet monkeys, for example, it was observed on one occasion that a group of male monkeys gave the "wrong" alarm call when an eagle swooped to attack another feeding monkey. Instead of the eagle alarm, which would have caused the intended victim to look up and then move to the bushes, they gave the leopard alarm which made the animal run for the trees. The monkey survived the attack, but would not have done so had the "correct" call been made and the appropriate response been followed (Leakey and Lewin 1993, p.242). Such anecdotes are not conclusive, but experimental research on ape language capabilities suggest to Leakey and Lewin that "our language skills are firmly rooted in the cognitive abilities of ape brains" (p.245).

It is possible that an evolutionary ratchet may have been at play in the development of brains, language and consciousness: a brain sophisticated enough to represent the complexities of social interaction of our ancestors also facilitated the development of forms of vocalisation which became increasingly flexible and representational (rather than stimulus driven). These proto-languages allowed the brain to develop new ways of "looping back" on itself (through auto-stimulation) and so develop more complex projects. It also facilitated more complex forms of interaction. This in turn set up pressures for further development of the brain to allow it to model this yet more complex social reality.

With the development of full-blown languages, habits such as "talking to yourself" and

"putting yourself in other people's position" became firmly ingrained in human practice. Indeed, these habits are taught at a very early age to human children and are constantly reinforced in the way we speak about "ourselves" and "others". Through the way in which we talk about "our projects" we remind ourselves of who "we" are. The fully-developed *self* therefore emerges out of a process of stitching together the various projects that we discover that "we" have. Clearly this is not simply an individual enterprise. Partially we discover who *we* are as the result of how other people relate (and talk) to us.

The "self" should therefore not be thought of as a location somewhere in the mind; it emerges from the way in which we attach bits of narrative ("Write the thesis!") to the representation of "self" that is already given in the brain. By continually reminding ourselves of who we are ("I am a Ph.D. student. I am an activist. I am a son and brother."), we are recalling our projects. Just as rehearsing our projects to ourselves allows the brain to solve the short-term problem of "what to do next", this rehearsal of who we are allows the brain to allocate "what project to implement next". In constructing a "self", longer term planning of activities therefore becomes possible. This in turn brings various advantages - it allows for better control of potential sources of harm in the environment and better access to benefits. As Dennett argues:

*Our* fundamental tactic of self-protection, self-control, and self-definition is not spinning webs or building dams, but telling stories, and more particularly concocting and controlling the story we tell others - and ourselves - about who we are. And just as spiders don't have to think, consciously and deliberately, about how to spin their webs, and just as beavers, unlike professional human engineers, do not consciously and deliberately plan the structures they build, we (unlike *professional* human storytellers) do not consciously and deliberately figure out what narratives to tell and how to tell them. Our tales are spun, but for the most part we don't spin them; they spin us. Our human consciousness, and our narrative selfhood, is their product, not their source.

These strings or streams of narrative issue forth *as if* from a single source - not

just in the obvious physical sense of flowing from just one mouth, or one pencil or pen, but in a more subtle sense: their effect on any audience is to encourage them to (try to) posit a unified agent whose words they are, about whom they are: in short, to posit a *center of narrative gravity*. ...

A self, according to my theory, is not any old mathematical point but an abstraction defined by the myriads of attributions and interpretations (including self-attributions and self-interpretations) that have composed the biography of the living body whose Center of Narrative Gravity it is. (1993, p.418 and 426-27)

## Conclusion

Let me rehearse (and develop) the main points of the argument thus far (since rehearsal is a fundamental trick in the construction and maintenance of a coherent narrative):

1. There is no such thing as a Cartesian self - i.e. there is no single point or entity which is the origin of all actions or the final interpreter of all perceptions. Instead there are multiple and parallel processes of neural activity, which in a process of constant editorial revision interpret the information reaching the brain and in a pandemonic debate decide what to do.
2. Certain coalitions of processing centres "discovered" that they could maintain control over the body for longer by constantly restimulating the brain through the mechanism of "talking to oneself". The feedback loops thus created allowed the emergence of longer-term projects.
3. By attaching the narrative fragments associated with these projects to the brain's proto-concept of the "self", and by constantly rehearsing "who I am", some of these projects managed to extend their complexity and their duration to an even greater extent.
4. The discovery of these tricks in the way the brain could be used, conferred immediate

benefits. It not only allowed longer term planning (and therefore improved the individual's chance of avoiding harm and achieving benefits), but it also facilitated the understanding of the behaviour of other individuals. These benefits were so great that it set up enormous selective pressure on developing these capacities further<sup>6</sup>.

5. The *self* as we encounter it nowadays, appears as the centre from which our projects emanate. It is partially constructed from projects that we attach to it ("I am writing a Ph.D. thesis") and partially as a result of reflection on what we find ourselves doing ("I must be a pedant, because I keep on correcting other people") and what other people tell us we are doing.

6. Although the self is narratively constructed, this does not mean that it is not *real*. Without the feedback loops that define the self and its projects, long-term projects would not be possible. These mechanisms allow the brain to control to some extent how it is functioning, i.e. what it is thinking about. In other words, the "software" that is installed in the brain by these habits certainly affects how the neural machinery works.

7. While coherent longer-term projects become possible through the construction of a self, this does not eliminate pandemonium. Indeed, the multiple and parallel processing characteristic of pandemonium *underlies* all thought processes - even those that seem to exhibit a long term, serial and planned character. Furthermore the "rule" of any particular coalition of neural centres is always a tentative one, and can be interrupted by another (e.g. if something burns in the kitchen, I will stop writing). This means that even our most treasured projects need to be seen as provisional ones (some event may trigger off processes that initially displace it and then lead to a reassessment of whether it should remain an important project). Similarly, our understanding of our "selves" is also provisional.

8. The "rule" of one coalition clearly means that other coalitions are (at least temporarily) stopped from making use of the feedback channel of "talking to oneself". Similarly, as the

self is being narratively constructed out of various projects, the attempt to give this construction coherence means that certain projects will be emphasised at the expense of others. As this construction feeds back into what we end up doing, certain projects will receive preference over others in our activities. Through these processes, some coherence in the activities of the person is actually created. This in turn underpins the perception that there is a definite "agent" at work. This appearance of us as coherent agents is however also due to the fact that we try to put the most rational construction on what we end up doing, i.e. our reconstruction of "who we are" will inevitably be more coherent than the reality. For example, we will end up not acknowledging the existence of particular projects (e.g. the fact that I was a committed Marxist-Leninist) or that we sometimes do not really know why we do things. But furthermore in performing this rational reconstruction of ourselves we sometimes will actively repress particular projects, i.e. we attempt to prevent particular projects from taking control (e.g. giving in to the lure of money and going to work for the World Bank).

9. The self that is constructed in these various ways is a *social* construct in several senses. Firstly, the arguments of Leakey and Lewin suggest that the capacity to represent ourselves emerged due to the demands of reproductive success in a complex social environment. Secondly, the full emergence of the self requires language, which is a social achievement. Thirdly, the habits of "talking to oneself" and seeing the "I" as the source of all one's actions, is inculcated in us as babies. The particular mental constructs which make the notions of "agency" and "self" such powerful organising principles are learned through social interactions. Finally, we discover "who we are" through interacting with other people. In other words, the narrative content that is attached to the representation of oneself is also socially negotiated.

**Notes:**

1. The requirement that preferences be "well-behaved" is usually seen as stipulating that the preferences conform to three conditions:

(1) The person must be able to compare any two options with each other. He must prefer the one, or prefer the other, or think them equally good. (2) The person must be consistent in his preferences: if he prefers an orange to an apple and an apple to a pear, he must also prefer the orange to the pear. (3) The person must be able to trade off values against each other. (Elster 1989, p.23 fn4)

2. The fact that the *unity* of perception is not another datum on top of the aspects of the perception themselves can be seen by considering other forms of representation: Just because my bookshelf is a unified object (which is what my perception tells me), it does not mean that my verbal representation of this object will be unified in the same way. My description will be sequential: I specify that the bookshelf is brown; that it is about two-and-a-half metres long; that it is fixed against the wall, about one-and-a-half metres off the ground; that it has a strip of veneer along its front edge; and so on. Once I have described it thus I do not have to separately specify that it is all of those things at the same time.

3. A friend of mine made the following memorable error. He remarked that on certain days he was really "pinging", i.e. tingling with excitement due to being on an emotional high. On being questioned if he could explain why he didn't "ping" on other days, he said "Maybe it is because I was ponging!" Clearly this statement was meant to be a playful reference to ping-pong and jumping back and forth between emotional extremes. In becoming so caught up in this wordplay, however, he forgot that a "pong" is a colloquialism for a major stink.

4. This point needs to be made, because we human beings like to think of ourselves as the end-point of evolution - we believe that it is quite clear that evolution would have wanted to produce creatures like ourselves with ever larger brains. The fact of the matter, however, is that evolution is only about success in reproduction. It is only because the benefits of larger brains outweighed the costs in the very specific circumstances of our ancestors, that evolution "innovated" in the direction of larger brains.

5. The idea of consciousness as a place that exists somewhere in the brain (an idea which is explicitly rejected by Dennett) emerges, for example in their statement that:

Although many functions can be localized in the brain, one of the remarkable features of this organ is that some functions, often important ones, defy precise locating. One of these is consciousness. (Leakey and Lewin 1993, p.253)

As the text should make clear, consciousness should not be thought of as a *function* of the brain.

6. This can cover both natural or cultural selection.

## Chapter 2: Collective forms of agency

One of the implications of the model presented in the last chapter is that agency is not an all or nothing concept. The "self" was not a miraculous acquisition that sharply distinguished the first hominid that got it from her ancestors. Instead it evolved historically through processes of both natural and cultural selection. In the case of present-day human beings it is instilled through processes of socialisation by other agents. Agency is therefore a feature of an individual's actions which can be there to a greater or a lesser extent.

The key elements which distinguish fully-fledged agency from more instinctive forms of animal behaviour are:

1. The existence of longer term projects through processes of internal dialogue;
2. The development of a concept of "self" as an entity that has these projects, again through an internal dialogue;
3. The perception of the self as being in certain relationships to other selves;
4. The process of reflexively monitoring "what one does" in relation to other agents and the natural environment.

### Organisations as agents

It should be noted that agency in this sense characterises not only individual human beings, it also applies to certain groups of human beings. Indeed, the processes of internal debate within human beings are completely analogous to processes of debates within *organisations*<sup>1</sup>. The idea that organisations are in some sense agents is accepted in common parlance. We say that "The state wants to launch a crackdown on dissidents" and "The African National Congress has negotiated an agreement with the National Party".

The idea that such talk is accurate and not merely metaphorical has been strenuously resisted by some authors. Elster, for example maintains:

I have been saying institutions "do" or "intend" this or that, but strictly speaking this is nonsense. Only individuals can act and intend. If we think of institutions as individuals writ large and forget that institutions are made up of individuals with divergent interests, we can be led hopelessly astray. ... An individual usually knows what he wants; I have argued that a society does not. An individual can usually do what he has decided to do; I shall argue that a society cannot. (1989b, p.154 and p.156)

The case that Elster makes is based on the false Cartesian picture of the self. Nevertheless the idea that there are at least some organisations that are characterised by agency will be more convincing if we can show the correspondence with individual human agency in more detail. In order to present this case, I will therefore develop the analogy with human agency more carefully.

The starting point for the development of human agency is the existence of a well-defined organism. The capacity to distinguish (through various routines) the organisation from the environment is therefore a prerequisite for the development of any form of agency. We would not expect loose social networks to exhibit agency, for example. The existence of boundaries (e.g. in the form of membership lists or payrolls) and routines to maintain these, is therefore necessary. Many organisations, indeed, exhibit these<sup>2</sup>.

Given a well-defined organisation, we can establish a correspondence with the human brain by equating the members of the organisation with neurons and/or processing centres ("demons"). Such an organisation would *perceive* things whenever a member of the organisation perceived these things. Just as in the case of human perception, this discrimination could simply stay where it is, or be communicated to another processing centre (i.e. member of the organisation).

These forms of perception would, not necessarily be *conscious* perceptions, i.e. if the organisation were interrogated this information might not be available. We can say that they become conscious to the organisation concerned, the moment that they become part of an internal dialogue. The analogy for the procedure of "talking to oneself" is a variety of mechanisms in organisations, notably the general meeting and its minutes, the official bulletin or newsletter or the organisation-wide memo or discussion paper.

In the same way that "talking to oneself" becomes a way in which the individual tries to deal with the problem of what to do next, these channels are used in decision-making and in reminding the organisation of what projects it is involved in. The process of decision-making is just as pandemonic as it is in individuals. Different members of the organisation (and groups of members) will put forward their particular projects, perhaps initially to other members. Through these more limited forms of discussion and revision some of these projects might eventually be put forward to a general meeting, where a sufficiently strong coalition of members might ensure that it is adopted as a project of the organisation.

Not all decisions of the organisation need be taken in this conscious, deliberate way. Sometimes members (or groups of members) of an organisation simply decide to act in the name of the organisation, without informing the rest of the organisation of this intention in advance. This action might subsequently be consciously perceived by the organisation (i.e. become part of the process of internal dialogue) either because it is reported by those involved in the action or because some outside agent draws the organisation's attention to it. An example of the latter case might be when the President and government of a country is informed through diplomatic channels that certain operatives of its secret service have been caught trying to destabilise the other country. The President and the entire cabinet may be genuinely unaware that sections of its military are engaged in such an enterprise.

Just as in the case of the individual, some projects can achieve hegemony by being tied into the *self*-concept of the organisation. The idea that the organisation has of itself is also pieced

together out of different bits of internal narrative. Important in this regard will be things like mission statements and aims and objects as set out in the constitution. But none of these are final and immutable. The organisation may discover that it is actually constantly engaged in projects which are somewhat at variance with these. It may therefore happen to forget what is officially in its constitution and develop other forms of narrative about itself. It may, of course, also amend the documents.

The forms of narrative are not only about how the organisation presents itself to itself, but also to other agents. Similarly, each organisation will monitor what the agents with which it interacts are doing. Indeed, the *raison d'être* for the formation of many organisations is that they help their members in their particular strategic interaction with *other* individuals and agents. This is quite clear in the case of political organisations.

## Objections

Having shown how the analogy with human agency can be developed, let me consider some objections. The first objection (voiced, for example, by Elster) is that the account is anthropomorphic. It projects properties onto groupings of people that properly belong only to the individual human being. The problem with this objection is that it is based on a fundamental misreading of how agency in individuals works. It is only if we assume that there is a Cartesian self that the analogy with organisations breaks down. It is quite clear that organisations do not have such a Cartesian control centre. It has been argued above, however, that there is no such thing as a Cartesian self. Instead the self emerges as a *systemic* property, out of the way in which different neural processing centres interact with each other and brain processes reflexively loop back on themselves. Consciousness is not a property of any particular neuron nor of any collection of neurons. It emerges from the way everything "hooks" together. I have argued that in certain cases organisational processes hook together in analogous fashion.

A second possible objection is that this account runs into problems because it may not be able to distinguish properly

between *individual* and *organisational* actions. After all, organisations can only act through the actions of their members. How do we distinguish, then, between actions which individuals do on their own behalf (e.g. seducing another person<sup>3</sup>) and which they do on behalf of their organisation (e.g. negotiating a treaty)? How do we know whether an assassination of a political opponent by an employee of the state should be interpreted as simply an overzealous individual action or as an action of the state? In order to see how distinctions might be drawn, it is useful to again consider the case of individual actions.

The causal processes that emanate from the human brain can be categorised as follows:

1. There are things which the body *does* which are not generally reckoned to be *actions*. A nervous twitch would be a paradigmatic example.
2. There are actions which are interpreted as being *accidental*. For example, I might turn around and in the process sweep a coffee cup off the table. The key point is that it is clear that *I* couldn't have *known* that this is what my action entailed.
3. Some actions are viewed as having been done *automatically*, i.e. out of habit and therefore "unthinkingly".
4. There are actions which are subsequently disowned as not having been intended. The common excuse in this case is that "I didn't really mean it. I wasn't thinking when I said/did that". An example of this is when a parent shouts at a child for having been clumsy and then realises that the child could not really have helped it.
5. There are actions which are held to be deliberate.

The typology is only intended to show that it can also be difficult to decide in the case of individual human beings what constitutes an action *of* that human being<sup>4</sup>. The criterion that we generally apply is that only actions which in some way are, or ought to have been, under the control of the self *count* as being actions. In our interactions with other human beings we constantly try to assess just what are and what are not actions in this sense: we ask whether

that temporary grimace was simply due to a funny muscular twitch; whether it was an unintended consequence of an action designed to deal with some other stimulus, such as a facial itch; whether it was an involuntary<sup>5</sup> betrayal of an attitude towards us; or whether it was a deliberate signal. In criminal actions considerable effort is expended not only in showing whether or not the individual could have done the deed, but whether that person could be held to account for the deed.

The reason why we are so interested in making these distinctions, is that we want to know how to relate to the individuals concerned in the future. If a deed is done *intentionally*, then we would expect the agent concerned to do similar kinds of things in the future. We can therefore alter our own behaviour to take this information into account.

Furthermore, we also want to influence the behaviour of the agent concerned. If she has behaved badly we want her to alter her attitude, while if she has behaved well we want to reinforce it. Now the most important way in which we can influence another person is through her consciousness - for example, through speaking to her, or by imposing sanctions (or giving rewards), so that in her process of trying to analyse why *we* acted the way we did, she understands that her behaviour was unacceptable (or laudable) and that her future conduct should be modified appropriately.

Similar considerations apply in the case of organisations. We attribute actions to organisations to the extent to which we think the actions are the result of the kind of decision-making processes within it. We will hold an organisation accountable for the actions of its members to the extent to which we think that doing so will make the its members behave better in future. The question whether or not an action is an *individual* or an *organisational* one is therefore one which is not objectively answerable. It is a case of whether or not in terms of our construction of agency it makes sense to *interpret* the action as having been an organisational or an individual one.

A third possible objection to the idea of organisations as agents, is that there are important dissimilarities between organisations and brains too. Firstly, human neurons can be part of only one brain, whereas human beings can be members of many different organisations. This means that while the interactions between human brains are between discrete entities, this is not necessarily the case for human organisations. Secondly, neurons are not free to leave a particular human brain and join another one, whereas members of organisations are generally free to defect. These objections, while pointing to real differences, do not invalidate the analogy. What makes organisations into agents is the structure of the interactions between its constituent members. This is relatively autonomous of the identity of the actual members. So long as this structure persists (feedback loops based on an internal dialogue about projects and organisational identity) the organisation will exhibit some form of agency, even if members are linked into other organisations or defect. Similarly mental structures persist even when particular neurons die.

A fourth objection would be that even though the analogy might be amusing, it is not really useful. We might choose to consider organisations as agents, but we could ultimately understand its operations just as well by simply looking at the projects of its individual members. Adopting the intentional stance towards organisations is therefore a luxury which is not strictly speaking necessary. In the words of Elster:

Talk about institutions is just shorthand for talk about individuals who interact with one another and with people outside the institutions. Whatever the outcome of the interaction, it must be explained in terms of the motives and the opportunities of these individuals. (1989b, p.158)

The reductionist argument is that organisations consist of "nothing but" individuals and the interactions between them. This argument, however, applies just as much to the individual human brain. The brain is also nothing but neurons with connections between them. The fact, however, is that these interactions exhibit a very particular structure, which in turn has effects on how those neurons operate. The feedback loops operate such that the output of certain neurons is fed back via those structures to influence their further activity, so that to

understand what those neurons are "doing" we need to understand the structure of which they are part of. Human consciousness and the self is real, precisely because it alters the context in which particular neurons are activated. Similarly, organisational agency is undoubtedly real because it alters the context in which members of that organisation operate and make decisions. The reductionist programme draws attention to the fact that there is nothing mysterious about these processes. It helps to explain *why* these effects occur, but it cannot deny that these effects are *real*<sup>6</sup>.

## Layers of agency

Having dealt with some objections it is possible to elaborate on some of the implications of the account sketched above. Firstly, all the points made in relation to human agency will transfer to the case of organisations. In particular, the theory that an organisation has of itself (its sense of self) will be more coherent than the reality, just as in the individual case. Similarly in performing its rational reconstruction of what it is about, an organisation will also actively attempt to repress particular projects which seem to be at variance with that definition.

Secondly, the account presented here views agency as being *layered*. There is the agency of organisations as well as that of individuals. Furthermore, in big organisations we might encounter a whole hierarchy of agency, ranging from the organisation as a whole, through departments, divisions and even work groups. The existence of agency at these subordinate levels would, of course, depend on the existence of the right mechanisms within them.

Agency is layered in another sense too. Actions by individuals can simultaneously be viewed from the perspective of individual agency and organisational agency. So, for example, the negotiation of a treaty might be viewed from the point of view of the motivations of the negotiators (undoubtedly concerned about their individual diplomatic and political careers

within their respective states) as well as from the point of view of the aims and objectives of the states that they are representing. The same action can therefore be read intentionally from several different perspectives. Since organisational actions only occur through individual actions this superposition of different layers of agency is inevitable.

Thirdly, viewing organisations from the point of agency can allow the use of our knowledge of human strategic behaviour, quirks and pathologies. An interesting example of this approach can be seen in Chambers's comparison of the state in some developing countries with human psychosis:

Human psychosis can be defined as 'any form of severe mental disorder in which the individual's contact with reality becomes highly distorted'. In this sense ... the State can be described as psychotic: its contact with reality is distorted; it does not respond to the misfit between intention and effect. (1992, p.35)

He argues this case by pointing to several mechanisms which end up distorting the processing of information by the state. A key component in this is that lower level officials end up passing on information in a form which they think the higher decision-makers want to hear. This occurs not only through misreporting, but also through developing a "VIP circuit" of rural development projects in which more senior officials are only taken to certain villages and to meet certain local people to confirm that all is well with the local development programme. Even outside consultants collude with this process, because if they are too critical, they will not be hired again. Ultimately, Chambers argues, senior decision-makers do not want to know:

Those who deceive know that those they are deceiving know they are being deceived but also that they want to be deceived in a way that does not show that they know. (p.37)

In this way the State (in its internal debate) pretends that the reality is quite different to what it is; dissonant information is filtered out; and inappropriate development programmes continue to be decided on, even though they cannot be successfully implemented.

Fourthly, just as in the case of individuals, agency in organisations is a phenomenon that emerges over time. The interpersonal links through which perceptions flow through the organisation and the channels through which an internal dialogue is maintained are not created *ex nihilo*, but are built over time. Once these structures are in place they may be maintained even if there is turnover of personnel, but breakdowns of these channels is just as possible as it is in the individual case. This would mean the effective end of the organisation - at least as an entity capable of *acting*.

## Conclusion

In this chapter and the last it was argued that the phenomenon of agency, while undoubtedly real, does not correspond to the intuitive conception that we have of it. Agents are not simply given, with particular preferences and projects; instead individual and collective agents arise through the interaction of individual human beings with their natural environment and with each other. Agency is therefore in a sense more an *achievement* than a *premise* of human activity.

Nevertheless, while agency is constructed in a social context, stable social interactions also presuppose agency. It is because the self permits long-term patterns of behaviour (projects) that long-term patterns of interactions between agents, i.e. social institutions, become possible. These institutions in turn enable the emergence of yet further forms of agency. Organisations in a sense capture both parts of this relationship. While themselves being agents within a broader context, their agency is dependent on the fact that there are stable social relationships between their members.

This close interrelationship between social structure and agency will be explored further in the next section where we will consider the problem of what constitutes society in more detail.

## Notes:

1. Some of Dennett's arguments in relation to individual action and identity are, in fact, developed by analogy with groups of human beings.
2. There are some organisations that do not seem to have such clear boundaries, but that seem to exhibit agency in the way that I wish to defend it. A good example would be South Africa's civic associations. Most of these do not keep membership lists, because they claim that they represent the entire community in which they operate. Despite such ill-defined boundaries, they do manage to act. They do this partially because the *real* boundaries often coincide with the membership of the committee: for decision-making purposes it is reasonably clear who has to be involved and who doesn't. To some extent they also circumvent the problem by defining the membership as simply those people that turn up at a particular mass meeting, for example. Through these devices, the organisation does make distinctions between itself and the rest of its environment. Nevertheless because these boundaries are more amorphous than those of a more rigorously structured organisation, we would expect such organisations to exhibit less decisive forms of agency. Characteristically, civics are known for making deals and then repudiating them. Such schizophrenic behaviour is often due to the fact that it is claimed that certain people "did not have a mandate". Because it is not clear who the organisation is, it is difficult for it to act with coherence.
3. Although some seductions have been known to have been done for organisational purposes - e.g. to gain information.
4. It should be noted that according to the arguments produced earlier, there is no objective way of assigning actions to these categories. When observers (including the brain of the body itself) try to analyse the actions of the body they essentially try to match the observed behaviour pattern with the theory that there is a rational and coherent self originating it. If this theory does not hold up, the action is dismissed as involuntary, unintentional or unthinking. In the case of introspection (i.e. observing yourself) you might know that there was a process of internal dialogue occurring about a particular action, but, as was argued earlier, you would still not have access to all the processes that eventually made one particular action win the pandemonic debate.
5. The very word "involuntary" shows how deeply the perspective of conscious activity by Cartesian agents is ingrained in our ordinary interactions.
6. Where the reductionist programme tends to go horribly wrong is in the assumption that if one could only understand the "laws of motion" of the atoms of a particular system, one will automatically understand the logic of the system when these atoms interact with each other. In fact the emergent properties of "complex systems" are such that even a successful "reduction" will not necessarily shed any light on the behaviour of the system.

## Part Two: Fragments of social order

There have generally been two strands of thought about the nature of society and the role of individual agency within it. On the one hand, structuralism has argued that society is logically prior to the individual and that therefore the direction of determination runs from society to agency. In other words, because human beings become *qualified* as agents through processes of socialisation, society determines the kind of agency that exists.

Methodological individualism, by contrast, argues that society exists only in and through the actions of individuals. Because society is "nothing but" the interactions of individuals, social processes must be analysed as arising through and dependent on the purposive actions of individual agents.

Structuration theory as developed by Giddens and Bhaskar<sup>1</sup> suggests that the dualism implicit in structuralism and individualism can be overcome by seeing society and agency as referring to two different levels of reality. Society exists as social rules and resources in the minds of individual agents. Qualified agents draw on those rules and resources in order to act. Agency therefore presupposes society. Nevertheless in acting in accordance with those rules, the rules are reproduced or transformed. Social order is therefore the unintended byproduct of individual agency. Furthermore this social order exists only in and through the actions of individuals. Society therefore presupposes individual agency.

While many of these central insights are undoubtedly valuable, it is argued in Chapter 3 that the way in which the theory is developed, particularly by Bhaskar, is deeply flawed. The problem is that by analytically separating social rules from the concrete social situations they are held to govern, the question arises as to how agents apply and interpret those social rules. Indeed, in assuming that rules apply themselves, as it were, Bhaskar ends up smuggling structuralism back in.

Chapter 4 argues that a non-structuralist analysis of rules requires that the *meaning* of social situations not be fixed *a priori*. Instead, each concrete situation needs to be "read" by the

agent and on the basis of that reading appropriate action undertaken. It is argued that acting on an example is a more appropriate image for analysing this process than following a rule. Rules, in turn, should be analysed not as *governing* behaviour, but as providing a framework in terms of which important features of situations can be quickly "read".

This raises the question of how "social order" can arise. How do stable patterns of interaction form? This is discussed in Chapter 5. It is suggested that two processes are responsible for this. On the one hand, the repeated or serial nature of many interactions allows for the emergence of stable routines and roles; on the other, the public discussion of rules allows stable expectations to form. Nevertheless because concrete actions still require these patterns of interaction to be applied in novel situations, deviance from or innovation in roles and rules is always possible.

Notes:

1. Technically Bhaskar refers to his model as the "transformational model of social activity", but many of the central features of this model are equivalent to those of Giddens's structuration theory.

## Chapter 3: The agent in society

The central theme to be developed in this chapter is that social situations cannot be analysed separately from the context of interactions of people themselves. In other words, there are no disembodied "rules" or "mechanisms" waiting for the appropriate moment in which they can be applied or set to work. Social rules and mechanisms have to be thought of as *internal* to interactions or as *emergent* from them.

While this point sounds fine in the abstract, it will be argued that many of the conventional tools of social analysis tacitly assume that the structure of an interaction can be analysed independently of the interaction itself. For example, game theory assumes that the choices open to a particular agent can be predetermined. We can "know" that the options open to the player are either to co-operate or to defect and if we know what values to place on particular outcomes, we can even predict how the player will behave. Similarly, if we analyse human interactions in terms of performances (as Goffman suggests) we tend to assume that the performance is scripted beforehand and simply needs to be "reeled off".

This point applies also to social rules, as analysed by Giddens and Bhaskar. Indeed, it will be argued that treating rules as being given separately from interactions implies that agents must in the final analysis be treated as pawns of social forces.

### Games

As noted previously, rational choice theories begin the study of society with rational agents and their preferences. Various social phenomena are then shown to flow from the way in which agents interact with each other. One of the key tools used in analysing this interaction is game theory.

As used within game theory,

a "game" is a conflict situation where one must make a choice knowing that others are making choices too, and the outcome of the conflict will be determined in some prescribed way by all the choices made. (Poundstone 1993, p.6)

The simplest games are two-person ones. These can be depicted by a "pay-off matrix" as follows:

		Player B	
		Strategy 1	Strategy 2
Player A	Strategy 1	1,-1	2,-2
	Strategy 2	0,0	-2,2

In this particular matrix we assume that Player A and Player B are engaged in some interaction in which both have two choices (e.g. fold or raise in Poker). If Player A opts to play the game according to her first strategy and Player B also opts for her first strategy, the outcome of the game is that Player A wins R1.00 and Player B loses R1.00. The other cells of the table should be read analogously, with A's payoff first and then B's.

In the game under consideration it is clear that *whatever* B does, A stands to improve her payoff by adopting the first strategy. Strategy 1 is therefore said to *dominate* Strategy 2. In the case of Player B there is no dominant strategy, but given that Player A is rational, and will therefore undoubtedly pursue Strategy 1, Player B can minimise her losses by opting for her Strategy 1. The game is therefore said to have a solution, which involves Player A winning R1.00 and Player B losing R1.00.

The game just considered is not a particularly interesting one. One which has attracted a lot of attention is the so-called "Prisoner's Dilemma". This can be represented by the following matrix:

		Player B	
		Strategy 1	Strategy 2
Player A	Strategy 1	3,3	0,5
	Strategy 2	5,0	1,1

As can be verified from the matrix, Strategy 2 dominates Strategy 1 for both Player A and Player B. The "rational" approach for both players would be to adopt Strategy 2. It is clear, however, that if both had adopted Strategy 1, they would have improved their position. The solution is therefore suboptimal: if the two players could trust each other to both play Strategy 1 they would improve their situation, but according to their individual calculations they can *always* do better for themselves by adopting Strategy 2.

The structure of the Prisoner's Dilemma (PD) does not depend on the payoffs being monetary ones. We can represent the outcome of a particular symmetrical interaction as follows:

		Player B	
		Strategy 1	Strategy 2
Player A	Strategy 1	R,R	S,T
	Strategy 2	T,S	P,P

This is a Prisoner's Dilemma, *provided that* the two players are able to rank their preferences as follows: T (the temptation) is preferred to R (the reward for co-operation), which in turn is preferred to P (the punishment for defection), which is preferred to S (the sucker's payoff). This type of interaction is held to model many "collective action" problems. For example, I might prefer the situation where everyone (including myself) pays their taxes (R) and the government therefore has enough money to provide a decent social and physical infrastructure, to the situation where no-one pays their taxes (P); but I certainly prefer the situation in which everyone else pays their taxes and I don't (T) to R. The worst situation is where I am the only one paying taxes (S)<sup>1</sup>. Because of these situations, Strategy 1 is

normally called "co-operation" and Strategy 2 "defection".

The Prisoner's Dilemma is an example of a situation where, because of the particular structure of interaction, an outcome is reached (mutual defection) which the agents would prefer not to see. In Elster's terminology this is a case of *suboptimality* (1978, pp.122-134), i.e. a situation in which at least one of the agents would be better off and no-one worse off if a different combination of strategies had been pursued.

Part of the perverse nature of the PD is that the players caught within it fully realise that their strategy drives towards a suboptimal conclusion, but the fear of being suckered constrains them from obtaining the desirable situation of mutual co-operation. In some situations, however, the outcome is unanticipated. Elster terms such cases instances of *counterfinality* (1978, pp.106-122).

A typical example of this would be the situation where there is a run on a bank. If I hear that my bank is in some financial difficulty it is clearly in my interest to withdraw my savings. However, this sort of calculation will be made by every other investor. As we all attempt to withdraw our deposits, the bank collapses and none of us get our money. The structure of the situation is such that individually rational decisions when aggregated become collectively irrational.

This particular case has important similarities with the PD - everybody would be better off if no-one withdrew their money, but individually one stands to gain by withdrawing. The situation is not fully analogous to the PD only in so far as the players that are involved in the situation are not aware of the structure of the interaction. They do not anticipate the bank collapsing.

This phenomenon that individual human actions often have unforeseen consequences is a common theme in the social sciences. There are positive versions of it too. Adam Smith's appeal to the "invisible hand" of the market as a method of regulating the economy is a case

in point. He argued that through the essentially self-interested activities of individuals a greater degree of overall prosperity would be achieved as an unintended side-effect.

The important point to note in all these cases is that the outcome of the interaction is determinate - all that is required is that we assume that the agents that are involved wish to maximise their well-being and that they are rational. Game theory does, however, recognise situations which do not have determinate outcomes as well.

One interesting example of this is the game called "Chicken" (Poundstone 1993, pp.197ff). It is based on a supposed pastime of delinquent youth, which is to drive two cars towards each other at high speed on a straight road. Whoever swerves is "chicken" and loses. The payoff matrix would look something like this:

		Player B	
		Swerve	Go Straight
Player A	Swerve	2,2	1,3
	Go Straight	3,1	0,0

It has been suggested that Chicken is a useful model for many confrontations. A wage negotiation in which the trade union threatens to go on strike if the employers do not cave in to union demands would be a case in point. If both the employer and the trade union stick to their positions, the result may be a strike which ends up ruining both parties.

Chicken has two "Nash equilibria", i.e. solutions in which neither player could have improved their payoff *given* that the other player played as she did. These equilibria are where one player swerves and the other goes straight. Both players will in retrospect have no cause to regret their decision - the player who swerves will feel vindicated for had she gone straight the outcome would have been too ghastly to contemplate. The player going straight will clearly congratulate herself on her fine reading of the intentions of her opponent. The situation

in which both players swerve, while not a disaster for either, is not an equilibrium, because both players can tell themselves in retrospect "I should have gone straight. I should have known that she was going to swerve."

Although there are these equilibria there is nothing in the situation to determine which one will be reached. This therefore introduces a dangerous element of randomness into each player's calculation. Essentially you have to second-guess your opponent and do whatever your opponent doesn't do.

As Poundstone notes:

The most disturbing thing about the chicken dilemma is the "advantage" an irrational player has or seems to have. (1993, p.212)

If you play with a lunatic it is in your interest to swerve, because the other person is crazy enough to plunge you both into disaster.

Because lunatics seem to have the edge in these situations there is a clear advantage in persuading your opponent that you are crazy, or that you are locked into a situation in which you have effectively no choice over your strategy, i.e. you are definitely committed to going straight. In union-management negotiations, for example, the unions will try to get cast-iron "mandates" from their membership that they will strike if their demands are not met, so that the union negotiators can persuade management that they essentially do not have the option of "swerving".

Another situation which has no determinate outcome is the following game involving three players. The idea is that the three agents are to split a certain good (e.g. a Rand) between them, except it has to be done on a majority vote. In this situation clearly any two players can gang up on the third one and decide to split the Rand between them. The player who has been excluded can then undercut this deal by offering one of the other players a 60-40 division of the spoils. The individual who now has been excluded then in turn has an interest to undercut this deal, e.g. by offering the junior partner a 50-50 split, and so on.

Game theory has any number of other interesting interactions to offer<sup>2</sup>. The purpose of studying these games are that they supposedly give us an insight into real interactions between people. If we can understand in a particular situation what the underlying structure of the "game", i.e. strategic interaction is, we can grasp why the interaction turned out the way it did. We might not have been able to predict the outcome in all cases, but we will certainly understand the *mechanism* by which the result has been achieved. So, for instance, to understand that the Cuban missile crisis had something of the structure of the game of Chicken gives us some insight into how the interaction proceeded (Poundstone 1993, pp.204ff), although we could not have predicted that it was Khrushchev rather than Kennedy that would decide to "swerve".

The idea that rational choice theory provides a set of mechanisms through which we can understand social interactions is endorsed by Elster:

The emphasis in this book is on *explanation by mechanisms*. It offers a toolbox of mechanisms - nuts and bolts, cogs and wheels - that can be used to explain quite complex social phenomena. ... Laws by their nature are general and do not suffer exceptions. One cannot have a law to the effect that "if  $p$ , then sometimes  $q$ ." Mechanisms, by contrast, make no claim to generality. When we have identified a mechanism whereby  $p$  leads to  $q$ , knowledge has progressed because we have added a new item to our repertoire of ways in which things happen. (1989b, p.3 and pp.9-10)

## Performances

Another picture of how social interactions can be analysed is provided by Goffman (1971). He argues that a key concern of agents in interacting with other agents is to control the way in which they perceive the nature of the interaction and in particular *who you are*. He suggests that social interactions can therefore usefully be understood as *performances*, in which the participants act out, as it were, particular roles.

Often the performance that is given has to present an *idealised* picture of the interaction of who the agent is, or what the agent is doing (1971, pp.44ff). For example, a doctor will be concerned to present the impression that she knows what she is doing, even when it is not clear to her what the ailment is about. As Goffman notes:

If an individual is to give expression to ideal standards during his [sic] performance, then he will have to forgo or conceal action which is inconsistent with these standards. (1971, p.50)

An example of this process of concealment is the correction of errors and mistakes before the performance and the concealment even of the fact that such errors and corrections have been made (p.52). The process of producing a thesis exemplifies this point. The supervisor and student collude in a process designed to conceal from the examiners whatever errors of interpretation, of language or of fact the student may have made before the thesis is submitted for examination.

A further example of concealment is provided by those performances

which could not have been given had not tasks been done which were physically unclean, semi-illegal, cruel, and degrading in other ways; but these disturbing facts are seldom expressed during a performance. (p.53)

The most mundane of these kinds of concealments is that of hiding the processes through which we can appear well-groomed and clean in public. This involves the suppression of various bodily functions while in company and the closeting of the cleaning processes in particular and private spaces.

Care needs to be taken over the performance for other reasons as well. All agents play to different kinds of audiences. The roles that they perform may be at variance and care needs to be taken that one kind of performance does not undercut the credibility of another one. For instance, the macho male student will put on a "respectable", "sensible" and "trustworthy" front when meeting the parents of his girlfriend. In her presence he might act the role of the "super hero" or "protector", while when alone with his male friends he will be the "superstud"

who will regale them with his exploits. The only way the separate performances can be carried off, is by some segregation of the audiences (p.57).

Audiences make their own demands on the actors. In particular they expect some kind of consistency in the form of the interaction.

The expressive coherence that is required in performances points out a crucial discrepancy between our all-too-human selves and our socialized selves. As human beings we are presumably creatures of variable impulse with moods and energies that change from one moment to the next. As characters put on for an audience, however, we must not be subject to ups and downs. (pp.63-4)

For all these reasons (and other ones), the way we *present* ourselves to other people inevitably also involves a degree of *misrepresentation*. In order to impress on our audience how erudite we are, we are compelled to steer the conversation away from topics on which our lack of knowledge would be demonstrated (as indeed we do in our written work as well). Similarly, to demonstrate our attention to someone else, we have to stifle our yawns, prevent our eyes from wandering and maintain a lively expression. Because this type of misrepresentation is intrinsic to social interactions, Goffman argues:

While we could retain the common-sense notion that fostered appearances can be discredited by a discrepant reality, there is often no reason for claiming that the facts discrepant with the fostered impression are any more the real reality than is the fostered reality they embarrass. ... The crucial sociological consideration, for this report at least, is merely that impressions fostered in everyday performances are subject to disruption. (p.72)

The unwanted intrusion of those facts which have been suppressed is a constant possibility. An innocent (or a pointed) question may painfully expose the ignorance of the "expert". A slip of the tongue or an unintended gesture may contradict the impression that the performer is trying to cultivate. The performer may also temporarily lose control over her body, e.g. by fainting or flatulence, or over the performance, e.g. by "going blank", being distracted or

incapacitated by anger (p.60).

The consequence of such failures in the performance can be dire:

When these disruptive events occur, the interaction itself may come to a confused and embarrassed halt. Some of the assumptions upon which the responses of the participants had been predicated become untenable, and the participants find themselves lodged in an interaction for which the situation has been wrongly defined and is now no longer defined. At such moments the individual whose presentation has been discredited may feel ashamed while the others present may feel hostile, and all the participants may come to feel ill at ease, nonplussed, out of countenance, embarrassed, experiencing the kind of anomaly that is generated when the minute social system of face-to-face interaction breaks down. (pp.23-4)

In order to put on a convincing performance, actors routinely use certain "props". These are part of what Goffman labels a performer's "front".

First, there is the 'setting', involving furniture, décor, physical layout, and other background items which supply the scenery and stage props for the spate of human action played out before, within, or upon it. A setting tends to stay put, geographically speaking, so that those who would use a particular setting as part of their performance cannot begin their act until they have brought themselves to the appropriate place and must terminate their performance when they leave it. (pp.32-3)

Besides the "setting" there is also the "personal front", which refers to those items which we associate with the performer directly and which will accompany her.

As part of personal front we may include: insignia of office or rank; clothing; sex, age, and racial characteristics; size and looks; posture; speech patterns; facial expressions; bodily gestures; and the like. (p.34)

These can all be used to signal who the performer is and what kind of performance is being given.

Various techniques are deployed to provide and maintain a good act. Particularly important performances tend to be thoroughly rehearsed before they are put on for public consumption. The audience also often colludes with the actor in maintaining a certain projection of the situation. If for some reason the role "slips" the audience may make up for this mishap through exercising *tact* and so allowing the actor to retrieve the performance.

## Rules

The third perspective from which social interactions may be viewed is that of interactions as being rule-governed. The idea that certain behaviour is rule-driven is supported by Elster. He argues that *social norms* are important in explaining certain kinds of interaction (1989a, Chapter 3). Norm-governed behaviour can be distinguished from the choice-driven (or strategic) behaviour that is invoked in game-theory. The major difference is that the former does not involve means-ends calculations:

Rational action is concerned with outcomes. Rationality says, 'If you want to achieve Y, do X'. By contrast, I define social norms by the feature that they are *not outcome-oriented*. The simplest social norms are of the type 'Do X', or 'Don't do X'. More complex norms say, 'If you do Y, then do X', or 'If others do Y, then do X'. Still more complex norms might say, 'Do X if it would be good if everyone did X'. Rationality is essentially conditional and future-oriented. Its imperatives are hypothetical, that is, conditional on future outcomes one wants to realize. The imperatives expressed in social norms either are unconditional, or, if conditional, are not future-oriented. (Elster 1989a, p.98)

Furthermore, he argues that norms are not just post-hoc justifications for self-interested actions (1989a, pp.125ff). Although people may invoke norms selectively, when it suits them, they do have independent motivating power. Norms are also not simply "optimizing mechanisms in disguise" (1989a, pp.130ff).

Elster provides a long list of examples of norms or rules. Some of them are dress codes, table

manners, rules against incest or 'unnatural' sexual acts, rules of reciprocity, standards of professionalism and so on. Common to them is the fact that they enjoin particular kinds of behaviour ("Do X") and that the public breaking of a norm invites sanctions. In Elster's opinion:

A norm, in this perspective, is the propensity to feel shame and to anticipate sanctions by others at the thought of behaving in a certain, forbidden way. (1989a, p.105)

Giddens (1979, 1984) has argued that rules should not be interpreted as specific injunctions. Rather, they can be best understood in terms of the idea of "knowing how to go on". He develops this argument by discussing the following four instances of rules:

- (1) 'The rule defining checkmate in chess is ...';
- (2) A formula:  $a_n = n^2 + n - 1$ ;
- (3) 'As a rule R gets up at 6.00 every day';
- (4) 'It is a rule that all workers must clock in at 8.00 a.m.' (1984, p.19)

In the third case the word "rule" is really equivalent to habit or routine. Furthermore this does not usually imply that the person is acting on some principle or that there are any sanctions attached to breaking that principle, it is simply something that the person *does*. In Giddens's view,

'Rules', as I understand them, certainly impinge upon numerous aspects of routine practice, but a routine practice is not as such a rule. (1984, p.19)

The first example is an instance of what are often referred to as "constitutive rules", i.e. rules that *define* the essence of what the activity is. By contrast case number four is an example of what are sometimes called "regulative rules". These do not define what the activity is about, but how it is to be carried out. Giddens suggests that this distinction is not particularly useful (1984, p.20). A "constitutive rule" such as (1) also has "regulative" properties for those playing chess. It not only stipulates what is to *count* as a game of chess, it also *governs how* chess is to be played. Breaking these rules will therefore invite sanctions. Similarly example (4) also has some "constitutive" elements. It may not define "work", but it certainly helps to determine what is to count as being a "Fordist production process".

What (1) and (4) direct our attention to are two aspects of rules: their role in the constitution of meaning, and their close connection with sanctions. (1984, p.20)

Paradoxically, case (2) which seems furthest removed from the intuitive concept of "social rule" turns out to be the most interesting. The example is culled from Wittgenstein's discussion of number games:

Let us imagine the following example: A writes series of numbers down; B watches him [sic] and tries to find a law for the sequence of numbers. If he succeeds he exclaims: "Now I can go on!" (Wittgenstein 1967, p.59).

If A writes down the numbers 1, 5, 11, 19, 29 there may be various ways in which B can "know how to go on". B may have tested various formulae and eventually hit on  $a_n = n^2 + n - 1$ . Finding that it worked, the problem was solved. B may also have noticed that the differences in the series evolve systematically, i.e. 4, 6, 8, 10 and on this basis worked out "how to go on". The importance of this is that B might know how to continue with the series without being able to write down the formula. Conversely, someone might be able to utter the formula, without being able to apply it. Understanding

is simply being able to apply the formula in the right context and way in order to continue the series. (Giddens 1984, p.20)

Knowing a social rule is similar to this, in the sense that it requires knowing "how to go on" in different contexts and on different occasions. Giddens therefore concludes:

Let us regard the rules of social life, then, as techniques or generalizable procedures applied in the enactment/reproduction of social practices. Formulated rules - those that are given verbal expression as canons of law, bureaucratic rules, rules of games and so on - are thus codified interpretations of rules rather than rules as such. (1984, p.21)

The implication of this account of social rules, is that agents should be thought of as being *knowledgeable*, at least at the level of practical consciousness. They need to know a lot about the way in which their society functions in order to be able to "go on" with their lives in a range of situations. This knowledge is not necessarily in a form in which it is discursively

available, but it is tacitly given. Agents may not be able to always *explain* why certain behaviour is appropriate, but they generally know *how* to behave.

### Can agents act differently?

Implicit in all three accounts of social interactions is the idea that the nature of the interaction is "given" prior to the interaction itself. Let me demonstrate this point in more detail.

In the case of game theory, the assumption is that there is a definite "game" being played in each strategic interaction. In particular it is assumed that there are well-defined choices confronting the respective players. In the Prisoner's Dilemma, I can defect or co-operate; in Chicken I can swerve or go straight. In each case the parameters of the interaction are already set. There are only a few ways in which the game can be played. More to the point, there are even fewer ways in which the game can be played *rationally*. For those games for which game theory has a "solution", even the outcome of the interaction is determined - provided that the players are both rational<sup>3</sup>.

Goffman's analysis of performances equally assumes that interactions are pre-determined. In each interaction it is assumed that there is a definite performance (or set of performances) that is being given. In a sense the act or routine is scripted beforehand and is hauled out at the appropriate moment to be put on before the audience.

Similarly, the idea of norm-governed behaviour is premised on the assumption that there is a definite norm to be followed. Even in Giddens's work there is the assumption that there is a definite way "to go on" in most situations. This assumption emerges in his argument that the idea of a formula is an appropriate analogy for social rules:

A formula is a generalizable procedure - generalizable because it applies over a range of contexts and occasions, a procedure because it allows for the methodical continuation of an *established sequence*. (1984, p.21; emphasis added)

The rule is therefore established beforehand, and the agent demonstrates her knowledgeable ability by applying it in the particular context in which she finds herself in.

This has quite paradoxical implications. Provided that we can rely on the agent to be suitably knowledgeable or qualified, i.e. able to understand and apply the social rules, the actions of the agent will be more or less determined. A similar implication follows in the other accounts. Provided that we can assume the agent to be rational the outcome of many games is determinate; and most performances will unfold predictably provided that we know that the performer knows her lines. In other words the only indeterminacy in social interactions is introduced either by a defective agent or by a particularly perverse structure of interaction (e.g. the game of Chicken).

The idea that social interactions are, on the whole, determinate is important in addressing what Elster calls the first concept of social order, "that of stable, regular, predictable patterns of behaviour" (1989a, p.1). In the absence of this kind of order, any explanation of society would be impossible. The concepts of games, performances and rules are seen as useful precisely because they allow us to abstract from concrete agents and concentrate on the patterns of behaviour that characterise social situations. We don't need to know too much about individual agents in order to understand how society functions.

Abstracting from particular individuals, however, leads to the problem of how to reconnect the individual with the social structure. In the case of game theory this problem can be reformulated as the problem of explaining how individuals *give* their interaction the structure of a particular game. After all, the game does not exist apart from the individuals that interact. It is because the participating players define their choices in particular ways that it is useful to invoke the model of a game. The question therefore becomes how agents interpret their interactions with other agents and the choices open to them. Rational choice theory does not have a lot to say about this problem. Instead, it is relegated to the domain of individual psychology.

In the case of performances and social rules, the problem of connecting agents with structure is how to understand the existence of those performances and rules. After all, those rules and performances do not exist in some disembodied state apart from the individuals that invoke them. In order to address this question, Giddens develops the concept of *duality of structure*.

According to the notion of the duality of structure, rules and resources are drawn upon by actors in the production of interaction, but are thereby also reconstituted through such interaction. (1979, p.71)

### **Agents and society in separate realities**

Some of the implications of Giddens's position can be seen by considering an account that has some affinity with it. Bhaskar (1979) presents what he calls the "transformational model of social activity":

Society is both the ever-present *condition* (material cause) and the continually reproduced *outcome* of human agency. And praxis is both work, that is conscious *production*, and (normally unconscious) *reproduction* of the conditions of production, that is society. One could refer to the former as the *duality of structure*, and the latter as the *duality of praxis*. (1979, pp.43-4)

The thinking behind this kind of position is that in their interactions with each other (e.g. person A marrying person B), people draw on their knowledge of social rules. In the process of acting in terms of those rules, however, they reproduce (and sometimes transform) those very rules that they have invoked. The reproduction of those rules is the unintended (and usually unconscious) result of their actions. People marry for various reasons (they might like each other; it may save them from an embarrassing pregnancy; it may be for money; etc.) but in the process they reproduce the institution of marriage.

Bhaskar argues that the implication of this position is that society and agents should be thought of as radically different kinds of things:

Society, then, provides necessary conditions for intentional human action, and intentional human action is a necessary condition for it. Society is only present in human action, but human action always expresses and utilizes some or other social form. Neither can, however, be identified with, reduced to, explained in terms of or reconstructed from the other. There is an ontological hiatus between society and people, as well as a mode of connection (viz. transformation) that the other models typically ignore. (1979, p.46)

This means that social activities can be analysed from two points of view - those of the reasons and intentions of the human beings that engage in them on the one hand, and the social structures governing their reproduction and transformation on the other.

Thus we do not suppose that the reason why garbage is collected is necessarily the garbage collector's reason for collecting it (though it depends upon the latter). (1979, p.45)

The former would be the domain of psychological investigation, the latter of sociological research.

Bhaskar argues that this conception enables one to view sociological research as "scientific", and this in precisely the same sense that it applies in the natural sciences. According to Bhaskar's account of the philosophy of natural science the researcher moves from the manifest phenomena to the underlying generative mechanisms. In the case of the social sciences the movement is from observed social activity to the underlying social structure, i.e. if social activity is seen as the analogue of natural events, then social structures constitute the appropriate mechanism-analogue (1979, p.47).

A similarity between natural and social science can be discerned if we consider that the process of research involves asking the question: "What must the world be like for phenomenon X to occur (or make sense)?"<sup>4</sup> In the case of a natural phenomenon, e.g. the explosion of dynamite, the explanation involves reference to the nature of the objects involved, e.g. the chemical structure of TNT. By contrast, in the case of a social phenomenon,

e.g. garbage collection, it will be necessary to explain it with reference to the social structure within which it occurs, e.g. with reference to the way waste is produced in this society, as well as with reference to the fact that there is a division of labour which allows (or compels) certain members of society to specialise in garbage collection. This division of labour allows these garbage collectors to receive their necessities (food and shelter) because they are connected in complicated ways (e.g. through the market) to those people that produce those goods. To put this differently, the *practice* of garbage collection persists only because the garbage collector stands in certain *social relations* to people who produce the normal necessities of life. The existence and nature of these social relationships can be inferred ("retroduced") from the persistence of the social practice.

According to Bhaskar's account of natural science, the underlying causal mechanisms produce the observed phenomena. This connection is a *necessary* one. In the same way, the relationship between social structures and the phenomena they govern must also be understood as being necessary, except that

[N]ecessity in social life operates in the last instance via the intentional activity of men [sic]. (1979, p.45)

Of course because human systems are *open* and cannot be closed experimentally, Bhaskar maintains that social phenomena cannot be predicted, nor will there be an unvarying conjunction between particular social causes and particular effects.

Bhaskar argues that because social structures need to be continually reproduced (or transformed) and because they exist only through human agency, a *relational* account of sociology is required. In other words, the persistent relations between people (and relations between relations) are the paradigmatic subject matter of sociology. This is so, because if agency and social structure are to be combined,

it is evident that we need a system of mediating concepts, encompassing both aspects of the duality of praxis, designating the 'slots', as it were, in the social structure into which active subjects must slip in order to reproduce it; that is, a system of concepts designating the 'point of contact' between human agency and social structures. Such

a point, linking action to structure, must *both* endure and be immediately occupied by individuals. It is clear that the mediating system we need is that of the *positions* (places, functions, rules, tasks, duties, rights, etc.) occupied (filled, assumed, enacted etc.) by individuals, and of the *practices* (activities, etc.) in which, in virtue of their occupancy of these positions (and vice-versa), they engage. I shall call this mediating system the position-practice system. Now such positions and practices, if they are to be individuated at all, can only be done so *relationally*. (1979, p.51)

In the hands of Bhaskar, then, the theory of the duality of structure becomes a tool to explain how knowledge of society becomes possible for us. It is because social situations (rules) are given prior to concrete interactions between agents that society can become an object of *scientific* knowledge for us. Furthermore this knowledge consists of understanding the relations between agents, abstractly conceived<sup>5</sup>.

Perhaps the key problem in this account is that it doesn't satisfactorily explain how it is that social structures sometimes get transformed. How is this process of transformation itself to be explained? Bhaskar suggests that this is itself governed by social structures:

I want to distinguish sharply, then, between the genesis of human actions, lying in the reasons, intentions and plans of people, on the one hand, and the structures governing the reproduction *and transformation* of social activities, on the other; and hence between the domains of the psychological and the social sciences. (1979, pp.44-5; emphasis added)

So social structures govern human behaviour, including the way in which human beings transform those social structures.

This account implies that what happens in society is completely determined by the autonomous logic of social structures. In other words, realism ends up being just another version of structuralism. Instead of two layers of reality - people and society - who are connected by the reproduction/transformation relation, we have two completely separate domains, that of society and that of human behaviour, the one governed by the logic of social

structures and the other by "reasons, intentions and plans of people". The fact that society exists only by virtue of human beings and that social activities only take place by virtue of human reasons and intentions is not the issue; what *happens* is governed by social structures and so the level of people, of reasons and intentions can be safely ignored and analysis restricted to that of society. There might be two ways of describing social reality - one in terms of reasons and intentions and one in terms of social structures, but the latter does not need to refer to the former, except as a general precondition - i.e. that society could not exist without *some* human reasons and conceptions. Now given that Bhaskar argues that human beings can be mistaken about why they do things (1979, Chapter 3), it is clear that the description in terms of social structures must take explanatory precedence. As Bhaskar notes, the reason why garbage is collected is not necessarily the garbage collector's reason for collecting it. The ultimate causal agents in this model are not people, but structures.

This latent structuralism can be quite clearly seen in the way Bhaskar argues for a relational account of sociology (see p.82 above). He argues that agency and society must connect via a "position-practice system" which essentially consists of pre-given "slots" in the social structure "into which active subjects must slip to reproduce it" (1979, p.51). It is not clear that this conception differs markedly from that which sees human beings as "Träger" (bearers) of social relations.

It should be observed that to some extent this is merely an extension of the idea that the appropriate social rules are given independently of the concrete interaction. If social rules pre-exist the actions of the agent, why not social roles? The knowledgeable ability of the agent would in this case simply amount to correctly playing the role expected of her (doctor, academic, garbage collector).

The variant of structuralism that seems at play in Bhaskar's account looks suspiciously like *functionalism*:

It should be noted that engagement in a social activity is itself a conscious human action which may, in general, be described either in terms of the agent's reason for

engaging in it or in terms of its social function or role. *When praxis is seen under the aspect of process, human choice becomes functional necessity.* (1979, p.45; emphasis added)

This is not really surprising, because the process of "retroducting" social structures from concrete social phenomena, as advocated by Bhaskar, invites this kind of position. If we ask the question: "What must the world be like for garbage collection to occur?" it is easy to suppose that we are being asked what the *function* of garbage collection within society is.

This latent structuralism has the effect of severing the link between agents with their intentions and reasons, and society with its enduring relations, rules and structures. While in Bhaskar's view this ontological separation serves as the foundation from which knowledge of society becomes possible, in fact it makes scientific research unintelligible as a human practice. A precondition for the intelligibility of science as human enterprise is that scientists accept a new theory  $T^*$  as superseding the old theory  $T$  at least in part because they have *good reason* to believe that  $T^*$  is superior to  $T$ . If there is no *essential* connection between scientific change and the reasons of scientists, science becomes a meaningless activity<sup>6</sup>. This means that there must be at least some cases where explanation of social change must of *necessity* talk about people's reasons.

Now clearly the reasons of scientists are not the only factors impinging on scientific change. Scientific theories build on and transform existing cognitive materials (as Bhaskar argues), i.e. they are advanced within the *social* context of discussion within the scientific community. Furthermore arguments have to measure up to the current standards of what is considered satisfactory empirical proof. Nevertheless while these social processes set the context for scientific change, they do not determine it.

Bhaskar would probably agree with these arguments. Indeed, there are good reasons to suppose that he sees the relation between society and human activity in non-deterministic ways. For instance, he uses language as an analogy for the relationship between society and people:

[W]e can allow that speech is governed by the rules of grammar without supposing either that these rules exist independently of usage (reification) or that they determine what we say. The rules of grammar, like natural structures, impose *limits* on the speech acts we can perform, but they do not *determine* our performances. (1979, p.45)

This example, however, pinpoints a fundamental flaw in the logic of the realist argument as developed by Bhaskar. Central to the claim that social theories are *scientific* is the argument that the structures "retroduced" from social activity are *causal mechanisms*. Now it is quite clear that although language might be a *precondition* for a particular speech act, it does not *cause* it. Similarly, the existence of a division of labour is a precondition but no cause of garbage collection. Now although preconditions also involve the concept of necessity (language is certainly necessary for speech acts!), it is quite a different order of necessity from that of causal necessity. To take an example from the natural sciences, to establish that the presence of oxygen is a precondition for animal life as we know it might tell us many things - but it certainly does not explain animal life!

The confusion between preconditions and causal mechanisms leads to the latent determinism in Bhaskar's "transformational model of social activity". The following statement is instructive:

[T]he essential movement of scientific theory will be seen to consist in the movement from the manifest phenomena of social life, as conceptualized in the experience of the social agents concerned, to the essential relations that necessitate them. (1979, p.32)

This determinism is at the root of the marginalisation of the real human actors with their particular projects, intentions and reasons from social scientific enquiry. Concomitantly it leads to the elevation of the social scientist, who has privileged access to the "real" mechanisms that make the ordinary mortals tick. Now it has been argued above that the implication of this kind of determinism is that scientific practice becomes unintelligible.

## Conclusion

It has been argued that treating social situations as "given" prior to interaction means that innovation and transformation become inexplicable. Persistence can be explained but not change. If we want a non-determinist social science we require an account which is capable of explaining how agents come to define their choices, including how they come to decide what social rule to apply; and how social rules get transformed. In other words, it requires an account which does not relegate the concrete agent and her reasons to the domain of psychology.

I will argue that such an account will be forced to break with the idea that there are social rules pre-given to the interaction of concrete individuals. This seems quite a radical statement. After all we all *know* that there are social rules - dress codes, etiquette - according to which we live our lives. Furthermore we know that most other people live their lives according to these or quite similar rules. People might surprise us some of the time, but they certainly do not do it most of the time. How such an account can be defended will be considered in the next chapter.

## Notes:

1. Strictly speaking the situation I have described is not a two-person but a multi-player PD.
2. One of my favourites is the "dollar auction" (Poundstone 1993, pp.260ff). This is an auction of a dollar, which is played according to the following rules:
  - (1) The highest bidder obtains the dollar
  - (2) The second highest bidder obtains nothing, but must still pay the full value of her bid.

It can be imagined that when the auction opens somebody will bid 1 cent for the dollar, since to obtain a dollar for one cent is an enormous bargain. Another person is likely to top this bid, say with 2 cents. The person who bid first is now faced with the prospect of losing a cent for nothing, so will rebid 3 cents. This bidding will continue until one person bids one dollar. The person who bid before (say 99c) is now faced with a loss of 99c for no return. This

person can therefore minimise her losses by bidding \$1.01 for the dollar, since this would involve a loss of only 1c. This in turn leaves the person who bid \$1.00 with a loss, which can be minimised by bidding \$1.02. Theoretically this auction could carry on indefinitely, because the person who bid second can always reduce her losses by bidding again - but in the process the overall losses accumulate to higher and higher levels.

Poundstone suggests that many real-life situations are dollar auctions:

Strikes that threaten to ruin both labour and management have much in common with the dollar auction. Each side wants to stick it out a little longer; if they give in now all the lost wages or lost profits would just be money down the drain. ... Repairing an old car - playing a few more hands of cards to recoup losses - waiting for the bus a few minutes more before giving up and hailing a taxi - staying in a bad job or bad marriage: all are dollar auctions. (1993, p.263)

3. Games in which the equilibrium is given by a "mixed strategy", i.e. a randomised combination of strategies, seem to contradict this. While the actual outcome may be random (i.e. we cannot predict how the die will fall and therefore which strategy will be followed) the strategy itself is still determinate. For example, we can predict that the agent will cooperate with probability one-third and defect with probability two-thirds.

4. Derek Sayer (1983) has suggested that when Marx called his work a "Critique of Political Economy", it was this kind of procedure that he had in mind. The term "critique" as used, for example, in Kant's "Critique of Pure Reason" involves an investigation into the grounding of a particular observed phenomenon. The concept is useful, particularly in the social sciences, because it also implies that such an investigation has the potential to criticise the observed phenomena, e.g. by showing that common-sense representations of them are misleading.

5. This is quite clearly the implication of Bhaskar's position. If knowledge necessitated understanding the set of *concrete* relations between *concrete* individuals, there would simply be too much information to make comprehensive knowledge possible.

6. There are certainly no *a priori* reasons for suggesting that science (and indeed any other form of human communication) has to be meaningful, but if one wants to sustain an argument for the intelligibility of science (as Bhaskar does), then it is clear that one has to be committed to the idea that scientific change occurs at least in part *via* the reasons of scientists.

## Chapter 4: Social Rules

Social rules seem all pervasive. They extend from the rules of etiquette regulating the minutiae of inter-personal encounters to laws and treaties governing the behaviour of vast aggregates of human beings. The *fact* of social rules is therefore not at issue. What is being disputed is whether these rules have a determinate content prior to being implemented in a particular situation.

The argument that will be advanced in this chapter is that no rule can be formulated in such a way that its application to all situations is completely mechanical. In other words if we believe that human beings are *governed* by rules, then these rules must be so incredibly complex that we could not consciously formulate them.

In fact it is suggested that a more helpful way of analysing rules is as paradigmatic examples of how to behave (or how not to behave). The lessons implicit in these models of behaviour have to be continuously extracted and re-extracted and then applied to the new contexts in which we find ourselves. In other words, the "rules" implicit in these models are partially dependent on the way in which we see similarities and dissimilarities between our current situation and the contexts in which we learned our previous lessons.

In order to make these arguments more persuasive, it is necessary to subject the "standard model" of social interactions to more critical scrutiny. The "alternative model" will then emerge from the critique.

### Ways of (not) going on

In order to analyse what it means to "act on a rule", it is necessary to retrack some of the points that Giddens and Wittgenstein made. In Giddens's view, the central feature of

following a rule was being able to "go on" with an established sequence. The paradigmatic example of this was following a formula, as in Wittgenstein's number game.

There are, however, serious problems with this example. In the first instance, Giddens and Wittgenstein assume that an established sequence of numbers fixes a rule. Nevertheless there are myriads of ways of extracting rules from a given pattern. In particular, a finite sequence of points cannot fix an infinite series. Given any finite set of points one can always construct infinitely many formulae to match them. There might be one *obvious* rule, i.e. one which is simpler than the others, but this is not necessarily the case.

Secondly, the only test of a rule is whether it stands up to the observed pattern. Now it is possible for two rules to stand up equally well to the pattern. Until a point is reached where the two rules would suggest different ways of "going on", we cannot definitively say which rule is the one that is generating the pattern. If this point is not reached we might not be able to say which rule is the correct one.

Thirdly, the only way in which we know whether we are really going on as the established pattern suggests we should, is if we have an authority to pronounce on this matter. In the case of Wittgenstein's number game this is quite simple - we merely ask the originator of the series. Social rules are not like this, however. There is no authority that has created the rule and that can determine what the rule means in each particular circumstance.

Fourthly, there is nothing inherent in established patterns that suggests that they should carry on. Maybe some patterns actually terminate, because there *is* no proper way of "going on"<sup>1</sup>.

The complexities of generating rules from established patterns is brought out very well in the work of Douglas Hofstadter (1986, Chapter 24). His research on pattern recognition focuses centrally on analogies and metaphorical "slips". For example, he asks who the "First Lady" of Great Britain is. Is it Queen Elizabeth? Is it Maggie Thatcher (he was writing in the early 1980s)? Central to the idea of a "First Lady", however, is that she is the *consort* of the head

of the state. This suggests that either Prince Philip, or Denis Thatcher should be thought of as the "First Lady" of Great Britain! In the case of South Africa different questions arise. Would Winnie Mandela qualify, even though she is estranged from the Head of State?

As Hofstadter notes:

One of the purposes of these puzzles is to dispel the notion that the full, rich, intuitive sense of a role, such as that ... of First Lady, can be easily captured in words. In fact, it might be more accurate to assert the contrary: that precisely in its nonverbalizability lies its fluidity, its flexibility. ... A frozen verbal phrase is like a snapshot that gives a perfect likeness at one moment but fails to show how things can slip and move. There is something much more fluid in the way a mind represents the role internally. Various features are potentially important in defining the role, but not until an example comes up and makes one feature explicit does that feature's relevance emerge. (p.561)

The point is that if we have a particular "pattern" or constellation of roles in situation A and we wish to map this pattern into a different situation, B, the most logical way of doing this cannot be determined by looking at situation A on its own. It is the way in which the mapping from A to B is made that will determine what is seen as essential<sup>2</sup>.

Now "knowing how to go on" in social life is much more similar to making these metaphorical slips (i.e. working out what is similar in the *current* situation to situations previously encountered or learned about), than applying a formula in the sense that Giddens's mathematical game suggests.

To put this more concretely, it can be suggested that "acting on a social rule" consists of the following steps:

1. The existence of examples of "acting appropriately" that are given to us either through observing approval of our own behaviour or that of others. There may also be paradigmatic examples of "acting inappropriately".

2. When confronted with a particular situation, we try to match the structure of the current interaction as accurately as possible to situations previously experienced.
3. Based on the particular analogies that we draw we extract the rule which tells us what to do in the situation in which we find ourselves.

The idea that behaviour should be interpreted as governed by *example* rather than by *rule* (or formula) will be explored more fully below. One of the immediate implications of this position is that the rule does not exist prior to its implementation. It is only once we have grasped in what way the current situation is analogical to known situations that we can say what the rule is - and in different situations the analogies will be set up in different ways and consequently the rule will be different. In other words, the same set of examples can support different kinds of rules, and which one will apply depends on the context.

In order to make this account seem more plausible, a number of examples of "applying a rule" will be considered. As befits the contention of this chapter, the central ideas of how social rules work will be extracted by analogy from these cases.

## Traffic rules

What does it mean to follow the rule "drive on the left hand side of the road?" At first blush this seems simple enough. One imagines a line down the middle of the road which divides the "left hand side" from the "right hand side" and one is supposed to keep to the left. Now clearly this is not quite so simple, because there are situations in which roads have two lanes going in one direction (say South) and one lane going in the opposite direction (say North). Driving along the middle lane in a southerly direction still qualifies as driving on the left hand side of the road, even though one might be across the geometrical middle of the road.

One could therefore amend one's interpretation of the rule by saying that it really means driving to the left of the "middle line" which is painted on the road. Except that it may not

be painted on the road, but marked by a physical barrier, such as a thin traffic island or a fence. And how would one apply this new rule if there is no sign of a middle line at all?

Yet further complications are brought on by situations where the two lanes are physically separate roads, as in a freeway. Here one would suggest that the rule means that one should drive on the left hand road, even if one is driving on the right hand side of this left road! This can be further complicated if there are no left and right roads, because they are stacked on top of each other (as with a portion of Johannesburg's M1). Here the "left hand side of the road" is that road which is physically continuous with what a couple of kilometres earlier was the "left road" in a system of two separate roads, one going North and the other South.

There are situations in which there are no obvious "counterpart" roads, for example along one-way streets. Here the whole street is the "left hand side of the road", except that there is not a "right hand side of the road" somewhere in close proximity. A traffic circle provides such difficulties as well. "Driving along the left hand side of the road" here should probably be read as "drive in a clockwise direction" (since that is the most logical way in which traffic merges in and out of the circle into left-handed traffic).

Even when it seems quite clear what the "left hand side of the road" refers to, there are still difficulties in applying the rule. Overtaking is permitted on many stretches of the road. Even if it is not permitted, what would you do if a drunken driver meandered onto your side of the road and the other lane was free? You would probably swerve across to avoid this hazard. Similarly, if a truck was broken down in the left-hand lane, what would the rule say? The last two examples suggest that when hazards or obstacles occur we interpret the rule differently. In the case of the broken down truck we might interpret it as meaning that we should stick as far to the left of the remainder of the road as possible.

The upshot of this is that if we were to suggest that we are *actually* following a rule, it is certainly not the simple rule "Drive on the left hand side of the road", but rather a rule of the kind "Drive on the left hand side of the road, EXCEPT (1) when the road happens to be a

traffic circle, in which case drive clockwise, OR (2) when the road happens to be a dual carriage way, in which case drive on the left road, OR (3) when there is an obstruction, in which case keep to the left-hand side of the remainder of the road and get back to the left-hand side of the road as soon as possible ...".

Now it is not clear that one could actually exhaust all the possible complications and make provision for them in a complex rule like the one above. Indeed, Hofstadter argues that one could find a scenario for *every* formulation of the rule, in which the rule is broken, but where with some thought there is a (or possibly more than one) "logical" way of going on.

The "logical" way of interpreting "driving on the left hand side of the road" also depends on a set of key but unarticulated relationships: the idea of a "middle of the road", that of "traffic flow in two directions", that of "traffic lane" and so on. It is also integrated into various other networks of concepts such as "system of traffic flows", "one-way streets", "two-way streets" and "traffic circles". Which particular set of connections are salient in one situation and which are so in another can probably not be determined *a priori*.

Ultimately this example suggests that even the application of a quite simple rule like driving on the left-hand side of the road involves processes of drawing analogies and extracting the most appropriate interpretation from them for the given context. The recognition of common structures in different situations and the extraction of the appropriate rule based on these analogies therefore *underpins* the ability to apply the traffic rule.

## Getting Married

The idea that the application of rules is based on the isolation of key relationships within a situation and a calculation of what are more salient features than others can be seen as well in the process of getting married. As Bhaskar pointed out, people do not get married to reproduce the institution of marriage, but that is one of the unintended consequences of their

action. What then, does it take to get married?

The elements of a paradigmatic Western marriage ceremony are, *inter alia* the following: a bride (who is not at that stage married), a groom (who is also not married), several witnesses, a priest, a church as a setting, the exchange of marriage vows, the exchange of rings, a blessing, entries in the marriage register, a white bridal dress, a smart suit for the groom, the playing of the Wedding March, etc. Now each of these elements could be missing or present in a transformed sense. Would the resulting ceremony still count as a marriage ceremony? Consider the following possibilities: 1) a homosexual or a lesbian wedding; 2) a wedding in front of a magistrate in a magistrate's office; 3) a ceremony *al fresco* without any officiating officer but in front of the couple's family and friends with the mutual exchange of vows (but these being self-written); 4) a private dinner at which two people promise each other to be faithful and to remain together for at least twenty years, while they produce and raise some children. Which of these acts of making a promise count as "getting married"? This seems to depend on how one judges the relative importance of various elements and how they relate to each other in the ceremony.

Two points need to be made in this regard. Firstly, what is to count as "getting married" is not simply an individual decision. For a couple to be regarded as *being married*, it needs to be accepted by at least some other people. This need not involve every member of society, but might just involve key groups, e.g. members of one's family, members of one's religious group or even just friends. Perceptions of whether or not a particular ceremony is to *count* as getting married therefore have to be gauged from other people as well. This might involve some conflict. In many societies homosexual weddings are not recognised as genuine weddings. Such a ceremony would therefore inevitably spark dispute about the status of the couple. This debate need not ever be concluded (there might always be some people that deny that homosexuals could ever get married), but a dominant social view might emerge about the status of certain practices.

The second point follows on from this. When a particular couple gets "married" this provides

another example of "what it takes to get married" to other couples, even if the dominant social view disapproves of that procedure. This disapproval might be a lesson to other prospective "deviant" couples. On the other hand, it may not deter them. Through cumulative acts of defiance, the dominant social view may itself change.

This point in essence suggests a similar process to that posited by Giddens under the rubric of "duality of structure". It can be captured in the following movement:

1. Couple X has observed a series of examples of "what it is to get married" (and perhaps also of "what it should not be like to get married").
2. From these examples they extract the most salient features of "what it is to get married" and apply these by analogy to their own situation.
3. Their practice (and perhaps social reaction to it) is available to serve as an example or model for other couples.

The structure of this process is quite similar to the idea of acting on a rule and in the process reproducing or transforming it. The only difference is that it makes clear *how* a rule or institution might get to be transformed.

## Drawing the lessons

The idea that social behaviour is dependent on example rather than rule should not really be surprising. After all, the way that children are taught various lessons is very often by way of example. In fact adaptive behaviour *requires* this ability to find analogies between known and novel situations and therefore the ability to find new ways of "going on". If children were actually taught formulae which they had to implement mechanically, they would very soon come unstuck. The fact, of course, is that even where children are taught a "rule" (like driving on the left hand side of the road) this rule is treated more like a paradigmatic example of what is to be done, than as a formula which can be immediately applied.

This difference between treating a rule like an example or treating it like a formula can perhaps be brought out by the example of following a cake recipe. The recipe might stipulate among its list of ingredients that 3 cups of cake flour are required. If I don't have cake flour I have two options. I can either decide to abandon this recipe and look for another recipe with ingredients which I do have. This would be the idea of recipe as formula. If I do not have the right ingredients, I cannot apply the formula. I could also decide to substitute bread flour for cake flour. In this case I would treat the recipe as an idealised example which can be transferred by analogy into my situation. The end product of this process may be a reasonable approximation to the cake that I originally had in mind, or it may turn out to be something quite different.

Creativity in baking or in social interactions requires that rules be treated more like examples than like formulae. Of course it should not need to be said that if a rule is treated like an example, then what it means, i.e. how it should be interpreted, is not fixed in advance, but depends on the particular circumstances to which it applies. Crucially, it also depends on how the agent that does this application sees the particular analogies between the paradigmatic situation and the current context.

In view of the fact that the argument against the view of social behaviour as formulaic has now been made in a number of different ways, it is perhaps appropriate to summarise the points that have been made, i.e. to draw the "lesson" from the previous examples.

1. Social (and indeed all intelligent) behaviour depends on the ability to draw analogies between known and novel situations and to extract rules of behaviour on the basis of these analogies. These rules depend on the way the analogy is drawn, i.e. they do not exist independently of the situation to which they have to apply.
2. The process of drawing an analogy requires the identification of structures of salient features which are similar in both situations.
3. The process (both within the individual and within social groups) of deciding which features and relationships are salient can be seen as a pandemonic process of debate about appropriate ways of "looking at the situation". The fact that there might be debate and initial

uncertainty does not mean that the individual cannot eventually decide on what the most compelling analogy is.

4. Rules, in so far as they are formulated, should also be treated as providing paradigmatic examples of behaviour. In fact no formulated rule will be able to cover all the exceptions and novel ways in which analogies will be drawn. The ability to apply rules appropriately is therefore underpinned by the capacity to draw analogies based on example.

5. Once an agent has decided how to go on in a particular situation, that action (and its ramifications) in turn can serve as an example, either to other people, or to the agent itself.

### Why do we formulate rules?

An immediate objection to this account is that if rules do not govern behaviour, why do we persist in formulating them?<sup>3</sup> The simplest answer is that the formulation of a rule is a memory-enhancement trick which allows us to perceive analogies in new situations more quickly than we might otherwise do. This can be explained in the following way.

The process of transferring the lessons from previous experiences to the current situation essentially involves the following components:

1. One has to be able to cut up reality into various features and identify the salient ones.
2. One has to be able to see relationships between these features.
3. One has to make a mental mapping from the salient features and their relationships in the previous situation (the example) to those in the current situation and on that basis decide "how to go on".

Formulating a rule helps in all three respects, it sensitises one to the presence of certain features, it prompts one to look for particular relationships and if these exist it makes it easier to "see" the situation in a particular way. This can be seen by considering a rule such as "At a four-way stop always yield to traffic coming from the right". One can see this rule as posing a series of questions which need to be answered whenever one approaches a four-way

stop: "Is there a car to my right? Is it stationary? Is it about to move off? Is it safe for me to continue?" A rule should therefore be interpreted as a device to help one read the situation, rather than as a phenomenon which governs behaviour.

This feature of rules emerges quite clearly in some of the contexts in which rules are formulated. Firstly, we might wish to draw a lesson from a particular experience, e.g. "If you antagonise a Rottweiler, it is likely to become vicious". This empirical inference could lead to the rule "Never antagonise a Rottweiler". In this sense rules of behaviour ("Don't do X") are linked to simple causal rules ("If you do X, Y is likely to occur"). The more solidly the causal inference is grounded, the more it will predispose us in future to perceive reality in particular ways.

The learning of such a lesson can therefore be seen as a device whereby I alter the way I perceive and act on future situations. In other words, a rule is a way in which a *current* brainstate can influence the occurrence of *future* brainstates. In that sense it is analogous to the role that projects play in human behaviour. Where projects are devices to remind ourselves of what we are doing, rules are devices to remind ourselves of what we have learned.

The second context in which a rule might be formulated is if we have to explain to somebody else how to perform a particular task. In that instance the purpose of the rule is to highlight the features of the situation that the novice would not normally pay attention to. It also serves to remind the novice of "what to do next". In this sense, a rule functions very similarly to a project. It serves to keep attention focused on the task at hand.

The connection between rules and projects functions at a deeper level as well. Both rules and projects are concerned with the question: "What to do next?" Projects are designed to filter out irrelevant *options* and to keep us focused on the task at hand. Rules are designed to filter out irrelevant *perceptions* of the situation and therefore to help us accomplish our projects. Indeed, one could argue that implicit in projects are certain rules, and implicit in rules are

certain projects.

In short, the reason why human beings formulate rules is the same reason why they talk to themselves: complicated long-term undertakings are not possible without the memory tricks that serve to connect what we *now* know and think with what we might need to remember and take into consideration much further down the line. Rules are therefore just as real as projects. They may not *govern* activity, but they change the context in which human beings evaluate their situation and decide on an appropriate course of action.

## Conclusion

Rules are some of the most powerful memory enhancement tricks invented by human beings. Nevertheless their actual role is thoroughly misunderstood if it is assumed that they are formulae which tell us "how to go on". Instead they are devices for helping us to isolate important similarities between different situations and so to transfer, by analogy, what we have learned.

Nevertheless this process of transference is dependent on the way in which those analogies are drawn and that can vary from person to person, depending on prior experiences or other idiosyncratic features. This means that people are constantly capable of surprising us - finding new ways of acting in terms of "old" rules.

While this creativity is at the root of the possibility of transforming society, it is also a necessary feature of even the most routine forms of social activity. Given this latitude for innovation there is a real question as to why people do not surprise us more often. How is social order possible if social rules are subject to such idiosyncratic processes of interpretation? This question will be more fully addressed in the next chapter.

## Notes:

1. These four points can be demonstrated in relation to the actual numerical example given by Wittgenstein (and borrowed by Giddens) by means of a thought experiment. Assume, for the moment, that you are observing three people playing Wittgenstein's number game. Avril writes a sequence down on the board and Bertha and Carol have to guess what the rule is that generates it.

We can suppose that Avril begins by writing down a "1" on the board. Bertha immediately jumps up and says "I know! The series is 1, 1, 1, 1, and so on. I've seen this series before." Carol responds to this by saying "No, you don't have any evidence for this as yet. I think that it is more likely to be the series 1, 2, 3, 4."

At this stage Avril writes down the next number, which is a 5. Bertha mumbles "Okay, so we were both wrong. What series do you think this could be? Maybe it is 1, 5, 1, 5, 1 with the numbers 1 and 5 just alternating." Carol responds "No, I think it is probably the series 1, 5, 9, 13, which just goes up by 4 every time." Avril now writes down "11" on the board, which silences both Bertha and Carol. They realise that Avril is working according to some particularly devious rule. After some deep thought and calculation, Bertha opines "Maybe Avril is applying the formula  $a_n = n^2 + n - 1$ . It is the simplest equation which will fit all three points". Carol objects "How do you know that she is not working with a polynomial equation of degree 3 or 4 or even higher? After all, the equation  $a_n = n^3 - 5n^2 + 12n - 7$  fits just as well. In fact infinitely many equations will fit any finite number of points!" Bertha responds "That is true, but that is why I chose the simplest out of all these equations. The only way that we will know whether this formula is the correct one is if it holds up when Avril writes down the next number."

Avril obliges and writes down a "19". Bertha is triumphant. "See, I told you so! This number fits my formula. I think that the next number will be 29." Carol agrees that the formula seems to fit. She cautions, however, that until one sees how the series continues one can't *yet* be certain. Then she suddenly says: "Look! I think I can spot a pattern. All the numbers that Avril has written down are prime." Bertha objects "That's true. But it leaves out a whole lot of other prime numbers." Carol responds "Yes, but that is the whole point. Avril has skipped the two prime numbers between 1 and 5, then she has skipped one prime number to get to 11, then she has skipped two again to go to 19. I think that she is going to carry on skipping alternatively one then two prime numbers. This means that the next number should be 29."

At this stage Avril dutifully writes down 29. Bertha is exultant. "This finally proves my theory" she says. Carol demurs "It also proves mine. You can't be sure that you're right until the next number. I predict that it will be 41, because if you skip the next two prime numbers after 29, that is what you get." Bertha complains "But 41 is what you would also get on my formula. How can you say that it would prove your theory?" True to expectations Avril puts 41 on the board.

Carol says "I think my rule has stood up pretty well, but we will know for sure at the next number, because according to my rule you should get 47 while your formula gives 55. I'm sure that you will see that I was right." Unfortunately at this stage Avril has a mild epileptic seizure. When she recovers Bertha and Carol anxiously implore her to go on with her series. Avril looks blankly at the sequence. Finally she admits defeat. "I'm not very sure what I was thinking. I *know* that there was something in my head when I wrote those numbers, but I can't remember what it was. Maybe it doesn't go on. It looks a bit like the ages of my sister's family. Her husband is 41 and she is 29. Her stepson is 19 and her stepdaughter is 11. Her own children are 5 and 1, but I can't really swear that that is what was in my head when I wrote those numbers."

Bertha and Carol insist that modelling a sequence on the ages of family members is the daftest thing that they have come across. "How can you possibly go on with a sequence when it stops after 6 numbers?" they complain. Avril demurs, "There is nothing daft about it. Who says that a sequence should go on? All you asked me to do is to write up some numbers on the board so that you could guess the rule according to which I wrote them. Maybe the rule I used was to go by the ages in my sister's family and maybe I used some other rule. I really don't know." Bertha and Carol insist that the sequence must have meant something else. "Look how perfectly those numbers fit my rule" they both protest, but nothing will persuade Avril that one of those was the rule that she had in mind.

2. This point can be elaborated on by considering some of Hofstadter's other analogies (1986, pp.549ff): Assume that we have the following sequence, which we call A:

A: 1 2 3 4 5 5 4 3 2 1

Now consider the pattern B:

B: 1 2 3 4 4 3 2 1

The question is: "What is to B as 4 is to A?" Or, "What plays the role in B that 4 plays in A?" (1986, p.549)

Most people would give 3 as the answer. The "rule" according to which this mapping is made would be "take the number to the left of the central pair". One could, however, construct other rules such as "take the fourth number in the sequence" which would give 4 as the answer. More perversely, one could even suggest "take the seventh number in the series" which would give 2.

The reason why these latter two "rules" strike us as clearly wrong, is that it denies some of the evident similarity of structure that we can detect between A and B. Both exhibit a sequence of numbers which ascend and then descend. It seems clear that in order to find an

equivalent for 4 in B one somehow needs to take this structure into account. As Hofstadter notes:

A good answer must take A's structure into account in a full, rich, and yet simple way. This means that, to the extent it is possible, all of A must be perceived in terms of interacting, mutually intertwining conceptual structures - roles that are mutually dependent, in the way that "family", "husband", "wife", "mother", "father", "daughter", "son", "brother", "sister", "relative", "in-laws", and so on are all interdependent concepts. (p.553)

The point that is being made is that in order to apply a rule in a new context, we inevitably first have to establish in what way the new context resembles the old one. This, however, requires seeing similar kinds of structures within A and B. To go on the rule "take the fourth number along" violates this because it suggests that the only similarity between A and B is that they both consist of series of numbers. It is only once we have established some kind of mental mapping (i.e. analogy) between the structures of A and those of B that we can make the judgement as to what is appropriate in the new context.

If we now consider the cases C and D, we see further complications:

C: 1 2 3 4 5 6 6 6 6 5 4 3 2 1  
D: 1 1 2 2 3 3 4 4 5 4 4 3 3 2 2 1 1

In C, if we rigidly stick to the idea of "taking the number to the left of the central pair", we would pick 6. Nevertheless this does not seem the most appropriate rule. Rather, it seems that we should generalise the idea of the "central pair" to include the whole "central block" which would mean that 5 is the answer. In D we do not have a central pair, but now all the other numbers are paired off. This suggests that we should interpret the move from A to D as involving a switching of pairs and singletons: whatever was a singleton in A becomes a pair in D and *vice versa*. This suggests that the pair 44 plays the role in D that 4 plays in A.

More tricky still is the following pair of structures:

E: 1 2 3 4 5 6 7 8  
F: 8 7 6 5 4 3 2 1

In these cases there is no central pair, block or number to separate an ascending and a descending series. Instead in E the sequence continues to ascend, whereas in F it simply descends. One way of dealing with this situation is to simply map E onto the left half of A and F onto its right half. The rule in the former case becomes "take the number to the left of the last term in the ascending sequence" and "take the number to the right of the first term in the descending series" for F. In either case 7 becomes the number corresponding to the 4 in A.

Hofstadter provides progressively more complex ways in which analogies can be set up. Some of his examples of this are:

G: 5 4 3 2 1 1 2 3 4 5  
H: 1 2 3 4 6 5 5 6 4 3 2 1  
L: 1 2 3 4 5 6 7 8 9 7 8 9 6 5 4 3 2 1  
P: 5 4 3 2 1 5 4 3 2 1  
Q: 5 4 3 2 1 1 2 3 4 5 5 4 3 2 1

The central point to the exercise is that each case requires the salient features of A to be seen in slightly different light. Is it important that the sequence is first ascending then descending? In other words, can we suggest that the central pair in G is an appropriate analogue for the central pair in A? What does this imply for Q which has first a descent then an ascent followed by a descent? Does the central pair have to be the "summit" or the "trough" of a sequence, i.e. should we take the 55 in H as the analogue of the 55 in A, or should we treat the whole complex 6556 as a unit (separating the ascent and the descent)? Depending on how one sets up the analogy, different "rules" for identifying the equivalent of 4 in these cases emerge.

3. Another objection that might be entertained is the idea that there may be rules for recognising patterns. These rules would, of course, not be social rules, but psychological or neurological ones, but in a reductionist programme might serve the same ultimate purpose. If we could isolate such rules, then the reductionist would hope that the way in which the human being behaved would become amenable to law-like explanations.

Nevertheless there are good grounds for believing that our pattern-detecting behaviour is not entirely hard-wired, but emerges from the particular connections between neurons that are made as a result of exposure to the environment. This can be seen by considering some examples based on Hofstadter's "Seek-Whence" programme. Consider the sequences A and V:

A: 1 2 3 4 5 5 4 3 2 1  
V: 4 3 2 1 3 2 1 2 1 1

What plays the role in V that 4 plays in A? There do not seem to be any obvious points of analogy. The closest that one gets would be the similarity between the pair of 5s and the pair of 1s. Based on that one might venture 2 as an answer.

Now consider the sequences G and T:

G: 5 4 3 2 1 1 2 3 4 5  
T: 1 2 3 4 1 2 3 1 2 1 2 1 3 2 1 4 3 2 1

In the case of G the most obvious counterpart to 4 is the 2, based on a mapping that simply inverts ascending and descending series. Now what about T? After some thought, the most logical way of "reading" T seems to be as

T: 1-2-3-4 1-2-3 1-2 1 2-1 3-2-1 4-3-2-1

Now we can set up a mapping between G and T where the descending *numbers* of G correspond to smaller and smaller *sequences of numbers* in T. One difference is that the "turning point" of the sequence in G is a pair of numbers, whereas in T there is only one. The simplest way of looking for the counterpart of the 2 in G is therefore to take the sequence which is next to the turning point in T. This gives two choices, either 12 (left side) or 21 (right side). Since we read from left to right, I would opt for 12. This would also give 12 as the analogue for 4 in A.

Having done this exercise, we can return to the case of V. It now seems relatively simple to see V as:

V: 4-3-2-1 3-2-1 2-1 1

If we see V as a descending series of sequences of numbers, we can map V onto the right hand side of A. 321 as the second longest sequence (i.e. one away from the "top") would seem to be the most logical counterpart of 4.

Would we have seen this similarity without the benefit of the other exercise? However one chooses to answer this, having once seen the pattern it becomes much easier to "read" other sequences, e.g.

W: 4 3 2 1 3 2 1 2 1 1 4 3 2 1 3 2 1 2 1 1

or even

X: 7 5 3 1 6 4 2 3 1 2 1 3 2 4 6 1 3 5 7

The way we detected patterns previously therefore predisposes us to see things in particular ways. This phenomenon is well known. Indeed, in many disciplines the key element that is taught is how to recognise certain patterns, e.g. "That is a quadratic equation", "That is a linear differential equation" and so on.

This recursive feature of pattern-detection means that it is not very likely that there are any set rules that govern it, because the rules would have to be self-modifying. Even if it ultimately turned out that there were such rules, they would have to be highly individualised ones, because they would be dependent on the individual's previous experiences.

## Chapter 5: Routines, roles and relationships

If social action depends essentially on the ways individuals perceive their situation and act on it, then social order needs to be seen as an *achievement* not a given. This chapter will be concerned with some of the processes by which this achievement is attained. It is argued that repeated interactions and verbal feedback are crucial components in this.

Through such loop-back processes initially random interactions can become "stretched out" in space and time as routines and relationships. Such patterns of interaction can be seen as the inter-personal analogues of projects.

Just as the concept of the "self" can be seen as a device for providing some coherence to the collection of human projects, it transpires that the idea of a "social system" is a powerful organising device for bringing order to our relationships.

### Learning from past interactions

The fact that repeated interactions introduce important new effects has been well recognised in the literature. In the field of game theory, for example, a classic study by Axelrod (1990) showed how continued interactions allowed co-operative strategies to emerge in the Prisoner's Dilemma. Axelrod's approach was quite simple. He organised a "computer tournament" in which different strategies of playing the prisoner's dilemma were matched against each other over many rounds of playing the game. At the end of one round of this competition (with each strategy having played against each of the other ones) a process of "natural selection" occurred, in which the more "successful" strategies, i.e. those which had scored more highly, were allowed to reproduce. In this way the number of "players" adopting successful strategies in the pool of contestants gradually increased. Similarly, unsuccessful strategies were

gradually weeded out. Surprisingly, the most successful strategy was also the simplest, a programme called "TIT FOR TAT". This strategy starts off by co-operating and then simply echoes the previous move of the other player. If the other player has defected, then TIT FOR TAT "retaliates" by also defecting. If the other player has co-operated, TIT FOR TAT reciprocates.

Axelrod argues that the success of TIT FOR TAT is due to four characteristics: it is nice, i.e. it starts off by co-operating; it is retaliatory, i.e. it "punishes" defection by the other player by defecting in the following turn; it is forgiving, i.e. it goes back to co-operating when the other player has co-operated; and it is clear - the other player can work out quite quickly what is going on in the interaction. According to Axelrod:

Its niceness prevents it from getting into unnecessary trouble, Its retaliation discourages the other side from persisting whenever defection is tried. Its forgiveness helps restore mutual cooperation. And its clarity makes it intelligible to the other player, thereby eliciting long-term cooperation. (Axelrod 1990, p.54)

TIT FOR TAT exhibits the simplest form of learning from past interactions that is possible - it simply has to remember the last interaction with a particular individual. This simplicity suggests that it might underlie the evolution of co-operation in various simple biological systems, for example.

This almost blind form of learning might be operative in certain human forms of interaction as well, where other forms of learning (e.g. by speaking to each other) are not possible. Axelrod suggests that the "live and let live" system which developed in the trenches during World War I was based on this mechanism (1990, Chapter 4). This system simply meant that neither the German nor the Allied frontline troops shot to kill. Instead they developed routines which kept up the pretence of being engaged in a war to their superiors, while in practice causing relatively little damage to the other side. What underpinned this set of relationships was the mutual understanding on both sides of the front that a breaking of this tacit understanding would lead to instant retaliation by the other side and that a mutual shoot to

kill policy would be much worse for both sides. This understanding could emerge because it was essentially the same set of troops that faced each other for long stretches of time. These practices were frowned upon by the respective high commands and eventually the stability of this interaction was disrupted by the ordering of raids on the trenches of the enemy. A raid was much more difficult to fake, because it would involve either definite casualties or the taking of prisoners.

The requirement for the emergence of co-operation is simply that the respective players recognise the *strategy* that the other player is adopting as being TIT FOR TAT. Identifying a strategy involves detecting a pattern in the responses of ones opponent<sup>1</sup>. Such a pattern, once detected, informs the way in which one conducts the interaction oneself. One can, of course, also detect a strategy on the basis of observations of how a particular player interacts with *other* players. Indeed, sometimes the *point* of a particular interaction is to demonstrate to other players what one's strategy is, as when a schoolyard bully demolishes a hapless victim to teach a lesson to everyone else.

One need not have identified the other player's strategy accurately for a stable pattern of interaction to emerge. For instance, if two players both believe that the other person is not to be trusted, i.e. is a person who will always defect, they will play safe in an interaction, i.e. they will both defect. This in turn will convince them that they were right all along. This will lead to a series of mutual defections each of which confirms the original theory. This might happen despite the fact that in other circumstances the players might be just as willing to co-operate. The interaction of people from two sub-cultures or ethnic groups that have particular stereotypes about each other probably mirrors this kind of situation quite accurately ("You can't trust Blacks because they will steal from you at the first opportunity"; "You can't trust Whites because they will underpay and take advantage of you at the first opportunity"). Within their own group such people will behave co-operatively, but when it comes to dealing with a member of the other group they will cheat, steal and double-cross, thus confirming the stereotypes.

Detecting a strategy need not involve positing an intelligence behind that strategy. Indeed, Axelrod's analysis of the TIT FOR TAT strategy was based on a tournament in which the contestants were computer programmes. These had no intentions or perceptions other than those written into them.

Learning from past interactions among human beings normally does not stop at simply identifying strategies among the people that we habitually interact with. We posit a "self" that is the source of the actions. As a first approximation, we can therefore say that part of what we learn from our past interactions and those of other people is a "model" of society which is inhabited by various actors ("John", "Mary", "Thandi") who each have particular ways of interacting with other people ("John is a bully, he will beat you up for no reason").

### Routines

Besides providing *information* about the state of mind or strategies of agents that we encounter, past interactions can also provide a useful model for the pattern of future interactions. A *routine* is simply a pattern of particular behaviours which may originally have been quite accidental, but once established reduces the need to think about "what to do next" in a particular interaction.

As an example of this, I might invite a colleague out to lunch to a particular coffee shop. The venue proves congenial and so the next time that the issue of going to lunch is raised, it does not take much thought to go back to the same venue. Interactions with small children often highlight the importance of routines - particular bed-time or meal-time rituals, for example.

Once a model for interacting with a particular person has been established, it can become difficult to break out of the routine. Besides the cost of needing to think *de novo* about what to do next, there may be sanctions incurred by doing so (anyone who has had dealings with a toddler knows how high those costs can be). The knowledge that others expect me to act

in accordance with the routine can therefore sustain the routine as much as any benefits that may accrue from the routine itself.

Routines extend from behaviour peculiar to two persons in their private interaction to superficial forms of interaction common to large masses of people, such as greeting rituals ("How are you?" "Fine, thank you" etc.). What *makes* them routines, is that there is a well-established pattern of behaviour that allows most agents to make the transfer to the current situation quite readily. The "rules" of the interaction are quite clear, as it were<sup>2</sup>.

There are more elaborate forms of routines, in which the exact sequence of behaviour patterns is not so clearly laid out. A medical examination would be an example. These *performances*, in Goffman's terms, are also strongly rule-guided, in the sense that there are well-established models of behaviour for both parties to the interaction. Another way of putting this, is that there are clearly defined *roles*, where a role is simply the "part" that one plays in the particular routine or performance.

Roles serve the same purpose that routines do - they are ways of "going on" in a particular situation. In particular they enable certain interactions to be extended in space and time. In this sense roles are the inter-personal equivalent of individual projects.

Let me develop this analogy further. In the individual case it was argued that the trick of reminding oneself of what one was doing ("I am making a fire for supper") lengthens the effective attention span and therefore allows medium and long-term projects to emerge. In the case of co-operative projects the definition of a role serves the same function ("I am lying in ambush waiting for the deer that the other hunters will drive towards me"). *Where a project reminds one of what one is doing, a role reminds one of what interactions one is part of.*

Another way of looking at roles is that they are dependent on, and in turn define, relationships. A role can only be defined in *relation* to other roles; and a relationship connects two or more roles. The trick of rehearsing a particular role can therefore just as easily be seen

as the trick of reminding oneself what relationship one is in.

Roles and relationships should be seen as *real* in just the same way as projects are: certain long-term activities are not possible without them. A role is real to the extent to which the agent acts in terms of it. For a relationship to exist, however, requires *all* the parties to the putative relationship to act in terms of their assigned roles (i.e. you can "lie in ambush" on your own, but you can't be part of a hunting party on your own).

To sustain a relationship it is necessary not only to remind yourself of your role, but to ensure that everyone else is reminded of theirs. Instead of talking to oneself, this can be quite simply accomplished by talking to them. Through these constant processes of self-exhortation and exhortation *of* others and *by* others, the relationship is maintained.

## The Narrative Construction of Society

In the same way that roles are analogous to projects<sup>3</sup>, we can extend the analogy further, to the self. It was argued in the last chapter that the self should be seen as a narrative construction - as the centre to which various projects "belong". The purpose of this "narrative fiction" was to achieve some coherence between projects and to adjudicate the scheduling problem of which project should be pursued next.

In the case of roles and social interactions, there is the analogous problem of which role should take precedence in any particular situation. In this case we can suggest that the positing of an *identity* which is at the centre of various roles and relationships performs a quite analogous function<sup>4</sup>. To say that "I am Martin Wittenberg. I am an academic; a dutiful son; a reliable partner and responsible father" is to highlight certain relationships and to ignore others.

In locating oneself as an identity within particular relationships, one is compelled to see other

agents (at least the ones that one is relating to) as being identities themselves within yet other relationships. In other words, one will posit something like a *social system*, i.e. a system of relationships, within which one is embedded.

The way in which one posits one's own identity will affect the way in which one sees the key relationships which define the social system. Conversely, the way in which one sees the social system as operating will affect the way in which one sees one's own identity. In other words, the narrative construction of one's own identity is at the same time the narrative construction of one's place in society, and in that sense a description of society itself.

This is not an individual process, however. Other people remind us of what relationships we are in, and thereby also remind us of how we are located in relation to others: "You are a white, male South African. You are a German. You are a member of the ANC. You were a chess player". This reminding need not happen in a verbal manner - it can be simply the looks that we get when we behave "out of character".

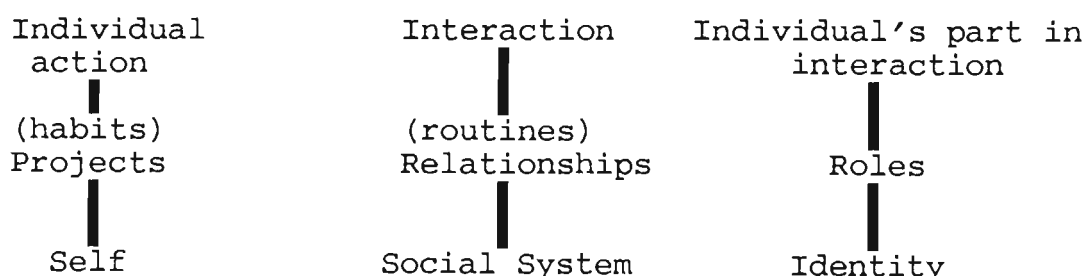
Besides narrative fragments which deal with the nature of our relationships with various other identities, there will be bits of narrative which try to explain how everything "fits together". These accounts, whether they be political analyses in newspapers, folk legends spread by word of mouth or grand social theory spun out in books or theses, in different ways try to provide the tools by which one can locate oneself within this network of relationships.

This process is of fundamental importance to us, because the way in which we locate ourselves affects how we relate to other people. It is because we know that relationships affect the way people act, that we spend so much time trying to work out which are the most salient ones and how other people are "connected". For example, we will generally not insult the local chief of police (and even less the local chief of the mafia), because they are connected in ways in which they can do us a lot of damage.

The adequacy of any particular "construction of society" is constantly tested against

experience. If we fail to detect salient relationships, they inevitably confront us sooner or later. Nevertheless as the example of the interaction of two groups based on stereotypes shows, it is possible for a construction to be adequate to our experience, without it necessarily being accurate.

Because the narrative construction of our identity and of society undoubtedly has real effects, we need to see them as being just as real as the self is. We will discuss the issue of how to analyse the idea of a social system in more detail below, but for the moment we can draw attention to the structure of the analogies that have been made as follows:



The first column of this diagram represents the model of agency as developed in the last chapter. Projects are essentially a way of extending certain kinds of activities into the future. The self is a way in which different projects get prioritised. The last column extends this approach to the situation where the agent is in interaction with other agents. Roles are seen as a means of extending the individual's part in certain kinds of interaction (i.e. co-operative projects; routines) into the future. An identity is a way of adjudicating between different roles. Roles and relationships should be seen as interdependent, and so should identities and the social system. The crystallisation of a self should thus be seen as analogous to the way in which a perception of social order crystallises out of myriads of interactions.

This connection is even closer, because the construction of a "self" is not an independent process of the construction of an "identity". To see yourself as the centre of your *actions* means, in a social context, also to see yourself as the centre of various relationships which

guide your *interactions*. In other words, the argument of the last chapter that the self was constructed in a social context can be extended. The self is constructed in the same movement that posits the existence of a social system in which the self is embedded. Furthermore this positing of the self and of a social system is itself not achieved in isolation, but through interaction with other people<sup>5</sup>.

To understand the self then, we need to understand something of the way in which the social system is narratively constructed. Now every account of the social system will have the following characteristics:

- a) It will identify the set of agents that make up the social system. These will be individual and collective agents.
- b) It will identify sets of relationships between them.
- c) It will impute certain projects and certain natures to particular agents.
- d) It will suggest some of the patterns of behaviour characterising specific agents.

Since agency is layered, the way the the social system is understood will also be layered. For example, at one level there might be an account of one's department as a social system. Such an account will identify all the members of the department, their particular ambitions and natures and hence the kind of behaviour that one can expect from them, and the relationships and alliances between them. At the same time, it is clear that this micro-social system is embedded in broader relationships. This would mean seeing one's department as set within particular relationships with other University departments, with agents such as Deans and Vice-Chancellors. The University in turn would be part of a yet broader social system, in which it needs to position itself in relation to the projects and behaviours of Education Ministries, donors, and so on.

This layering of social relationships has important effects. Firstly, the nature of micro-social interactions conditions how a particular collective agent interacts with other collective agents. Intra-departmental disputes, for example, might affect the ability of the department to claim resources within the University's allocation procedures. Secondly, the nature of the macro-

social environment within which a particular collective agent is operating can affect the nature of the micro-social interactions within it. For example, in the context of "external threats", there might be a strong incentive to bury local differences and to co-operate to help the department to survive. This suggests that the way in which agents see the inter-relationship between different layers of interaction will have important effects on the way in which they "position" themselves within society.

Of course the reason why we try to locate ourselves within the social system, is that the way in which we understand the projects and behaviour patterns of other agents will affect the way in which we can view and plan our own projects. In that sense again the self is integrally bound up with the perception of the social system.

### **Fragments of social order**

Given that people's interpretations of social rules and therefore of the social system is dependent on highly individual processes of pattern recognition and interpretation, quite different interpretations of the social system are possible. Indeed, within the same "society" one finds quite incompatible accounts of the operation of the social system. For example, various neo-Nazi groupings spin accounts in which Jewish conspiracies feature very prominently. In Trotskyist theories, by contrast, it is conspiracies of capitalists together with reformist labour leaders that are determining macro-social interactions.

The existence of such incompatible accounts raises two problems. Firstly, it poses a question about knowledge, i.e. how can we be certain that our particular construction of the social system is "better" than those of other people? Secondly, how is social order possible if people end up acting in terms of incompatible social rules and social theories?

To tackle the second question first, even if people start off with incompatible theories of society they can still act in ways in which their interactions are somewhat comprehensible to

each other. The example given earlier of members of two groups interacting with each other would be a case in point. In other words people might *know* what an interaction will be like, even if they have completely different accounts as to *why* the interaction takes the form that it does.

Furthermore people constantly try to persuade other people to see things from their perspective. This takes many forms - from gossiping about a colleague to talking about international politics. This information exchange can serve to co-ordinate perceptions. Gossiping, for example, can help people to form opinions about the nature of particular agents, even if they do not interact with them frequently. Explicitly formulating rules of interaction can do the same. Even if rules do not govern individual conduct, the formulation of such rules can help structure the perception of people so that they will act in comprehensible ways in particular situations.

Even where such information exchange does not lead to a convergence of perspectives (e.g. if a racist talks to a convinced liberal) the fact of the exchange will become embedded in the picture that one has of the social system, so that future interactions will be guided by the fact that person X is a racist or Y is a liberal. If we know something about the world-view of another person the behaviour of that person (even if completely repugnant to us) becomes comprehensible.

Nevertheless surprises still happen. In this case one will be inclined to ask "Why did X do that?" This question may even be posed directly to the agent concerned, with the aim of getting an insight into the way in which that agent perceives patterns or constructs the social system. Even where it is not explicitly asked, we will try to develop hypotheses about the nature and projects of the agent concerned that would explain this particular action.

Such revisions to our picture of the social system can be seen as a process of "patching over" the breaks that we experience in our social interactions. This process of revision need not affect the idea that there is some comprehensible social order in our environment. We will

assume that we just did not perceive the salient features and relationships correctly. To some extent, therefore, the impression of social order is a reading that we put onto the situation in retrospect.

We will be reassured in this strategy, provided that other relationships hold firm. Sympathy expressed by family, colleagues and friends in situations where we have been disappointed helps in this patching process.

Nevertheless the fact that we are capable of "explaining away" behaviour incompatible with our view of the social system raises the first question, as to the status of our knowledge of the social system in a more acute form. The short answer to this question is, of course, that we cannot be certain that we understand the social system correctly, i.e. there is no final, undisputable truth about society. All that we have are particular accounts of what happens in society.

These accounts will generally do the following:

1. They will describe the existence and projects of particular individual and collective agents.
2. They will show how the actions of these agents can be explained with reference to the particular relationships and social systems that they are part of.
3. They will indicate how these agents make sense of their projects and relationships with reference to a particular "world view", i.e. a particular narrative construction of society.

These accounts therefore attempt to explain the real causal agents that underlie the observed patterns of human behaviour. These causal entities are, *pace* Bhaskar, real people and organisations. Social relationships, while they have an influence on how people act are not themselves causal agents, although they might be *preconditions* for the existence of certain kinds of projects and interactions.

Despite the fact that all accounts have this structure, this does not mean that they are all equally good, i.e. they are not all equally "scientific". Just as in the natural sciences, accounts

have to be phenomenally adequate, i.e. they have to stand up to the available evidence. So if I want to argue that there is a conspiracy involving the state and top capitalists to keep the working class under control, there must be evidence for such a conspiracy.

The major difference between more scientific accounts and lay theories is in the way in which evidence is used. Firstly, good accounts should be as sparing in their ontological assumptions as possible. In other words hypothetical agents (conspiracies and secret committees) should not be multiplied beyond need. Although the positing of such agents is valid in certain situations - just as the positing of new particles is in physics - the existence of such agents must be verifiable through the way they impact on observed behaviour. Secondly, good accounts must be reasonably consistent. If we suggest that a certain agent is committed to certain projects then we should not attribute diametrically opposed projects to that agent as well. For example, if we hold that the state is committed to smashing working class organisation we should not also hold that it is committed to incorporating such organisations. Agents are not always rational and consistent, but departures from rationality and consistency are not the norm. Thirdly, the account must be capable of verification or refutation. If we posit a global conspiracy which is so all embracing that any turn of events will confirm it, the theory is devoid of empirical content.

However, even the most impressively scientific theory will not achieve closure. Because social order is fragmentary, the hope that one can ever achieve a final account of society is illusory.

## Conclusion

Social order is fragmentary because individual pattern-recognition underpins the way in which agents "go on" in particular situations. Nevertheless through repeated interactions and inter-subjective discussions on the nature of the social system some form of order emerges.

This order is, however, always only provisional. It is always possible for some individual (or

group of individuals) to find new ways of going on in particular situations. Because people learn about the "rules" of the macro-society through their micro-social interactions, such local innovations can maintain themselves within a particular social network or area. Particular figures of speech, dialects or vocabularies probably arise and maintain themselves in this way. Such local innovations can, however, also spread and lead to macro-systemic change.

Agency and social relationships must therefore be thought of as *located*: geographically, temporally and socially. People learn and re-learn to become agents in particular places, at particular times and within particular social networks and relationships. The way in which these spatio-temporal processes leave their imprint on agency and society will be explored in more detail in the next section.

## Notes:

1. In this sense TIT FOR TAT is a very primitive form of strategy indeed - it does not "worry" about what sort of strategy the other player is adopting. It simply echoes that player's last move. The only pattern it detects is a one-move pattern.
2. Obviously there is still scope for innovation or deviance - we have all come across "rude" people that do not respond appropriately to a friendly greeting, or that insist on rehearsing their medical history instead of proceeding with the ritual.
3. In fact roles should properly be analysed as just particular *types* of projects, i.e. projects which involve other people.
4. To be more precise, it is not just an analogous function but the same function. If roles are analysed as just projects involving more than one person, then the process of piecing together the self is the same process as piecing together the roles that the individual is involved in. For analytical convenience we will keep the one-person and the multi-person cases separate for the moment.
5. In this sense the creation of a self may be a trick *of* an individual brain, but it is not a trick *by* an individual brain.

## Part Three: Fractal space-time

The idea that human agency should be thought of as located in space and time is not a new one. Indeed Giddens's account of structuration theory stresses the importance of *locales* in social interactions.

Similarly, many sociological theories now recognise that concepts such as class and gender are context-sensitive. In other words, the class structure of Britain is different from that of Germany, or Taiwan or South Africa. Class processes are therefore localised in space and time.

At the same time it is clear that spatial categories such as "Britain", "South Africa" or "Pietermaritzburg" are not intrinsically "given" but subject to social definition and contestation.

This, however, raises the issue of how the social processes and the spatial processes "connect". How do spaces and places emerge? How do social processes operate in and through places? What, indeed, is a place?

In this section it will be argued that spaces do not exist prior to or independently of particular interactions. It will furthermore transpire that the processes which underpin the emergence of places are deeply discontinuous. Indeed the same processes which lead to the emergence of coherent actors within coherent social relationships also lead to the emergence of definite places.

The argument proceeds in several stages. In Chapter 6 the question of space and time is considered from the perspective of mathematics and physics. The space of human interactions is after all located within the broader abstract space of the universe. The major purpose of this discussion is to highlight how questions of space and time are integrally linked to questions of movement. Indeed, space and time can be characterised by the kind of movement that is possible, and *vice versa*.

Chapter 7 then considers human space-time paths in more detail. Time-geography and in particular the work of Pred serves as the launching pad for this investigation. It is argued that the physical movements of the human being do not as such make for a well-defined experiential life-path. Furthermore human movement is, in general, "jagged", structured over several spatial scales and somewhat space-covering: all characteristics which suggest that fractal geometry might provide a more appropriate model than the smooth paths normally utilised in time-geographic diagrams. It is argued that the fractal nature of human movement underpins the emergence of the concept of a *body* with a *life-path*. Indeed, *ascribing* a continuous life-path to our body is one of the key ways in which we constitute ourselves as agents.

Chapter 8 then analyses the way in which space-time enters into human interactions. The work of Pred and Goffman is used to indicate how spaces and times are used to co-ordinate human interactions and therefore allow for the emergence of inter-agent routines and relationships. It is argued, however that these space-times of interaction are deeply fragmented and structured at various scales, which again suggests that they have a fractal character. It is the link between social practices and these spaces and times which creates the sense of a geography and a history.

This geography and history serve as the context against which we locate our life-path. Conversely, however, our perception of abstract space and time is generated on the basis of our life-path. Chapter 9 argues, therefore, that the idea of the life-path and of abstract space-time are two mutually inter-dependent perspectives from which we can analyse the way in which we humans "connect" with the world and with each other.

## Chapter 6: Abstract space-time

At the most abstract, there are two ways in which one can conceptualise space-time. It can be assumed to be either *absolute* or *relative*. In the former conception of space, it is assumed to be given independently of whether or not there are objects within it. The latter, by contrast, assumes that talk about "space" is merely an elaborate way of talking about the spatial relationships between objects.

The relative conception of space is currently more popular. Nevertheless, as Sayer (1985) argues, this approach has to confront the problem that spatial relations are relatively independent of the objects that constitute them. For example, if we consider the spatial relations between the following letters:

A	B	C
P	Q	R

the relationship of the B to the A and the C is the same (or at least analogous to) the relationship of the Q to the P and the R. In other words, the "betweenness" relationship is not dependent on the nature of the objects that are involved. Spatial relationships can therefore to some extent be *abstracted* from their context. Indeed all of the spatial concepts that are in everyday use (distance, shape, position etc.) are abstract in this sense.

This chapter therefore begins by considering how various abstract conceptions of space are developed from the spatial relationships between concrete objects. Initially it is shown how the act of measuring lengths and distances can lead to an abstract conception of space. Newton's contribution was to extend this concept by finding a way of talking about movement within such an abstract space. The combination of abstract movement with a fixed frame of reference led to the Newtonian conception of absolute space.

Einstein then showed that the fixed frame of reference could be abandoned. This, however, meant that movement and the description of space-time became interdependent.

## Properties of length and distance

One of the most elementary forms of abstracting spatial relationships from concrete objects is in the concept of *length*. Initially this can be thought of as simply comparing the sizes of different objects. Such comparisons of two objects (say A and B) can lead to only one of three different conclusions, viz. A is bigger than B, A and B are the same size, or A is smaller than B. Symbolically this can be rendered as  $A > B$ ,  $A = B$ , or  $A < B$ . The process of abstracting the property of "length" from these kind of comparisons is based on the fact that these relationships exhibit a certain order. The relationship "greater than" is transitive, i.e. if  $A > B$  and  $B > C$  then immediately  $A > C$ . The relationship "is equal in size to" is also transitive. Furthermore it is symmetric, i.e. if  $A = B$ , then  $B = A$ ; and it is reflexive, i.e.  $A = A$ . These properties taken together imply that the process of comparing the lengths of various objects imposes a rank ordering of classes of objects, with members of a given class being simply all those objects that are precisely the same size<sup>1</sup>.

The idea that all objects can be slotted into a rank ordering from largest to smallest can be taken one step further, with the introduction of the idea of a *measure* of length. This is done when we assign to one object the role of unit of length (or measuring rod). By using this standard, we can "mark off" units of length along any object that we wish to measure. In this way we can make judgements such as "This object is greater than 2 units long, but shorter than 3 units". In essence this produces an ordering of objects into classes of lengths based on the natural numbers. In practice we abstract further, by allowing for fractional and even irrational numbers as lengths. This means that the process of measuring introduces a correspondence between the sizes of objects and the real number system.

Some of the assumptions underlying these abstractions need to be noted. The first point is that we assume that sizes change only slowly in relation to the measuring process. If this assumption does not hold, we would not be able to establish a stable rank order for sizes. Secondly, we assume that the size of objects does not change when we move them around. In order to measure the relative sizes of different objects we need to be able to move the

measuring rod. We obviously need to assume that this does not change its size. Finally, if we make the assumption that lengths are given by real numbers we are in fact assuming that lengths are infinitely divisible. This assumption is probably not warranted. Modern physics, in the shape of "superstring" theories, assumes that there is a fundamental particle length below which one cannot go. Nevertheless for all practical purposes the idea that ever finer gradations in our measurement of objects can be made, holds up very well.

Once we have abstracted the idea of fixing the relative lengths of objects by means of a measuring rod, this concept can also be applied to the *distances* between objects. Crucial to this is the fact that there is a shortest path between any two objects<sup>2</sup>. This path is normally referred to as the "straight line" between the objects. The distance is simply the length of the path between the objects measured along this straight line. The idea of a shortest path can be put abstractly as follows: If p,q and r are any objects and  $d(p,q)$  represents the distance between p and q, then we will have:

$$(1) \quad d(p,q) \leq d(p,r) + d(r,q).$$

In other words, the distance between any two objects is at least as short as the distance which goes *via* a third object. Equation (1) is often referred to as the triangle inequality, because it can be represented in the plane as in Figure 1. In this case it asserts that the distance AC is smaller than the sum of the distances AB and BC.

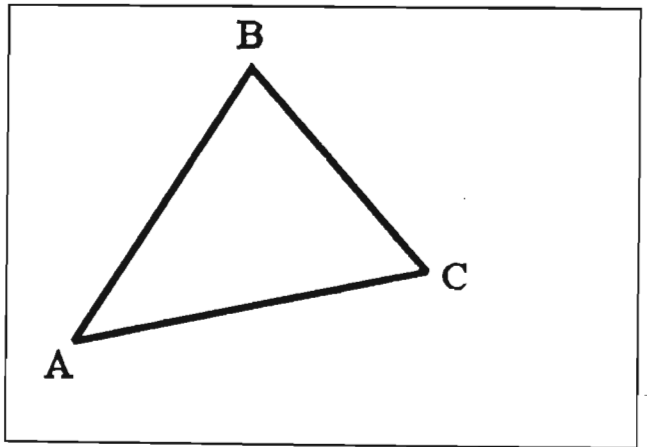


Figure 1 The Triangle Inequality  
 $AB + AC \leq AC$

The abstraction of "distance" would not be made if certain distances did not change relatively slowly compared to the measuring process. It is because there is a certain *fixity* to the natural environment within which human beings *move* that the idea of measuring distances makes sense.

Human movement is therefore fundamental to the process of abstraction. In "pacing out" a path between objects this human movement also exhibits the property of direction. We can turn "left" and "right" or even "north" and "south" (if we take the movement of the sun as a guide). If we combine the ideas of movement, distance and direction within a given, relatively fixed, environment we can make the abstraction of a *path*.

The idea of a path is quite closely connected to the idea of a *position*. Both are defined in relation to some fixed reference system. A path connects two positions; and a position within this reference system (environment) can be defined by the path that one takes to reach it from a known starting position.

This link between positions and paths is brought out quite clearly in the notion of *co-ordinates*. In a co-ordinate system each position is defined with reference to a set of standard paths (co-ordinate grid). In the case of the standard x,y co-ordinates, a position would be fixed by a given distance in the x direction, followed by a certain distance in the y direction. This can be seen as the prescriptions for following a path, as Figure 2 indicates.

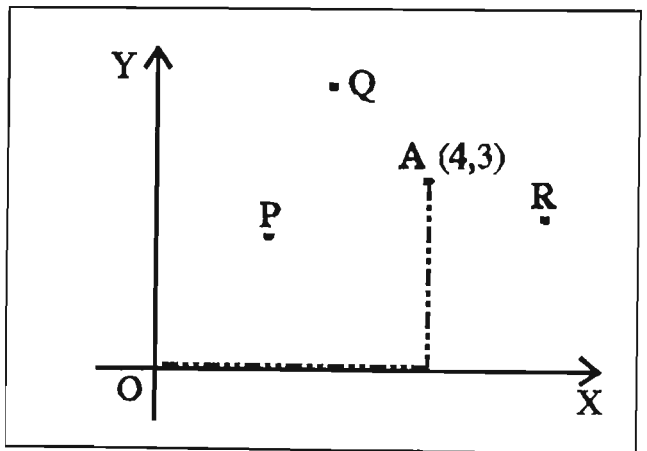


Figure 2 A Co-ordinate System

It should be noted that with the abstraction of the co-ordinate system, all reference to concrete objects has been removed. There is no assumption in Figure 2 above that the locations of the points A and O correspond to the locations of real objects. All we have is an abstract set of instructions (go 4 units in direction X; then 3 units in direction Y) to indicate how to move to the point A from the point O.

We might be able to attach a concrete reading to such an abstract vision of space. For

example, the point O might correspond to the location of the observer (us); the unit of measurement might be kilometres and the directions X and Y might correspond to "North" and "West" respectively. In this case the points P, Q and R might correspond to particular objects that we know (trees, houses, stone markers etc.). The point A might, however, not correspond to any such distinctive object in our environment.

The issue is simply that corresponding to the idea of a co-ordinate (or reference) system, there is the idea of abstract *points* in space. These may, or may not, be occupied by objects. The abstract *space* is simply the entire collection of such points, together with the co-ordinate system and the *metric* (or measure of distance). In a sense we could say that the points of the space define, in the abstract, all the positions that objects within that space could take up. Equivalently, they define what movement would be possible. To say, therefore, of an empty box that the "space" is still there, in the absence of objects, is equivalent to saying that *if* there were objects, they could occupy various positions within the box, i.e. they could move around within the box.

## Metric spaces

This abstract notion of space can be more rigorously defined. If we assume that  $a, b$  and  $c$  are points of the space  $S$  and  $d$  is a metric over  $S$ , then the following relationships will hold:

- (2)  $d(a,b)$  is a finite real number for every pair of points  $a$  and  $b$  in the space;
- (3)  $d(a,b) = 0$  if and only if  $a = b$ ;
- (4)  $d(a,b) \leq d(a,c) + d(c,b)$ .

A space with these properties is called a "metric space" in mathematics (cf Copson 1972).

Equation (2) stipulates that there is a definite distance between all points of the space. In other words, the moment that we have abstracted the concept of a "point" in space and have located it with reference to our co-ordinate grid, we have implicitly stated that we can

measure the distance between it and every other point in our space. Equation (3) simply states that the distance from each point in space to itself is zero and furthermore that all points of the space that are distinct from each other must be separated by some distance. Equation (4) restates the fact that there is some shortest distance between two points.

It should be noted that the particular co-ordinate system does not play a necessary role in the definition of this abstract space. Its role is chiefly to fix the positions of each of the points in the space. A different co-ordinate system can do this just as well, however. Moving to a different co-ordinate grid simply means that the points in the space are relabelled in some systematic way. This does not necessarily change the spatial relationships (i.e. distances) between the points. Furthermore if we know the basis on which the co-ordinate system has been transformed, we can recapture our original definition of space by simply applying this transformation to each of the points in our space. The idea of a change in the co-ordinate system without a change in the metric is important for relativity, as will be discussed below.

Furthermore, there need not be only one metric defined for the points of a particular space. For example, for the space of the plane defined by the x,y co-ordinate system, we can either have the "normal" metric, where the distance between two points is defined by the straight line between them. Another metric over this space, however, is the so-called "taxi-cab" metric, where the shortest

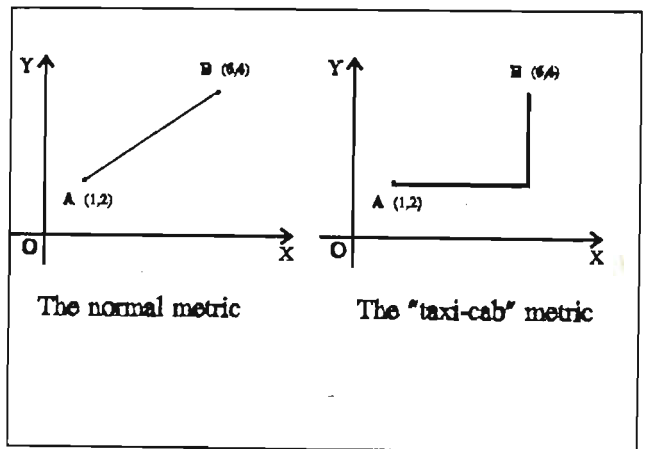


Figure 3 Different metrics in the Euclidean plane

distance is defined only in terms of straight-line movement parallel to the x- and y-axes. It is relatively easy to show that with this metric the equations (2) to (4) still hold<sup>3</sup>. Part of the difference between the space of relativity and the space of Newtonian mechanics is that the metric (i.e. measure of distance) applied in relativity is somewhat different. The important point to note is that to some extent the space when measured with a different metric is a

*different* space. The abstract definition of the space requires the definition of both the points (positions) as well as the metric.

We characteristically make a number of additional assumptions about the space that we inhabit. Firstly, we often assume that our space is everywhere connected. By this we mean that given any two arbitrary points within our space, it will always be possible to find a path between these points lying wholly within the space. We sometimes even make the stronger assumption that our space is convex, i.e. that the shortest path between two points will lie wholly within our space. That these assumptions need not hold can be seen by considering the "space" defined by all the points on the landsurface of Southern Africa. Since this includes the island of Madagascar it is quite easy to see that this space is disconnected. Even a connected space, such as the terrestrial land mass of South Africa need not be convex. The shortest path between Bloubergstrand and Sea Point does not belong to the land mass of South Africa.

The idea that the space of physics might not be connected or might not be convex is a lot harder to accept<sup>4</sup>. Nevertheless one of the implications of the theory of black holes is precisely that there are bits of space which have become asymmetrically "disconnected" from the surrounding space, i.e. it is impossible to find a path from the inside of the black hole to the outside although it is not impossible to do the reverse. Additional complexities are provided by the idea of "wormholes". These can be thought of as "tubes which link otherwise distant parts of space and time" (Barrow 1992, p.106). Such wormholes would introduce distortions in the way in which we measure distance which is quite reminiscent of non-convex sets.<sup>5</sup>

A second assumption that we characteristically make is that space has a constant curvature. This means, in effect, that when we move an object about within space this will not result in it becoming distorted. Again this assumption is violated in the space of general relativity.

The assumption of constant curvature is an example of a more fundamental assumption,

namely that space is isotropic, i.e. that it has the same characteristics in all directions. Fundamentally this is the idea (or hope) that there are no fundamental asymmetries in our space.

In short, the question of how well-behaved, or otherwise, our space is, is not an abstract question. It is a question about how concrete objects behave in this space. If objects constantly disappear at a certain point only to reappear at a place seemingly quite distant from it, we might conclude that our understanding of "distance" is defective and that there is, in fact, a "wormhole" connecting these points. Similarly, if we notice that objects habitually get deformed at certain points in space, we might conclude that space is warped at that point.

In other words, the way we talk about *space* is to some extent merely a description of the way in which we observe objects moving. In this way our abstract conception of space reconnects with the behaviour of concrete objects.

In summary, we have shown in this section how an abstract conception of space can arise from the relationships of concrete objects. It has been argued that the following concepts are key steps within this process of abstraction:

1. Length
2. Measures of length (by fixing on a measuring rod)
3. Distance, as a measure of the shortest path between objects
4. Paths and positions within a given (concrete) reference system
5. A co-ordinate system
6. A point in space
7. Space as a set of points together with a metric

Having achieved such an abstract concept of space, we can relocate concrete objects within this space. Based on how these objects move within this space we can deduce further properties of the space. The way in which spaces and movement connect can be seen by how various theories in physics interpret this movement.

## Newton and abstract movement

One of the revolutions introduced by Newtonian mechanics<sup>6</sup> was a different way of looking at movement. In Aristotelian physics the idea of motion was seen as something that needed explanation. It seemed that whenever something moved, there was a force which kept the object in motion. In the absence of a force an object would remain stationary.

This idea of motion as mysterious has deep roots in Greek thoughts. Many of the paradoxes of Zeno of Elea bear on this problem. In the paradox of Achilles and the Tortoise, the problem is that

Achilles can never overtake a tortoise; because by the time that he reaches the point from which the tortoise started, it will have moved on to another point; by the time he reaches that second point it will have moved on again; and so *ad infinitum*. (Kirk and Raven 1971, p.294)

In order to see the implications of this paradox, we can suppose that Achilles runs ten times faster than the tortoise, but has given the tortoise a ten metre head start. In the time that Achilles runs these ten metres, the tortoise will have had time to move on by one metre. In the time that Achilles runs this metre, the tortoise will have advanced ten centimetres. By the time Achilles has covered this space, the tortoise will be ahead by one centimetre, and so on. It is clear that the distances between Achilles and the tortoise form a geometric series, which converges to zero. Although there are infinitely many points in this series, they are all squashed into a finite distance. We can similarly allow that corresponding to these points in space there will be infinitely many moments in time, but again compressed into a finite time interval.

The idea that there should be infinitely many points in a finite interval is not strange if one holds that distance can be represented by real numbers. Every interval of the real number line contains infinitely many points. If one believes, as Zeno seems to have done, that there is an

indivisible minimum duration of time and interval in space, then clearly the accumulation of infinitely many such moments does, however, present a problem.

Another argument that Zeno presents is that of the "flying arrow":

An arrow in flight occupies, at any given moment, a space equal to its own dimensions. Therefore an arrow in flight is at rest. (Kirk and Raven 1971, pp.294-5)

The central point of this argument is that at each moment in time, the arrow must be somewhere. At the point where it is, it must fully occupy that position. Consequently it cannot be moving at that moment in time.

These paradoxes persuaded Zeno that motion was illusory and that rest was the order of the universe. Although most Greek philosophers did not accept Zeno's conclusion, the idea that rest was natural and that motion had to be impelled was the common consensus.

The first step in the Newtonian revolution came with Galileo's experiments on motion. He showed that contrary to previous assumptions a moving body did not need a force to keep it moving. Instead a force was only required if a *change* in motion was to be produced. Such changes were acceleration, deceleration and a change in direction. Galileo was also the first to discover that there was a definite mathematical relationship between the time that an object was in free fall and the speed that it acquired during this fall. This implied that the position of the object at various times depended on the time that had elapsed since the object started falling.

The idea of treating the motion of an object as a mathematical function of time, was one of the most crucial components of the Newtonian revolution. This concept is deceptively simple. It simply means giving for each moment in time  $t$ , the object's position  $p$ . The relationship between  $p$  and  $t$  will be given by some mathematical function; in mathematical language:

$$(5) \quad p = f(t).$$

It should be noted what is involved here. We need to assume that we can fix the abstract

point  $p$  within some abstract space. Similarly we need to assume that the abstract measure of time  $t$  is also fixed. With these two given, i.e. an abstract conception of *position* in space and *moment* in time, the idea of a mathematical function now provides an equally abstract notion of *movement* in space and time.

The power of this abstract concept of motion is based on the fact that it allows for the deployment of the techniques of the calculus as developed by Newton. For example, it helps to make sense of what happens to Zeno's flying arrow. The procedure of the calculus is to take progressively shorter intervals around the point in time that we wish to analyse. For each of these intervals we can work out the average speed of the arrow. According to the calculus we can now determine the instantaneous velocity of the arrow as simply the number to which this average speed converges as we take shorter and shorter intervals. Although it does not make sense to talk of the arrow moving at a point in time (since a point has no duration), it does have a well-defined instantaneous velocity. Furthermore this velocity can be derived relatively easily from the function relating position and time.

Conversely, if we can describe the motion of an object (i.e. if we can fix its velocity), and we can fix its position  $p$  at a particular point in time, we can retrieve the function that relates position to time. In other words, we can determine where the object is at each moment in time. The *trajectory* of the object is therefore completely determined.

The major achievement of Newtonian physics was, of course, to discover a number of laws of motion of objects, chief among them the laws of gravitation. With these discoveries the idea of the "clockwork universe" was established. The universe was thought to unfold inexorably according to the logic established in the functional relationships established by science.

In order to read off future positions from the motions of objects a number of assumptions have to be made about the nature of the functional relationship given in equation (5). The first of these is that the function  $f$  is *continuous*. It is assumed that objects do not simply "jump"

from one location in space to another, without traversing a series of points in between. Secondly, it is assumed that  $f$  is *differentiable*. This simply means that the motion described by  $f$  is smooth. The problem with points at which the function is not differentiable is that no velocity can be attached to the object at that point. Another way of looking at this problem is that at such points there is an abrupt break in the direction of the object. Knowing its previous motion does not help us to predict its future position. Until the end of the nineteenth century the assumption was that most continuous functions were "well-behaved", in the sense that they were also differentiable at all points except possibly a few. Unfortunately mathematicians discovered that it was possible to devise curves which were continuous everywhere but not differentiable anywhere. These were curves that were so jagged that at no point was one able to predict where the curve would turn to next! Generally the assumption has been, however, that such "monster curves" are mere mathematical curiosities and that they have little to tell about the behaviour of real objects.

The assumption of continuous, differentiable paths seemed appropriate in view of the fact that an object in the absence of any force will stay at rest or move with a uniform velocity, i.e. at a constant speed in a constant direction. Such a path is clearly differentiable. Any departure from this path will be due to the operation of a force. According to Newton's laws of motion, a force will produce an acceleration in the object to which it is applied. An acceleration, however, involves a rate of change of velocity. The object to which it is applied will therefore have a path which is not only differentiable, but twice differentiable (its velocity will in turn be differentiable). The Newtonian laws of motion therefore do not allow for non-differentiable paths.

In short, Newtonian physics introduces a particular, abstract idea of motion within an abstract space. This Newtonian space is often thought of as "absolute" (compared to the space of relativity). It is not absolute in the sense that it cannot equally well be described through a different co-ordinate system. However, although the points within this space can be redescribed, such transformations do not change which objects are considered to be at rest and which are considered to be moving in the space. Rest and motion therefore have an absolute

quality in Newtonian space.

### Einstein, Minkowski and space-time

By contrast, in the space of special relativity theory, rest and uniform motion in a straight line become indistinguishable. Einstein's major innovation was to notice that within Newtonian space most laws of physics would appear identical to an observer moving at constant velocity as they would to an observer at rest. The one major exception to this is the measurement of the speed of light. By this time it was known that light travelled at a constant velocity. If space was "absolute" in the Newtonian sense, then an observer at rest and an observer moving at constant velocity would reach different measurements for the speed of light.<sup>7</sup> The most sensitive experiments have, however, not detected any such differences (Gray 1989, Chapter 17).

According to special relativity, the situations of any two inertial observers, i.e. observers who are not subjected to the operation of a force, is essentially equivalent. In other words, they should be able to arrive at equivalent descriptions of the "laws of motion" of objects. In particular their measurements should yield the same value for the speed of light.

This, however, introduces a number of seemingly paradoxical situations. Consider, for example, an observer A at rest observing another person B who is travelling at half the speed of light (see Figure 4). B emits a photon (particle of light) going in the same direction. From A's perspective after one unit of time the photon will have moved from B to C. B will have moved half the distance in this

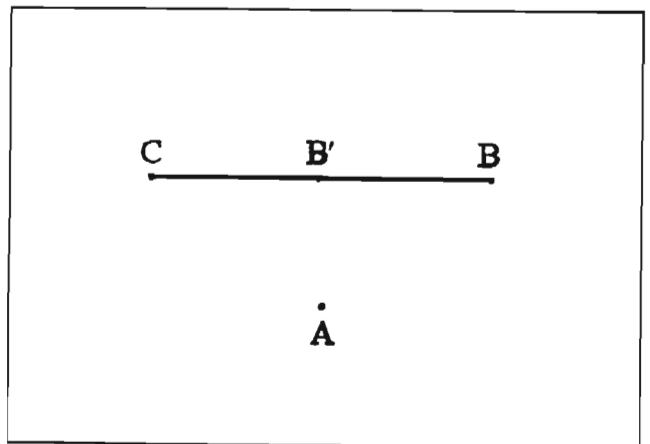


Figure 4

time, to B'. In this period of time, from B's perspective, the photon will only have moved from B' to C. So for B to come up with the same figure for the speed of light, she either needs to work with different units of distance or different units of time.

It transpires that in special relativity both these measures change. Objects moving close to the speed of light "shrink" in the direction of movement. In other words, if B carries a measuring rod with her, this rod will appear to A to mark off shorter distances than A's measuring rod does. Furthermore if B carries a clock with her, this clock will move more slowly than A's.

Even more paradoxical is the fact that observers moving at different speeds may not only measure "absolute" time intervals differently, they may also disagree on the relative duration of specific periods<sup>8</sup>. Perhaps most counterintuitive is the fact that different observers may order the temporal sequence of different events differently<sup>9</sup>. The idea of what events are simultaneous will, in general, be different for observers moving at different velocities. Given that relativity theory has these strange implications, it raises the question of how this rates as a theory of space at all. After all it was argued in the previous section that one of the defining characteristics of a space was a metric which remained constant even with changes in the co-ordinate system.

The simple answer is that the space of relativity theory defines its points and its measure of distance differently to those of Newtonian physics. This new definition of space was given its mathematical description by Minkowski. One of Minkowski's innovations was to propose that the abstract "space" of physics should be seen as four-dimensional, with three spatial dimensions and one temporal one. As he noted:

No-one has yet observed a place except at a time, nor yet a time except at a place  
(quoted in Gray 1989, p.186).

Each "point" in this space-time is therefore fixed by four co-ordinates.

Now distance in the usual three-dimensional Newtonian space is measured by the three-dimensional version of Pythagoras's theorem. In other words if the co-ordinates of a point P

in Newtonian space are given by  $(x,y,z)$  then the distance  $d$  from the origin  $O$  to  $P$  obeys the equation

$$(6) \quad OP^2 = x^2 + y^2 + z^2.$$

If the point  $P$  has the co-ordinates  $(x,y,z,t)$  in Minkowski's space, then the "distance"  $s$  for this space from the origin to  $P$  is measured by the equation

$$(7) \quad OP^2 = t^2 - (x/c)^2 - (y/c)^2 - (z/c)^2,$$

where  $c$  represents the speed of light (see Penrose 1990, pp.252ff). The two-dimensional Newtonian case and the three-dimensional Minkowski analogue are presented diagrammatically in Figure 5.

A number of points need to be noted in relation to this measure. Firstly, if  $x,y,$  and  $z$  all remain at zero, then the distance  $s$  in Minkowski space ends up being simply equivalent to  $t$ . Secondly, if one of the spatial co-ordinates, say  $x$ , is equal to  $tc$  (i.e. the time co-ordinate multiplied by  $c$ )

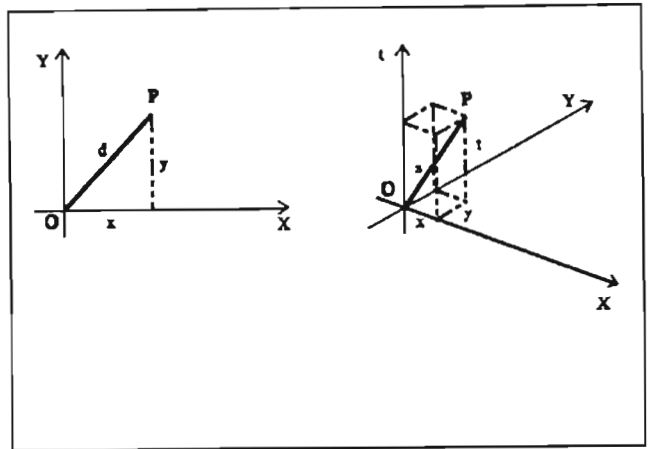


Figure 5 Distance in Newtonian and Minkowskian space

and the other spatial co-ordinates are zero then  $s$  is zero. Now the equation

$$(8) \quad x = tc$$

simply describes the motion of a particle travelling at the speed of light in four dimensional space-time. The Minkowskian measure of distance therefore has the property that it is zero along any line which represents the path of a particle going at the speed of light.

Thirdly,  $s$  is not defined along paths which would represent the motion of particles going faster than the speed of light. In these cases the right hand side of equation (7) would represent a negative number and the square root of a negative number is not defined in the real number system. In other words  $s$  is defined only in that region of space-time which can be reached by the observer while travelling at less than the speed of light. If we imagine a ripple of light emerging from a point and spreading out in all directions, this would be

represented in four dimensional space-time as a four-dimensional cone. The Minkowskian measure of distance is therefore defined only for points that lie within this light-cone.

Given that  $s$  has these curious properties, what physical interpretation can be attached to it? The "distance" that is measured along a particular straight line path within the light cone of a particular point is precisely the time that would be measured by an observer travelling at constant velocity along that line. It should be noted that  $s$  will be equal to  $t$  only if the spatial co-ordinates do not change, i.e. if the observer is stationary within our particular co-ordinate system.

If we change this co-ordinate system to look at space-time from the perspective of another "inertial observer" we will find that the measure of time  $t$  within that system will be different, but the measure  $s$  will remain constant. Two different observers, travelling at different speeds can therefore agree on the *interval* separating two points in time-space. They would not agree on the time separating these events (they operate with different clocks and different ideas of simultaneity) but they will agree on what reading a hypothetical clock travelling at uniform velocity from the one event to the other will give.

Now it should be clear that the "distance"  $s$  is not a metric in our original definition of the word. There are many points which are at zero distance from any given point - in fact every point along the light cone emanating from that point. Furthermore  $s$  does not obey the "triangle inequality" (equation (4)) which specifies that the direct distance between any two points is shorter than the distance when going *via* a third point.<sup>10</sup>

If  $s$  is not a metric in the sense discussed earlier, in what way can Minkowski space be considered a "space"? In fact, it is possible to define another measure which behaves like a metric, but in order to do this, we first need to introduce the concept of the *plane of simultaneity*. It was noted earlier that the idea of simultaneity in time as objectively given disappears in the relativistic universe. Instead, observers travelling at different velocities will have different opinions as to what events occur simultaneously. For each observer, however,

we can fix what events seem to occur simultaneously. This set of events is the plane of simultaneity of that observer.

We can understand this concept as follows. Imagine that we are observer A and we consider ourselves to be at rest. In terms of our measuring rods we can fix the location of all objects within our space, and in terms of our clock we can attach a time to the occurrence of particular events. Now because the information from some quite distant events takes considerable time to travel to us, we cannot know about them instantaneously. Nevertheless by calculating how long this information took to get to us (using our knowledge of the speed of light) we can attach a time to when this event happened. Every event can therefore be given a time co-ordinate in our system. An event whose time co-ordinate is smaller than another event's will be judged to have occurred earlier.

Within this space-time co-ordinate system we can now imagine an observer B moving at constant velocity. If we wish to see the world from B's perspective, this means not only changing all our spatial co-ordinates, it also means changing our temporal co-ordinates. The plane of simultaneity of a particular event is simply the set of all events that B would give the same temporal co-ordinates to in her co-ordinate system. Graphically we can show the shift from A's co-ordinate system to that of B as in Figure 6.<sup>11</sup>

Now we should observe that the spatial co-ordinates in B's system are all read off along each plane of simultaneity. B therefore measures distances along this plane. There is nothing mysterious about this. In A's case too the spatial co-ordinates are measured along lines which have constant temporal co-ordinates ( $t=0$ ,

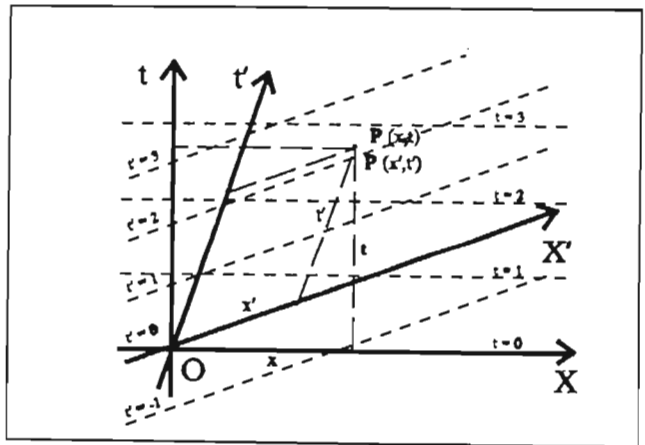


Figure 6 Two co-ordinate systems in space-time

Person A's time co-ordinates are measured along the  $t$ -axis and the space co-ordinates along the  $X$ -axis. B's co-ordinates are measured along the  $t'$  and  $X'$  axes.

or  $t=6$ ). Just as it is possible for A to work out how B would measure time along her path, it is also possible for her to work out how B would measure distance along her plane of simultaneity. If a point P with co-ordinates  $(x,y,z,t)$  in A's co-ordinate system is from B's perspective simultaneous with the origin  $(0,0,0,0)$ , then the distance OP in B's system can be calculated from the equation

$$(9) \quad OP^2 = x^2 + y^2 + z^2 - t^2c^2.$$

A few points about this measure (which we can call  $d$ ) need to be noted. Firstly, it can be shown that  $d$  has all the properties of a metric. It is therefore a proper measure of distance (as it should be, given that it is supposed to fix the spatial co-ordinates in B's abstract space).

Secondly it should be observed that  $d$  is defined only when the right hand side of equation (9) is positive. This it will be whenever  $t^2c^2 < x^2 + y^2 + z^2$ . This condition holds only for points which are outside the light cone of the origin O. Points on a plane of simultaneity all have this property. In fact two points Q and R in space-time can only be thought of as simultaneous by some observer, if there is no way in which Q could affect R or *vice versa*. Any plane of simultaneity will therefore have the property that *all* the points on the plane will be outside each other's light cones, i.e. no point on this plane will be able to causally affect any other point.

The light cone therefore introduces a neat symmetry, as can be seen by taking any point A in space-time with its light cone. Besides the light cone that points into the future, we can also construct the light cone of those events which could have influenced it in the past. For any point B within either of these light cones we have the objective measure  $s$  which tells us the time it would take an observer (say P) travelling at constant velocity to reach B from A<sup>12</sup>. Any point C outside the light cone will be on a plane of simultaneity with A for some observer (say Q) travelling at some constant velocity relative to A. The metric  $d$  will give the distance that Q will measure between A and C. For points *on* the light cone both  $d$  and  $s$  give the measure zero. In other words for an observer travelling at the speed of light there is no

time and no distance.

In a way the light cone separates a *temporal* from a *spatial* dimension. Within the light cone we have  $s$  which measures the interval between events independently of the co-ordinate system and outside we have  $d$  which measures distances between simultaneous events, again independently

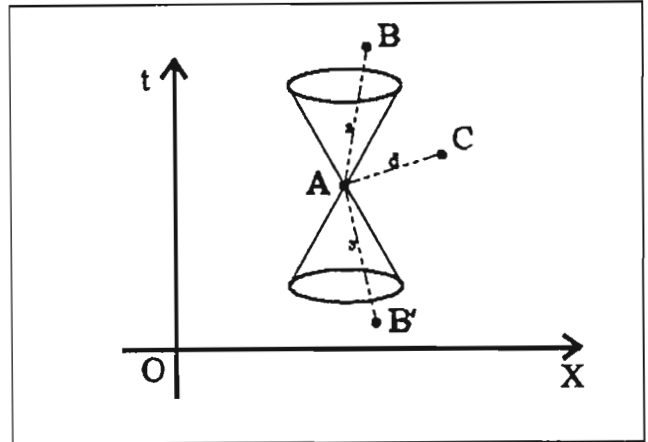


Figure 7 The light cone of an observer at A.

of the particular co-ordinate system. Furthermore  $d$  and  $s$  are related by the formula (Penrose 1990, p.255)

$$(10) \quad d = c\sqrt{-s^2}.$$

The importance of the theory of special relativity for our purposes is that it draws attention to the intricate interconnections between motion and the measurement of time and distance. The links can be listed as follows:

1. The measurement of time and distance depends on the motion of the observer.
2. It is possible to fix the interval  $s$  between two events P and Q, where Q is in the light cone of P. This is the measure of time that an observer travelling at constant velocity from P to Q would make. From the perspective of such an observer she would be at rest, i.e. there would be no spatial change from P to Q.
3. It is possible to fix the distance  $d$  between two events P and Q which lie outside each other's light cones. This is the measure of distance that an inertial observer would make for whom P and Q are on a plane of simultaneity. From the perspective of this observer there would be no temporal change between P and Q.

In short, we can measure time, provided that we assume that there is no spatial change; and we can measure space provided that we can assume that there is no temporal change. While relativity indicates the deep linkages between time and space, it also highlights how measurements of space assume that the temporal dimension can be filtered out, and *vice*

*versa.*

## **Einstein and curved space**

The account of space that we have considered so far is called the theory of special relativity, to distinguish it from the theory of general relativity, also developed by Einstein. The central feature of special relativity is that it privileges the idea of an inertial observer, i.e. an observer who is not subject to the operation of any force. General relativity, by contrast, discusses motion in the presence of the force of gravitation.

The starting point for Einstein was the observation that a body in free fall would not notice the force of gravity. Ordinarily we observe gravity through its effects around us. If we drop objects, they fall relative to us. Now an observer in free fall (say in a capsule in a very long lift shaft) would not be able to notice this effect. If she released an object, that object would simply stay abreast of her.

Now, as no forces are needed to maintain a body in uniform motion but only to change that motion, we can only measure forces by their effects, by the changes they produce. Locally at least, no changes means no forces. (Gray 1989, p.210)

The situation is not quite as simple as this, however. The strength of gravity is inversely proportional to the square of the distance between the bodies that are attracted towards each other. This means that in the capsule considered above, an object which is closer to the source of attraction will gradually accelerate away from an object behind it. Furthermore as the attraction is towards the centre of the earth two objects that are abreast of each other will gradually move towards each other and eventually (at the centre of the earth) collide into each other. These forces are called "tidal" because it is precisely this mechanism which produces the oceanic tides as a result of the moon's gravitational pull.

An observer in free fall in a strong gravitational field could therefore notice objects

lengthening in one direction and being squashed in another. Such an observer would have two ways of describing what was happening to her surroundings. On the one hand she could say (as we might) that the change in the dimensions of objects was due to some external force. On the other she could equally well say that the change was due to some deformation of space. In other words, the objects are not really changing their dimensions, it is merely an illusion of the way in which we impose our co-ordinate grid onto space.

The latter possibility is well illustrated by an example culled from Reichenbach (quoted in Gray 1989, pp.214-5). He asks us to imagine two worlds resting one above the other, as in Figure 8a. The top world is transparent and shadows fall vertically from it onto the world below.

Now we can imagine that the beings that inhabit world 1 have surveyed their domain and have put in grid markers as in Figure 8b. They see the stretch BC of their world, like we do, as simply a kink in space and have imposed on it the grid so that objects

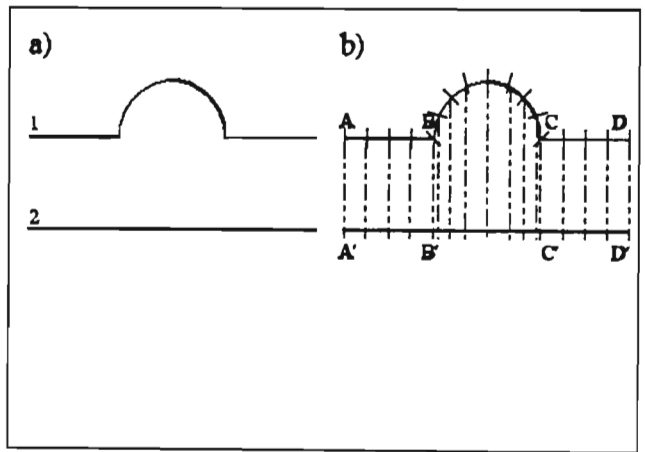


Figure 8 Curved space-time

moving through it maintain their size. Now the beings that inhabit world 2 have noticed that the shadows of the grid markers falling onto their world in the region A'B' give a measure of distance. They therefore accept these markers as defining the measure of distance in their space. Now when they explore region B'C' they are faced with a conundrum. When objects move through this region, they first rapidly increase in length, then they shrink down somewhat, before lengthening again. Finally in region C'D' they return to their original size. According to them the region B'C' contains some force which has the effect of lengthening objects.

This example shows that the way in which one surveys space inevitably has an element of arbitrariness.

We cannot be sure but can only assume that the measuring rods we carry around with us do not change their lengths from point to point in some universal way. We may adopt as a convention either that rods remain constant in length or that they vary under some strange force, and our choice can be made, for instance, on grounds of naturalness or ease of computation. (Gray 1989, p.215)

In the theory of general relativity, Einstein chose to adopt the point of view that the force of gravity should be viewed as the way in which objects deformed the space around them. Instead of the "flat" space of Newton and of special relativity, space was now viewed as curved.

One of the discoveries which led to general support for this suggestion was that light was deflected in a gravitational field. Now the path that light traced had always been treated as a straight line, i.e. the path of minimum distance (this is true in both the Euclidean space of Newton and in the Minkowskian space of special relativity). The choice was therefore to keep the idea of a flat space and abandon straight line motion of light or to opt for the idea of a curved space. The latter option was adopted.

On curved surfaces the analogue of a straight line, i.e. the path of minimum distance, is known as a geodesic. In the space of general relativity, then, the paths of light and of inertial observers are all geodesics. Since the force of gravity has been built into this model by means of the curvature of space, an object that is in free fall under the influence of gravity of another body is not considered to be acted on by a force. It will therefore also travel along a geodesic.

We should note several points in relation to this reconceptualisation of space. Firstly, the character of abstract space is now no longer conceptualised totally independently of the objects that are contained within it. Instead, space can be deformed by the objects within it.

Secondly the choice between talking about forces and talking about curvature of space serves

as a reminder that ways of talking about space can also be seen as ways of talking about how things (e.g. measuring rods) can move around within it. To say that space is deformed, i.e. that it does not have a constant curvature, simply means that the different particles making up an object will move with different trajectories so that the object as a whole will become deformed.

### Conclusion

To round off this discussion of the abstract spaces of physics, the following points can be noted:

1. With the development of an abstract concept of space, it is possible to give an abstract definition of movement, as change in position with time. This can be expressed in the language of mathematical functions.
2. Trajectories of objects are seen as continuous and differentiable.
3. What is considered to be moving and what is considered to be at rest cannot be absolutely fixed. It depends on the perspective of the observer.
4. The way times and distances are measured depends on the motion of the observer. Nevertheless distances can only be objectively measured (i.e. such that observers in different co-ordinate systems would agree on it) between events considered to be simultaneous, and times can only be objectively measured between events considered to be stationary in space.
5. The spaces of special and of general relativity are both concerned with inertial observers. The former is a "flat" space whereas the latter is curved. The abstract space of relativity theory therefore describes the paths of objects that are not subject to the operations of forces.

### Notes:

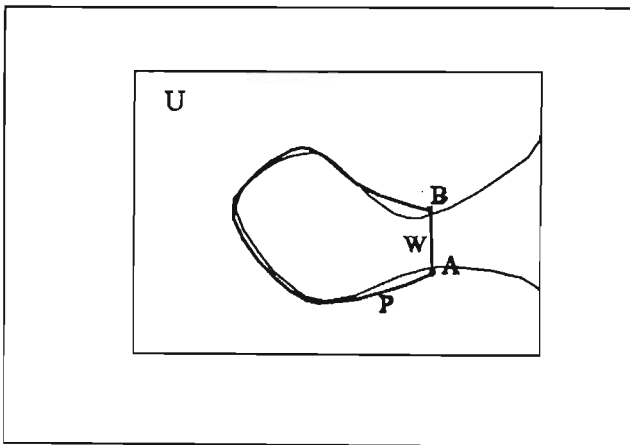
1. In mathematical language, the relationship "is equal in length to" is an equivalence relationship. This relationship can therefore be used to divide up objects into discrete classes of objects having equal length. The relationship "is longer than" can then be used to rank order these classes.

2. In fact the idea of measuring the lengths of objects by means of a measuring rod makes the same assumption. In order to measure length accurately we need to measure it along the shortest path from end to end.

3. It should be noted that this metric is not independent of the choice of the co-ordinate system. If we rotate the axes, for example, the distances as measured by this metric will all change.

4. It is particularly hard, because it is impossible to visualise a path that "leaves" the universe. By definition, the only paths we can imagine are paths within our universe.

5. This can be seen by considering the diagram below. Assume that the non-convex set U is inhabited by people who cannot envisage any space outside their universe. They would therefore measure the distance between points A and B by the arc P, which is wholly contained within U. Now if we assume that points A and B are connected by a "wormhole", it means in effect that the shortest distance from A to B is not measured along P but along W. To the inhabitants of U they would not be able to visualise this "straight-line" connection, but it would be evident by the fact that certain objects would disappear at A and reappear at B. The "wormhole" therefore, in effect, demonstrates that U has a "kink" in



it. **Figure 1** A non-convex universe

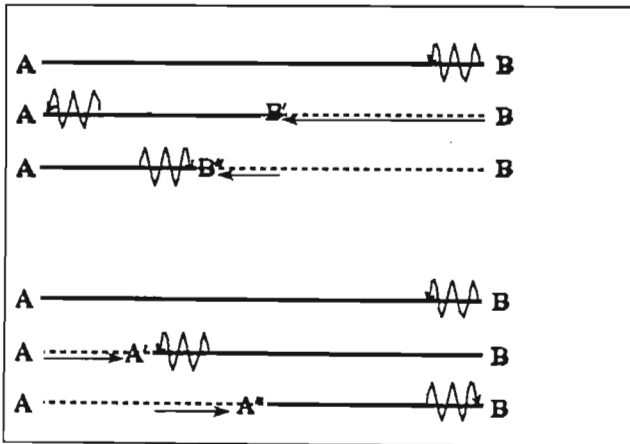
6. Some of the developments actually predate Newton, but the entire mechanical picture of the world was very much Newton's crowning achievement.

7. This can be quite easily seen by considering the situation of two cars travelling at constant velocity along a freeway, car A travelling at 100 kilometres per hour and car B at 80 kilometres per hour. From the perspective of a stationary observer O on the ground observing the two cars, the situation is as it has just been described. From the perspective of the driver of car B, however, she feels that she is at "rest" within her car, while car A appears as travelling at 20 kms/hr away from her. Observer O seems to be travelling at 80 kms/hr in the opposite direction. However, if she knows that the "real" speed of car A is fixed at 100 kms/hr, she could work out that the appearance of rest is an illusion and that she is actually travelling at 80 kms/hr, while O is really stationary.

Similarly, if space is "absolute" it should be possible to detect differences in the speed of light depending on whether we are travelling in the same direction as the light (in which case the speed should be slower) or in the opposite direction (in which case it would be faster).

8. This can be seen by considering the following situation. Assume that object B moves at half the speed of light towards a mirror positioned at A. When it is 6 light seconds away it emits a photon towards A. This photon will reach A after these 6 seconds. By this time B will have moved 3 light seconds along to position B'. After being reflected by the mirror at A, the photon returns towards B. The photon and object B end up meeting again after 2 seconds at position B'' which is 2 light seconds away from the mirror at A. The total time elapsed from when the photon was emitted to when it returned to B is 8 seconds. From this point of view, therefore, the photon takes three times as long to travel from B to the mirror than it does in meeting up with B again.

Now consider this situation from the perspective of B. B thinks that it is at rest and it is the mirror that is moving towards it at half the speed of light. When the photon is emitted it moves towards the mirror and eventually meets it at a certain position A'. Since B is assumed to be at rest, the photon will retrace this entire distance on its way back to B. By that time the mirror will have moved on to position A''. So from B's perspective the moment at which the photon meets the mirror is exactly half way through the entire journey.

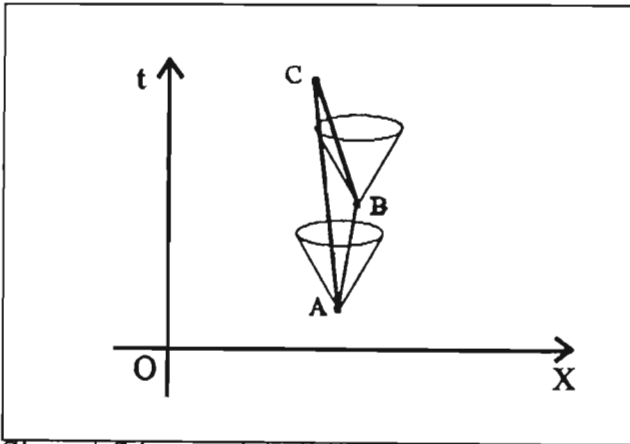


We therefore have the situation that if we consider the events from A's perspective, i.e. if we assume that A is stationary, then the time taken by the photon on the inward journey is three times longer than on the outward one. From B's perspective the two intervals are equally long. In this case it does not help to appeal to shortened measuring rods and slower clocks. B is travelling at a uniform speed, so the clock operates uniformly. If appealing to slower clocks does not solve this conundrum, it adds an additional one. From A's perspective B is moving and therefore B's clock is operating more slowly. Conversely from B's perspective A's clock must be the one that is slow! Clearly B and A somehow time the moments along the photon's path differently.

9. This was demonstrated by Einstein by means of his moving train thought experiment (cf Gray 1989, p.180). He asks us to consider an extremely fast moving train, with light sources A and B at the front and at the back respectively. Right in the middle of this train stands an observer, say Carol. Next to the track stands another observer, Daniella. At the very instant that Carol draws level with Daniella that point in space receives two flashes of light, one from A and one from B. Because Carol is equidistant from and at rest with respect to A and B, she draws the natural conclusion that the light must have been emitted simultaneously. Daniella, by contrast argues that at every moment up to the time when she saw the two light flashes, A was closer to her than B. She must therefore conclude that B must have flashed before A.

10. In fact  $s$  obeys a converse version of the triangle inequality. In this case the distance between any two points is *greater* than that *via* a third point (Penrose 1990, pp.256-7). In the diagram below we have

$$(1') \quad AC \geq AB + BC.$$



Since AC is a straight line it represents the path of an observer "at rest". The distance  $s$  along AC is simply the time that this observer will see elapsing on her clock. The other sides of the triangle also represent observers moving at constant velocities, but in order to change direction at B some force is required. Equation (1') says that an observer travelling along the route from A to B to C would see less time elapsing on her clock than the observer who moved "directly" from A to C. In relativity theory the operation of a force will have the effect of slowing down a clock. The measure of distance  $s$  therefore fixes the path along which no force operates and for which the experienced duration is thus *longest*.

11. We can use the same sort of diagram to explain how the paradox of the mirror which was described earlier arises. The situation from A's perspective is as in the diagram below.

B is at position  $B_1$ , 6 units away from A and at time  $t=0$  when the photon is emitted. The photon meets the mirror A at time  $t=6$ , i.e. at position  $A_3$  on the diagram. By this time object B is at position  $B_3$ . The photon meets B again at position  $B_4$  which has co-ordinates  $x=2, t=8$ . Now from B's perspective the time-axis is measured along the path described by B. B's plane of simultaneity is inclined with respect to that of A. From B's perspective it is now clear that



## Chapter 7: Space-Time Paths

One of the simplest ways in which human activity can be "connected" with space and time is through the fact that human beings are physical objects located in space and time. From this perspective the role of "space" in social analysis is merely that of grid to enable us to locate the movements of human beings within it. Given that the velocities of human beings relative to each other are very slow (compared to the speed of light), this abstract space will look more like the space of Newton than the space of Minkowski. In other words, for all practical purposes, the abstract temporal and spatial grids of all human beings can be made to agree.

We might also think of describing the movement of human beings in terms of the abstract language of mathematical functions. To my knowledge nobody has seriously attempted this. Indeed, this seems a very far fetched proposal, since it would mean treating human beings as subject to various objective forces and this seems to violate our feeling that we are to some extent in control of how we move around our world.

Nevertheless time-geography, as conceptualised by Hägerstrand and developed by Pred, has some affinity with this perspective. In this approach the movement of human beings through space and time is tracked and the patterns made by this movement are analysed for their significance. It will be argued in the section below that time-geography tends to *misdescribe* the pattern of human movement.

Where time-geography tends to see human paths as regular and well-defined, it is argued that in practice these paths are actually quite irregular. Indeed, it is suggested that exploratory behaviour is an indispensable component of all human movement. This jagged spatial motion can become routinised but the chaotic processes of exploration still underpin these more regular paths.

Similarly, where Pred posits a continuous experienced life-path, in practice experience is quite

discontinuous and fragmentary. The impression of a body with a continuous life-path arises as a narrative construction, rather than being simply given.

## Time-geography

The central concepts of time-geography are those of the "time-space path" of an individual and that of a "project". The former simply means that the biography of an individual can be traced as an "unbroken, continuous path through time-space, subject to various types of constraints" (Pred 1986, p.10). As far as the latter is concerned,

In time-geographic terms a project consists of the entire series of simple or complex tasks necessary to complete any intention-inspired or goal-oriented behavior. Each of the sequential tasks in a short- or long-term project is synonymous with the coupling together in time and space of the uninterrupted paths of two or more people or of one or more persons and one or more tangible inputs or resources, such as buildings, furniture, machinery and raw materials. (Pred 1986, p.10)

One of the central tools of time-geography is the space-time diagram. The paths of individuals can be indicated as lines on this diagram, as in Figure 9. Different kinds of diagrams are possible. One could, for example, plot the "life-path" of an individual. A more usual procedure is to plot the "daily path" of individuals. It would also be possible to do weekly or seasonal paths, if these exhibited some routine pattern.

In one sense such space-time diagrams are merely descriptive, in the way that the space-time diagrams of physics are. Where time-geography attempts to say something more specific about human interactions is in the way it draws attention to the constraints that such a time-space path brings with it. Once a human being has decided on a particular project, which brings with it particular movements in space and time, it becomes impossible to do something else simultaneously elsewhere. Furthermore

It becomes impossible to join any spatially separate, earlier-starting activity whose

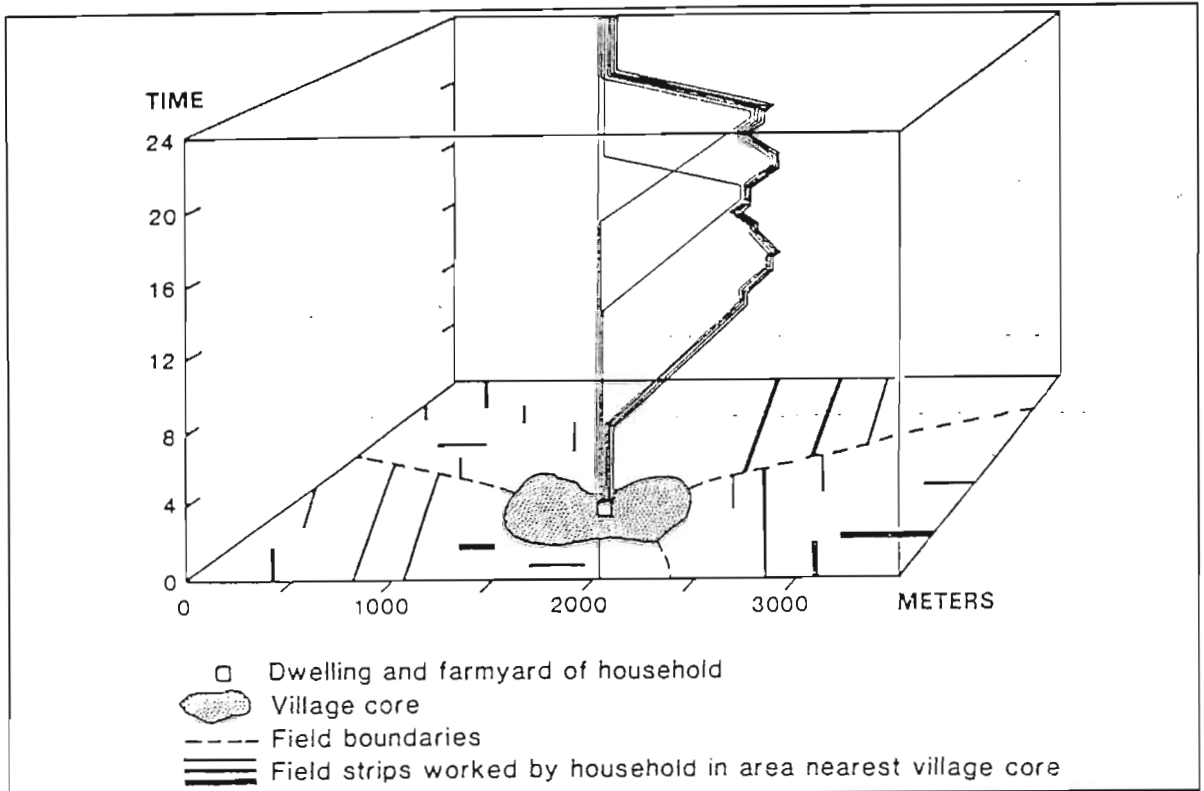


Figure 9 Pre-*enskiye* daily paths of a hypothetical landed-peasant household during the spring plowing season. From: Pred (1986) p.69.

termination occurs subsequent to the start of the project in question. It becomes impossible to join any spatially separate, later-finishing activity whose beginning occurs prior to the finish of the project in question. It becomes impossible to join any other spatially separate project that presents no simultaneity conflicts but is beyond "reach" because of travel-time requirements. (Pred 1986, p.12)

This idea of "reach" is, in a sense, a human analogue of the light-cone of relativity theory. The maximum speed with which a human being can travel (historically and locally fixed by the available modes of transportation) will determine what other events 'in the space-time diagram an individual can reach from their particular point.

Further constraints are introduced by the fact that, as the colloquial expression puts it, "there are only so many hours in a day". If provision has to be made for physiologically necessary activities (eating, drinking, sleeping) and various important projects (working, writing a

thesis), then this leaves only so much time for other activities (writing letters, doing the Christmas shopping). Similarly there are also "packing constraints" on space. As one might say: "there is only so much space in an area". For example, if I use my desk for my computer, I cannot use it to build a puzzle on it. If I have already loaded my book shelves and my couch to capacity with books, I cannot fit in any more.

These scheduling and packing constraints become quite important in interactions with other human beings. In these cases they can be called "coupling constraints". Time-geography draws attention to the fact that inter-human projects generally require the intersection of two time-space paths, i.e. mutual co-presence in space.

Pred attempts to develop this time-geographic framework in a manner in which it complements structuration theory. He argues, for example, that social structure affects the way in which agency is socialised *inter alia* through the way in which dominant projects structure the time-space paths of subjects. This structuring is achieved because the practices of dominant projects take up significant amounts of time and space. In the process, they end up structuring the way in which people live their lives and perceive reality.

Another connection that Pred develops between time-geography and structuration is *via* the concept of the formation of biographies. He argues the point as follows:

The formation of individual biographies bestows continuity upon structuration because in tracing out his or her unbroken path a person neither encounters separate institutional projects nor "independently" undertakes separate projects outside of an institutional context in a disjointed or unconnected manner. Instead, his or her incessant progress through time-space from project to project, from engagement in one detailed here and now to engagement in another, is characterized by a complex "external-internal" dialectic, by a repeated dialectical interplay between his or her physical actions and his [sic] mental activities and intentions, between what s/he does and what s/he knows, thinks and dreams. Through the operation of this dialectic, and attendant personality development, "the past history of the individual {constantly

accumulates and} lies sedimented, or stored up, ready to influence the present." (1986, p.19)

The idea quite simply is that in their paths through space-time individuals absorb whatever happens to them. The way in which they respond in a particular situation is therefore in a sense the product of the entire space-time path. The "external-internal" dialectic that Pred refers to, is the way in which the external movements impress themselves on the internal mental states of the individual, which will in turn influence how that individual will move. He suggests that this dialectic is part of the process of structuration, i.e. social structures impress themselves on human beings through concrete interactions in space and time. This "external" encounter leaves its "internal" imprint which in turn means that the agent will act in ways to reproduce those structures. Furthermore he argues that:

The external-internal dialectic operates even when a person physically undertakes a self-defined project outside the workings of any institution, since in so doing he or she cannot escape the mental imprint left by the previous intersection of his or her path with particular institutional projects. (1986, p.19)

The idea that Pred expresses with the "external-internal" dialectic is a logical development of Giddens's point that social structures are reproduced through concrete interactions. These are always localised. What Pred adds is that the agents involved in that interaction do not simply reinforce and relearn what it means to act in terms of a particular social rule, they also store up that they relearned this in a particular place and time. In this way the time-space path becomes embedded together with the knowledge of social structures in the memory traces of the individual.

The way in which Pred links time-geography with structuration theory clearly makes him vulnerable to the kinds of criticisms developed in the last chapter. Indeed, at many points in Pred's theoretical discussion he veers close to a structuralist position. An almost all encompassing vision of socialisation shows this:

Even the satisfaction of physiological needs, such as eating, sleeping, urinating and

defecating depend on socialization; for they are almost always circumscribed by culturally arbitrary notions regarding, for example, suitable foods, appropriate time and place or proper body position. (Pred 1986, p.19)

By contrast, the conception that was developed in the last chapter allows that all human activity is influenced by its social context without suggesting that all human activity is socially *determined*.

The point that Pred takes for granted, i.e. that there are well-defined social rules *prior* to particular interactions, has been dealt with previously. It is interesting to note, however, that time-geography makes another assumption, and that is that there is a well-defined *path* characterising human agents.

### **Are paths well-defined?**

This assumption is, in fact, crucial to many of the ways in which time-geography is applied. There are two ways of reading this assumption. The first is that there is a well-defined *life-path*. The second, and more usual, one is that there is a well-defined daily or *periodic path*.

The idea that a periodic path exists and is well-defined clearly needs some justification. At first blush the idea seems very reasonable. We all develop certain routines in our daily lives. I get up more or less at 7.45 am. I get into the shower and stay there for about 15 minutes. Then I go back into my bedroom to get dressed. Then I open the front door to my cottage, after which I make myself some breakfast. By about 8.45 I am ready to leave for work. I have a steady route by which I travel to work, *and so on*.

Nevertheless, the discussion of the previous chapters should alert us to the fact that the existence of a routine is always subject to disruption, and, indeed, my "daily path" shows numerous exceptions and deviations. It has happened that I have overslept so drastically that I had to dispense with ablutions to arrive at a meeting on time. On other days I have decided

to work on my computer at home.

One might object that these are not "typical" days, and that time-geography is concerned with the normal "routine path". This, however, begs a number of interesting questions. If there is no *unique* path, but "normal" paths and "abnormal" ones, then it becomes meaningful to ask:

1. What makes one path the "normal" one?
2. How does such a routine path become established?
3. How does such a path change?

If we look at the question of how to define a routine path, it quickly becomes evident that the definition of what constitutes a normal path depends on the resolution with which we measure it. For example, if I am half an hour late, but trace the same spatial path, does this constitute the same routine? If I arrive "as normal" at the University but, instead of going straight to my office, I spend a few minutes in the Secretary's Office gossiping about a colleague is that the "same path"?

Even in the most routine of paths there will be important deviations. For example I can drive from my home to my work almost "with my eyes closed". Nevertheless this would obviously not be a good idea, because traffic conditions vary constantly. One day I might spend a lot of time weaving in and out of the traffic. The next day I might be able to drive along more conventional lines. For a few days I might be diverted onto one of the opposite lanes, because of road constructions.

If we pay sufficient attention, it will be clear that we never retrace the same time-space path in the same way. Our judgement that we have taken the same path is based on the fact that the various *actual* paths that we follow exhibit certain common patterns. But this judgement is precisely that - a judgement based on how, in a particular situation, we see the salient features. Is half an hour delay important? Is it a major departure if I go past the corner café to pick up the newspaper? Does it matter whether I travel *via* College Road or *via* Princess Margaret Drive? The idea of recognising a path therefore has a lot in common with

recognising a rule. Indeed the way in which routine paths are established is often by means of rules, e.g. "get up before eight", "travel down Mayor's Walk until you reach West Street, then turn right". Just as we argued in the case of other rules, however, these do not have fixed interpretations *prior* to their actual use. A path should therefore not be seen as being fixed *prior* to it actually being travelled.

The idea of a "periodic path" can therefore not be accepted as being given *a priori*. However, even the concept of a "life path" raises problems. In one sense this idea seems unexceptional. We can simply treat a human being as a physical object and trace out its movement in four dimensional space-time. This is, however, clearly not what time-geography has in mind. Pred's discussion on the "formation of biographies" clearly indicates that we are talking about the life-path of a *subject*. This is brought out quite clearly in his idea of the "external-internal" dialectic. The life-path of this subject is the path through space-time *as experienced* by it.

Now an initial, quite trite, point to make in this regard is that this path is no longer continuous in space-time. For significant proportions of most days this subject will be asleep. The experience of the agent is therefore not a continuous, but a broken one. These "gaps" in experience are, however, much more pervasive than this. We all know the feeling of arriving at a destination and suddenly realising that we have no recollection of how we got there. Similarly at the end of the day we may really struggle to recollect how we spent our time.

These gaps, in fact, perform an important function. If literally every moment during our waking life was permanently etched in memory we would be simply overwhelmed with information. The brain therefore makes provision for both short-term and long-term storage of information. Not everything which is processed by the brain ends up in long-term memory.

Even if we consider lived experience from "moment to moment", there are important gaps in consciousness. As Dennett cogently argues, the "stream of consciousness" does not resemble a stream at all. Instead there are parallel bits of processing going on in different bits of the brain. What one part of the brain discerns, may be edited out by another part, in the light of

additional information. These editorial processes may yield fragments of narrative ("No, there is no one there. You must have imagined it"), which are, in turn subject to editorial revision.

As Dennett argued:

Probing this stream at different places and times produces different effects, precipitates different narratives from the subject. If one delays the probe too long (overnight, say), the result is apt to be no narrative left at all - or else a narrative that has been digested or "rationally reconstructed" until it has no integrity. (1993, p.113)

Indeed, the way in which the impression of a continuous life history and life path emerges is as a result of such editorial processes. We patch over the discontinuities in our experience to maintain the impression of continuity. Furthermore, as was argued earlier, part of the way in which we reconstruct ourselves as agents is by "flattening out" our histories, repressing memories of dissident projects, removing inexplicable lapses, stitching over periods that we have genuinely forgotten, and even creating memories of events that never happened.

This normal process of creating and recreating a life-path from the fragmentary bits of experience, can, of course be interrupted by various neural defects. A person with amnesia, for example, is not capable of reconstructing an entire life-path. If the memory does not return, such a person would need to create a life-path from the beginning.

The idea that there is a well-defined life path is therefore problematic. Indeed, this discussion shows that there are two ways of looking at the life paths of human beings. One perspective is to treat humans as objects and from this perspective there is a well-defined, continuous path that is traced out in space-time. The other is to treat humans as subjects. From this perspective there is no single, well-defined, continuous life-path. Instead, there are narrative reconstructions of such a path.

In Pred's account these two versions of the life-path are equated. The idea of the "external-internal" dialectic implies that the objective path has its exact counterpart in the subjective one. This, we have argued, will generally not be the case. If the two life-paths are not

identical, this creates problems for the way in which Pred wants to unite time-geography with structuration theory.

The fact that the subjective life-path is a discontinuous, fragmentary entity, means that it cannot be assumed to "stitch together" the various processes of structuration with place. In Pred's parlance, the life-path of an individual might "intersect" with various structurally determined practices in particular places, but if this intersection does not leave any unreconstructed memory traces, then it cannot help to explain how places and social structures maintain their coherence.

The objective life-path, while certainly continuous, cannot play the role that Pred would want for it. Viewing human beings as objects does not help to connect space or place with social processes.

The key question that Pred's work poses, but does not satisfactorily answer, is how the relationship between the "internal" and the "external" life paths of individuals should be conceptualised. We can start developing an answer by considering schematically how a child might come to "know" a new space.

### **Human exploratory movement**

Clearly the exploration of this space will consist of walking around within it, while keeping her eyes open for anything that might take its fancy. To some extent this movement will be random: As particular objects attract its attention, it moves in that direction to take a closer look. As other objects frighten it, it moves away.

On repeated visits, it notices that there are particular *positions* within this space which are relatively stable and which have particular uses attached to them. There is a trampoline, which is used for bouncing around on; there is a swimming pool, which is fun, particularly on hot

days; there is a back verandah which normally has a tricycle parked on it; there is a raisin jar on a shelf in the main room of the cottage, but close to it there is a kettle, which has to be avoided; and so on.

The identification of positions clearly goes in tandem with the idea that there are *paths* connecting them. In practice this is demonstrated by being able to locate the objects of interest (say the tricycle) even if these objects are not in plain sight.

The point is that the "external path" will lead to an "internal" representation of the space as a set of positions and connecting paths. This representation will not, however correspond to the external path. Indeed with all its detours and meanders this would be a most inefficient way of storing information about the environment.

Several points need to be made in relation to this "external-internal" relationship. Firstly, the internal representation of the space will become more sophisticated the more movement there is through it. The role of movement in fixing this represented space, is probably analogous to the way in which an abstract conception of space emerges from the measuring of distances. In fact by moving around and manipulating objects within the space, the child gets a sense firstly of what is relatively fixed in the space, and secondly it gets a sense of how far apart the various fixed objects are. This process of generating some abstract space from movement within it is not necessarily a conscious process. It is an ability that we share with many animals and is probably "hard wired" into us as an aid to survival.

Secondly, as the internal representation of the space increases in its detail and accuracy, the external movements will appear as more purposive and goal-oriented than in the initial exploration. In this way the external movements are routinised and made more "path-like" by the internal representation.

Thirdly, even when the internal representation becomes very intricate and detailed, i.e. when the child has become completely accustomed to this space, the external movements will not

be completely path-like, but will retain some of their exploratory character. This is because the internal representation can never be complete and comprehensive. There will be changes in the space. There is also always the possibility of something suddenly catching the eye that wasn't noticed before. There will be parts of the space that will not have been explored before or that had been forgotten about.

This exploratory aspect to human movement should be seen as a fundamental component of what makes us human. Part of what makes us intelligent creatures is that we are constantly curious about the nature of our environment. We are therefore constantly on the look-out for interesting new features of and developments in our world. This exploration is also always spatial in character. We will one day, on the spur of the moment, decide to try a different restaurant to the one that we have patronised every lunch-time for the last five years. Furthermore there are always spaces *beyond* those that we have explored to some extent already. The world of fixed paths as depicted by time-geography is therefore, in a sense, a society in which people have stopped exploring their environment.

Fourthly, it needs to be noted that the internal representation of a space need not involve the idea of an internal path through it. In other words, it seems possible that the child has a quite thorough understanding of the space it moves through, without having a sense of *itself* as in motion within it. It could be moving towards the tricycle without thinking of itself as having come from the trampoline. Similarly in riding the tricycle it need not have any sense that it previously bounced on the trampoline. In fact it need not have any recollections of having been on the trampoline. What we remark on as the short attention span of small children is precisely this lack of a sense of a spatio-temporal flow of being.

This lack of a flow does not necessarily mean that there is no memory trace of the trampoline episode, but this might be stored in the general idea that there are certain kinds of activities which are fun and which can be done in the trampoline part of this space. In other words, the knowledge distilled from this episode is probably attached to the place, rather than being slotted into a personal history. Indeed, the idea of a personal history only becomes possible

with the development of the concept of the "I".

Pred's "external-internal dialectic" therefore does not necessarily lead to the development of an *experienced* life-path. The first step in that direction can be seen with the achievement of human projects. It needs to be remembered that a project in Dennett's account is a set of human activities which are "stretched out" in time through the trick of talking to oneself. Such projects (as Pred makes clear) also involve spatial movements, e.g. specific hand or bodily movements.

### Path Segments and Life Paths

What distinguishes a project from the object-like movement considered earlier, is that within a project it is clear where one has been before and where one is going. In other words a project is a definite *space-time path segment*. The sequences of movements are all connected with one another. There is, however, nothing intrinsic to a project to suggest that once it is over, that there is a definite way to go on. The path segment is therefore precisely that - a segment - and need not, as such, fit into an overall life path. Indeed, after the project is over, it need not even be remembered.

The idea of a space-time path segment is appropriate also in the sense that projects exhibit a definite temporal and spatial structure, which is potentially replicable. Part of what it means to implement a project, is to act in accordance with a mental model (set of "rules") of what one is doing. The temporal and spatial structure of the project is paradigmatically part of such a model ("First pre-heat the oven, then mix the batter, then put it into the oven"). A project will therefore have more of a path-like character than the more random movements of exploratory behaviour. Nevertheless it should not need to be said that what such a spatio-temporal model means is not given independently of its implementation.

As Dennett argues the development of the self should be seen as the outcome of a process

of trying to adjudicate between different projects. The self becomes constituted through the way in which projects become narratively linked to the "I" concept. It results *inter alia* from the process of reflecting on what we find ourselves doing. Now these processes can be understood equally well as the piecing together of a *life-path* from various path segments. This is true in several senses.

Firstly, the process of adjudicating between different projects can also be seen as a scheduling problem, in time-geographic terms. For example, I might need to pick up groceries from the supermarket, but also need to drop off an article at an office in town before it closes for lunch, do some Christmas shopping, and get back to my thesis by early afternoon. In this situation I would need to consider the characteristics of each of these space-time path segments ("Can I manage to do the Christmas shopping and still reach the office before it closes? Is there time to get to the supermarket?"). I might need to abandon one particular project. Alternatively I might be able to schedule all projects in. This process of scheduling, however, involves constructing a longer path out of the short individual segments. The more long-term this scheduling process is ("I will concentrate on getting my academic qualifications in the next three years") the more this path starts taking on the characteristics of a life trajectory.

Secondly, in the way in which we attach projects to our concept of self and in the narratives that we spin about ourselves we construct a history and a location for ourselves, i.e. a past life-path. The accounts that we give of who we are, where we have come from, where we are going to are perhaps more an attempt to make sense of ourselves, or to reinforce a particular identity, than objective statements of fact. The way in which we reconstruct our life-path up to the present is therefore integrally related to how we perceive our future trajectory (i.e. the scheduling process).

Just as the process of constructing and reconstructing a self out of various projects involves selection and repression, the process of creating and recreating a life-path out of space-time path segments involves a patching over and smoothing process. In a sense our reconstruction

of our past and our vision of our future is inevitably more linear than the reality.

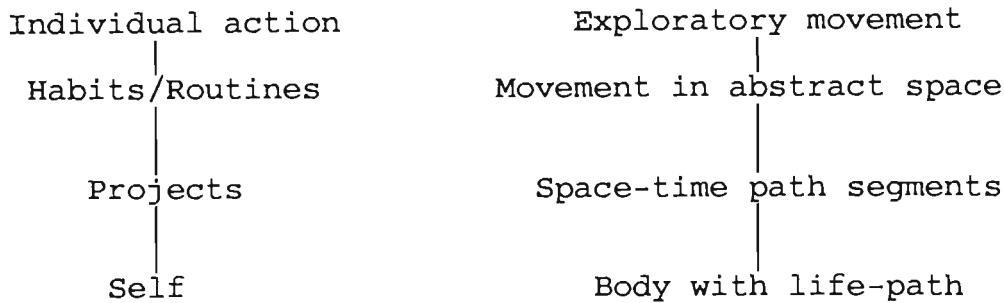
Thirdly, it should be noted that implicit in the process of constructing a life-path is the idea that one is a *body* in abstract space and time. In attaching various histories and spatial locations to the "I" ("I was born in Germany. I have lived in Pietermaritzburg for the last twenty years") one posits oneself as a discrete and continuous object that moves around within the environment.

Seeing oneself as a body means, to some extent, seeing oneself as others would see one. Part of the reason why the appearance of a continuous life-path is so persuasive (despite the fact that our experience is constantly broken by sleep and short-term memory lapses) is that we can see that other bodies are enduring entities, tracing out continuous paths in space-time. In viewing the self from the perspective of a particular body, we are therefore inclined to attribute the body's continuity to the self.

As argued in previous chapters, the process of seeing oneself as others would see one is not a solitary achievement. We are partially able to see ourselves as having a continuous life-path because other people constantly help us to piece this path together. Our parents tell us stories about where we were born and what we did as children. Friends and relatives will also provide accounts of segments of our life-path. These narratives help to constitute us both as *selves* (i.e. as purposive agents) and as *bodies* (i.e. entities with continuous paths in space-time).

The relationship between the "I" and the "body" is of course much closer than this. In the process of trying to reflect on who the I is, we can only do this from the perspective of our body - it is the body's movements through and experiences in space-time which provide the raw materials from which a conscious picture of the world is created. Furthermore it is the memory traces of what this body did which serves to reconstruct the sense of self over the evident gaps in the self's experience.

In short, the process of constituting ourselves as *bodies* is inseparable from that constituting us as *selves*. We can show the close relationship between these processes by means of the diagram below:



Just as the routinisation of actions can be seen as the introduction of some pattern, so movement starts exhibiting patterns when it occurs in a known space. The correspondence between path segments was argued earlier and similarly the self/body association.

Many of the points made in relation to agency carry over to this discussion of space-time paths. The fact that projects are subject to disruption also applies to space-time path segments. Distractions can mean a deviation from the path one is currently moving on. Furthermore just as the self is liable to reconstitution, the body with its life-path is also liable to narrative reconstruction.

The processes underlying the constitution of the self and of the life-path are chaotic in both instances. In the former it is the process of "pandemonic debate" within the brain which enables the emergence of projects and the self, but also potentially destabilises it. In the latter it is the semi-random nature of exploratory movement which both underpins and threatens to undermine the emergence of paths.

### **The fractal nature of human paths**

Because of its importance in constituting a sense of space for human beings, the character of

this exploratory movement needs to be discussed a bit further. We can list its characteristics as follows:

1. Although movement tends to be one-dimensional, it is also partially space-covering. By this I mean that although we can represent the movement of a human being, as a one-dimensional line, exploratory movement has the effect of achieving at least a partial coverage of a two-dimensional area.
2. It exhibits structure at several levels. This refers to the fact that exploratory behaviour takes place at several spatial scales. While we might get a coarse-grain view of a major metropolitan area (like Johannesburg) by travelling along various major traffic arteries, we may also be exploring the contents of familiar spaces (e.g. my backyard) at more minute scales.
3. It is jagged. It characteristically involves abrupt changes in direction.

The combination of these characteristics suggests that the path of this movement can be described as "fractal". A more detailed description of what is meant by fractal curves is provided in the appendix to this chapter.

While it may be possible to apply the concepts of fractal geometry *directly* to human exploratory motion, this is not the major reason for introducing the idea of fractals. The purpose is rather to use the concept by way of analogy. I am therefore not concerned so much with the question whether human motion is "really" fractal or linear, as with developing new ways of looking at this motion. The introduction of the concept of fractals should therefore ultimately be measured by its usefulness. This usefulness is based on the fact that a good analogy can suggest fruitful insights or avenues of enquiry that would otherwise not have been available<sup>1</sup>.

One of the implications of treating motion as fractal is that even though it exhibits structure at different scales, it is still part of the same curve. Furthermore, in a sense, the same forces that impel jagged motion at the smallest scale will also be evident at the largest, and *vice versa*.<sup>2</sup>

When we discuss human motion we characteristically segregate motion at different spatial scales. The occasional forays that I make out of Pietermaritzburg to conferences in Johannesburg or Cape Town are seen as qualitatively different kinds of movements to the more routine car trips I make to Durban; which in turn are different from the movements between my home and my office; which are yet different from my strolls around my garden and within my home.

The idea of exploratory movement, however, indicates that there are significant deviations from "routine" paths at all spatial scales. It is possible that one day I might move my wardrobe so that I can rediscover what is behind it; I might also decide to explore a part of the city that I have never been in. The point, is that large-scale exploratory behaviour (going on holiday to the United States) is not qualitatively different from the very minute examples of everyday exploratory movement.

This is quite easy to understand within the language of fractal geometry, but is much more difficult to internalise in more conventional conceptions of spatial movements. Such conventional approaches display a concern for the absolute qualities of movement (distance and direction) rather than its structure (jaggedness, scaling). This, I would argue leads to the potential misunderstanding of the significance of this movement.

An example might make this point clear. It is possible for a person to travel extensively overseas and yet stay within very narrow social and spatial confines (I once spent three days in the Harare Holiday Inn, and didn't see anything else of the country). The way in which this individual moves through the spaces of her home may be equally restricted. As a result, she may not know her own house as well as her housekeeper does. Another person (perhaps that housekeeper) may never get out of the town, but may see a lot more of that locality and surrounding areas, e.g. travelling in from the township everyday to work and visiting relatives in the rural areas on weekends. Because of our fixation on the absolute qualities of movement the former type of person would generally be seen as the more "exploratory" (or cosmopolitan) personality, and the latter the more "parochial" one. If we focus on the

structure of the movement, however, it is clear that while there are important differences in the way in which these individuals cover space, they are both engaged in exploratory movement which exists at several spatial scales. The fractal conception of space alerts us to the way in which the structure of movement at all scales needs analysis.

Furthermore by emphasising that it is one (although fractal) path, this conceptualisation also avoids the headaches in trying to sort out what counts as intra-local, what as regional and what as national movement. The scale at which a movement happens is not necessarily an intrinsically interesting questions<sup>3</sup>.

Fundamentally, however, the fractal conception of movement is interesting because it lays stress on aspects which are normally neglected - the irregular, fragmented nature of human paths. As Mandelbrot explains how he came to coin the term fractal:

*Fractal* comes from the Latin adjective *fractus*, which has the same root as *fraction* and *fragment* and means "irregular or fragmented;" it is related to *frangere*, which means "to break." (1977, p.4)

## The fractal metaphor in life paths

The argument thus far is that the fractal nature of human movement underpins the process by which we come to know and represent the space we live and move in. The metaphor of fractals can, however, be extended to include these representations themselves. Indeed it is not altogether surprising that this fractal movement should leave some fractal imprint on the way in which we conceptualise space and our movement within it.

The key points to note in this regard are:

1. There are gaps within our representation of space; and
2. These gaps exist (i.e. are structured) at all spatial scales; but nevertheless
3. Our representations still manage to provide some coverage of space.

With these characteristics it is possible to conceptualise our picture of space as being a *fractal set* (see Appendix for more details).

The idea that there should be gaps in our representation of space is not particularly remarkable. It is the inevitable outcome of the fact that our movement is not completely space-covering (indeed given the size of the globe it couldn't possibly be), and that we inevitably only fix on and represent items that are of interest to us.

What is less evident is that there are such gaps even in the spaces with which we are most acquainted. For example, I do not have a clear picture of what there is behind the books in my book case (the other day I found a wasp's nest there). Similarly, I don't really know what is in and behind the bushes on either side of the path that I walk along.

It should be stressed that the "fractal" nature of this representation need not be deleterious. On the contrary, we would not be able to operate if our mental picture included every detail in our space. Similarly it is a prerequisite of our ability to move around that we should be able to connect the micro-scale of our immediate environment with the other scales at which we move. Our representation of space therefore also has to exhibit structure at several scales. Lastly if our representation did not provide some coverage of space, we would not be able to move at all.

Where the fractal conception is again useful, is in the way it draws attention to the *structure* of the gaps in our representations. The fact that such gaps have important effects on the way in which people relate to the world, has been shown by mental mapping exercises. What the fractal conception highlights is that these gaps do not occur at only one spatial scale. To put this more concretely, White South African children (and, indeed, adults) generally do not know the location or the character of the townships. Equally, however, they might not know the location of the iron or the fabric softener, because someone else washes and irons the clothes.

The concept of fractals can even be extended to the idea of projects or *space-time path segments*. It has been repeatedly said that what distinguishes these from more "blind" forms of activity is that they are somewhat stretched out in time and space. In order to be sustained they need the device of "talking to oneself" within a stream of consciousness.

Nevertheless no project maintains control of the stream of consciousness for very long. There are always interruptions and distractions. The trick of "talking to oneself" should be seen therefore not only as a trick to fend off such distractions, but also as a way of refocusing on what one was doing prior to the interruption. In a sense it allows the particular coalition of "demons" to reconfigure the rest of the neural processing machine for the project at hand.

The stretching out of a project in space and time is therefore not equivalent to *continuity* in space and time, at least in the sense of continuity within the "stream of consciousness"<sup>4</sup>. A graphic representation of the movement of a project, in this case "writing a thesis", into and out of the "stream of consciousness" would look something like Figure 10.

What is noteworthy about this representation is not only the "gappy" nature of this project, but also the fact that the interruptions (and the existence) of the project exist at a number of scales. Within the overall duration of the project (say three years) there are a number of longish breaks, for other projects and due to illness. Within a particular stretch of the

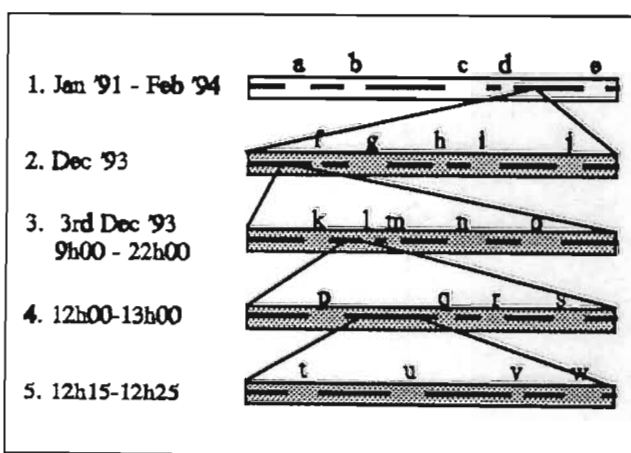


Figure 10 The fractal nature of projects

The solid line represents time consciously devoted to the project

project (say a month) there will be definite breaks as well, e.g. for weekends or for working on an urgent report. Within yet shorter periods (say a waking day) there will be "down periods", for eating, perhaps doing some shopping or chatting to the neighbour. These interruptions exist even during short working periods (say an hour), in the form of changing

the music, getting up to get something to nibble etc. Even during very short periods (say 5 minutes) it is fairly impossible to maintain complete concentration. One's nose or fingers will itch, one will be temporarily reminded of something else and daydream for a second, only to snap back to attention etc. The set of interruptions therefore exhibits the kind of scaling pattern (self-similarity) characteristic of fractals.

*Despite* the fact that this project is interrupted almost everywhere, it still manages to cover a definite extent of time - otherwise it would not be possible to ever complete a project. The project therefore exhibits the three characteristics of fractal sets listed earlier.

In short, it can be suggested that projects exist in fractal space-time. Indeed on reflection it is not very surprising that this should be so. Our brains are marvellous parallel processing machines. They have this massive computing power, because we have to be able to respond to new situations at very short notice. Furthermore there are many things that need to be done, and that we need to "keep in mind". With all these things happening simultaneously in our brain, it would be a problem if any particular project was able to hog the "internal communications machine" for too long. By projects getting flipped in and out of this stream of consciousness, this delicate juggling act necessary to our survival is performed. The result of this process is, however, the fractal pattern noted above.

Given that our *life-path* is pieced together from these fractal path segments, it is not surprising that it too should exhibit a fractal structure. If we view a particular construction of our life-path as a series of different projects, then it is clear that each of these projects is, in reality, interrupted everywhere by disruptions as argued above.

Furthermore in our reconstruction of our past there will be inevitable gaps due to memory loss or repression. These gaps will again exist at every scale at which we choose to examine our life-path.

## Smooth representation and fractal reality

It is clear therefore that while our *representations* of space, of our projects and of our life-paths appear to us as continuous (we patch over the gaps), the reality which underlies it is a fractal one. In a sense this discordance is, however, a necessary one. As was argued previously, it would be impossible to act if our brain had to portray the full complexity surrounding us. Similarly, we could not focus on a project if we did not remind ourselves constantly of what we are engaged in, i.e. if we did not patch over all the smaller and larger distractions. A project only has a reality *because* we read it as continuous rather than fragmented.

This indicates, however, that the smooth, continuous appearance of our life-path is not simply a distortion. The construction of these path segments and life-path has important real effects. It would not be possible to *act* if some order was not imposed on the fractal reality. Furthermore, the kind of future movement and activity that we engage in is influenced by the way in which we narratively construct and re-construct our life-path and path segments. To put this more concretely, the way in which we trace our history and our movements is integrally connected with the way in which we think about our future trajectory. Indeed, the very idea of a trajectory is dependent on the concept of the life-path.

Given that the idea of ourselves as a body with a life-path is essential to our existence as agents, it is perhaps useful to quickly categorise some of the key ways in which this narrative construction differs from the fractal reality. Firstly, space-time achieves an *absolute* quality, which it does not have in its fractal form. In other words, when we label a particular path-segment ("I am now working on my thesis") we are suppressing the fact that there are other distractions and other projects ("at the back of our mind") which impinge on that stretch of space-time. Each interval of the life-path therefore acquires an unequivocal meaning. Secondly, space-time tends to become *linear*, i.e. it achieves a directionality which fractal space-time does not have. The present is seen as the product of the past and a moment in a process which points towards the future. Thirdly, the space-time of the body is seen as

*continuous*. There are no breaks in the life-path.

With these characteristics, the idea of a life-path shows many similarities with motion as conceptualised in Newtonian physics. Indeed, talking about ourselves as though we had a *trajectory* (e.g. a "career path"<sup>5</sup>) brings this similarity out. Intrinsic to this conception is the idea that our future movements and activities are fixed, although this "path" can be changed through the intervention of some "force".

It should not need stressing that disruptions to a particular construction of the life-path are not merely due to "external" forces (new circumstances) but can be due just as much to its "internal" destabilisation by other projects that were suppressed. The underlying fractal reality therefore constantly impinges on our abstract reconstruction of it.

## Conclusion

The idea of a time-space path as popularised by time-geography draws attention to the way in which "external" human movement leads to "internal" representations of the world. These internal representations in turn help to guide further movement. The spatial path therefore becomes implicated in the very being of the agent.

Nevertheless this account is too simple in two respects. The "external" movement is not as smooth as time-geography assumes it is, nor is the connection between the movement and the resultant internal representation as straightforward as theory suggests.

Indeed, the "fractal" nature of human exploratory movement is a prerequisite for human orientation within space and similarly the processes of "patching over" the fractal gaps in our experience are crucial in developing an effective picture of the life-path which can serve as a guide to future activity.

It is clear, however, that in a particular construction of our life-path we do not feature as solitary individuals. Instead part of how we view our trajectory is in how our movements relate to those of *other* bodies with life-paths. We therefore need to give some attention to how interactions feature in this account. We will turn to this in the next chapter.

### Appendix: Fractal Geometry

Fractal geometry, is concerned with shapes and sets which are completely irregular or fragmented. In the words of Mandelbrot, who developed this branch of mathematics:

Many important spatial patterns of Nature are either irregular or fragmented to such an extreme degree that *Euclid* - a term used in this Essay to denote all of classical geometry - is hardly of any help in describing their form. The coastline of a typical oceanic island, to take an example, is neither straight, nor circular, nor elliptic, and no other classical curve can serve without undue artificiality in the presentation and the organization of empirical measurements and in the search for explanations. Similarly, no surface in Euclid represents adequately the boundaries of clouds or of rough turbulent wakes. More generally, many patterns of Nature that had already attracted the attention of primitive Man involve, in comparison to Euclid, not only a higher degree but an altogether different level of complexity. (1977, p.1)

#### 1. Fractal curves

Some of the concerns of fractal geometry can be discerned by considering the characteristics of one of the "monster" mathematical curves mentioned earlier. The rule for generating the Koch curve can be quite simply stated. It

is illustrated in Figure 11. It involves starting off with a line segment. This is equally divided into three parts. The middle segment is deleted and is replaced by two segments at  $120^\circ$  to the original line and at  $60^\circ$  to each other. Each of these four line segments is clearly the same length. The same procedure is now applied again. Each of the four line

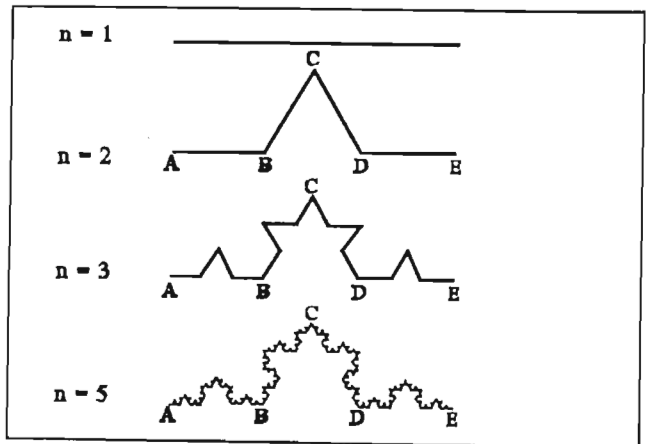


Figure 11 The Koch Curve

segments is divided into three, the middle segment removed and replaced by a "cusp" of two line segments of equal length to the others. This procedure carries on *ad infinitum*<sup>6</sup>. The resulting figure is called the Koch curve.

This curve has a number of very interesting properties. The first point to note is that at each step we are, in effect, replacing three equal line segments with four line segments of the same length. The total length of the curve therefore increases by  $4/3$  at each step. Since this process continues to infinity, the length of the Koch curve is infinitely long! Nevertheless the overall area underneath the curve remains finite. We therefore have the paradoxical situation of a finite area being enclosed by an infinitely long line.

Another property of the Koch curve is that although it is continuous, it is not differentiable at any point. In a sense the curve is infinitely "jagged", with a cusp at every point. This, again, seems paradoxical because we are used to turning points in graphs as involving a change from one direction to a definite other direction. The Koch curve changes direction at every point! More accurately, we cannot define a direction for the curve at any point.

The curve is also self-similar. By this we mean that if we take a section of the curve, say the segment labelled AB in the diagram, it will have exactly the same shape as the curve as a whole. It is clear why this should be the case. We end up performing exactly the same set of operations on this line segment as we did on the original line. Another way of looking at this property is that the curve has structure at many different spatial scales. If we look at the curve as a whole at a certain level of magnification, it is not clear to us that a minute stretch of it will have just as much structure as the curve as a whole. In this way a fractal curve is quite different from a normal Euclidean curve. With a straight line or with a circle one does not need to zoom in on any tiny part of the curve to see what the curve does there. All the information is given in the macroscopic picture. In the case of fractals more details come into view as we zoom in to any portion of the curve.

Perhaps the most paradoxical property of all, however, is that the Koch curve has a fractional

dimension! In fact its dimension<sup>7</sup> is approximately 1.2618. We can understand how this number is arrived at by considering Figure 12. Each of these figures can be *scaled* in the sense that we can divide it up into smaller replicas which have precisely the same shape and properties as the original one. For each of the figures we can define the *scaling ratio*

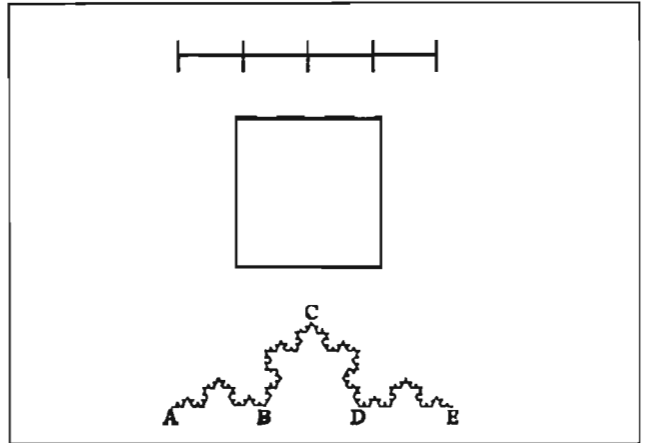


Figure 12 Scaling ratio and fractional dimension

(or similarity ratio)  $r$ , which simply is the constant by which the shape has to be "scaled down" to match one of its replicas. For this scaling ratio we can count the corresponding number of replicas  $N$ . In the case of the straight line in Figure 12 we have  $r = 1/4$  and  $N = 4$ . In other words by scaling the line down by a factor of  $1/4$ , we have produced four replicas which are all similar to the original shape. In the case of the square, we have  $r = 1/3$  and  $N = 9$ ; while in the Koch curve,  $r = 1/3$  and  $N = 4$ , i.e. the whole curve, when shrunk to  $1/3$  of its size will correspond exactly to each of the four line segments AB,BC,CD and DE.

Now there is a relationship between the scaling ratio, the number of replicas and the dimension of the object. This can be expressed by the formula<sup>8</sup>:

$$(11) \quad D = \log N / \log(1/r).$$

In the case of the straight line and the square the numbers come out as we expect them, i.e. 1 and 2 respectively. It is in the case of the Koch curve that a counterintuitive result is obtained. In this case  $D = \log 4 / \log 3$  which lies between 1 and 2.

In fact the Koch curve is only one of a whole family of mathematical objects whose dimensions turn out to be either fractional (i.e. not a whole number) or a different whole number from the one that we would expect. As an example of the latter, there are curves which turn out to be space-covering, i.e. every point within a square (say) will also be within this curve. Nevertheless the curve is a proper curve in the mathematical sense, i.e. it is continuous and does not intersect itself. It just happens to be so convoluted and "twisted up"

that it manages to fill a space.

The idea that one-dimensional objects, when sufficiently twisted can be space-filling is not completely counterintuitive. In a more limited way when we crunch up a piece of paper (two-dimensional) to make something vaguely reminiscent of a sphere (three-dimensional) we do something analogous.

The fractal dimension of a curve can therefore be interpreted as a measure of how far this "crunching up" process has gone. A curve of dimension 1 is completely straight. The Koch curve, with dimension 1.2618 is somewhat jagged and therefore slightly space-filling. A curve of dimension 2 is maximally jagged<sup>9</sup> and completely space-filling. The fractal dimension therefore serves as a measure of how "jagged" or "smooth" a particular curve is. Given that fractal curves cannot be described by means of their length or direction, their dimension can serve as a useful indicator of their fundamental properties.

In summary, fractal curves have the following properties:

1. They are continuous, but undifferentiable (i.e. they are jagged).
2. They do not have a defined length.
3. They have the property of self-similarity. If we magnify a portion of a fractal curve, it will exhibit the same<sup>10</sup> structure as the curve as a whole.
4. They will, however, exhibit structure at a number of different scales, unlike straight lines which are also self-similar.
5. They have fractal dimensions (i.e. they are somewhat space-filling).

Mandelbrot argues that fractals are not merely mathematical curiosities, but that they accurately represent many shapes found in nature. For example, he cites research by Richardson to support the idea that a coastline has a fractal shape. Coastlines are generally very rugged in shape. In order to get an estimate of the length of such a coastline, say the coastline of Britain, one could start by getting a map of the entire island and derive an estimate from there. The problem with this approach is that at this level of resolution one

would take into consideration the major bays, headlands and inlets, but one would miss many smaller ones. One could therefore go to more detailed maps of sections of this coastline. These, however, would ignore yet smaller bays. Essentially as one zooms in, one finds additional twists in the curve. Richardson showed that the figure that one obtained for the length of the coastline was dependent on the resolution with which one tried to measure it. Just as with the Koch curve, however, with finer and finer resolution the estimate of the length just kept growing. It did not seem to converge on a finite number.

A further example of a fractal curve in nature is given if one tries to trace out the drainage system of a river and its tributaries. The idea is quite simple: start at the point where a river enters the sea; trace along the one bank of a river upstream until you come to its source then move alongside the other bank until you again reach the sea; with the one proviso - whenever you encounter a tributary, first trace along *its* path until you have rounded its source and have come back, on the other bank, to the point where you meet up with the main river again. In tracing out the entire drainage system of an area in this way, one encounters the same problem: as one increases the level of magnification, one discovers smaller and smaller streams and rivulets. The length of the drainage system therefore increases beyond bound. In fact the idea that a drainage system should be a fractal makes sense: after all a drainage system manages to drain an *area*; the shape of the system must therefore be space-filling, to some extent.

Any path which is designed to fill a space at least to some extent, will therefore have something of the characteristic of a fractal. Indeed, this was one of the reasons why it was suggested earlier that human exploratory motion has something of the characteristic of a fractal.

It needs to be noted immediately that this cannot be literally true. Human motion does not exhibit structure at *all* scales. If we therefore use a suitably high level of resolution<sup>11</sup> we will be able to fix a length for a human path. At such a resolution, the jaggedness would also be much less in evidence.

Nevertheless this is also true for most of the other applications of fractal geometry (see the examples in Kaye 1989). As long as a path or a shape exhibits structure over several spatial scales, the concept of a fractal dimension can still prove useful. Estimates of this dimension can be used to characterise how smooth or otherwise this path or shape is.

## 2. Fractal sets

Curves like the Koch curve are not the only category of fractal objects that there is.<sup>12</sup> Another important category is provided by objects which have "gaps" everywhere within them. The most well-known of these is the Cantor set. It is constructed from a line segment by successively removing the middle thirds from whatever line fragments remain (see Figure 13).

The outcome of this process is a collection of points which are completely disconnected from each other, in the sense that between any two points within the set there will be a gap. The set, as can quite easily be seen, is self-similar; it exhibits structure across all spatial scales and it has

a fractal dimension of  $D = \log 2 / \log 3$ , which is approximately 0.6309.

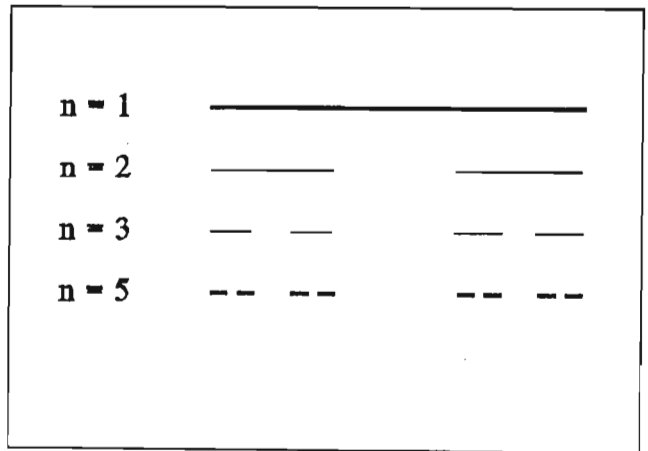


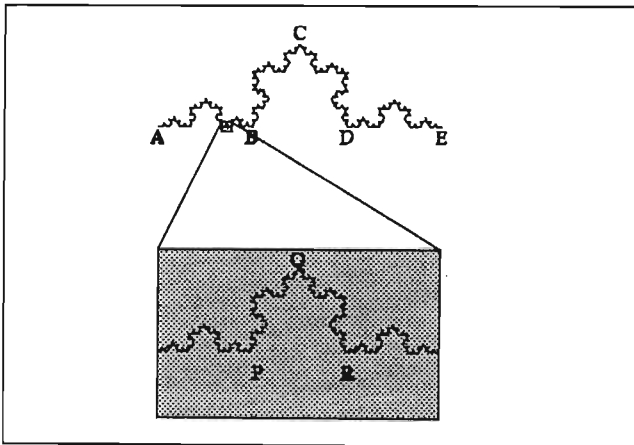
Figure 13 The Cantor Set

This set is therefore a fractal, within Mandelbrot's definition. The fact that its dimension is between zero (the dimension of a point or a group of points) and one shows that it manages to some extent to "fill out" the space along the line.

**Notes:**

1. Indeed the way in which I have come to deploy the concept in this thesis bears this point out. The idea of human motion as "fractal" first occurred to me in thinking about two aspects of human motion: their "jagged" nature and the fact that they occur at different spatial scales. These two features suggested the concept of "fractal". In thinking through this idea I realised that fractal curves were somewhat space-filling and that exploratory behaviour could be seen as an attempt to cover a space. This space-covering behaviour probably would not have occurred to me, but for the analogy. In the way in which I have developed this section, it has, however, become almost the key concept.

2. For example, consider the Koch curve as depicted on page 174, 175 and treat it as a model of the motion of some object, moving from A to E. The "big" departure from the path AE which is evidenced by the spike BCD is the result of the same structure as the "little" meander PQR.



3. Although it might have interesting effects. Clearly the longer the distances through which people move, the more energy is expended and hence the more stress is placed on the environment. On the other hand, the larger the geographical reach of individual human beings, the more potential they have for interacting with other people, making use of specialised facilities etc.

4. The project would still be in existence as "niggle at the back of one's brain". Given that the brain is a massive parallel processing machine, as Dennett argues, we can allow that some neural processing on the project continues, even while some other upstart project is monopolising the privileged position of the internal communication machinery.

5. The word *career* is quite curious in this context, since it seems to suggest a movement which is out of control, rather than one which follows fixed, predictable lines!

6. This definition might strike some people as suspect. It is, however, not any more strange than the procedure that the calculus employs in working out the slope of the tangent at a particular point. This is also a limiting process which involves the behaviour of points as they

tend to infinity. The Koch curve is, in fact, quite well-defined mathematically.

7. To be more accurate, the dimension of each object can be measured in more than one way. There is its *topological* dimension  $D_T$  and its fractal dimension  $D$ . These have the property that  $D_T \leq D$ . In the case of the Koch curve, the topological dimension is one, which is the expected figure. The fractal dimension is, however, for many purposes the more interesting measure of dimension (for a more thorough discussion, see Mandelbrot 1977).

8. This definition should be called the similarity dimension. For many purposes it corresponds to the what is known as the *Hausdorff-Besicovitch* dimension, which is based on a mathematical generalisation of the idea of measuring space (distances, surfaces, volumes etc.).

9. This is true only if we restrict our analysis to curves within the plane.

10. This is often relaxed to the relationship of *statistical similarity* between portions of the curve and the curve as a whole.

11. Anything below the scale of an average human step would do adequately, e.g. if we used 1mm as our measuring rod.

12. Formally Mandelbrot defines a fractal object as one in which the *fractal* dimension does not correspond to its *topological* dimension.

## Chapter 8: The spaces of interaction

In the discussion of human paths we have shown how abstract space when viewed as a *backdrop* against which human beings move can enter into social analysis. Nevertheless the role of "space" is not exhausted by this. Another aspect that has been alluded to, but not developed, is that certain spatial relations are prerequisites for particular causal interactions.

Social interactions, because they also always involve physical interactions, therefore have certain spatial prerequisites. To the extent to which particular physical objects or props enter into interactions, these prerequisites become more intricate and complicated. In this way particular places or *settings* become bound up with particular kinds of interactions. The interactions in turn start defining the nature of the spaces involved.

It is argued, however, that interactions (like individual projects) are not continuous. Consequently the spaces of interaction will also exhibit something of the fractal character of individual space-time paths. Indeed, the absolute character of spaces and times emerges only through the way in which we talk and legislate about spaces and times. Every such attempt at homogenising space and time is, however, also an attempt to repress dissident meanings and activities. Because absolute space-time is, however, underpinned by the fractal space-times of human interactions, such attempts at repression are never completely successful - although they always have very important and real effects.

### Spatial prerequisites of causal interactions

The idea that there are certain spatial prerequisites for causal interactions is stressed by Sack in the form of the "principle of action by contact":

if  $x$  influences  $y$ ,  $x$  must either be in contact with  $y$  directly, by being physically in touch with it, or, if  $x$  and  $y$  are physically apart, the influence of  $x$  on  $y$  must travel

through intervening substances (i.e.,  $a, b, c, \dots, n$ ) which form a medium, a path, or network of substances linking  $x$  to  $y$ . If such claims are insisted upon, they may indicate another mode of viewing space. Turning this around, properties of space such as location and distance by themselves have no effect on substances. Rather it is substances in space with spatial properties which affect other substances in space with spatial properties. (1980, p.9)

The idea of action by contact does not necessarily hold for all branches of science. In quantum physics many effects are "non-local" (see Peat 1992, *passim*). Indeed many of the points about abstract space-time seem to break down at the quantum level. Nevertheless for the scale of objects above this level, Sack's point is taken.

However, besides *contact* there are other spatial relationships between objects which enter into causal interactions. For example, many chemical reactions involving complex organic molecules (e.g. proteins) require the interacting objects to be in specific configurations. Such molecules often have specific "binding sites" which the other molecule has to fit into. In the case of a human antibody the spatial requirements are so specific that only molecules having a specific shape (the antigen) will activate the antibody.

In different ways, therefore, spatial characteristics act as prerequisites for causal interactions. Such constraints also typify interactions involving human beings, whether these be between a human being and non-human "nature" or between human beings.

The fact that human interactions with nature have spatial prerequisites has been recognised in various forms of "regional geography" for a long time. The point of many such geographies, in fact, was to show how the distribution of human activities reflected the distribution of natural features. The starting point for these analyses is that certain human activities (e.g. mining coal) are possible only where the raw materials necessary to that activity is available. The spatial distribution of natural resources therefore leads to an inevitably *regionalisation* in the distribution of human activities. In some accounts this insight

was exaggerated into fully fledged environmental determinism:

The great wars of history ... are the outcome, direct or indirect, of the unequal growth of nations, and that unequal growth is not wholly due to the greater genius and energy of some nations as compared with others; in large measure it is the result of the uneven distribution of fertility and strategical opportunity upon the face of the globe. In other words, there is in nature no such thing as equality of opportunity for the nations. Unless I wholly misread the facts of geography, I would go further, and say that the grouping of lands and seas, and of fertility and natural pathways, is such as to lend itself to the growth of empires, and in the end of a single world-empire. (Sir Halford J. Mackinder, quoted in Smith 1984, p.102)

Of course the natural constraints can be overcome through two factors, firstly the development of means of transportation and secondly the alteration of aspects of nature itself (e.g. through irrigation or the development of drought resistant maize hybrids). Even in these cases, however, the spatial prerequisites of causal interactions have not been superseded; only the way in which these requirements are met has changed.

In this sense a certain spatial distribution of objects constrains what causal interactions (including human activities) are immediately possible. This applies to interactions between human beings too. Certain interactions are not immediately possible because the people involved are spatially separated and cannot be brought into contact (either into direct co-presence or into interaction *via* telephone).

### **Spatio-temporal prerequisites of human interaction**

The problem of bringing about an interaction between two human beings is analysed extensively by time-geography. Pred (1986, p.67) notes that it is a problem in both synchronisation and "synchorisation" (spatial co-ordination). In the case of routinised practices and joint projects it becomes especially acute.

In order to achieve this kind of co-ordination, it is necessary to be able to identify "regions" of both space and time within which such interactions will take place. The natural rhythms associated with the movement of the sun and the moon (days, months, seasons) would have been the most elementary tools for the synchronisation of activities. Major distinguishing marks in the natural environment (trees, hills, water courses) would have served this role in synchronisation. With the development of more sophisticated sets of activities and the need to achieve increasingly tighter degrees of co-ordination, new technologies for synchronisation (the clock, the conveyor belt) and synchronisation (street addresses, global positioning systems) were developed.

Three points need to be stressed. Firstly, *any* kind of routinised form of human interaction needs some way of achieving temporal and spatial co-ordination. In other words some inter-subjective temporal and spatial "grid" is necessary.

Secondly, with the industrialisation of society, however, the characteristics of this grid increasingly take on the nature of "abstract" space and time (see Harvey 1985a, Chapter 1). The abstract nature of these grids rests in the fact that the way in which they are imposed is increasingly divorced from temporal and spatial variation as experienced by human beings. Whereas the differentiation between day and night clearly had an experiential basis, the difference between one minute and the next does not. Similarly, the spatial demarcation of plots within cities does not have any intrinsic experiential basis. One plot is very much like the next one.

Thirdly, the "zoning" of space and time for the purposes of co-ordinating human activities is aided somewhat by the fact that many interactions require particular "props" (in Goffman's terms). Other kinds of interactions require particular raw materials. Such objects which enter into interactions are not always available everywhere and at all times. The spatial and temporal distribution of such objects can therefore itself help to co-ordinate human activities.

## Locations and relationships

The confinement of specific interactions to certain demarcated regions of space and time can therefore aid in the routinisation of these interactions. The fact that props and materials necessary to the interaction are located in these regions consolidates the routinisation even further. In this sense the maintenance of *social relationships* is generally dependent on the existence of such specific regions of interaction. Goffman refers to such places as "settings" for interactions. Giddens labels them "locales". These are places which are specifically suited for certain kinds of interactions or "performances" in Goffman's terms.

If we call the place within which such a performance takes place the "front region", Goffman argues that there must be a corresponding "back region":

It was suggested earlier that when one's activity occurs in the presence of other persons, some aspects of the activity are expressively accentuated and other aspects, which might discredit the fostered impression, are suppressed. It is clear that accentuated facts make their appearance in what I have called a front region; it should be just as clear that there may be another region - a 'back region' or 'backstage' - where the suppressed facts make an appearance.

A back region or backstage may be defined as a place, relative to a given performance, where the impression fostered by the performance is knowingly contradicted as a matter of course. There are, of course, many characteristic functions of such places. It is here that the capacity of a performance to express something beyond itself may be painstakingly fabricated; it is here that illusions and impressions are openly constructed. .... Here costumes and other parts of personal front may be adjusted and scrutinized for flaws. Here the team can run through its performance, checking for offending expressions when no audience is present to be affronted by them; here poor members of the team, who are expressively inept, can be schooled or dropped from the performance. Here the performer can relax; he can drop his front, forgo speaking his lines, and step out of character. (1971, pp.114 - 115)

Goffman observes that commonly the back region of a performance will be located close to the front region, but screened off from it in some way.

By having the front and back regions adjacent in this way, a performer out in front can receive backstage assistance while the performance is in progress and can interrupt his performance momentarily for brief periods of relaxation. In general, of course, the back region will be the place where the performer can reliably expect that no member of the audience will intrude. (pp.115 - 116)

Since behaviour within the back region contradicts the impression being fostered in the front region, control over access to the backstage is important:

If a factory worker is to succeed in giving the appearance of working hard all day, then he must have a safe place to hide the jig that enables him to turn out a day's work with less than a full day's effort. If the bereaved are to be given the illusion that the dead one is really in a deep and tranquil sleep, then the undertaker must be able to keep the bereaved from the workroom where the corpses are drained, stuffed, and painted in preparation for their final performance. (p.116)

The important point that Goffman's discussion highlights is that the demarcation of front regions, i.e. regions dedicated to the enactment of certain routines, introduces an *absolute* quality to certain spaces. The "front region" is not merely a convenient label to achieve the co-presence of the various parties to the interaction; it has to be *organised* such that certain facts and appearances are suppressed within it. Similarly, the "back region" has to be organised such that it is not accessible to the audience of the performance in the front region.

It should be noted that front regions and back regions do not exist in themselves. Indeed, Goffman points out that a region is defined relative to a particular performance. What differentiates a particular zone of abstract space-time as a region or a *location*<sup>1</sup> for a particular interaction therefore is simply the fact that this interaction habitually takes place there<sup>2</sup>. One of the implications of this, is that a location does not have an existence prior to or independent of the performance or interaction which it helps to constitute.

It should be noted that we have a neat symmetry between the existence of such locations and the existence of routine interactions and relationships. On the one hand, the routinisation of interactions requires the existence of such space-times; on the other, the nature of these interactions gives these locations their absolute character. In other words, the space-times are *defined* by the interactions; but the interactions are in turn *underpinned* by the space-times.

Another way of looking at this point is to remember that relationships are ways in which specific interactions are stretched out in space and time. This "stretching out" process gives an absolute quality to the space-time over which it occurs, because it by definition attempts to exclude other projects from this space-time.

### **The fractal nature of locations**

Nevertheless the discussion on individual projects and space-time path segments should alert us to the fact that the space-times of relationships and collective projects will, in fact, also exhibit the fragmentary nature of the individual case. In fact, this can be quite clearly seen in many instances. For example, within a particular interaction, say a seminar, it is always possible to find other interactions happening simultaneously, e.g. a flirtation between two members of the audience. The space-time of the seminar is therefore "interrupted" by the space-time of the flirtation. Similarly an individual within the seminar room may actually no longer be party to the interaction (e.g. because her attention has wandered). The space-time of the interaction, therefore shows an analogous structure to a fractal set (see the Appendix to Chapter 7). This fractal nature might be cruelly exposed at some point (e.g. when someone who has not been paying attention is asked a question), which might bring the whole interaction to an embarrassing and premature end.

If there is a close relationship between relationships and particular locations, then there is an equivalent relationship between social systems and systems of such locations. It needs to be remembered that every account of a social system will involve an account of the agents that

"make up" that system, of their projects and relationships, and of the rules governing the interactions of everyone. To the extent to which particular locations enter into the constitution of any of these relationships, the positing of the social system will therefore also involve the positing of a more comprehensive set of spaces and times.

To put this more concretely, consider again the social system of an academic department within the University. Within this department it is acknowledged that there are particular sets of relationships between lecturers and students. Student-staff interactions depend on the props and setting of lecture rooms and offices. The interactions between members of staff are routinised around the departmental board room and the tea lounge. The social system of the Department therefore exists within a system of spaces including lecture halls, offices, tea lounge and board room.

Just as this micro-social system is embedded in other social systems, the spaces of the department exist within a yet broader system of spaces within the University. Nevertheless, the space-time of a social system, like the University, displays the same fractal nature of the space-time of individual relationships. In other words, there are constantly interactions occurring within the spaces and times of the University which are not part of, and perhaps even at variance with, this social system. For example, during the height of South Africa's state of emergency many anti-apartheid organisations held clandestine meetings in seminar rooms and offices within the University. The University did not as such sanction or know about these activities. Currently it is a well-known secret that many academics are spending more time on private consultancy work than they do on strictly University business.

The system of space-times corresponding to the social system can be thought of as a system of absolute spaces (a *social map*) and a system of absolute times (a *schedule*<sup>3</sup>) within which the agent is located. The social map will be an account of the kinds of spaces which exist, and how these enter into the relationships and social structures of various kinds of agents, e.g. in the idea that the "townships" serve as the organising basis of the ANC. The idea of a schedule is analogous. It is our representation of how the periodisation of activities enters into

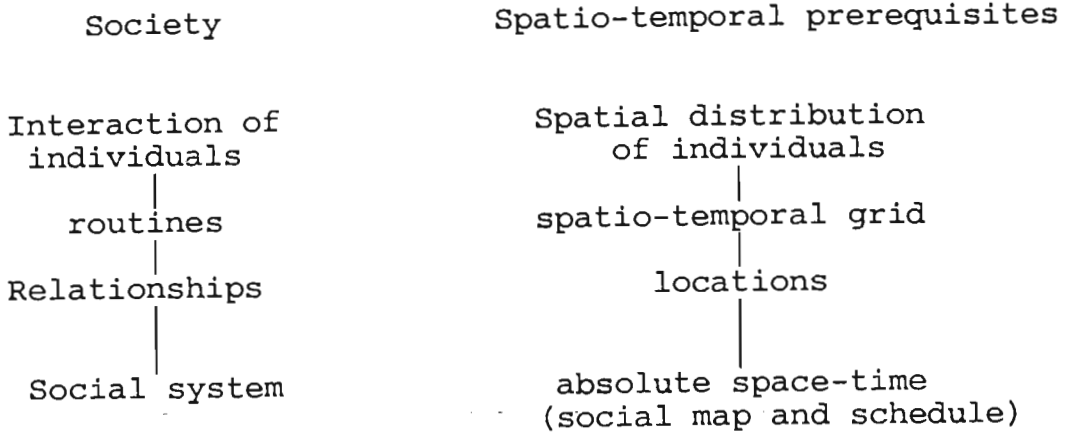
relationships and social structures. It would include ideas such as "the birthday of my mother", "the second lecture period" and "the working week"<sup>4</sup>. In short, the narrative construction of the map and the schedule serves to locate the spaces and times of *our* interactions within the broader context of the regionalisation and periodisation (i.e. location) of *other* interactions.

As with the social system, our view of the system of space-times is not developed in isolation. There are various bits of narrative which we absorb from people around us or from the mass media.

Like all narrative constructions it will be a simplification of reality. It will be this in two respects. Firstly, it will be a reading of the map and of the schedule from one particular perspective. In the nature of things we cannot have a detailed representation of the spaces of all interactions. Some distortion is therefore inevitable. Secondly, our narrative construction will involve a "smoothing over" of the fractal nature of the space-times which constitute the pieces of our map and schedule. It means, for example, seeing the University as being constituted over a definite space (set of buildings) and times (academic year), even if significant parts of that space and of that time are in practice dedicated to other pursuits. This smoothing process can be interpreted as the narrative construction of *absolute* space-times out of the *fractal* space-times of human interactions.

It should be clear that just as seeing oneself as an "identity" within a "social system" is an integral part of becoming an agent, so is the process of locating oneself within the *absolute space-time* of interactions (i.e. seeing oneself as having a *position* within the map and the schedule).

We can sketch out the relationship between the various levels of social interaction and their spatial prerequisites as follows:



### Organisational space-time

It remains to consider how this framework can be extended to the spaces of organisations. Because organisations are also social systems it is clear that the organisation exists in space and time as a (fractal) system of locations. Now clearly this spatial form of the organisation is not analogous to the "body" of the individual agent. There is therefore no organisational analogue for the exploratory movement of individuals. There is therefore no "path" to analyse. Nevertheless in a sense the exploratory movements of members of the organisation constitute the way in which the organisation explores its environment. Sometimes, in fact, the exploratory movement of individuals occurs at the behest of the organisation, as in the case of the reconnaissance missions of parabats, or the surveillance trips of security policemen. Through the processing of such information (whether deliberately collected or not) by the organisation, we can talk about the formation of an abstract representation of the space within which the organisation operates. This is, in a sense its "mental map".

In the case of individuals, the role of such mental representations is to orient movement to enable the agent to reach positions where specific resources are available or certain kinds of activity are possible. The mental map of an organisation plays a similar role. It is used to direct members of the organisation (e.g. sales reps, canvassers for political parties) to various locations where the organisation wants to act (through these members, of course).

Organisational projects, like individual ones, involve the "stretching out" of particular activities in space and time. Because more than one individual is likely to be involved in such projects, it would not be accurate to talk about a space-time path segment. Since such a collective project would exist as a set of relationships or interactions between individuals it would exist as a location in space-time.

The process of constituting an organisational "self" involves piecing these locations together to produce a coherent narrative of where the organisation has come from, what it is, and where it is going to. This involves on the one hand the construction of a "history" of the organisation. As in the case of an individual, such a history will inevitably smooth over the discontinuities. On the other hand, it also involves the construction of a smoothed "space" of the organisation.

It needs to be remembered that the organisation exists as a system of locations - i.e. it exists wherever particular interactions take place in terms of the relationships which make up the organisation. This fractal space of the organisation is reconstructed as a smoothed space in two ways. On the one hand it is pared down to the location (or perhaps set of locations) in which the key interactions, e.g. decision-making meetings, occur. This is epitomised by the strategy of identifying an organisation with its Head Office (e.g. the South African state is often referred to as "Pretoria").

This *centre* of the organisation is, however, also conceived of as being in dynamic relationship with its *territory*, or sphere of operations (e.g. the South African state is also often referred to as simply "South Africa").<sup>5</sup>

Clearly the concept which the organisation has of its centre and territory will be a smoothed version of the reality. The space of the Head Office will not be homogeneously occupied by interactions dedicated to the maintenance of the organisation. Neither will the activities of the organisation cover its territory uniformly.

This is true even of such powerful organisations as the modern state. Although the ideology of the state (its self-concept) proclaims that it is fully in control of its territory (the nation-state), the reality is that this control is highly patchy. Not only do various states have to deal with insurgency, there is also the ubiquitous problem of crime. To the extent to which crime exists, the control of the state over its territory is incomplete. There are therefore always gaps where the state's *surveillance* does not reach, a point insufficiently stressed in many analyses of state power, e.g. Giddens (1985).

The centre and territory of an organisation need not stay constant. Indeed many companies see themselves as having "grown" from small backyard operations to global players (e.g. Apple Computers).

An organisation will therefore have its own version of a "life trajectory" which will include changes in its centre and territory with time. This trajectory will not only involve a "smoothing" of its history, but it will also entail a "patching over" of the gaps in its space.

## Conclusion

The fact that all social interactions need to be synchronised and "synchronised" facilitates the emergence of definite places and times. It is, however, only the advent of routines and relationships that results in the "regionalising" of particular parts of space and time for particular purposes. This "homogenising" thrust is carried further by the narrative construction of absolute space and time (social map and schedule).

The ability to locate ourselves within space and time allows for the emergence of new effects. For example, we can co-ordinate much larger scale inter-agent projects and sustain large-scale organisation on the basis of this absolute space and time. Nevertheless this map and schedule is still underpinned by the chaotic and fractal processes of individual human interactions. Furthermore, as Goffman notes, the attempt to suppress dissident meanings and activities from

certain regions is often possible only by allowing these suppressed tendencies to be expressed elsewhere.

### Notes:

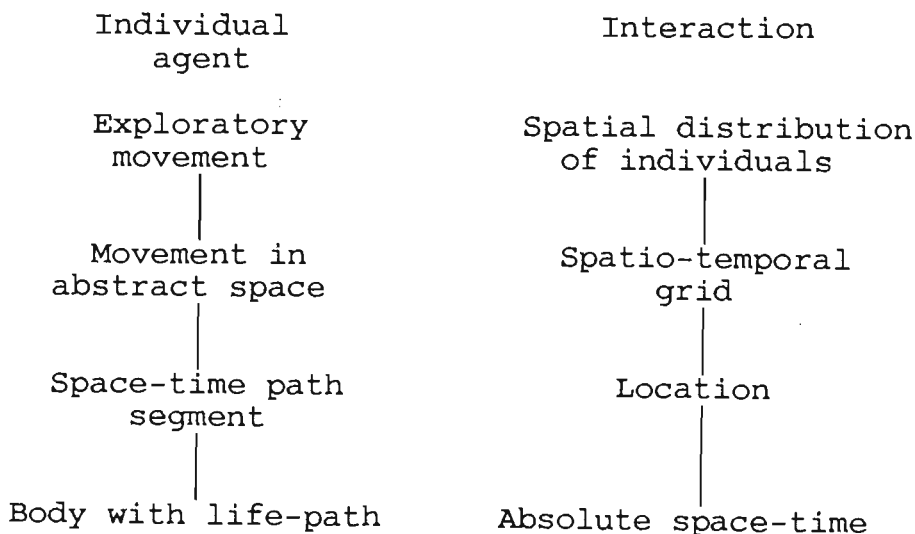
1. For reasons which will hopefully emerge later, I prefer this term to Giddens's concept of "locale". It should be noted that although the concept "location" seems to be an exclusively spatial one, it should be read as a spatio-temporal one. In other words if the same space is habitually used in quite different ways at different times, it would correspond to different locations. It is difficult to find convenient new labels for concepts which incorporate both the spatial and the temporal dimensions. One could talk about a "space-time location", but this becomes quite cumbersome.
2. This is not a circular definition. Provided that people operate with a common spatio-temporal grid, i.e. provided that they can agree on ways of identifying particular spatial and temporal markers such as stones and trees, sunrise and full moon, there are myriads of ways in which "space-times" can be demarcated. All that it takes is to specify which markers should be taken as the boundary of that space-time. Once certain of these arbitrarily demarcated spaces become habitually used for certain interactions, the interaction itself, or at least some practices associated with it (e.g. genuflecting when approaching the altar) will come to demarcate the space.
3. As used here, "schedule" refers to any structured form of scheduling sequences of events. These could be at intervals during a day (e.g. a "time table"), during a year ("Julian calendar"), or even intervals longer than a year (e.g. the Hebrew "Jubilee year" which occurred every seven years and involved the reallocation of plots within each clan).
4. In practice it is probably incorrect to separate the map analytically from the schedule. It is probably more useful to think of spaces and times together: as indeed happens in the idea of "the pub opening time", or that "the Chess Club meets every Tuesday night at the YWCA", or "the inner city streets are not safe at night, because they are frequented by criminal gangs".
5. The argument that the space of an organisation becomes identified with its centre and its territory can be understood by considering the analogy between the individual agent and the organisation further. In the case of individuals, the *body* is the space within which the self is constituted and through which interactions with the environment happen. The organisation, by contrast, is constituted through a system of locations and interacts with the environment through the bodies of its members. This *fractal body* is clearly too complicated to serve as the focus for the organisation's account of itself. The "centre" of the organisation can be seen

as its "mind", i.e. the place from where its activities are directed. In the case of human individuals the mind is located within the body, and it does not really make sense to localise your self any more precisely than you do by saying where your body is. (If somebody asks you "Where are you?" you wouldn't answer "My body is in the bathroom and I am in my body's cranium".) Because the fractal body of an organisation cannot be so easily located, it is clear that an address for its "mind" can be separately provided. Clearly, however, this centre does not exhaust the way in which the organisation exists in space and time. By smoothing out the spaces through which this fractal body moves into a "territory" one develops some sort of proxy for the body of the organisation. Just as the human body is the space within which the self is constituted and through which it interacts with other agents, so the territory of an organisation can be conceived as the space within which it is constituted and interacts with other agents.

## Chapter 9: Paths and Locations

In the previous two chapters two different "connections" between social processes and space-time were explored. In chapter 7 the way in which human movement through space conditions agency was the focus of analysis. In the last chapter, it was the interactions between agents in space-time that was investigated.

In this chapter it will be argued that the "path-like" and the "space-like" dimensions of human behaviour should actually be seen as complementary ways of looking at the nexus between society and space. Indeed, as the discussion of "organisational space-time" should have made clear, there are connections between the two. Of course, organisations as agents *and* as social system display some of the characteristics of both. So, the the emergence of an "organisational space-time" from the activities and movements of the organisation's members mirrors the process by which the concept of a "body" with a "life-path" emerges from the movement of the individual. What is perhaps less obvious is that there are also important similarities between these processes and the way in which "absolute space-time" emerges from the interaction of human beings. We can sketch this analogy between the "path-like" and the "locational" aspects of human space in the following diagram:



The elementary building blocks of human space are given by the somewhat random movements of people exploring their surroundings on the one hand, and the somewhat random interactions between people exploring their "social space" on the other. This chaotic form of spatial behaviour is regularised to some extent by the emergence of an internal representation of this space on the one hand, and forms of synchronising and "synchronising" interactions on the other. The regularisation of the spatial behaviour is seen by more goal-directed movements on the one hand, and more deliberate forms of interaction (i.e. not simply "bumping into people") on the other. The process of stretching out activities in space and time leads to the definition of path segments, while stretching out interactions leads to the definition of locations. It should be noted that both path segments and locations make *absolute* claims on space-time. What defines a path segment is that one particular project (to the exclusion of others) occupies that fragment of space-time. Similarly a location is defined by the way a particular interaction occupies space-time, to the exclusion of others. The narrative reconstructions that lead to the idea of a body with a life-path and to a social map and time schedule, essentially take this process of *homogenising* space and time one step further.

The interrelationship between the "path-like" and the "locational" aspect of human spatial activity goes further than simply this set of analogies. It is not possible to describe the trajectory of a body with its life-path without tacitly invoking the idea of absolute space-time. In assigning to our body distinct places and projects at various times, we are implicitly comparing *our* trajectory to the trajectories of other people and organisations. For example, we anchor our history to the history of our family and various organisations that we are members of (in particular the state). Similarly, we often describe our location in relation to the location of other bodies (e.g. "I'll be at my mother's house") or the spaces of organisations ("South Africa", "Pietermaritzburg"). This anchoring of our life-path in relation to other trajectories is possible only because our paths intersect those of other individual and collective agents. In other words our life-path is anchored *via* the absolute space-time of interactions.

Conversely, the idea of absolute space-time relies implicitly on the idea that there are

particular kinds of trajectories through it. In other words, the idea that certain spaces and certain times are the times of particular interactions, presupposes that there are certain bodies which habitually interact in those space-times. The character of absolute space-time is therefore defined by the way in which particular paths routinely intersect, as time-geography emphasises.

Paths and locations are therefore two perspectives from which human space can be understood. Although they are interrelated, they do emphasise different aspects. For example, the *path* perspective stresses the idea that each individual and organisation has a history, i.e. a set of events which lead up to the present. The image of time that is associated with this conception is that of the arrow (see Gould, 1988) - events have a particular beginning (birth) and lead inexorably to a conclusion (death). The *location* perspective, by contrast, stresses that interactions are embedded in particular schedules, i.e. regularly returning sets of events. The associated image of time is that of the cycle (Gould, 1988) - events keep repeating themselves with a predictable order, i.e. as day follows night, and summer follows spring.

The two approaches also have different implications for the way in which space is seen. The idea of a *path* suggests that there are always different positions in space to be explored. By contrast the concept of a *location* stresses that particular kinds of interactions occur in particular kinds of places. In other words, there is a pattern to places (downtowns, suburbs) which is repeated throughout space.

The path perspective therefore suggests that there is an order *across* human space-time which serves to individuate particular events and places. There is a definite temporal sequence (history) and a set of different and unique places (geography). The location perspective suggests that there is a pattern of places and times *within* human space-time which is potentially repeatable indefinitely. In other words the future will look more or less like the past and other places will look more or less like the ones we know. The path-location dichotomy therefore feeds into a number of other dichotomies which feature centrally in Western social thought: uniqueness versus generality; contingency versus law-like behaviour;

change versus fixity.

Nevertheless, like all these dichotomies, the contrast between the path and the location approach to human space-time can be exaggerated. As time-geography shows, it is quite common for the path approach to be combined with a cyclical view of time. Similarly in the work of Giddens, the concept of location is linked to the arrow conception of time. Locations (or locales) are the nexus through which the *longue duree* of institutional time becomes a possibility.

Furthermore the Newtonian picture of the universe shows how it is possible to combine the path and the location aspects of space while not tapping into any of the other dichotomies. Within Newtonian space-time each moment in time and point in space is individuated (by its co-ordinates), but there is nothing unique about these points. In fact each moment in time and point in space is intrinsically indistinguishable from any other. Furthermore, movement within this universe is fixed, so that the future trajectory of an object is completely determined. Essentially it is a universe in which there is no uniqueness, no contingency and no change.

In some respects the narrative constructions associated with life-paths and absolute space-time can be reminiscent of this Newtonian universe. We often represent our history (and the history of our society or our species) as a tale of inexorable progress. We are where we are and who we are because that is the *inevitable* outcome of previous events.

This view has been vigorously opposed by Gould (1988). He argues that the hallmark of the historical sciences (geology, evolutionary biology, the social sciences) is that contingency leaves its indelible mark on events. If we were to "replay" the set of events, e.g. the development of life, from its beginnings, it would lead to a completely different conclusion. The outcome of these processes are therefore truly historical in the sense that *after* the event, we can explain the outcome of the process as a chain of developments and coincidences leading from one state to another, but *before* the event we could not possibly predict where the processes would lead. Furthermore subsequent developments occur as changes to existing

structures. These developments do not erase all traces of their former selves. As Gould notes in relation to Darwin's theory: "history lies revealed in the quirks and imperfections of modern structures" (1988, p.43).

This is quite a hard lesson to absorb. At the level of evolutionary theory, it means seeing the existence of *homo sapiens* as an accident of history. If it hadn't been for a string of contingent events (the extinction of the dinosaurs, climatic change in the savannah of Africa etc.) the genus *homo* would not have evolved. At the level of society it means abandoning the idea that there is some inevitable progress which leads from hunter gatherer societies to the kind of society we live in. At the level of individuals, it means understanding that our *self* is an accident of history. It is this firstly in the sense that but for a very contingent fact (the meeting of a particular sperm and a particular egg) we would not exist. Secondly, however, the way in which we come to see the world and ourselves is dependent on many accidents and chance experiences. Furthermore, as previous chapters have argued, our self is constantly being redefined through these processes.

The processes of interpretation and reinterpretation in our brain which suggest that there is a coherence to our development of self essentially amounts to a denial of this contingency. This denial of the accidental character of history is essentially the same process as the patching over of the fractal nature of our movement and our spaces to produce a smoothed account of our life-path and our space-time.

In essence, the distinction between path and location is therefore perhaps not as fundamental as the distinction between fractal space-time and homogeneous space-time. Fractal space-time, as this section of the thesis should have made clear, is characterised by jagged, random kinds of movements and all pervasive discontinuities. Homogeneous space-time, by contrast, is the way in which fractal space-time enters into our consciousness. In a sense, it is the space within which we live. It is characterised by relatively smooth and predictable movements and well-defined structures of places and times.

Although homogeneous space-time is a construction, it does have real effects. It serves to guide (although it does not determine) movement and interactions. It therefore helps to introduce some order and predictability into the spatial behaviour of human beings. Nevertheless it does not supersede fractal space-time. In fact, it could not exist without fractal space-time. This, however, means that homogeneous space-time is constantly vulnerable to disruption. In other words, our space-time does not exhibit the orderly trajectories of Newton, but the contingent movements of Gould.

### Conclusion

The discussion of abstract space in chapter 6 showed how from concrete spatial relations between objects an abstract conception of space could emerge. In a sense the transition from fractal patterns of movement and interactions to homogeneous space-time is an analogous process. It is the attempt to go beyond the patterns of concrete movement to the underlying abstract patterns which guide that movement.

In the case of Einstein's general relativity theory it was observed that an abstract account of space-time could equally well be understood as a theory of how objects would move within it in the absence of a force. In a different sense, accounts of homogeneous space-time do the same. They can be seen as providing a theory of how people will move and interact in the "normal run of things", i.e. in the absence of outside disruptions. Because accounts of homogeneous space-time serve not merely as *descriptions* of how people move, act and interact, but end up influencing that movement themselves, they serve as an important starting point in understanding the behaviour of people, in particular their spatial behaviour.

## Part Four: Spaces in Transition and Paths to Change

The theoretical arguments of the last three sections suggest that change, as experienced in South Africa, would be based on the chaotic processes underpinning agency, social system and space-time. In particular, one would expect to observe "pandemonic" processes of debates within key agents spilling over and leading to the reconstitution of these agents. Similarly, one would anticipate agents finding new ways to "go on" within established relationships. The accumulation of these micro-systemic innovations would lead to macro-systemic change. Finally, one would expect to see the emergence of new spaces of interaction and changes in the existing spaces. Again the accumulation of local changes would lead to a transformation in the national system of space-times. Furthermore changes within agents would be predicated on changes in the way the life-paths of these agents are constructed.

In the next few chapters it will be argued that these processes can, indeed, be observed within South Africa. The focus of the investigation is initially on the *spaces* of South Africa. It is argued that neighbourhoods, localities and regions conform to the "fractal" picture presented in the last chapter and that change was possible precisely because the homogeneous space-time of apartheid was never the entire reality.

Nevertheless the argument of the last section (and in particular Chapter 8) also implies that spaces exist only in and through social interactions. In other words they do not exist in themselves. Neighbourhoods, localities and regions therefore cannot be assumed as "given". Indeed, it is suggested that the social system of apartheid was a key influence in shaping the nature of these spaces.

It is also argued, however, that apartheid was not the *only* influence. Indeed one of the ways in which the fractal nature of South African spaces can be comprehended is in the fact that there were always more social processes "going on" than the simple-minded picture of apartheid would have suggested. Class, gender and ethnic processes provided other models for how interactions could be structured.

The co-existence of multiple models of behaviour means that any account of South African spaces which attempts to distil a single or unique meaning from them, is doomed to fail. In other words all uni-dimensional attempts to theorise space will prove inadequate. This is concretely shown in Chapters 10, 11 and 12.

Chapter 10 looks at the process of South African change through the prism of its neighbourhoods. Four abstract "definitions" of neighbourhoods are considered. These are the idea of neighbourhoods as "ecological niches", as the expression of power over urban resources, as the creation of capital and as manifestations of racial domination. It is suggested that each perspective has important insights to contribute. Furthermore each account highlights different ways in which social relations, particular forms of agency and the spaces of neighbourhoods "connect". The connection between neighbourhoods and apartheid is considered in more detail, and it is shown how it exhibits the "fractal" structure argued for in the last section.

Chapter 11 analyses South African localities in a similar vein. Again four processes are considered: localities as expression of governance, as points in an international division of labour, as growth coalitions and as crucibles of power. Again the connection between localities and apartheid power is analysed in more depth.

Chapter 12 continues the exercise by looking at South African regions. The "definitions" which are considered in this case are regions as language communities, as defined by social service provision, as regional growth coalitions and as expressions of "colonial" domination.

Having indicated that no abstract definitions of neighbourhoods, localities and regions work, it is argued in Chapter 13 that the ultimate meanings of these spaces must be found in processes of *organisation*. It is when a space becomes organised as an agent, (e.g. when a neighbourhood becomes organised as a neighbourhood committee) that a particular meaning is imposed on that space. The emergence, transformation and decline of such spatial agents

is absolutely crucial in analysing the process of South African change. The trajectories or "life-paths" of these agents is therefore of considerable importance.

Change in South Africa can therefore be understood both from the perspective of *spaces* and *paths*. Viewed through the lenses of the former, change arises in the interstices of the previous spatial order. It is the amplification of the "gaps" in the geography of apartheid which leads to systemic change. Viewed from the perspective of the latter, change consists in the emergence of new spatial agents (e.g. civic associations) and the effects they have on the social system.

As the previous chapter argued, these perspectives are, of course, complementary. Paths and spaces need to be understood in relation to each other. A proper analysis of the way in which society and space "connect" must therefore pay due attention to both.

## Chapter 10: Neighbourhoods

Although many attempts have been made to define neighbourhoods rigorously, arguably all of them have failed. Below we will consider four accounts. The first is the theory that neighbourhoods are "organically" given. This approach, pioneered by the Chicago School, assumes that neighbourhoods are expressions of the cultural diversity immanent in cities. The second is the "urban managerialist" thesis that the structure of neighbourhoods is due to the allocative and administrative decisions made by senior urban managers. Harvey's argument that neighbourhoods are the result of the imprint of capitalist development processes will be considered next. Finally we will examine the idea that neighbourhoods are spaces through which racial domination is maintained. This account is treated in relatively more detail, because it deals perhaps most adequately with some of the idiosyncratic features of South African neighbourhoods.

In examining these accounts it is suggested that:

1. They fail to delimit the "neighbourhood", because the processes that they focus on also operate at other spatial scales.
2. Nevertheless the processes identified by these accounts are relevant to our understanding of "neighbourhoods" in South Africa; furthermore, they implicitly point to the connections between agency, social system and space-time.
3. The accounts are simplified and smoothed representations.

### Ecological niches

The first (and perhaps most influential) school of urban sociology to devote a lot of attention to neighbourhoods was the Chicago school (see Park, Burgess and McKenzie, 1967). The basic definition of neighbourhood was given by Park as follows:

Proximity and neighborly contact are the basis for the simplest and most elementary form of association with which we have to do in the organization of city life. Local interests and associations breed local sentiment, and, under a system which makes residence the basis for participation in government, the neighborhood becomes the basis of political control. In the social and political organization of the city it is the smallest local unit. (Park 1967, p.7)

Given the idea of the neighbourhood as the basic social unit within the city, the Chicago school attempted on the one hand to describe the structure of the city and on the other to explain the processes of change occurring within it.

As far as the former was concerned, Burgess (1967) introduced the famous concentric zone model of the city, which laid the basis for much subsequent descriptive work on city organisation. Burgess's model was not intended to be merely descriptive, however, it was also intended to explain the process of change within the city. According to Burgess, each of the zones represented a stage in the acculturation of immigrant communities to city (and American) life. The innermost residential zones, i.e. the zone in transition and the slum areas, are the point of entry for these groups. Despite the fact that these areas are characterised by decay and disorganisation, this is part of the process of acculturation:

Disorganization as preliminary to reorganization of attitudes and conduct is almost invariably the lot of the newcomer to the city, and the discarding of the habitual, and often of what has been to him [sic] the moral, is not infrequently accompanied by sharp mental conflict and sense of personal loss. Oftener, perhaps, this change gives sooner or later a feeling of emancipation and an urge towards new goals. ... The area of deterioration, while essentially one of decay, of stationary or declining population, is also one of regeneration, as witness the mission, the settlement, the artists' colony, radical centres - all obsessed with the vision of a new and better world. (Burgess 1967, pp.54 & 56)

As the communities become better integrated into the urban society, they show the desire to move outwards towards the suburbs. Nevertheless, despite the fact that individuals will migrate from one zone to another, the overall *structure* of the city will remain as described.

Although the structure is maintained, urban change is pervasive. This takes the form of the gradual outward expansion of the concentric zones, with the overall growth of the city. This change was explained by analogy with the notion of "invasion and succession" used in ecology (McKenzie 1967). Put crudely, each neighbourhood was seen as a specific ecological niche, characterised mainly by the dominant land use existing within it. This niche was vulnerable to "invasion" by new land uses or new communities, or as McKenzie puts it, "foreign races and other undesirable invaders" (p.76).

The general effect of the continuous processes of invasions and accommodations is to give to the developed community well-defined areas, each having its own peculiar selective and cultural characteristics. Such units of communal life may be termed "natural areas", or formations, to use the term of the plant ecologist. (McKenzie 1967, p.77)

The "ecological" model of neighbourhoods provided by the Chicago school therefore relies on the idea that a) neighbourhoods are naturally given as coherent communities based on "local sentiment"; b) these communities actively try to preserve their coherence, so that if a community is invaded, its members will vacate the area to re-establish the community elsewhere, while a new "ecological" order will be established in their previous area; and c) this process of invasion and succession is fought out through a process of competitive bidding for what are generally agreed to be the most desirable locations (in the case of residential properties, these are assumed to be in the suburbs). In essence communities are therefore both defined *internally*, through the bonds which attract its members towards each other, as well as *externally*, through competition with other communities for urban space.

The way in which the land market comes to sift the population across space can be seen primarily in the ethnic clustering observed in many cities, also South African ones. These processes operate in other respects too. A study conducted by the Development Studies Research Group of residential change in the white part of the central area of Pietermaritzburg (Wittenberg and Doba 1991) indicated that there was a high degree of clustering of elderly people in this suburb. It was suggested that this distribution was partially due to "pull" factors

which made the area attractive to old people, and partially due to their relatively weak position within the housing market.

Although the bonds of community and the operation of the housing market are key factors in shaping neighbourhoods in South Africa, these forces do not, as such, serve to define neighbourhoods. For a start, the attractive force of community operates at spatial scales much more extensive than a particular urban area. Many immigrant communities in South Africa have used Johannesburg as their first port of entry to the country. In that sense the process of entry, acculturation and dispersion that the Chicago School was concerned with potentially operates at much more extensive scales than a single city. If one considers the process of residential sifting occurring due to the housing market, it is arguable that this does not necessarily differentiate only between neighbourhoods. Within the major metropolitan areas location decisions are not necessarily made with respect to a particular neighbourhood, but with regard to whole collections of neighbourhoods. In the greater Johannesburg area, for example, one might wish to distinguish the "MidRand" area, "Sandton", the "Northern Suburbs", the "Eastern Suburbs" and so on. These areas are, however, much bigger than the intuitive concept of "neighbourhood" would indicate. Many of these areas are certainly too big to be "communities" in the Chicago School sense.

Even though it does not seem that neighbourhoods can be uniquely defined in terms of the idea of ecological niches, it is important to point out that this account in essence posits certain relationships between agency, social system and space-time. The one fairly obvious connection is *via* the idea of community creation. In particular, the concept of ethnic communities is obviously dependent on the idea of ethnic agents. The identity of these agents can be assumed as being maintained through their communal life within their ethnic enclave, while this identity also sets up the pressure which results in the enclave. In other words the space and the identity are interdependent. Furthermore within this account one needs to posit a particular idea of the social system - i.e. of social interactions as being mediated by neighbourhoods. If social relationships could be maintained through less spatially bound processes, there would be no rationale for the process of "invasion and succession". In other

words, it would not matter who you were living next to.

As pointed out earlier, however, the account provided by the Chicago School did not assume that these ethnic identities remained fixed. In fact, they assumed that over a few generations a process of acculturation would occur which would result in members of these communities loosening their original kin and familial ties and eventually becoming fully individualist Americans. From this standpoint the interactions within the slum, and the ethnic ghetto all serve as bridges serving to integrate their residents into the urban (for this read American) society. Another way of reading this account, however, is as providing an argument about the necessary *preconditions* for the emergence of the rational, modern, individualist agent. Urbanism "as a way of life" (see Wirth, 1938) is a prerequisite for the emergence of such an agent, because it provides the variety in terms of communities, and hence ways of life, for the continuous reinvention of the agent. Familial ties can be broken precisely because there are other neighbourhoods and communities that one can move into. Conversely, however, the operation of the housing market presupposes that agents behave in relatively individualist fashion. It is because people can buy into neighbourhoods as individuals, regardless of the pre-existing structure of social networks within the area, that the phenomenon of invasion and succession becomes possible. Clearly the underlying assumption in this model is that social relationships and interactions are structured and governed by the housing market. Interactions outside of this are neglected as being unimportant.

This "gap" in the account was clearly a vast oversimplification. The importance of political and administrative interventions, such as zoning decisions, could not be simply discounted. The attempt to plug this gap lay at the heart of the next set of accounts to be considered. Besides this lacuna in its vision of the social system, there were important simplifications in its account of agency. For example the model clearly assumes that agents "know what they want" and express this through the housing market. In a situation of imperfect information and conflicting priorities it is not evident, however, that people's actual housing choices reflect some pre-given structure of preferences. Finally the structure of neighbourhoods need not correspond to "communities". A perfectly homogeneous ethnic neighbourhood is very

much the exception rather than the rule - at least where the ruling force is the market. Even where a neighbourhood is perfectly homogenous, it is not necessary that it be a "community" in the sense of an entity with a common purpose. It is always possible that different members of a neighbourhood may see their identities in incompatible ways. This means, however, that the "ways of life" corresponding to these areas are not so discrete as the Chicago School assumed. One could say that the space of interactions is simultaneously more continuous and more diverse than the ecological theory assumed.

### **Spatial unevenness of resources**

The Chicago school's model of neighbourhood formation and change has come under considerable attack. One point which has frequently been made is that the process by which the "sifting" of the population across urban space occurs is not merely mediated through the market, as the Chicago school assumed. Rex and Moore (1967), for example, in a classic study of Sparkbrook, a zone-in-transition, noted that the housing market was segmented into what they termed "housing classes". The people that ended up in the zone-in-transition were people that were excluded from more desirable housing not only by their market situation, but also by the rules governing allocation of local authority housing.

This critique was carried further in the "urban managerialism" literature (Pahl 1975, 1977). The central point that was made was that people's access to urban resources and consequently the character of neighbourhoods was often crucially determined by the decisions of key "gatekeepers". These could be municipal officials, such as housing managers and city planners, or they could be private agents, such as estate agents and bank managers, who could influence who could buy property in which area.

What unites the "housing classes" approach of Rex and Moore and the "urban managerialism" thesis of Pahl, is that in both theories the character of neighbourhoods is determined not so much by their internal cohesion (the "local sentiment" of the Chicago school) but by external

power. The most powerful interests within the city, whether these be the dominant housing classes or the urban managerial class, impose their wishes on to the urban space. The resulting urban structure is therefore a reflection of these power relations rather than a natural pattern. Neighbourhoods in these accounts are therefore seen as the result of the market plus the exercise of power through administrative mechanisms.

The addition of political manipulation does not serve to uniquely define the neighbourhood, however. Although Pahl speaks about "urban resources" it is clear that the resources in question (notably housing, but also social facilities) are not specifically urban. The allocation of these resources is therefore not necessarily or even primarily an urban matter. To put this more concretely, construction of low income housing, although managed by local authorities in South Africa, was very much a central government function. Shifts in the priorities of the National Housing Fund influenced heavily where within South Africa housing was built. In the 1960s when there was a moratorium on the building of African townships in "White South Africa" many of the house building programmes were displaced to dormitory suburbs within the boundaries of the homelands.

This example indicates that national and regional gatekeepers can be at least as important as local ones. Furthermore, the differentiation of areas in terms of facilities, infrastructure and social character happens not only at the neighbourhood level but also at more extensive spatial scales.

Nevertheless the idea that manipulation of access to resources is important in understanding neighbourhood processes is certainly borne out by empirical analysis of South Africa. Indeed, one of the reasons for the introduction of residential segregation in South Africa was the attempt to secure privileged access to such resources. McCarthy (1991) notes in his review of local politics in Durban that white civic associations and the Durban Chamber of Commerce were active in lobbying for for a freeze in inter-racial property transactions as a way of curtailing Indian competition within the residential and commercial markets.

One of the important effects of this curtailment of competition was the relative undervaluation of properties in the white group area and the corresponding overvaluation in the Indian areas. In the case of Pietermaritzburg, the mean value of land (per square metre) in the Indian areas was more than twice as high as in the white areas, according to a sample extracted from the 1989 municipal rates roll (Wittenberg et al, 1989).

These examples also indicate one of the ways in which the theory of housing classes points to a link between agency, social system and space-time. The creation of privileged spaces, such as the white neighbourhoods in Durban, is clearly dependent on the way in which the "housing class" concerned manages to turn itself into an effective agent. The form of this agency, manifested in the shape of the civic association, is in turn dependent on the space of the neighbourhood.

The picture of the social system, as presented by this account, is that of different neighbourhood based agents (or "housing classes") competing with each other for the resources allocated by the state (or the urban managers). The other key form of agency in this model is therefore that of the urban manager. It should be noted that this type of agency is also dependent on the particular structure of space-time. The entire power of this gate-keeper is based on the fact that the provision of urban resources has spatially restricted effects and this allows certain neighbourhoods to be favoured over others. Pahl insists that spatial inequality is a necessary feature of every urban system. Nevertheless, the spatially uneven effects of resource provision leads to *social power* only in the situation where the space into which these resources are provided is differentiated into distinct neighbourhoods. To put this more concretely, local politicians are able to use service provision to butter up their constituencies only because these constituencies are already spatially defined. If, for example, a politician's constituency was evenly spread throughout the urban area, the spatially uneven effects of the provision of a service (e.g. that people close to a swimming pool will benefit more than people further away) would not lead to power. Of course, it can be argued that it is precisely because many services do have spatially uneven effects that there is a tendency for political organisation to occur on spatial lines. This is, however, merely another way of

stating the point that the power of the urban manager is interdependent with the spatial organisation of neighbourhoods.

One of the implications of the work of Pahl, and Rex and Moore is that the universe of agents has been expanded relative to that of the Chicago School. Besides individual rational agents, housing classes and the state (or urban managers) are recognised. Another way of looking at this is that individual agents are seen as having two options for pursuing their housing goals. On the one hand they can choose to operate via the housing market and on the other they can combine into neighbourhood organisations or "housing classes" and pursue their aims via pressure on the state (see Williams 1971 for an explicit treatment in this vein).

That this account is a simplification is readily seen. Firstly, it presents the decision-making processes of the agents as more coherent than they are. "Urban managers", for example, often do not have coherent ideas about where to locate particular urban resources. Decisions about what projects to support and where to locate them are often the result of pandemonic processes rather than well-planned initiatives. This can perhaps be illustrated in the Pietermaritzburg case by the debates around the development of the "Golf course site". This is a piece of land next to the industrial area of Willowton which is highly suitable for housing development, but due to the racial zoning laws of the past, this space was earmarked for a golf club. With the gradual disappearance of the apartheid political context, the use of this land could be seen within a broader framework and various groups started pressuring for this land to be used for low-income housing. This, however, provoked a reaction from the residents of the adjoining areas of Glenwood and Eastwood. As a result of this political pressure the ultimate destiny of this piece of land is still in doubt.

This example shows that the idea of the urban manager as vested with a set of clear preferences and able to impose these on the urban area is an idealisation, at best. In practice, urban managers are forced to make their decisions under many constraints and the effect of this is that policies zig-zag and make U-turns. If the agency attributed to urban managers is too coherent, the same is true of housing classes. This can be illustrated by another example

from Pietermaritzburg.

The city officials have been interested for some time in the development of the buffer strip between the suburbs of Westgate and the Grange, which used to be white group areas and the township of Imbali. In terms of the prevailing wisdom about the importance of "densification" of South African cities this strip was seen as being prime land for low-income housing development. Neighbourhood associations in Westgate and the Grange were not sure about how they should respond to this initiative (see Meiklejohn). On the one hand they were worried about the impact of the development on their property prices, on the other it was repeatedly pointed out to them that if the area was not officially developed, it would soon be taken over by squatters anyway.

Secondly, the model also operates with a simplified view of the social system. These simplifications occur both in terms of the agents which are recognised as well as in the type of interactions. Harvey's work (considered below) indicates that there are other agents operating at the level of the neighbourhood, while the possibility of squatting indicates that there are kinds of interactions which the model simply does not anticipate.

Thirdly, the view of space-time presented in the account is also smoothed. Spaces are seen as generated either by the market or through the state. Informal settlements clearly fall outside this framework. Furthermore, just as the Chicago School does, this particular account also tends to assume that neighbourhoods are equivalent to communities. The sifting processes of the housing market and allocation decisions by urban managers do not, however, necessarily lead to common "ways of life" in the different neighbourhoods.

### **Neighbourhoods as the creation of capital**

The idea that urban structure reflects power structures is extended even further in the work of Harvey (1985b, especially Chapters 3 and 5). He argues that the shape of the city is

determined by finance capital:

Residential differentiation is produced, in its broad lineaments at least, by forces emanating from the capitalist production process, and it is not to be construed as the product of the autonomously and spontaneously arising preferences of people. (1985b, p.123)

The dominance of finance capital is reflected in two aspects, the creation of housing sub-markets and what could be called the invention of community. As far as the first is concerned, Harvey argues that the operation of financial institutions, speculators, landlords and developers has the effect of segmenting urban space into various small sub-markets. Essentially these sub-markets act to constrict choice and thus to allow for the extraction of "class monopoly rents". In promoting turn-over in these housing sub-markets, the financial and real estate institutions are forced to sometimes break an existing sub-market (e.g. through blockbusting) and to create new ones. These new housing markets are packaged as particular kinds of living environments:

in producing new modes of consumption and new social wants and needs, the urbanization process concomitantly produces new distributive groupings or consumption classes, which may crystallize into distinctive communities within the overall urban structure. (1985b, p.81)

In this way the creation of particular "communities" is really only an epiphenomenon of a capitalist drive to increase and diversify consumption.

The importance of the profit motive in shaping South African neighbourhoods cannot be underestimated. For example, when the Group Areas Act finally started to crumble, estate agents were very active in promoting neighbourhood turnover. This was very evident in a study conducted in the central area of Pietermaritzburg (Wittenberg and Doba, 1991). It was found that 77% of respondents in the study area had been approached by estate agents with offers to sell on their behalf. Indeed, some estate agents were quite open about the fact that they were sending agents door-to-door in the area. In the same study it was found that for at least 15% of respondents estate agents were the sole source of information about the fact that the area was becoming "grey".

Although such manipulation of the housing market undoubtedly occurs, this does not as such establish Harvey's contention that neighbourhoods are the creations of capital. After all estate agents and the financial institutions do not *determine* what happens in the housing market. This is in fact borne out by the study referred to above, as at least a third of the respondents indicated that they would not be willing to sell their house, despite the tempting offers. Some of these respondents were elderly people who were simply not interested in moving at their age. Another category seemed to be people who were attracted by the old Victorian houses which existed in parts of the area.

Harvey seems to suggest that such non-market related preferences are manipulated by capital in the interests of securing class-monopoly rents:

Indeed [according to Harvey], a strong case can be made for regarding consumer preferences as being *produced* systematically rather than as arising spontaneously. (1985b, p.80, emphasis added)

This argument is, however, very weakly supported. On the one hand, Harvey makes a limp reference to "techniques of persuasion", while on the other he argues that

By structuring and restructuring the choices open to people, by creating distinctive decision environments, the urbanization process forces new kinds of choice independently of spontaneously arising predilections (1985b, p.80).

This point cannot be dismissed out of hand. Clearly people make their housing choices in a context - and the housing that is on offer through the market (or provided by the state) structures what choices can be made. To the extent that preferences express what is possible, this environment therefore conditions preferences. Nevertheless Harvey's assumption that consumers are mere dupes of capitalist interests seems outlandishly determinist.

Despite these shortcomings of Harvey's account, it does draw attention to some important agents and social relationships. Implicitly it also makes an argument as to how some of these agents (especially real estate capital) are interrelated with the spaces of neighbourhoods. Harvey suggests that the profitability of this fraction of capital (and therefore its very existence) is dependent on these spaces. Turnover in the housing market can be promoted

precisely because housing decisions are intimately bound up with the structure of neighbourhoods and as this structure changes (e.g. new neighbourhoods developed or old neighbourhoods broken up) this forces adaptations from the consumers of housing.

In Harvey's theory the only agent of consequence is finance capital. Correspondingly, the only social relationships of interest are those which are associated with the circulation of commodities and capital. One of the results of this highly impoverished vision of the social system has already been noted - other agents (e.g. consumers) have to be presented as pawns of capitalist interests. If they seem to be motivated by idiosyncratic values (e.g. a preference for Victorian houses, or racism) these values must themselves be interpreted as being induced by capitalist manipulations.

It should not need to be pointed out that this account clearly represents a gross simplification of reality. In the first instance, Harvey assumes that capitalist agents have clear preferences and unambiguous strategies. In practice, however, decision-making in capitalist agents seems to be as much of a pandemonic process as it is in other agents. The uncertainties in the South African real estate industry about the desirability or the effects of abolishing residential segregation is a case in point. While many estate agents thought that the lifting of restrictions would stimulate the property market overall, there were also others that feared that it would provoke a collapse in property prices in the white sub-market. Similarly the Urban Foundation's policy proposals, while widely seen as being the clearest statement of capital's vision of urban development, was the product of much internal wrangling and did not have the unqualified endorsement of all capitalists (McCarthy - personal communication).

Correspondingly, Harvey's account of the social system is oversimplified. The idea that the Group Areas Act should be seen as simply a device to enable capitalists to secure "class-monopoly rents" is quite farfetched, to say the least.

## Neighbourhoods and racial domination

The autonomy of racism as a factor in the constitution of neighbourhoods is suggested by a study by Alan Morris (1991) of the attempt to remove Reagile township. He argues that most whites would not have gained from the removal. The determination to remove the township was therefore grounded solely in racism:

Racist attitudes are difficult to explain as their material bases are not immediately apparent. Not only is the township barely visible from the white group area, crime in the area, according to the police, is minimal. Despite this, the white residents of Koster decided that the black township was too close and that the spatial distance between the two territories should be increased, if only by a mere 700 metres. (p.47)

Morris uses the concept of caste to explain this desire on the part of whites to increase the distance between them and the township:

The logic behind the tight residential segregation is 'the principle of purity-impurity'. The hierarchy of castes means that a person of a higher caste is subject to pollution from members of a lower caste. (p.50)

Morris argues that this concern with purity/impurity and pollution can be seen in the references to "bastardisation" used in the parliamentary debate when the Group Areas Act was introduced. The Minister of Lands explained the rationale for the Act in the following terms:

Bastardisation does not occur solely as the result of immoral living. It does occur as a result of immoral living, but it also occurs purely as a result, and in most cases as the result of the European losing his [sic] colour sense. For that reason, for the sake of the maintenance of the white race, the apartheid policy must be carried out also in regard to residential areas (Hansard, House of Assembly Debates 13 June 1950:8791, cited in Morris 1991, pp.51-2).

The idea that a distinct space was necessary to ensure that the "European" did not lose "his colour sense" is argued also by King in his study of colonial urban development. The colonial model, particularly as developed in India, consisted of a three-fold division of urban space - into the "cantonment" (military settlement), the "civil lines" or "civil station" (British civilian

settlement) and the "native city". King argues that this model functioned to support a particular colonial culture. He comments, for example, on the care which was taken in the cultivation of "English" gardens within the civil lines (p.142) - seeds being specially imported for this purpose. The civil lines therefore had an appearance (visual, olfactory and auditory) which differentiated them from the "native areas". This clearly had the important symbolic function of reaffirming the sense of purpose and identity of the colonisers. It communicated their belonging to a broader imperial project, and their separation from, and superiority over, the natives.

Their identity as "British" was also continuously re-created and re-affirmed through various cultural practices (e.g. formal dinners) and use of particular cultural artefacts. King, following Goffman (1971), points out that particular kinds of social "performances" need particular kinds of settings to succeed. The rituals associated with "dining rooms" and "drawing rooms" would not have been possible to sustain in the houses of the native city - which at that stage still showed only weak functional separation of "rooms". The "civil station" therefore also served as setting or stage on which the practices appropriate to "British" gentlemen and ladies could be re-enacted.

Clearly what was re-created within the spaces of the civil lines was not simply any arbitrary set of cultural practices - but the social solidarity of a **ruling group**. King suggests that various institutions associated with the "station", in particular the Club, functioned as "back region" in Goffman's sense of the term. If the "front" or appearance of absolute cohesion among the colonials was to be sustained, it was necessary for that front to be created somewhere. Debates about how to deal with the "natives" and exchanges of information about what sort of behaviour one could expect from them, needed to occur somewhere away from the ordinary "native"<sup>1</sup>. Also tensions within the colonial community needed to be aired somewhere, where it would not suggest a lack of purpose or determination to the subject population.

Social segregation therefore achieved at least two purposes, it created spaces which constantly

reminded the colonials of their identity and mission and it served as the setting for the rituals and interactions which maintained ruling group solidarity. King's discussion makes it clear that these were not the only functions<sup>2</sup> that the colonial urban model served. Another important reason was defence. This concern became particularly acute after the 1857 uprising in India. The more rigorous segregation of the military and civil lines from the native city in the aftermath of this episode was undoubtedly prompted at least in part by the fear of attack. Nevertheless, this segregation also served as a method of control. The location of the "cantonments" was strategically chosen so that the British troops and their loyal allies could maintain effective control over a potentially unruly indigenous population.

A further reason for segregation lay in some of the prevailing theories of public health. It was thought at the time that disease was spread as a result of "bad air". Considerable attention was therefore paid to locating both the cantonment and the civil station upwind from the native city and with a suitable distance between them.

The elements of King's model of colonial urban development all seem to be present in the case of South African group areas as well. Segregated neighbourhoods certainly provided a symbolic environment within which the ruling class could remind itself of the fact that it was white and "Western". This is clearly reflected in an argument by Ron Robbins, a Pietermaritzburg town councillor and subsequently chairperson of the City Council's Management Committee, that group areas were necessary to preserve the "look" of the neighbourhood:

Keeping a property looking nice. That helps your environment. If you can look across the road and see a nicely kept garden. This again happened in Rhodesia that beautiful lawns were dug up and turned into mealie patches. It is not that unpleasant to look at. I don't think it's as pleasant as a nice lawn. (R.Robbins interview)

Another example which illustrates the nature of this symbolic environment is provided by the "ox controversy" which raged in Pietermaritzburg in August and September 1991. The controversy was sparked by an article written by Khaba Mkhize in the Natal Witness about

the celebratory slaughtering of an ox by a black family who had recently moved into the formerly white elite area of Wembley. Although none of the neighbours had been aware of the ritual feast, the fact that such an event had happened triggered a storm of protest in the pages of the *Natal Witness*. What seemed to incense most of the letter writers was that this was a very "uncivilised" thing to do, and while it was quite in order for these things to happen in the townships it was completely unacceptable behaviour in the white suburbs.

Similarly, it is quite evident that group areas served as setting for the particular rituals and interactions which served to consolidate whites as the ruling class in South Africa. Indeed a survey conducted in August 1990 in the white group areas of Pietermaritzburg showed that very few whites ever venture out of their group areas. Only some 21% indicated that they ever left the White areas - and only 8.7% did so frequently. Furthermore most of these did so for work or business related reasons. Only 4% indicated that they visited other areas for social reasons - and virtually all of these visits were to Indian areas (D.S.R.G. Survey 1990).

One of the consequences of the way in which group areas structured people's social interactions was that very few whites had direct information about what was happening in the townships. In the survey cited earlier, it emerged that only 3.8% of respondents indicated that they had first hand information about the internecine violence in the townships (D.S.R.G. Survey 1990). Of these a number lived in the Westgate area and said that they could see the violence in Imbali township across the valley. It is doubtful how much information about what was going on would have been conveyed by such observations. In any event, since only a minuscule proportion of whites had real experience of developments in the townships, the perception of most whites was shaped by the mass media on the one hand and second or third-hand accounts on the other. Of these, the mass media were the chief source of information for 50.4% of respondents. Another 11.4% relied on the media as well as accounts from other people, while 38.1% of respondents relied predominantly on non-media channels for information.

Although it is not possible to break down precisely where the information came from in those

cases where people relied on second-hand accounts, it seems that domestic workers and reports by black employees at the workplace were prominent sources of information. Since these relationships tend to be very asymmetrical in terms of power, there is some doubt as to exactly what kind of information gets through on these channels.

Indeed, it would stand to reason that the information which does get through is put into an interpretive framework which is derived from the mass media or discussion with peers - who, of course, happen to be on the whole white. This is indirectly indicated by the survey, in that there did not seem to be significant differences in attitudes between those people who relied mainly on the mass media for information and those who got their information through personal channels.

Interestingly enough, the one point on which there was a significant difference was that people who relied on the mass media alone were much more likely to see the violence as starting in 1989 or later, whereas people who relied on contact for their information generally saw the violence as starting pre-1987 (see Table 5). Similarly people who relied on the media tended to see the death toll as exaggerated, while those who relied on contact tended to see it as underestimated. This suggests that certain "factual" details learned through informal channels corrected for gaps in the media coverage, even if ultimately the interpretation which was put on those "facts" was still refracted through a set of perspectives which were largely shaped by the values of the dominant white culture.

The suggestion is therefore that white group areas functioned as "islands" which were relatively cut off from other sections of society. Information from the townships travelled through very defined routes. The fact that social interactions *within* the white group were more multi-faceted and less asymmetrical than interactions *between* whites and blacks meant that a particular "white" set of attitudes and perspectives on South African reality could emerge.

Clearly it was not merely the *spatial* segregation which was at play here. The fact that social

**Table 1** Information about township violence

Major source of information about township violence:	Not given	Mass Media only	Mass Media and contact	Contact only
The violence became very serious				
Pre-1987	43.8%	18.6%	36.4%	37.0%
1987-1988	18.8%	32.0%	27.3%	34.2%
1989 and later	37.5%	49.5%	36.4%	28.8%
n = 16		97	22	73
The toll of 200 deaths as reported in the media is:				
Accurate	28.6%	37.1%	30.0%	30.4%
Exaggerated	28.6%	22.5%	20.0%	7.2%
Underestimated	42.9%	40.4%	50.0%	62.3%
n = 14		89	20	69

Chi-square tests on both contingency tables are significant at the 5% level.  
Source: D.S.R.G. Survey 1990

interactions on a more equal footing (friendship, collegial fraternisation) were relatively rare is obviously as important. Nevertheless the spatial component was just as necessary. The fact that the townships were generally invisible to the white population meant that developments within them could either be safely ignored or observed from a safe distance. The state's ability to intervene in township affairs, to deploy the army and the police was clearly predicated on the existence of this insulation of white society from the townships.

If white group areas therefore served as "back regions" for the creation and maintenance of racial solidarity, they also functioned as "defensible spaces". The relative ease with which the state managed to keep ungovernability and insurgency to the townships and out of white residential areas, despite the stated intention of the ANC to "take the struggle into the white areas" is adequate testimony to this. Indeed, as the violence, both state-community as well as internecine<sup>3</sup>, escalated this became one of the major justifications for maintaining group areas.

The relationship between neighbourhood formation and territorial control is, if anything, more clear-cut in South Africa than in the Indian case. As Robinson (1990, 1991) has shown, territorial control was a key component of the state's overall strategy of maintaining power over the black population. Indeed, the creation of "locations" and "townships" need to be seen as devices to extend control. The way these places were laid out - with only a few exits which could be easily sealed off, and with a dearth of communal facilities which could create

an autonomous community spirit - all served to emphasise this overriding objective.

Finally the "sanitary syndrome" was just as important in South Africa as elsewhere (Morris 1981). The deliberations of the Tuberculosis commission of 1914 as well as the impact of the influenza epidemic of 1918 served as important backdrop for the passage of the 1923 Natives (Urban Areas) Act, which promoted the creation of separate residential areas for blacks.

The empirical evidence therefore suggests that group areas in South Africa broadly fit into the model of "colonial urban development" as advanced by King. The discussion has also indicated some of the connections between agency, social system and space-time. The social system of apartheid (colonialism) depended on racial segregation in the following way:

- a) The specific *identities* (i.e. agents) implied by that social system, viz. people who saw themselves as "Western" and with a mission to "civilise" the globe, depended on symbolic spaces which served as reminder of that identity.
- b) The interactions and practices which reproduced the idea that whites formed a distinct group also required separate spaces.
- c) Implicit in the idea of the civilising mission was also the idea that the indigenous population constituted a threat - either due to their wickedness (i.e. desire to expel the white colonists) or due to their ignorance (lack of hygiene). The survival of the civilising project therefore required "safe spaces".

Nevertheless the connections between racially segregated neighbourhoods and identity formation implicit in King's account are also simplifications of reality. In particular, the white neighbourhoods were never as white as the theory suggested. Despite the heavy penalties envisaged under the Group Areas Act, many people actually contravened it (see Pickard-Cambridge 1988). Besides direct violations of the Act, there were also other exceptions to the concept of residential apartheid. Certain neighbourhoods were never designated as group area for a specific group. There were therefore always areas which were "grey" in theory as well as in practice.

Furthermore most white households had live-in domestic workers during the 1960s and 1970s. There were therefore islands of black residential spaces in the middle of white suburbia. Significant numbers of white households allowed these domestic workers to bring members of their families to live with them, in contravention of both influx control and group areas.

The *spatial structure* of residential apartheid therefore showed the "fractal" nature discussed in a previous chapter. Similarly the *social system* of urban apartheid was also not as comprehensive as its theory. In other words social interactions did not occur entirely to the dictates of the apartheid model. In particular, the social barriers imposed by the Group Areas Act were not impenetrable. As the survey cited earlier indicates, although the numbers were relatively low, there were certainly some whites that had friends outside their own group area. There was therefore always a dissident stream within the white population which did not behave in terms of the model prescribed by apartheid.

Perhaps more significantly, some of the spaces created by the South African state to support forms of agency compatible with apartheid (i.e. docile Africans) actually ended up as the basis of types of agency (e.g. civic associations) that were deeply inimical to the survival of the social system. Racial segregation which was intended to shore up white solidarity and therefore white control also ended up alienating the black middle class and therefore helped to create an alliance between this class and the mass of the black population to overthrow apartheid. The neighbourhood structure of South Africa therefore served as an important support for the black liberation movements.

There were not only "holes" in the state's theory of space-time and of the social system, there were also gaps in its account of its own *agency*. While in its policy pronouncements the state continued to claim (right up to 1990) that it was committed to residential segregation, there was in fact a pandemonic debate about the possibility of relaxing the Group Areas Act going back many years. According to Pickard-Cambridge:

Evidence that at least some members of the government were also reconsidering rigid residential segregation emerged in June 1980 when Mr Steyn became the first minister

to raise publicly the possibility of legally recognising 'grey areas'. He linked the proposal to government plans for a 'constellation of states', a race federation which would give homeland governments a say in central decision-making. (1988, p.16)

Furthermore

Government sources also suggest that the officials charged with enforcing the act - prosecutors and the group areas police - had moral reservations about their role; unlike the politicians, they experienced the human effects of evictions at first hand. (Pickard-Cambridge 1988, p.17)

The most serious form that this intra-state debate took came in the form of the court cases debating the legality of group areas evictions, culminating in the ruling in the case *State v Govender* which *inter alia* stopped group area evictions where alternative housing was unavailable. In effect this prevented the implementation of the Group Areas Act:

Once evictions were ruled out, it became impossible to enforce segregation; while the government repeatedly discussed or even tried to implement plans to impose it without forcibly evicting 'illegals', these plans were abandoned or they failed. (ibid, p.17)

Pickard-Cambridge notes that the key question is why, if the state was so committed to residential segregation, it did not simply amend the law to invalidate the basis of the Govender ruling. She suggests that there was little support for overturning the judgement among prosecutors and officials responsible for enforcing the act, since each eviction was being strenuously fought in the courts. Besides the burdens this placed on the courts and on the prosecutors, it also invariably led to embarrassing publicity. Furthermore the state was at this stage (1982) trying hard to woo the coloured and Indian population into participating in its new tricameral parliament. A stricter approach to group areas violations would have alienated these constituencies (Pickard-Cambridge 1988, pp.18-19).

As a result of the uncertain resolve of the state in enforcing its policies, violations of the Act simply escalated. The lack of correspondence between the theory of urban apartheid and the

reality therefore became increasingly obvious and ultimately led to the formal abandonment of the theory.

There are a number of interesting points to note about this process. Firstly, the process of neighbourhood change was able to continue to happen because the identity of the state was changing. In bringing coloureds and Indians into the state, the way in which the state defined itself and its projects clearly had to change to some extent.

Secondly because agency, social system and space-time are so integrally linked the state did not simply wish to relinquish all control over neighbourhood change. Instead it attempted to create a new set of spaces to correspond to a new set of agents and new social rules. This was expressed most clearly in its attempt to introduce "Free Settlement Areas" as a refinement of the Group Areas Act. These were to be officially designated grey areas to correspond to the officially proclaimed group areas. It was proposed that elected representatives from these areas would sit on local government together with representatives from the white, Indian and coloured group areas. The purpose of this reform was to find a new spatial framework which would still be compatible with the maintenance of a specifically white form of identity. The state realised that it could not hope to reverse the tide of neighbourhood change in places like Hillbrow<sup>4</sup>, but it hoped that by confining this change to certain areas, it would be able to preserve spaces in which a white racial identity could be maintained. Nevertheless these adaptations to the fundamental framework of residential apartheid never worked, so that eventually the state was forced to simply abandon the framework itself.

## Conclusion

Even at the height of apartheid there were black people living illegally in white areas. However, once the legal processes which enforced the "homogenisation" of space-time became clogged up and unworkable these "gaps" in the geography of urban apartheid become progressively more pronounced.

Furthermore racial domination was not the only process operative in South African neighbourhoods. Ethnic clustering, attempts to gain privileged access to urban resources and the manipulations of financial capital all played their part as well. Indeed one of the ways in which urban apartheid became undermined was precisely through self-interested landlords letting out empty spaces to people prepared to pay for that accommodation.

The existence of different models of interaction therefore meant that the social system of apartheid was never as firmly entrenched as one might have supposed.

### Notes:

1. In any society so thoroughly dependent on servants it would have been difficult to have got away from all "natives".
2. The language of functionalism in this case is not inappropriate, because there are clear mechanisms which can be specified to show how the function came to be established. For example, the function of defence was explicitly invoked in the creation of separate "civil lines", particularly after the 1857 uprising. Similarly, the connection between residential segregation and maintaining group identity and solidarity was also clearly understood by the colonials, just as it was invoked by the Minister of Lands to justify the introduction of the Group Areas Act.
3. Some would argue that even the internecine conflicts were state-inspired and state-directed. While it is clear that the state had a hand in many of the conflicts, it also seems clear that there were a number of autonomous dynamics which led to the violence.
4. This is one of the inner-city "flatland" areas of Johannesburg. It was estimated that by the mid-1980s fifty percent of Johannesburg's inner-city tenants were black (Pickard-Cambridge 1988, p.11).

## Chapter 11: Localities

As in the case of neighbourhoods, there are many theories which seek to explain what is distinctive about the spatial entities one might call "localities". Four approaches will be discussed below. The first defines localities in terms of the way in which state institutions structure themselves spatially. The second sees localities as shaped by investment processes while the third focuses on the processes of competition between places. The last one sees the generation of power as the crucial process. In this regard the relationship between localities and racial power in South Africa will be examined in more detail.

### Local governance

Perhaps the most abstract account of localities is provided by Cooke (1987):

From a realist perspective "locality" stands in a necessary relation to the more powerful social entity, "nation". This asymmetric, necessary relation is paralleled by that between the "nation-state" and the "local-state". Both locality and nation are key vehicles for social mobilisation and political intervention. The nature of this relationship is that of a citizenship-allegiance exchange. This mechanism confers rights on both entities, a variety of freedoms for citizens, such as those of association, combination and protection; a variety of obligations from them, for example conscription and representation (e.g. in war and law). Many, but not all, of these rights are expressed through the nation-state/local-state relationship (p.9).

This passage is somewhat opaque<sup>1</sup>, but what Cooke seems to be suggesting is that it is impossible to think of the concept "locality" except as a spatial entity within a "nation". Clearly the sense of the word "locality" is such that it would not make sense to use it *unless* the space in question is a subspace of some larger entity. Nevertheless this simply says that *if* localities are real, they need to be analysed in relation to other spatial levels. There is nothing intrinsic to the concept of a locality which guarantees the existence of localities.

Cooke's argument about the conceptual linkage between locality and nation is then augmented by the reference to the citizenship relationship, but the idea that the citizenship relationship *of necessity* implies the existence of a "local state" through which this relationship is mediated seems a rather large claim and certainly needs more substantial argument. Nevertheless the idea that a local level is in some sense *required* for governance within the nation-state is commonly held in the public administration literature (Smith 1985).

Duncan and Goodwin (1988) provide some theoretical underpinnings for this position with their argument that a local state is necessary to enable the national state to deal with local variations in social relations:

State systems need to be developed at a local, subnational level if dominant groups are to confront fully the problems of the uneven development of societies and of nature. If this subnational response is to make any sense, then this local level must have some sort of autonomy in implementing policy or even in formulating it. The precise way of providing water-supply in South Wales or managing labour reproduction in the old Durham coalfield cannot be wholly reduced to national guidelines and procedures. At the very least these must be adapted if local conditions are to be taken adequately into account. But this local autonomy will, by the same token, become a hostage to fortune. The uneven development of societies also means that class structures and other social relations are constituted spatially, sometimes in rather specific ways. Social groups and interests dominant locally may well be different from those dominant nationally or internationally and which make national and supernational state policy. (pp.72-3)

The relationship between central and local government is therefore potentially fraught with conflict. Indeed, Duncan and Goodwin produce evidence from the United Kingdom that such conflict has been pervasive and that the most common response to it is central government restructuring of local authorities.

Such conflict and restructuring can be observed in South Africa as well. At the end of the

1960s, central government removed control of "native administration" from white city councils, because it was of the opinion that many of the major cities (e.g. Johannesburg and Cape Town) were not implementing urban apartheid sufficiently zealously. The administration of these areas then became vested in the "Administration Boards" (Bekker and Humphries 1985).

This division of urban governance into "white" and "black" localities, was only the first step in a much more thorough going fragmentation. With the introduction of bantustan authorities governance in "urban" and in "homeland" areas came under different systems. The Black Local Authorities Act of 1983 in turn set up separate black local authorities in different townships. Some of the complexities that this introduced is indicated in Map 1 which shows the administrative authorities operating in the greater Pietermaritzburg area in 1993.

What the map does not indicate is the racial basis of the fragmentation. White local government consisted of the local authorities of Pietermaritzburg and Howick, the Hilton town board, the Ashburton and Mount Michael Health Committees and the areas administered by the Development and Services Board. This picture was complicated further by the existence of "Local Affairs Committees" in the Indian and coloured townships.

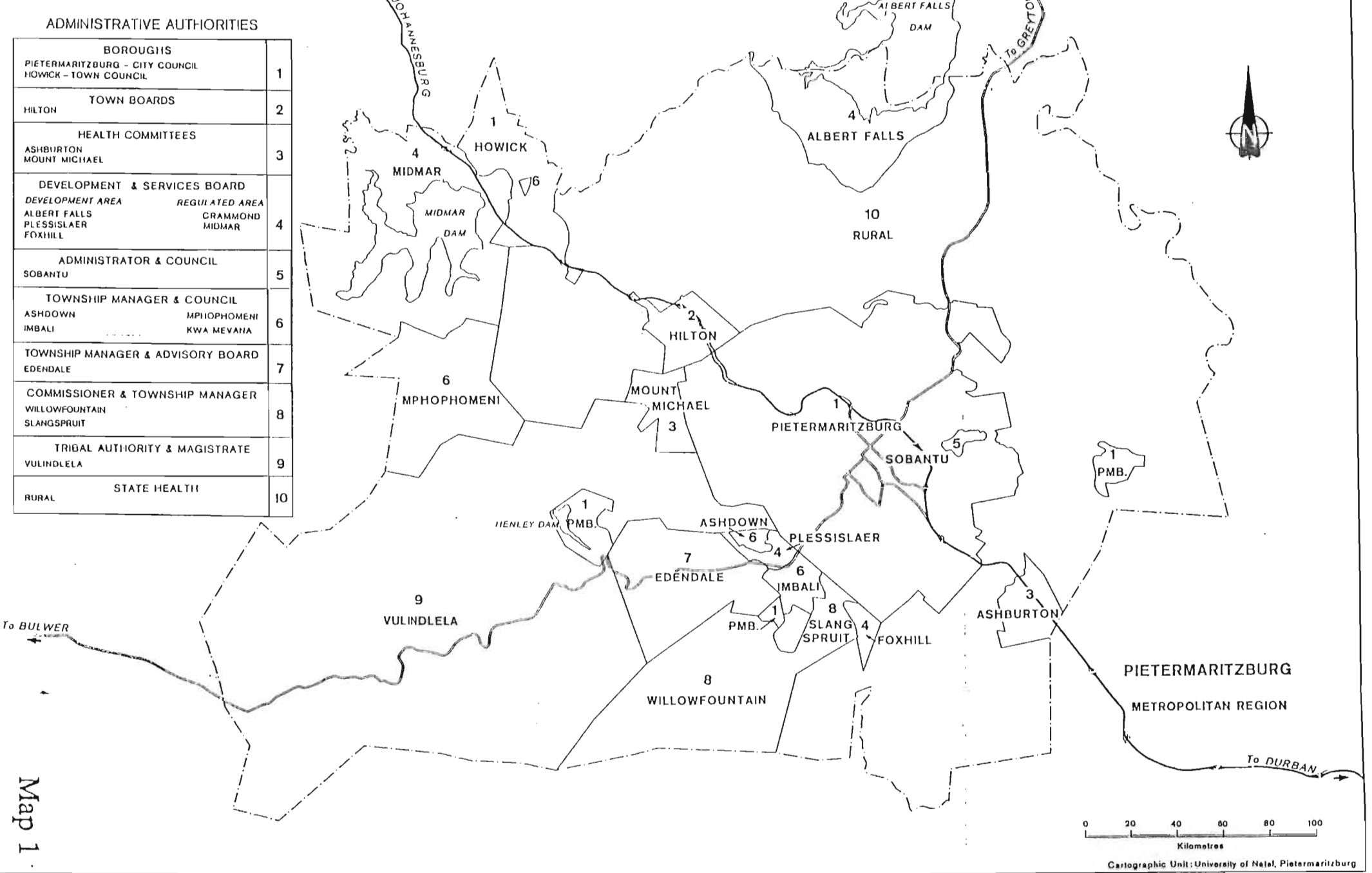
Despite this plethora of institutions, most of the white, coloured and Indian population lived within the borough of Pietermaritzburg. In practice, therefore, local governance had a central focus in the form of the city of Pietermaritzburg.

By contrast, local governance in the African areas was much more thoroughly fragmented. The major divisions were between areas administered by the Natal Provincial Administration (NPA), areas falling under the jurisdiction of the Department of Development Aid (DDA) and KwaZulu areas.

The NPA took over the administration of the township of Sobantu when the Drakensberg Administration Board was abolished in 1986. Attempts had been made in the early 1980s to

# ADMINISTRATIVE AUTHORITIES

<b>BOROUGHES</b>		
PIETERMARITZBURG - CITY COUNCIL	HOWICK - TOWN COUNCIL	1
<b>TOWN BOARDS</b>		
HILTON		2
<b>HEALTH COMMITTEES</b>		
ASHBURTON		3
MOUNT MICHAEL		3
<b>DEVELOPMENT &amp; SERVICES BOARD</b>		
DEVELOPMENT AREA	REGULATED AREA	
ALBERT FALLS	CRAMMOND	4
PLESSISLAER	MIDMAR	4
FOXHILL	MIDMAR	4
<b>ADMINISTRATOR &amp; COUNCIL</b>		
SOBANTU		5
<b>TOWNSHIP MANAGER &amp; COUNCIL</b>		
ASHDOWN	MPHOPHOMENI	6
IMBALI	KWA MEVANA	6
<b>TOWNSHIP MANAGER &amp; ADVISORY BOARD</b>		
EDENDALE		7
<b>COMMISSIONER &amp; TOWNSHIP MANAGER</b>		
WILLOWFOUNTAIN	SLANGSPRUIT	8
<b>TRIBAL AUTHORITY &amp; MAGISTRATE</b>		
VULINDLELA		9
RURAL	STATE HEALTH	10



Map 1

Cartographic Unit: University of Natal, Pietermaritzburg

set up a Black Local Authority, but due to resistance from the residents the elections had had to be aborted. Due to the lack of a properly constituted local authority, the administration of the township was in the hand of an administrator (the mayor of Pietermaritzburg) who was advised by an advisory committee drawn from residents of Sobantu.

The DDA areas included the townships of Imbali and Ashdown as well as the areas of Edendale and Willowfontain (also known as Edendale-East). In Imbali and Ashdown there had been functioning councils at various stages during the 1980s, although these had also become the focus of intense intra-community conflict. The KwaZulu areas included both the urban township of Mphophomeni, as well as the tribal authority areas of Vulindlela.

The different forms of governance were correlated with different degrees of "urban rights". In this regard Sobantu residents were at the top of the hierarchy and therefore theoretically had privileged access to jobs within the urban area of Pietermaritzburg. The areas of Imbali, Ashdown and Edendale, because they were still part of "white" South Africa theoretically had a larger claim on resources than those within the homeland. These rights were, however, in some doubt as these areas were "scheduled" for incorporation into KwaZulu. Due to this uncertain status certain functions in the Edendale area were under the control of KwaZulu - notably the Edendale hospital - while other functions, such as education, were still administered by Pretoria.

Given that different areas had different claims to resources, access to these areas itself was controlled. Influx control measures and the housing allocation procedures of the local authorities determined who was allowed to reside in which area.

This fragmentation of local governance undoubtedly had a major impact on the social processes within localities. For example, the border between Edendale and Vulindlela also happened to coincide in large parts with the border between ANC aligned and Inkatha aligned areas during the civil war raging from 1987 to 1990.

Indeed, it is not too far fetched to suggest (as Cooke's argument does) that the sense of locality is actually *structured* by this process of local governance. There is some evidence for this, provided by the fact that it has proved very difficult to sustain inter-area civic organisation in the African townships. This is curious, given that on the face of it there would seem to be some commonality of interests between these areas in achieving an overall restructuring of resource flows within the metropolitan area. Significantly enough, the civics in the Indian and coloured area are all united under the umbrella of the Pietermaritzburg Combined Residents' and Ratepayers' Organisation, even though the constituent neighbourhoods differ widely in their class composition. The fact that these areas are all administered by the Pietermaritzburg municipality has been a major factor in providing a broader sense of common locality. The lack of such a common "enemy" and the resulting diffusion of civic protests in the African areas has been a major reason for the weakness of establishing such a broader concept of place (and, indeed, one capable of integrating coloured and Indian areas into it).

This argument can be paraphrased as follows: the actions of local government institutions (i.e. particular kinds of agents) and the relationships these agents have with the people residing in their territory leads to such differences in the lived experience of these people, that these territories define the sense of "locality" for them. When put in this stark way, the essence of the relationship between agency, society and space emerges quite clearly.

Nevertheless some of the limitations of this approach also become evident. The first point to note is that the space of local governance is more complicated even than that depicted above. Besides the institutions so far mentioned, there are other organisations involved in government at the local level. In the case of Pietermaritzburg, for example, there is the Midlands Joint Services Board, whose function it is to fund infrastructural development. Furthermore there are local offices of various central government departments (such as education, health, police and justice) which also have important effects on the lived experience of people. The jurisdictions of these departments need not always coincide with the spaces of local government institutions. The space of local *governance* as opposed to the space of a particular

local government *institution*, is therefore more complex.

Secondly it is assumed that the interventions of local government are uniform across its space. This is, however, clearly not the case. For example, the white city council will not impact on the life of a live-in domestic servant in the same way that it does on her employer. Similarly, the fact that a squatter and a ratepayer all fall under the jurisdiction of the same municipality does not mean that they will develop a similar sense of "locality". Even within a relatively homogeneous category (such as white ratepayers), the effects of the city council will be felt quite unevenly, because the development process and hence government intervention, will vary from area to area.

Thirdly, as the discussion should have made clear, local agents were perhaps less important in creating the fragmentary idea of locality than regional and national ones. What made the distinction between Edendale and Vulindlela resonate was not only the fact that on one side of the border tribal authorities were still in place, while on the other side chiefs had no jurisdiction, but that the one area was administered by KwaZulu and the other area by the Department of Development Aid. It was the way in which national, regional and local government institutions intersected and reinforced each other that made those boundaries particularly salient.

This, however, suggests that governance by itself cannot define the space of localities. Indeed, because governance extends over many spatial scales the interaction of central and local government can also serve to undermine the salience of locality. Arguably bodies such as Black Local Authorities had something of this effect. They were introduced with the express purpose of deflecting black political demands to the local level. The idea was that if black people had some say over the way in which their local area was run, they would make fewer claims at a national political level. Nevertheless because central government interventions were so crucial in structuring the local government terrain, this project was still-born. If anything the creation of Black Local Authorities undermined the concept of these "localities" and reinforced the demands for national political rights.

## Comparative advantage

The fact that the intra-national space is highly differentiated has consequences not only for governance, but also importantly for investment decisions. A number of approaches therefore have analysed localities from the standpoint of differences within the national and international economy. In this vein Friedmann characterised localities as points "with respect to which location decisions of firms and households are made" (1966, p.xvi). He assumed therefore that a locality can be treated as a uniform entity, with a bundle of well-defined characteristics (e.g. infrastructure, skill of the labour force, environmental qualities) according to which the locality can be compared to other localities.

While the characteristics of the locality determine the kind of investment and location decisions that are made, these decisions in turn help to change the structure of comparative advantage. For example, the concentration of industry or populations in one place leads to "agglomeration economies" (see Friedmann 1966) which can in turn make that locality a more attractive place for future investment or settlement. In this way, the structure of localities can also be seen as the *product* of locational choices by investors and residents.

The idea that localities arise from investment and residential location decisions and that these lead to attributes which define the way in which the locality relates to global investment processes, can be seen in the work of Massey (1978, 1979, 1984) as well. In her account, however, more attention is paid to some of the unequal power relations which underpin these processes. The key concept in her writings is that of the "spatial division of labour". As an example of a "spatial division of labour", Massey talks about the impact of the move to part process production processes. In this different stages of production within one company are located in different locations. Characteristically, Research and Development functions will be separated from the direct production facilities and will be located in the pleasant semi-rural surroundings close to the major metropolitan areas, such as the south of England, for example. Production itself will be split between skilled work, which will be located primarily in nineteenth century industrial towns and cities, where the required labour can be obtained,

while semi-skilled and unskilled work will be located in plants in the periphery where wages are low, and where there is little tradition of worker militancy. The overall control functions will be exercised by the company Headquarters which will be located in major metropolitan areas.

The result of this spatial division of labour can be seen in the way key personnel is spatially distributed. As Massey notes

[T]he central metropolitan regions (such as London, Paris) are typified by the presence of control functions, research, design and development, and by the significant presence of managerial and technical strata (it is this presence, rather than the absence of manual work, which is distinctive). (1978, pp.117-8)

Massey envisages the spatial division of labour as being established and transformed in a series of "rounds" of investment. In each period, the existing geographical distribution of infrastructure, qualities of labour markets etc., will determine where different types of new investment will be concentrated. This new investment is then like a new layer of sediment deposited on the existing surface.

The combination of successive layers will produce effects which themselves vary over space, contributing to a new form and geographical distribution of inequality in the conditions of production, as a basis for the next round of investment. ... [T]he social and economic structure of a given local area will be a complex result of the combination of that area's succession of roles within the series of wider, national and international, spatial divisions of labour. (1978, p.116)

Localities are therefore distinguished by their *history* and by the way they are *currently* embedded in broader social relationships.

Some of these processes can certainly be observed in the South African context. For example, Bell (1987) has documented how the particular distribution of skills and costs of labour led to the deconcentration of labour-intensive industries away from the major metropolitan areas in the 1970s. This process led to the creation of certain localities (the "border industrial

areas") characterised by low-skilled, low-waged assembly work. Higher skilled work tended to stay in the metropolitan areas. As a result South African localities developed a characteristic structure - with a "core" metropolitan area relating to outlying industrial estates or "border industrial areas" (some fifty to a hundred kilometers away) which in turn were surrounded by dormitory suburbs.

Nevertheless it is clear that the "spontaneous" process of deconcentration documented by Bell was insufficient to create this particular spatial structure. Government intervention, through incentives offered in terms of the Regional Industrial Development Programme, through the proclamation of "border industrial areas" and infrastructural investment in these areas, as well as through restrictive regulations in the core metropolitan areas was a key factor.

Similarly, the growth of the "commuter suburbs" (Cobbett *et al*, 1987) must be explained in terms of the interplay of locational decisions by individuals (moving closer to the sources of employment) and government intervention in the form of removals, suburb construction and influx control. South Africa's spatial division of labour can therefore be seen as arising from the intersection of investment decisions by South African and foreign capitalists, locational decisions by South African (and foreign<sup>2</sup>) people, and governmental intervention.

This would suggest that the *spaces* of South African localities are created and transformed through the actions of particular agents - investors, the state and ordinary people. The key *social relations* through which this happens are the laws and regulations enacted by the state, the market relations through which investment decisions are made and the (formal and informal) property markets, i.e. the rules governing residential access.

Localities are not passive in this process, however. Many municipalities (including the Pietermaritzburg one) spent considerable effort in lobbying central government to be declared decentralisation or deconcentration points. Furthermore many localities spent considerable effort in directly attracting investment. The role of such local growth coalitions will be the focus of the next section.

Before considering this topic in more detail, some of the "gaps" in the account need to be highlighted. The idea of the "spatial division of labour" suggests that there is an unequivocal structure of comparative advantage to which capitalists (and labour) respond. Nevertheless this is not quite so obvious. It seems much more likely that capitalists are not sure exactly where it would be most profitable to locate<sup>3</sup> (although certain places will be more likely candidates than others) and that the final location decision will be the result of various pandemonic decision-making processes.

The resultant spaces are therefore also unlikely to have the absolute quality that Massey suggests. For example, while Pietermaritzburg might be in the "low-wage periphery" and therefore has its share of part-process branch plants, it also has some high-tech laboratories (Pfizer laboratories) and company headquarters (admittedly not of any multinationals).

The central idea of the "spatial division of labour" thesis - that there are spaces in which "control functions" are located and other spaces which are controlled - therefore seems too simple. Instead the space of control is likely to be fractal. In other words, some control functions will exist in the "low-wage periphery" as well. After all, the owners of a branch plant do not have complete power over what happens to it - they have capital invested in it and this constrains their ability to manoeuvre. Furthermore as struggles over plant closures indicate they do not always get their own way. And as the rise of Taiwanese and Korean multinationals indicates, this fractal geometry of control is subject to quite dramatic changes.

### **Units of geopolitical conflict**

Spatial unevenness in the investment process is also a central focus in the work of Harvey. Harvey's point of departure is that the infrastructural investments (physical and social) made by capitalists and local government in a particular area can be seen as analogous to investment in physical and human capital. Such investments improve the productivity of the capital employed, but also run the risk of being devalued if new innovations appear in the

market before the investment has been amortised. So while the productive infrastructure of a given place helps to determine the competitiveness of industries located there, new developments, for example in transportation technology, will pose the question whether the existing infrastructure should be remodelled, or kept intact.

Capitalist development has therefore to negotiate a knife-edge path between preserving the exchange values of past capital investments in the built environment and destroying the value of these investments in order to open up fresh room for accumulation. Under capitalism there is, then, a perpetual struggle in which capital builds a physical landscape appropriate to its own condition at a particular moment in time, only to have to destroy it, usually in the course of a crisis, at a subsequent point in time. (Harvey 1985b, p.25)

The implication of these kind of decisions are fairly important for the future development of any place. "Competitive" localities will tend to attract new industries - thus helping to share out the tax burden of past investments and also improving the employment prospects of its residents - while "uncompetitive" ones will tend to stagnate or slide into an economic depression, with loss of jobs etc.<sup>4</sup>

This competitive pressure is the basis for the formation of regional or local "pro-growth" coalitions (Harvey 1985b, Chapter 6; 1985c). These coalitions tend to be multi-class in nature, because it is in the interests of all residents of a place, and not merely its capitalists, to protect current investments in physical and social infrastructures<sup>5</sup>.

According to Harvey, these class coalitions arise not merely to defend infrastructural investment. They also play a specific role in managing the crisis tendencies inherent in capitalism. Harvey believes there is an immanent tendency in capitalism towards overaccumulation. There are two ways in which this tendency can be combated. The first is temporal displacement - this involves, for example, ploughing excess productive capacity into infrastructural development through deficit financing. The problem with this solution, is that while it manages to get rid of current excess production, somebody at some stage has to pick

up the tab for it.

The second strategy is spatial displacement. This would involve, for example, the export of surplus capital to another region. This strategy also has its limits. If it is to absorb significant amounts of capital, the less developed region will have to be allowed to develop a substantial economic capacity - but this would turn it into a potential competitor.

Urban class coalitions thus perform a fundamental geopolitical role within the overall development of capitalism. On the one hand, as "pro-growth" coalitions, they create the infrastructural framework necessary for capital accumulation<sup>6</sup>. On the other hand, through competition with other coalitions (e.g. trade wars, competition for investment) and in their search for spatial strategies to resolve the problem of overaccumulation (e.g. through geopolitical expansionism, export) they drive the global accumulation process.

The process of coalition formation can be observed empirically in South Africa. In the major metropolitan areas there are negotiating fora of one kind or another dealing with the question of what kind of development strategy should be pursued. Even smaller cities have seen initiatives aimed at achieving growth.

An example of a project to establish a local growth coalition was the Pietermaritzburg 2000 initiative<sup>7</sup>. It is instructive because it reveals both some of the characteristics as well as some of the weaknesses of such projects. Pietermaritzburg 2000 was essentially the brainchild of the City Engineer's Department of the City of Pietermaritzburg. It grew out of the perceived need to revitalise the Central Business District and develop a structure plan. In order to set appropriate developmental processes moving, the Department organised a seminar in October 1985 to which it invited representatives of business as well as individuals from non-governmental organisations.

Arising from the seminar was the decision to embark upon a wide-ranging strategic-planning exercise which would involve not only City Council officials, but representatives from

business and other interest groups as well. The *modus operandi* was that different Action Groups were formed under the overall control of the Pietermaritzburg 2000 committee. Issues around which these groups were formed included City Finances, Housing, Employment, Environment and Human Relations.

These Action Groups were tasked with the responsibility of developing "Mission Statements". They also had to analyse the broad environment in which the City of Pietermaritzburg functioned and decide which of the key issues in the situation were "external", i.e. beyond the control of the city, and which were "internal" and could be addressed by suitable strategies. The next step was then to develop concrete strategies for dealing with those issues which could be tackled.

The purpose of the project was to try to build a common vision of an overall development trajectory for the city. The exercise built up significant momentum and was certainly successful in bringing about a closer degree of co-operation between the private sector and local government. One of the key problems, however, and one around which the project ultimately foundered, was that some of the most important constituencies were left out of the process - namely the African townships of Pietermaritzburg. This was, in fact, recognised by the organisers of Pietermaritzburg 2000 and they attempted to find ways of bringing the local affiliates of the United Democratic Front into the structure.

The U.D.F. was quite wary of this, because many of the issues which the planners of Pietermaritzburg 2000 took as their "external" and therefore fixed environment, the U.D.F. wanted to make the explicit topic of debate. An example of this was the fact that the relinquishing of white control over the City Council was not on the agenda of Pietermaritzburg 2000.

The Human Relations committee of Pietermaritzburg 2000 came up with the suggestion that issues such as this should be addressed in a "Greater Pietermaritzburg Conference", which would be a discussion forum to explore options for the future local government arrangements

within the Pietermaritzburg area. The position of the U.D.F. in regard to this was somewhat ambiguous<sup>8</sup>, but certain issues were seen as problematic. Firstly, the local U.D.F. did not want to end up in a situation in which it might end up in local government but where all the other national and regional apartheid structures were intact. This was seen as a recipe for accepting co-responsibility for the living conditions of black South Africans, without necessarily having the power to deal with those issues effectively. For a start, most of the areas in which African people lived were outside the jurisdiction of the Pietermaritzburg City Council and would therefore have fallen outside the terms of reference of the conference. Secondly, by the time that the proposal of the Conference was on the table, the national state of emergency had been declared and many key U.D.F. activists were in hiding. While this did not affect all of the affiliates of the U.D.F. equally, it affected its African leadership disproportionately, and there were obvious dangers in going into a negotiating process in which key leadership people could not participate fully.

The reticence of the U.D.F. was not the only factor which ended up scuppering the Pietermaritzburg 2000 growth coalition. In the 1987 white municipal elections a conservative grouping came into power which ended up at loggerheads with the officials driving the Pietermaritzburg 2000 initiative. With the withdrawal of political and financial support, the growth coalition lost momentum.

This example demonstrates some of the limitations of the growth-coalition model. Firstly, the projects and trajectory of the coalition, like those of any other agent, are the outcome of pandemonic decision-making processes. In the case of Pietermaritzburg 2000 these processes of debate happened at different stages: it happened when the coalition had to decide whether or not to broaden its focus by launching the idea of the "Greater Pietermaritzburg Conference" and it happened in the terminal stages, in the debates between city councillors and officials about the value of this kind of participatory planning exercise.

Secondly, there is likely to be a pandemonic debate within various local agents about the value of being part of the coalition. The debate within the U.D.F. is one example of this, but

the case of the city council shows that even among core members of the coalition, commitment to the initiative was not unequivocal.

Indeed, the reason for these processes of debate is that growth coalitions can be formed on different terms, and different kinds of growth projects will bring with it different costs and benefits to local constituencies. The debate between the U.D.F. and Pietermaritzburg 2000 about whether or not non-racialising the council should be on the agenda, can be seen as a debate about how the costs and benefits should be distributed.

Thirdly, local constituencies need not pursue their local interests *via* a local growth coalition. The decision by local U.D.F. affiliates to pursue their interests through national political means is an example of this. Indeed the efforts of the Pietermaritzburg City Council in lobbying central government for decentralisation benefits is another case in point.

These examples also highlight the fact that the terrain of the local growth coalition and that of national politics are not hermetically sealed off from each other. The interventions of the national state - in detaining U.D.F. leaders as well as shaping the form of local political power - were clearly important influences on the nature and form of the growth coalition.

Fourthly, the local growth coalition need not unequivocally define a particular space. The Pietermaritzburg 2000 project started off with a focus on the central business district. The revitalisation of the CBD however required a focus on development within the borough as a whole. When it became clear that the borough was interdependent with the surrounding townships, attempts were made to expand the spatial focus yet further.

Clearly the operational focus of the growth coalition or its "territory" is related to the way in which it defines its projects and trajectory. This, in turn, is dependent on its composition, i.e. the nature of its agency. This nature will, of course, also influence how effective the coalition is, i.e. the extent to which its activities cover and reshape its territory. In practice this coverage will always be uneven, i.e. the space of actual operations will be fractal. In the case

of Pietermaritzburg 2000 this was certainly the case. Very few of its projects ever got beyond the drawing board.

## Crucibles of power

In the discussion of local governance, of comparative advantage and of local growth coalitions the role of the central state has featured prominently. Indeed it is possible to argue that localities can only be understood in relation to the processes by which power is generated in society.

Giddens, in an analysis of the role of towns in precapitalist societies, argued that they served as "crucibles for the generation of power" (1981, p.96). At one level this can be understood simply in terms of military power. For example, the British conquest of India was maintained through a network of military settlements (King 1976). Towns, as bastions of military power, served as the centre from where the surrounding rural areas could be pacified.

Giddens does not, however, have only military power in mind. He argues that towns are the basis of administrative capacity and hence of *surveillance*, where this is understood as the intervention by the state in the day-to-day routines of its subjects. This capacity is achieved *inter alia* through the concentration of information and bureaucratic skills within towns.

The city is the generator of the authoritative resources out of which state power is created and sustained. (1981, p.145)

As noted above, this analysis was intended to apply to pre-capitalist societies. In fact Giddens maintains that the role of localities in the generation of power was taken over by the nation-state from the late eighteenth century onwards in Western Europe and the United States (1981, p.189). It is arguable, however, that this process occurred differently in South Africa. In order to understand this contention, it is necessary to analyse some of the distinguishing characteristics of modern states.

The key features which differentiate the modern state from its traditional predecessors, according to Giddens (1985), are sovereignty, surveillance, citizenship and the existence of borders. Sovereignty implies that the state has a monopoly on the legitimate use of violence. By contrast, in traditional societies there are multiple and overlapping sources of authority and various private rights to the use of violence.

Surveillance, as the constant intervention by the state in the day-to-day routines of its subjects is also a distinctly modern phenomenon. Traditional states lacked the bureaucratic infrastructure to do this and therefore had to rely much more on direct coercion in their dealings with the population.

Giddens argues that this extension of the state sets up a *dialectic of control* which in turn leads to the notion of citizenship with particular civil, political and economic rights. This dialectic arises essentially in two ways. Firstly, the technology necessary to establish the penetration of the state (communications infrastructure, generation of extensive statistics and information) also becomes available to subordinate groupings. Through integrating the national space it also becomes possible to generate national resistance. Secondly, the fact that the state becomes more directly involved in the day-to-day routines of people also ensures that it is a more visible and central feature of their lives - hence generating the demand that people should have some control over it. The concept of the modern state thus becomes integrally linked to the concept of citizenship and ultimately to the extension of various kinds of rights.

The modern state also connects in a different way with its territory. While traditional states have ill-defined frontiers, modern states have very well-defined (and policed) borders.

The nation-state ended up superseding the locality as the locus of power through various processes. Firstly, with the pacification of the national space, the walls which enclosed the cities were broken down. In fact the nation-state actively promoted the demilitarisation of cities in an effort to reduce the number of alternative power centres. Secondly, the creation

of a national bureaucracy meant that surveillance was exercised through a whole network of places. The role of individual cities was therefore again downgraded. Thirdly along with the establishment of external borders came the abolition of internal ones. With greater freedom of movement the salience of locality was reduced.

This third process, of course, did not occur in South Africa until very recently. The existence of the pass laws meant that South African urban areas maintained a role in the generation of power which localities elsewhere lost. Indeed, the "Stallardist" doctrine of keeping the cities "white" can be seen as an effort to maintain a network of "defensible spaces" from where white control over a predominantly black country could be sustained<sup>9</sup>. This attempt to construct rigid boundaries around the white localities took on its most extreme form with the apartheid programme of granting "independence" to the bantustans. The implication of this policy was that these local boundaries took on the characteristics of state borders.

This apartheid project can be seen as an attempt by the white ruling group to circumvent the logic of the "dialectic of control". The idea was that the creation of separate nation-states would deflect the demand for citizenship from the spaces of "white" South Africa.

This programme carried within it three key contradictions. The first was that in order to implement this policy, the South African state had to intervene much more directly and radically in the structure of the day-to-day lives of black South Africans. The extension of the pass-law system, the massive township construction programmes, urban and rural removals and rural "betterment programmes" all vastly *extended* the reach of the South African state. While the eventual provision of social services - notably pensions, education and health - through the bantustan states might have given these a semblance of material reality, it was the overwhelming *presence* of the South African state which was the central structuring feature of the lives of most black South Africans - and particularly those in the urban areas. Far from displacing the "dialectic of control", these interventions led to unprecedented national resistance during the 1980s.

Secondly, a key implication of the creation of sovereign states was that the South African state lost control over those territories - both in terms of conceding monopoly over the legitimate use of violence, and in terms of surveillance, i.e. the ability to intervene in the lives of its subjects. This therefore implied a weakening of the state. The dangers inherent in this policy were glaringly exposed through the sequence of coups in the four "independent" states. The South African government therefore attempted to forestall this loss of power, by maintaining *indirect rule* through the secondment and training of officials and through client political movements. Nevertheless these tactics in themselves served to undermine the legitimacy of these regimes while at the same time not affording the same degree of control that direct rule would have given.

Thirdly, the continued presence of "urban blacks" presented a major anomaly. In an effort to deflect the "dialectic of control" in these areas, the state introduced the black local authority system at the beginning of the 1980s. It even toyed with the idea of creating "city states". As with the bantustan governments, the idea was that if these bodies took responsibility for the government of their areas, then demands for citizenship rights would be deflected. Although sovereignty was never formally ceded, the government of black urban areas took on some of the characteristics of "indirect rule" as well.

Given therefore that the exercise of national political power was circumscribed by the erosion of sovereignty, local forms of political control became important. Perhaps the model of this kind of rule was provided by Crossroads (see Cole 1987). In this squatter community on the outskirts of Cape Town, a power struggle erupted between different groupings. The state provided logistical support to one of the squatter leaders, Ngxobongwana, who proceeded to burn out the other, more "radical" grouping and set himself up as undisputed leader of the area. In this capacity he levied informal rents on people to whom he had given "permission" to reside in the area. To put the lesson from this example quite starkly: the fragmentation of national sovereignty led to the proliferation of local client-based forms of control.

Localities therefore featured in two ways in the generation of power. "White" localities,

protected by the borders of influx control, served as the crucibles within which the power of the "white" state was generated; while certain "black" localities served as the spaces within which the power of clients of the South African state over their fellow residents was generated.

Of course both of these kind of spaces exhibited a fractal structure. The control exercised by the clients of the South African state was only fitful. Similarly, the space of "white" localities was never as pristine as apartheid theorists would have liked.

Indeed, one of the ironies of the Crossroads situation was that this squatter camp had arisen in defiance of influx control measures. Despite repeated attempts to bulldoze it, the camp had survived. International and local protests had led to a reprieve. This was granted only because there was, in fact, a pandemonic process of debate within the state about the way in which it should best deal with influx control.

Chaskalson (1988) has argued that a reevaluation and more flexible application of influx control measures could be detected in the Department of Bantu Administration and Education certainly by the early 1970s<sup>10</sup>. For example, in 1972 the president of the Institute of Administrators of Non-European Affairs called for home-ownership in the "white" areas (Chaskalson 1988, p.5). In 1973 Punt Janson, the Deputy Minister of Bantu Administration and Education signalled a determination to find a more "menslike bedeling" (humane dispensation) for influx control:

Die probleem is egter om die tsotsi-element uit te hou. Wat ons nodig het is 'n dokument wat onderskei tussen die wetsgehoorsames en die leegleer-wetsverbreker.<sup>11</sup>

(cited in Chaskalson 1988, p.9)

A concrete step towards the acceptance of the permanence of urban Africans came with the reintroduction of 30 year "home ownership" in May 1975 (p.10).

Chaskalson also provides evidence of the pandemonic decision-making processes within the Department of Bantu Administration and Education. Whereas Punt Janson had publically

placed a moratorium on the removal of urban townships, his minister, M.C. Botha continued to authorise the removal of townships that were too close to white areas for his liking. Similarly,

Janson's plan for differentiated township housing was almost regulated out of existence by officials within the department. A similar fate befell the reintroduction of 30 year leasehold housing. Officials' obstructionism ensured that regulations governing leasehold only appeared a year after the return of home-ownership was announced in parliament. Moreover, when these regulations finally appeared, they stipulated that home-ownership would only be available to township residents with homeland citizenship certificates. (Chaskalson 1988, p.14)

This non-correspondence between the actions of the state and its consciously formulated intentions did not characterise only reform-measures to apartheid. The implementation of influx control was beset by such contradictions itself. Not only was it possible to bribe officials to gain access to the urban areas, but in many cases the officials that had to implement influx control measures didn't do it rigorously. For example, Chaskalson argues that the Vaal Triangle Administration Board, under the direction of J.C. Knoetze, was influenced by Punt Janson's more open-minded policy pronouncements:

[The Vaal Triangle Administration Board] began to discriminate between the *wetgehoorsames* and the *leegleer-wetverbrekers* by providing housing for workers who were legally employed in the Vaal Triangle and had families in the urban areas but no permanent residency rights. The board adopted a more pragmatic approach to conflicts between influx control and employers' needs. It granted companies influx control exemptions for key workers. It allowed employers to transfer workers between urban areas and it turned a blind eye to infringements of the Planning Act. (p.17)

These pandemonic decision-making processes together with the increasingly evident lack of correspondence between the state's account of the spatial framework of localities and the reality of African urbanisation; and the evident mismatch between the state's theory of the essentially "rural" nature of the social relationships of Africans and the increasing wave of

urban protest movements, led to a revision of influx control. The Riekert Commission of 1979 was the first step in this direction, which led to the formal abolition of influx control in 1986.

## Conclusion

The nature of South African localities was shaped by the intersection of many different processes. The attempt to shore up white power by deflecting black urbanisation and black political aspirations to dormitory suburbs was clearly a particularly important one. This process was, however, never all encompassing, nor was the South African state ever completely single-minded in its pursuit of this goal.

Furthermore localities were not completely determined by the processes of domination. Individual location decisions, investment decisions, local coalition formation and the need for a structure of effective local governance all left their mark.

## Notes:

1. To be fair to Cooke, this argument is sketched out in a paper which is labelled "Draft: Not for quotation".
2. South Africa is currently (December 1994) experiencing a "moral panic" about the influx of illegal aliens, particularly from our neighbouring states, although also from the Far East.
3. Indeed, given the fact that the profitability of a particular investment depends as much on the investment-decisions of all other capitalists, it seems that *all* locational decisions involve gambles.
4. Smith (1984) argues that the way capitalism develops there will be a "see-saw" of investment - funds first flowing into an area only to be withdrawn from it at a later stage.
5. Cox and Mair (1988) also provide an account of the processes through which local pro-growth coalitions are formed. Central to their idea is the concept of **local dependence**, i.e.

the idea that certain actors (such as capitalist firms, people) are dependent on the maintenance of certain social relations within a particular territory. The concept signals the fact that not all actors are able to follow a relocation strategy, and that therefore it is vitally important for some of them to engage in collective strategies to maintain the viability of their area, attract investment etc.

6. In Harvey's conception, this type of investment can also serve as a temporal "fix" for the crisis tendencies in capitalism.

7. The information on the Pietermaritzburg 2000 project was gathered by way of interview (Chris Proctor 1987) and participant observation.

8. The local chairperson of the U.D.F. initially came out publicly in support of the conference but was forced to heavily amend and qualify this statement due to an incipient grassroots revolt. As the activist pressure was communicated via the Secretary, i.e. the author, I was seen in some circles as a hardline ideologue who was simply committed to national politics and refused to pragmatically grasp local opportunities.

9. The pass laws clearly had other functions as well. As Hindson (1987) argues, the management and differentiation of labour power were crucial concerns. Nevertheless, the machinery of control embedded in these practices was used extensively, for example in the form of "endorsing out" from the urban areas people who were seen as potential trouble makers.

10. In fact Posel (1991) has argued that the rigorous attempt to remove Africans from the urban areas only emerged during the 1960s. This suggests that the "heyday" of grand apartheid was more short-lived than is generally supposed.

11. The problem, however, is to keep the criminal element out. What we need is a document to distinguish between law-abiding people and the layabout-law-breaker.  
(own translation)

It should be noted that this concern about crime supports the contention that influx control was as much about maintaining political and social control as about labour control.

## Chapter 12: Regions

The literature on regions has traditionally distinguished between two kinds of regions, **homogeneous** regions and **nodal** regions. The former are conceptualised by what all parts of that region have in common (e.g. language, levels of deprivation etc.) while the latter are defined in terms of a set of relationships between the parts of the region (commuter flows, social interactions etc.) which "bind" the region together (Richardson 1978). It is arguable that common-sense notions of the "region" in fact rely on both aspects - the idea that regions are clearly differentiable from each other in terms of some external characteristics, as well as the idea that this difference arises from some internal connectedness between the parts. The distinction therefore does not seem all that useful for analytical purposes.

Four approaches to the definition of regions will be considered<sup>1</sup>. The first describes regions from the point of view of cultural communities. It is argued that this perspective sees cultural practices as fixed and objectively given. It cannot make sense of the ways in which cultural communities intermingle. The second interprets regions as being derived from the servicing and commercial interactions of people. This view sees human interactions as being conditioned directly by distance: people that are close together (within a region) will trade with and service each other. Nevertheless there are important social processes which also mediate this effect of distance. The third approach sees regions as arising through the actions of regional growth coalitions. The argument here is a straight-forward extension of the "local growth coalition" literature and many of the same weaknesses apply. Finally the idea of regions as arising from the process of colonial domination is presented. The key concept is that different regional government structures define how different groupings get access to or get excluded from state power.

## Cultural communities

Cooke (1985) in an interesting case study of the distinctiveness of South Wales, suggests that class practices can serve to demarcate a region. He argues that the combination of specific factors, such as the nature of the productive base, the labour process employed in the South Welsh coal and steel industries, particular gender relations and the intermeshing of linguistic and religious differences led to a distinctive tradition of working class organisation. This tradition was institutionalised through trade unions, health associations and educational institutions. The libraries and reading rooms of the trade unions also served as places through which this culture was maintained and reproduced.

In this account a particular community (in this case the Welsh working class) ends up defining the space of the region. Distinct forms of social interaction end up characterising this space.

The idea that cultural practices can serve to demarcate a region is also held among writers who wish to define regions in terms of "ethnic" or linguistic communities. Whereas Cooke is careful to place his analysis in a historical context, such accounts very often assume the cultural practices to be primordial and historically invariant. This essentially amounts to assuming that linguistic communities are themselves pre-given social actors or that the boundaries of particular social systems are defined by the boundaries of the language group.

This approach to regional demarcation is exemplified in the South African case by the Verwoerdian attempt to define ethnic groups on the basis of linguistic differences and then to regionalise the country accordingly. Although Verwoerdianism as official doctrine is dead, this approach to demarcation is still very much alive in South Africa. It can be seen, for example, in the work of du Pisanie (1991). He maps the distribution of language communities, based on information contained in the South African censuses and distilled in the HSRC's language atlas. He then argues that the Western Transvaal forms a coherent region, because it is characterised by the overwhelming *presence* of two language communities - the Tswana

and the Afrikaner, and the overwhelming *absence* of other communities.

The arguments in this case are clearly self-serving, because the Afrikaans language community extends continuously throughout the Transvaal. Furthermore Tswana speakers are also concentrated in significant numbers in the "melting pot" of the Witwatersrand. Furthermore it is not clear why the particular superimposition of two language communities should lead to a distinctive region.

The language map can, in fact, be seen as the attempt to legitimate the project of a particular conservative grouping. Du Pisanie's paper was presented at the founding meeting of the "SATSWA" forum, an alliance of the Bophuthatswana bantustan government and conservative white local authorities of the Western Transvaal. The "common interests" of the region can therefore be seen as the common interests of conservative local and regional government institutions in averting the processes of national political change.

Nevertheless it is not only the homeland governments and the white right that placed importance on linguistic criteria in the definition of regions. The criteria presented to the Delimitation Commission of the National Negotiating Forum in terms of which the regions of the new South Africa should be demarcated, included language.

Even the ANC's approach to regions has been influenced by these criteria. One of the criteria by which it proposed to draw the border between "Natal" and the "Eastern Cape" was that of language.

The idea that there are well-defined linguistic communities that can be mapped and that lead to a sense of regional coherence has been sharply attacked by Brown (1992). He calls the former assumption that of linguistic purism. Purists assume that there is a pure form of Zulu, Xhosa, Tswana, or Afrikaans, although actual speech will tend to be "contaminated" with words imported from other languages. It is also assumed that speakers can be unequivocally assigned to one of these language communities. Brown argues that this approach overlooks

the fact that language use is always much more fluid than the textbooks would suggest. The boundaries between language communities are therefore not clearly defined. In particular, this approach ignores the creolisation that is occurring, notably in South Africa's metropolitan areas. Brown suggests that the HSRC's language atlas achieved its language mapping because it excluded the major urban centres in other words the mapped distribution excludes precisely those areas where the coherence of language communities is most rapidly breaking down. Furthermore it only maps the first language of the person who supplied the information. Brown is of the opinion that if the focus had been on multilinguality, the picture presented by the atlas would be radically different.

Another way of looking at Brown's argument is that even if we had a well-defined language, the space of that language's use would be fractal. At each scale, there will be spaces and times in which the language is used and interwoven with them spaces and times where it will not be used - as speakers slip into and out of particular languages. The homogeneous spaces of the language atlas therefore simplify the space of actual language use.

The account of agency implicit in these accounts is also highly simplified. Where language and cultural communities are posited as the actors which define the regions, the implicit assumption is that these actors are coherent. Even in situations where there is a concrete organisational expression of this community, such as the Inkatha Freedom Party in the case of "Zulus" or the Afrikaner Volksfront in the case of "Afrikaners", these actors exhibit the "pandemonic processes" discussed in an earlier chapter. In the case of the "Afrikaners" such pandemonic processes can be acutely observed in the debates around a) what constitutes a true "Afrikaner" and b) where the natural homeland of the Afrikaner nation should be located.

## Service provision

The homogeneous region approach (as exemplified by cultural regions) is concerned with the spatial variation of certain practices. As it has become increasingly obvious that these

conditions are not static, this approach to delimiting regions has fallen out of favour. In its stead the nodal region approach has laid claim to primacy. This approach is concerned with tracing the causal flows and linkages within the region.

Because of this emphasis on the nature of the links between places, the nodal region approach has been particularly favoured in economic analyses of regions. In fact the concept of economic nodes emerged out of the work of regional economists earlier this century. Some of the initial theoretical work in this tradition was done by Lösch, Christaller and Isard.

The seminal contribution of Lösch was to demonstrate that even on the assumption of an initially completely even distribution of population and resources, spatial inequalities would emerge. His argument was that the viability of services required certain thresholds in terms of the number of potential clients. From the point of view of the customers, the cost of transport to the place from where the service was provided (e.g. shop or school) would have to be added on to the actual cost of the service. On the assumption that transport cost varies with distance and that beyond a certain distance transport costs would increase to the point where effective demand for the service would be reduced to nil, each servicing centre would be surrounded with a circular catchment area. On the assumption that service providers would want to maximise their catchment areas (to achieve the necessary thresholds and to make a profit) and that the spatial organisation of service centres be such that every individual had access to a service outlet, the most rational spatial organisation of services would be in the form of a hexagonal grid.

Given that different commodities and services have different thresholds and demand functions, Lösch argued that the resulting distribution of service centres would show a *hierarchy* of service centres superimposed on each other (Gore, 1984). The notion of central places and urban hierarchies was further developed and tested by Christaller in the south of Germany.

The concept of regions based on service centres has been extensively used in demarcations. The idea is that the catchment area of a particular service centre can be used to define the

region. Nevertheless while such a procedure may lend itself for the purposes of practical demarcations, it does not lead to a *theoretical* delimitation of regions. This is because the choice of different services or different levels in the urban hierarchy will lead to vastly different demarcations. The effects of distance which lead to the creation of "catchment areas" for particular retail or service organisations can be seen at all spatial scales, from the neighbourhood cafe to the suppliers of specialist financial services at a global scale.

The applicability of the service centre approach to South Africa is not in dispute. In the delimitation of South Africa's new provinces, servicing relationships were explicitly taken into account. Nevertheless it is also clear that the catchment area for a particular institution is not simply determined by distance. This was explicitly demonstrated in the case of Northern Ireland by Boal (1969). In a study of a neighbourhood in Belfast, he showed how the pattern of service provision was heavily influenced by sectarianism. Instead of the hexagonal areas posited by theory, the separation between Catholic and Protestant areas cut a clear line through the service areas of pubs and shops. In the presence of this kind of sectarianism it is the space of the particular social relationship that defines the servicing area rather than the servicing area that defines the space.

In the South African context service areas have been strongly influenced by social relationships. At its crudest, admission to shops, entertainment facilities and various social services was dependent on race. This meant, for example, that even if Africans lived in "white" areas (as many domestic workers did), they were excluded from many facilities. In its attempts to create the bantustans, this framework was extended by linking service provision to ethnicity. In the case of the northern Transvaal, where Tsonga, Venda and Sotho lived highly interspersed among each other, this meant that the servicing areas of institutions such as clinics and schools had to follow the crazy patchwork of homeland boundaries (Dubow, 1982). A particularly crass example of this is provided by Shivulane Hospital:

Shivulane hospital is situated in an area claimed by both Lebowa and Gazankulu. In 1976 the state took over this hospital but was undecided to whom it should be given - Lebowa or Gazankulu. It was decided that Lebowa should administer the hospital

until such time as the Department of Health made a final decision on the matter. It was subsequently decided to award the hospital to Gazankulu and this was duly published in the Government Gazette. Up to that time, the hospital had been used by the many Tsongas, Sothos and Pedis in the area, and there was no friction between these groups. In July this year, Gazankulu officials arrived at the hospital and declared that they had been authorised to take it over. The administrative staff, seconded by Lebowa, had not heard this and resisted by withdrawing all staff and patients with Sotho backgrounds. Of 38 staff members, only 14 remained. Over 30 patients and numerous hospital records were removed. The incident created tensions between the Gazankulu and Lebowa communities. (Zwi 1982, p.35)

These examples show that the concept of the social system which is implied by the "nodal region" idea is a simplified one. It assumes that the strength of social transactions and interactions is given by a simple function of distance.

Similarly the model of agency which underlies the theory is simplified too. As in neo-classical economics, from which this account is ultimately derived, the agent that is assumed is a simple utility-maximiser. Consequently she will shop at the nearest service centre, regardless of the characteristics of the establishment, e.g. whether it is run by a Protestant or Catholic, or whether it has a higher status than another establishment. In practice, of course, the aim of utility maximisation is pursued in a much more contradictory fashion. Indeed, the decision whether utility is maximised by buying the groceries at Woolworths or acquiring equivalent goods at the Pick and Pay is probably made by the same pandemonic processes discussed earlier.

Further reflection also suggests that the catchment area of a particular institution is not as well defined as the nodal concept would suggest. For example, how would one define the catchment area of the University of Natal, Pietermaritzburg? Clearly only areas from which the University actually draws students would qualify. Nevertheless the University does have, for example, some overseas students. Would the enrolment of a German student suggest that

the Federal Republic of Germany is part of the catchment area? This would seem to stretch the concept far too far. The numbers of students from Germany are far too low. It would seem reasonably safe to suggest that Natal forms part of the catchment area. Nevertheless there are parts of Natal from which the student numbers are even lower than from overseas. There are even neighbourhoods within Pietermaritzburg from which the student numbers are minuscule. If one were to map the space from which students are actually drawn, one would get the kind of fractal image discussed above.

### **Regional growth coalitions**

The "catchment area" approach to the definition of regions also suffers from the weakness that it assumes that being serviced by the same centre will imply coherence in social relations - i.e. that this will provide a resonance to that particular space. This, of course, is not necessarily given. In the work of Harvey (1985c) the focus is therefore on the process by which regions become politically organised.

His argument that regional growth coalitions become players within the geopolitical conflicts of capitalism is a simple extension of his argument about localities. Just as investors have a stake in the infrastructure of a particular locality, they might also have such a stake in a particular region. This stake arises due to the need to protect *past* regional investments against shifts in the global patterns of production and investment. Furthermore *current* competitiveness of firms based in the region is dependent on the effectiveness of the infrastructures.

The need to maintain a competitive edge for existing enterprises as well as the desire to attract new investment therefore underpins the emergence of regional growth coalitions. This can, however, be done in different ways. Because different growth strategies have different distributions of costs and benefits, a key issue is how such a growth coalition positions itself: a vision of growth through industrialisation based on cheap labour and lax pollution controls

will look quite different to one based on attracting high income tourists. Harvey (1985b, pp.212-221) has suggested that growth coalitions can try to adopt at least the following four types of strategies (not mutually exclusive):

1. Compete within the spatial division of labour - by promising either low wage labour or perhaps certain kinds of skilled labour, by providing physical and social infrastructures or direct subsidies to industry etc.
2. Compete within the spatial division of consumption - this does not merely refer to the tourist market, but also to the quality of the living environment, cultural facilities, high order retail functions.
3. Compete for command functions - Head Offices of large corporations, financial institutions and government departments<sup>2</sup>.
4. Compete for redistribution - this essentially relies on access to the state, e.g. because the region is very strong in terms of voter support, or even because it has a large disruptive potential. Friedmann's argument about the relationship between peripheral constituencies and regional development planning fits into this category.

The nature of the programme of such a growth coalition will partially determine which social groups are organised into it (and of course *vice versa*) as well as the spatial extent of the coalition.

It is important to note that growth coalitions may not in all instances be led by business interests. Communities, trade unions and regional politicians also have deep investments in particular regions and can be galvanised to organise growth coalitions - particularly if the social structure of the region is under threat. It is noteworthy that many of the popularly led growth coalitions in England (e.g. the "restructuring for labour" movement in the Northern English industrial cities) emerged in the context where communities were threatened with large scale industrial closures.

Clearly at each point in time there may be competing projects each trying to organise its own growth coalition. If such conflicting visions are not reconciled this may simply lead to

endemic conflict and the failure of all growth projects. To the extent to which a clearly dominant growth project emerges, it becomes possible to equate the idea of the region with the coalition.

The importance of such regional coalitions in South Africa cannot be doubted. There is the "Border-Kei Development Forum". In the case of KwaZulu/Natal there has been the "KwaZulu Natal Indaba". While these have largely been attempts to bring together "establishment interests", there have also been attempts to form broader coalitions, for example around the "Economic Strategies for Region E" project of the Regional Development Advisory Committee and around the Regional Economic Forum.

While such coalitions might serve to forge the idea of the region in practice, they do not help to define the concept of the region in the abstract, because coalitions can exist at various spatial scales. It was already indicated that they could and do exist at local level. Similarly they can exist internationally as well - for example, the European Economic Community is a form of growth coalition. Furthermore, as the argument about local growth coalitions should have made evident, the spaces of such coalitions are more fragmented than Harvey would suggest.

### **Internal colonialism**

In the case of South Africa it is quite evident that the nature of regions needs to be understood not merely in relation to economic development, but also to the generation of political power. The concept of "internal colonialism" was introduced by Hechter to characterise the *political* relationship of domination between the core and the periphery. What distinguishes different regions in this model, therefore, is the way in which they relate to political processes and particularly to state power. It was suggested that these differences led, in turn, to the economic exploitation of the peripheral regions by the core.

In order to sustain this domination, institutions based in the core region must serve to crystallise and consolidate power, while the political and administrative institutions based in the peripheral region must serve as extensions of central control. This suggests that regional institutions would have a Janus face, in some regions providing access to power, while in others serving to deny it.

This sort of distinction can be readily seen in South Africa, where the regional institutions associated with the bantustans were designed to maintain control over the population of those areas, whereas provincial government was one of the mechanisms through which white power was expressed. Partially because of these differences in the way in which the state related to different sections of the population the South African Communist Party advocated the theory that South Africa could be characterised as a "Colonialism of a Special Type".

South Africa is not a colony but an independent state. Yet masses of our people enjoy neither independence nor freedom. The conceding of independence to South Africa by Britain in 1910 ... was designed in the interests of imperialism. Power was transferred not into the hands of the masses of the people of South Africa, but into the hands of the White minority alone. The evils of colonialism, insofar as the non-White majority was concerned, was perpetuated and reinforced. A new type of colonialism was developed, in which the oppressing white nation occupied the same territory as the oppressed people themselves and lived side by side with them.

On one level, that of White South Africa, there are all the features of an advanced capitalist state in its final stage of imperialism. There are highly developed industrial monopolies, and the merging of industrial and finance capital. The land is farmed along capitalist lines, employing wage labour, and producing cash crops for the local and export markets. The South African monopoly capitalists ... export capital abroad. But on another level, that of 'non-White South Africa', there are all the features of a colony. The indigenous population is subjected to national oppression, poverty and exploitation, lack of democratic rights and political domination by a group which does everything it can to emphasize and perpetuate its alien 'European' character. The African Reserves show the complete lack of industry, communications,

transport and power resources which are characteristic of ... territories under colonial rule. ... Typical, too, of imperialist rule, is the reliance by the state upon brute force and terror, and upon the most backward tribal elements and institutions which are deliberately and artificially preserved. Non-White South Africa is the colony of White South Africa itself. (South African Communist Party (n.d.), *The Road to South African Freedom*, London: Ellis Bowles, pp.25-6. Cited in Wolpe (1975) pp.231-2)

This passage is notable for the way in which a number of theoretical issues are systematically collapsed. It is not clear whether the "colonialism" that is referred to should be interpreted *geographically* (as in the reference to the African reserves), *politically* (in terms of oppression by an "alien" group) or *economically* (i.e the export of capital from the "white" centre or the exploitation of the "non-white" colony) or all of these simultaneously. The most problematic aspect of this confusion is that it is not clear what the status of the geographic component of "internal colonialism" was. On the one hand, the Communist Party made reference to the condition of the reserves; on the other, it was concerned to emphasise the fact that the colonial relation applied throughout the territory of South Africa. In other words, the apartheid programme of giving independence to the reserves was not seen as the appropriate response to the situation of colonialism. In the absence of a geographic referent, however, it is not clear what was gained by deploying the concept of "colonialism", rather than simply using the terms "domination" or "oppression".

Wolpe (1975) attempted to inject some analytic content into the notion by defining it in terms of the articulation of modes of production. In Wolpe's analysis colonialism is defined by the way in which the dominant capitalist economy relates to other non-capitalist economies. In certain circumstances the dominant economy will simply install capitalist relations of production in the colony. In other situations, it may be in the interests of the dominant economy to maintain pre-capitalist relations of production, such as communal agriculture, in order to subsidise the wage of the workforce employed in capitalist production:

It is this feature, the introduction into the capitalist circuit of production of labour-power physically produced in the non-capitalist economy, that denotes one important

feature of imperialism. This 'crossing' of different modes of production modifies the relationship between wages and the cost of reproducing labour-power in favour of capital. It is precisely this relationship which is the foundation of 'internal colonialism' in South Africa. (1975, p.245)

This argument clearly reintroduces a geographical conception into the notion of "colonialism". The reserves are seen as the bases of non-capitalist modes of production while the rest of South Africa is seen as part of the capitalist mode of production.

While this position is much more coherent than that of the Communist Party, it runs into both conceptual and empirical difficulties. The major empirical problem is that the economy of the reserves has been in decline from at least the 1920s. The idea that the apartheid programme was essentially about preserving the viability of non-capitalist modes of production (as also argued in Wolpe, 1972) seems rather tenuous, particularly in view of the rejection of many of the proposals emanating from the Tomlinson Commission<sup>3</sup>. However, if reserve agriculture did not serve to subsidise urban wages by the 1960s, it is difficult to argue that the relationship between the reserves and the urban areas should be analysed in terms of the relationship between different modes of production.

The conceptual problem with Wolpe's analysis is based on the fact that his definition of colonialism is essentially an economic one. This, however, raises the issue of how the interests of the "capitalist economy" translate themselves into the concrete political measures which lead to both the preservation and the domination of the non-capitalist areas. Unless it is assumed that the state operates as a simple instrument of capitalism, mediating mechanisms have to be identified through which these economic interests make themselves felt politically.

In the context of South Africa this raises the particular problem that the Verwoerdian project consisted of promoting the "independence" of these areas. This specific form in which the central state related to these areas cannot be "read off" from the way in which different modes of production relate to each other. Nor can it be argued that the structure of the state is incidental to the underlying social processes.

Indeed, Wolpe himself has been concerned to argue that an understanding of the specific form of the South African state is absolutely essential for the analysis of South African political processes (Wolpe 1980, see also 1988). He has argued that the notion of access and subject-formation should be seen as crucial for the analysis of the state. In the South African situation, the category of "white subject" and "black subject" were key elements in defining access to and exclusion from the state (1980, p.417). He argues that the different ways in which particular subjects relate to particular state apparatuses can lead to differences in the way in which these apparatuses function, although he is careful to note that

in so far as a class gains access to a state apparatus, there can be no assumption that the apparatus in question then serves the interests of "the class" as defined at the level of relations of production. ... [T]he means (institutional and organizational arrangements) by which a particular fraction of a class, organized in a particular way and engaged in specific forms of struggle, gains access to or is excluded from state apparatuses may well result in a highly restricted and partial representation of the interests of a section of a class. (1980, p.416)

The activities of particular state apparatuses can therefore not be "read off" from a simple analysis of the relations of production. Wolpe goes one step further by suggesting that

The crucial aspect is that the entire range of state apparatuses (but more particularly those that are not directly concerned with coercive sanctioning and imposition of the law and policing) is, in principle, open to become a means of *organization* and *definition* of specific classes and class interests. (1980, p.416, emphasis added)

The specific form that the state takes is therefore the *result* of the way in which particular categories of subjects relate to it. Conversely, this form of state can in turn help to *define* that very form of subjectivity.

Wolpe draws the following implication of this position for his analysis of South Africa:

[T]he category of the black subject is at the same time a condition of access to certain particular types of state apparatuses. I have in mind here the Bantustan legislative councils and administrations, Bantu Education, local councils and similar apparatuses.

In order to avoid any misunderstandings, it must be emphasized that there is no intention, in dealing with these state apparatuses, to minimize the massive role played by directly coercive state apparatuses or to suggest that the state organizations in question amount to "real" reforms of the political system. *The point being made is that the category of the black subject gives the popular masses access to and constitutes particular state apparatuses as forms of the organization of these masses.* (1980, p.418, emphasis added)

The key role that many of the bantustan governments played in direct repression in the 1980s makes this particular claim ring rather hollow<sup>4</sup>. Furthermore Wolpe seems to make a conceptual mistake when he concludes from the fact that the category of "black subject" is the basis for *exclusion* from the institutions of white rule, that this category provides *access* to the subordinate state apparatuses that he lists. Instead, it is the subject categories of "Xhosa", "Zulu" and "Tswana" which provided the entry point and which were organised through these institutions. The example of Shivulane Hospital cited earlier suggests how this worked in practice.

The argument that Wolpe seems to make is that the way regional institutions worked in South Africa, was that some of them served to organise and consolidate the category of the "white subject", while others were concerned with defining and organising various subordinate categories of subject *in relation* to the dominant subject. From this point of view one could suggest that regions are the crucibles for the generation not only of power, but also of particular identities.

This, of course, highlights a particular kind of connection between the space of regions, the social system of apartheid and specific kinds of identities. Nevertheless it should be noted that the links between power and racial/ethnic subjects can be observed at other spatial scales as well. For example, some of the hostels in the Witwatersrand area have been sites around which a conservative "Zulu" identity has been mobilised, just as it has been done in the case of the KwaZulu bantustan.

The space of particular racial/ethnic subjects cannot be simply equated with regions for another reason. Within all bantustans there developed pockets of resistance, i.e. forms of agency incompatible with the social system of apartheid. Indeed in the late 1980s control by many of the bantustan governments over their territory was highly tenuous. In the case of KwaNdebele, the rural insurrection even led to the abandonment of the project to take "independence" from South Africa.

The existence of "subversive" projects within the spaces of the bantustans in some cases even translated itself into a change in the form of the client state. The most visible demonstrations of this was General Bantu Holomisa's coup in the Transkei and the subsequent rapprochement between the Transkei and the ANC. Nevertheless changes in the way in which the bantustan governments saw their projects existed in many other areas as well.

### **Conclusion**

The "internal colonialism" thesis as argued by the South African Communist Party and Wolpe suggests that the spaces of the bantustans were spaces of control in two senses. On the one hand they were spaces within which physical control could be maintained; while on the other, subordinate forms of agency were created through the client states. In other words, residents of these areas were invited to think of themselves as "Zulu", "Xhosa" and "Tswana" through the way in which they were incorporated into state structures.

Nevertheless these processes were never as complete as the architects of apartheid would have liked. By the end of the 1980s dissident forms of agency and social relationships had escalated to such an extent that the whole system of client states was threatened with collapse.

Furthermore political control and incorporation was never the only regional reality. Investment processes, servicing relationships and the formation and re-formation of language communities were all important as well.

**Notes:**

1. These approaches certainly do not exhaust the possibilities. For example, the "natural regions" approach has been quite influential in the literature. It arose from the point at which geographers tried to map differences across the globe and started classifying regions on the basis of this. This classification led to the idea of "natural regions". Such regions are defined by particular combinations of physiographic and bio-climatic features. These natural factors were thought to determine particular farming and economic practices which in turn led to particular kinds of social structures. Distinct natural conditions therefore produced distinct social conditions and the central connecting thread that bound the region together was the particular form that human-nature interaction took.

Natural conditions as the rationale for regional demarcations went out of fashion in the post-Second World War period, because it became increasingly clear that human activities were not as determined by natural factors as earlier generations had assumed. Nevertheless it is perhaps making a comeback via the environmental movement - not as a statement of fact, but as a statement of intention, i.e. that human activities *should* be more integrated into the particular ecosystem of which they are a part.

At its crudest, the idea of natural regions can be seen as a statement about how the social system is thought to function. Human activities and interactions are seen as determined by their spatial and ecological setting. This suggests that there will be different types of actors and different kinds of social practices in different regions.

In South Africa, the natural region concept has been used most extensively in planning contexts. The post-second World War fad of promoting river basin development would be a case in point. Nevertheless this approach arguably has had only a limited impact on the popular conception of regions in South Africa.

Furthermore, a problem with such an approach (in its own terms) are that there are various ways of defining natural regions - in terms of climates, vegetational types, soil types, drainage patterns etc. and none of these results in unequivocally discrete "regions". Furthermore the existence of microclimates, smaller distinctive micro-ecosystems within larger environments, smaller drainage basins within larger ones show that the natural processes which were hypothesised to lead to regional distinctiveness in fact operate at several other spatial scales. In fact this also indicates that the space of such natural environments exhibits something of the fractal pattern discussed in a previous chapter.

The overriding weakness, of course, has been pointed out already, viz. that the natural region account operates with a vastly simplified picture of the social system and agency. While the influence of the environment on social relationships shouldn't be discounted, it certainly does not govern social interactions. Similarly, agents behave in more complex ways than their natural context would indicate.

2. Harvey notes that modern communications technology makes shifts in the position of such control functions quite possible.
3. This was a commission instituted by the government in the 1950s with the purpose of advising on how the rural areas could be developed.
4. Which probably explains why this particular argument was dropped for his book (Wolpe, 1988). In this longer study Wolpe continues to argue for the importance of looking at the specifics of the form of the state, but he no longer suggests that there need be state apparatuses which serve as the means of organising the "black subject".

## Chapter 13: The Organisation of Space

The last three chapters have been concerned to show how the fractal nature of the spaces of apartheid underpinned the process of change. The fact that increasing numbers of black residents were living in white neighbourhoods, that black "rural" residents continued to stream to the white urban areas, and that the spatial control exerted by client bodies was crumbling, all made social change inevitable. The terms on which that change should be made was itself the process of an ongoing pandemonic debate within the state.

The arguments of the last chapters have, however, also highlighted that the spaces of South African neighbourhoods, localities and regions were not exclusively shaped by apartheid. There were always other processes at work as well. It was the fact that there were other models for interaction available that allowed the erosion of territorial apartheid - as when landlords let their empty flats to black tenants.

This interplay of different social processes shows how South African space and society could simultaneously bear the imprint of race, class and ethnicity. To attempt to ascertain which of these abstract categories was the most salient does not seem to be a very fruitful exercise<sup>1</sup>. Concrete agents acted at different times in accordance with *all* of those models of behaviour. This suggests that *all* abstract definitions of neighbourhoods, localities and regions are bound to fail, because no social process is ever all embracing.

The fact that neighbourhoods, localities and regions do not exist in the *abstract* does not mean that they do not exist concretely. As Chapter 8 suggests, social relationships and the social system "homogenise" space. Another way of putting this, is that absolute spaces emerge out of processes of social organisation.

Concrete spaces, such as "Pietermaritzburg" or "Edendale" are created, sustained and transformed through such social processes. It can therefore be suggested that a "neighbourhood", "locality" or "region" comes into being when it is *organised* as such.

The processes by which particular spaces become organised is therefore of some interest. This chapter will be concerned with these issues. Cox and Mair's concept of "local dependence" is used as the point of departure. It is argued that this concept helps to explain some of the processes underpinning "white" neighbourhood organisations. Similarly, local dependence also helps to understand the mobilisation of Indian and coloured ratepayers in the Pietermaritzburg rates campaign.

One of the *results* of this neighbourhood mobilisation was to call into question the way in which the locality was organised. Consequently various attempts were made to *re-organise* the locality. These processes, particularly around the abortive Pietermaritzburg referendum, are analysed in some detail. It is shown that the lack of a coherent "local" project led to a stalemate situation.

Furthermore the attempts to re-organise the locality had important implications for the organisation of the "nation". Consequently national and regional actors tried to intervene in this process. This relationship between actors organised at different spatial scales can be analysed as the attempt by different actors to overcome their particular forms of local dependence.

What these processes indicate is the way in which neighbourhood, local and national change emerged out of the intersecting projects and "life-paths" of neighbourhood, local, regional and national organisations. The "gaps" in South African spaces can therefore equivalently be seen as reconfigurations in these spatial actors.

### **Local dependence and white neighbourhood organisation**

The idea that spaces can become defined through a process of organisation is not new in the literature. Castells was the first author to systematically draw attention to the importance of neighbourhood organisation. In "The City and the Grassroots" he suggested that such

organisations could alter the "meaning" of an urban area. Harvey and the literature on growth coalitions in turn drew attention to the link between organisation and the definition of localities and/or regions.

This literature has given rise to the question under what circumstances the organisation of a space becomes likely. Castells provided an abstract answer in terms of the number of "contradictions" faced by the residents of an area. This answer is not all that helpful, since it is not clear how such contradictions can be identified *independently* of actual organisation around them.

Cox and Mair (1988) introduced the concept of local dependence to characterise the way in which people relate to a particular area. Local dependence is said to exist in situations where companies or individuals are tied in to particular relationships which are geographically constrained. In the case of companies, they might be locally dependent because they have large fixed investments in an area, or because they rely on networks of suppliers and clients which are concentrated in an area and would be difficult to replace. Cox and Mair suggest that these kinds of local dependence are at the heart of the emergence of local growth coalitions - to foster development and so protect the investments of the companies.

As far as the local dependence of people is concerned, Cox and Mair suggest that there are two kinds: traditional and modern. Traditional dependence exists where the exercise of particular traditional roles or practices is tied to a *particular* place (e.g. the spot where one's ancestors are buried). However, even in modern societies forms of local dependence are likely to emerge:

[The] specific social relationships constructed around the living place tend to become difficult to reconstitute elsewhere. Children "settle" into schools and a move is experienced as dislocating. Baby sitters are located, as are parks, athletic clubs, insurance agents, stockbrokers, tax accountants, car parking, travel agents, doctors, dentists, pediatricians, and the spatio-temporal routines necessary to use these services. Within capitalism, people, like firms, construct relationships that are difficult to

substitute and therefore difficult to replicate elsewhere. (p.313)

Nevertheless not all people or companies are equally dependent on a particular space, i.e. neighbourhood, locality or region. One would therefore expect differences in the degree of local dependence to affect the willingness of agents to become organised in defence of that space.

This argument is given some initial support by survey evidence from Pietermaritzburg (D.S.R.G. 1990). Respondents who interacted frequently with their neighbours, i.e. who were more integrated into the neighbourhood, tended to be more opposed to changes to the Group Areas Act (see Table 2).

The degree of neighbourhood interaction was not itself correlated with any of the other characteristics which influenced attitude. Interestingly enough these characteristics themselves can be related to the issue of local dependence. Education, for example, proved highly significant (see Table 3). This can be interpreted as a straightforward result of the "mind broadening" effects of education. It can also be seen a class effect - the more educated

**Table 2** Effect of neighbourhood interaction on attitude

	Interact with neighbours	
	Daily	Less than monthly
Should there be group areas?		
Don't know	6.7%	10.5%
No	42.2%	65.8% *
Yes	51.1%	23.7% **
Residential areas should be		
All open	44.4%	62.9%
Some open, some closed	26.7%	31.4%
All closed	28.9%	5.7% **
The Group Areas Act should be		
Abolished	44.4%	54.1%
Relaxed	22.2%	37.8%
Strengthened/Remain as is	33.3%	8.1% **
Should Pietermaritzburg be opened?		
Don't know	4.3%	10.8%
No	47.8%	16.2% **
Yes	47.8%	73.0% *

Note:

There were 57 people in the sample who said that they interacted daily with their neighbours, and 38 who said that they interacted with their neighbours less than once a month or never.

Source: D.S.R.G. 1990

\* difference in proportion is significant at the 5% level

\*\* difference in proportion is significant at the 1% level

members of the community are likely to have good jobs and higher incomes. They are therefore more cushioned against the effect of the lifting of racial restrictions. Importantly, however, University educated people also tend to be less locality bound. Through their education they are more likely to have made contacts in other places. Furthermore their skills are more transferable and they are more likely to have access to the resources required to make a start in another place.

Another variable that proved to be highly correlated with attitude to neighbourhood change was home language. People with Afrikaans as their main language were consistently more conservative than their English-speaking counterparts (see Table 4). Admittedly this result is based on a very small sub-sample of Afrikaans speakers, but similar results have been documented elsewhere (Schlemmer n.d., pp.8-9). Interestingly enough, home language was one of the few variables which influenced people's response to the question whether or not they wished their area to be opened even if the rest of the city remained segregated. There were no measurable differences in the educational attainments (or in other social characteristics) between the Afrikaans and English sub-samples, so it is clear that home language is an independent determinant of political attitude.

Table 3

Effect of education on attitude

	Educational level		
	1	2	3
Should there be group areas?			
Don't know	10.9%	6.4%	5.8%
No	32.8%	61.7% **	65.2% **
Yes	56.3%	31.9% **	29.0% **
Residential areas should be			
All open	30.6%	57.4% **	61.2% **
Some open, some closed	40.3%	31.9%	31.3%
All closed	29.0%	10.6% *	7.5% **
The Group Areas Act should be			
Abolished	33.3%	49.0%	61.2% **
Relaxed	28.8%	30.6%	29.9%
Strengthened/remain as is			
Should Pietermaritzburg be opened?			
Don't know	16.1%	10.2%	10.1%
No	43.5%	30.6%	21.7% **
Yes	40.3%	59.2% *	68.1% **

Note:

Education level 1 - Matric or less

Education level 2 - Post-matric diploma (excluding technical/artisanal qualifications)

Education level 3 - University experience

\* denotes that the difference in proportion (compared to level 1) is significant at the 5% level

\*\* difference in proportion (compared to level 1) is significant at 1% level

Source: D.S.R.G. 1990

The difference between the English and Afrikaans-speaking community cannot be attributed to the fact that Afrikaners are intrinsically more racist, because, in fact, segregation was a central feature of British colonialism (see King 1976). It can be suggested, however, that the Afrikaans community is more locally dependent. White English-speakers would find it comparatively much easier to make a new start in other parts of the world than Afrikaans-speakers would.

However, the issue does not seem to be the mere practicality of moving - the tedium of finding new "baby sitters, parks, athletic clubs or insurance brokers". After all, the Afrikaans-speakers in Pietermaritzburg are all very fluent in English as well. What seems to distinguish the two linguistic communities at a more fundamental level is the question of how their *identity* is bound up with particular spaces. The identity of Afrikaners as members of a specific community is propagated and maintained through a set of institutions (Dutch Reformed Church, Afrikaans-medium schools, the Voortrekkers) and practices which are more neighbourhood bound<sup>2</sup>. They are, of course, also bound to the country of South Africa.

The White English-speaking community of South Africa arguably never organised itself as a distinctive grouping. Its identity from the outset was tied to a broader imperial framework. The identity of an English-speaking white South African is therefore arguably not as dependent on the spaces of South Africa's neighbourhoods. If anything, it would be reconfirmed through the TV, movies and newspapers (e.g. the shenanigans of the British royal house; British soccer and cricket results etc.).

Of course this is an abstraction. There are many concrete white English-speakers who are as dependent on particular neighbourhoods as their Afrikaans compatriots. Nevertheless the point is that such local dependence would have influenced the willingness of these individuals to countenance neighbourhood change.

The issue, of course, is not only attitudes but neighbourhood organisation. Nevertheless it

seems clear that these attitudes did reflect themselves in the response of neighbourhood organisations to spatial change. There were two indicators of this: in the 1987 municipal elections a conservative grouping of councillors came to power. One of the issues on their ticket was to maintain "standards" in Pietermaritzburg. Significantly the wards which they won were also the areas which in the D.S.R.G. survey were most conservative and arguably showed the greatest degree of "local dependence". Secondly, residents' committees in these areas continued lobbying these councillors at the time (1990) that the issue of deracialising the city became acute. One of the outcomes of this pressure was the scuppering of the referendum on the possibility of "opening" the city (discussed below).

This form of neighbourhood organisation therefore certainly had some clout and affected social processes within the entire locality. Nevertheless like all forms of social organisation

**Table 4** **Effect of Home language on attitude**

	Afrikaans	English
Should there be group areas?		
Don't know	9.5%	8.1%
No	4.8%	56.8% ***
Yes	85.7%	35.1% ***
Residential areas should be		
All open	10.0%	52.7% ***
Some open, some closed	60.0%	33.5% *
All closed	30.0%	13.7%
The Group Areas Act should be		
Abolished	10.0%	51.9% ***
Relaxed	30.0%	30.5%
Strengthened/Remain as is	60.0%	17.6% ***
Should Pietermaritzburg be opened?		
Don't know	14.3%	12.5%
No	71.4%	27.2% ***
Yes	14.3%	60.3% ***

Note:

There were 23 Afrikaans and 203 English speakers in the sample

\* difference in proportions is significant at the 5% level

\*\* difference in proportions is significant at the 1% level

\*\*\* difference in proportions is significant at the 0.1% level

these neighbourhood committees were also vulnerable to disruption and reconstitution.

Perhaps the starkest example of this could be seen in the central area of Pietermaritzburg, the ward of Thora Alva-Wright, one of the leading conservatives on the city council. At the same time that she was campaigning on behalf of her neighbourhood to keep group area restrictions in place, large numbers of residents in the ward were selling their property to Indians in defiance of the Act (Wittenberg and Doba, 1991)

### **Indian neighbourhood organisation and the rates campaign**

While neighbourhood committees had existed in the Indian areas for a long time, their degree of organisation swelled remarkably after the announcement of hefty rate increases in August 1989. These increases were the consequence of the five-yearly revaluation of the city, which had disproportionate effects in the coloured and Indian group areas. Land values in these areas increased, on average, 115% and 106% respectively, whereas the increases in the White areas were only 20%. As a result, Indian and Coloured ratepayers faced rate increases of 53% and 43%, on average, whereas the average increases for White ratepayers amounted to a mere 8% (Wittenberg, et al, 1989).

The Group Areas Act was immediately identified as the culprit. The relative shortage of land available for development in the Indian and coloured areas, together with a relative surplus of space and accommodation in the White areas meant that property values in Indian and coloured areas were at a premium. In fact the differences were sufficiently acute that by August 1989 small groups of Indians were starting to acquire properties illegally in the "white" group area of Pietermaritzburg at prices significantly above their original market value.

The Pietermaritzburg Combined Residents' and Ratepayers' Association (PCRRA) immediately launched a campaign calling for the scrapping of the Group Areas Act and a

revision of the rates system. After a series of packed community meetings, this peaked in a protest march to the City Hall on Monday 30 October 1989. This march was remarkable in that it managed to mobilise thousands of Indian and Coloured residents, sections of the Pietermaritzburg community not otherwise noted for their militancy. The intensity of the mobilisation startled the City Council. The Mayor admitted that he had been "a very frightened man" on that day.<sup>3</sup>

This form of mobilisation can be seen as a response to a form of "local dependence" enforced by the operation of the Group Areas Act. Indian and coloured ratepayers were effectively locked into a set of spaces from where it was impossible to escape to less heavily taxed areas. Given that economic conditions in 1989 were relatively tough, organisation to resist this group areas "surcharge" on their taxes was the only option.

The strength of this neighbourhood mobilisation had immediate effects, although central and provincial government washed their hands of the issue. As councillor Gillooly complained:

The Government now admits that the Group Areas Act is causing a problem but then leaves it up to local authorities, who have no authority regarding the act, to sort everything out. (NW 2/11/1989)

In order to defuse the pressure the City Council looked at various possible forms of concessions to Indian and coloured ratepayers. Clearly, however, this implied either cuts in the overall City budget, or a shift in the rates burden towards white ratepayers - who were themselves complaining about the size of their own rates contributions. The threat of a rates boycott on the part of Indians and coloureds increased this pressure. With no assistance from other levels of government on the cards, the City Council was caught between the militancy of the Indian neighbourhoods on the one hand, and the reticence of its own support base to compensate for these effects of segregation on the other. Eventually the city council opted to grant a limited rebate to Indian and coloured ratepayers. The form of this concession was that rate increases would be capped, i.e. no ratepayer would have an increase of more than 40%. The PCRRA argued that this concession was not enough, and embarked on a rates boycott.

## **Attempts to re-organise the locality**

The crumbling of the Group Areas Act (intensified by the rate increases) together with the rates campaign highlighted the fact that the existing model of the locality was in deep crisis. Indeed all members of the city council were in agreement that some form of reorganisation of the locality was called for. Nevertheless there were at least three possible models for such a reorganisation.

Firstly, it was possible to reform within the framework of "Free Settlement Areas" as proposed by central government. This model involved the creation of formally designated "grey" areas alongside the existing group areas. Because this option implied the maintenance of group areas where this was feasible, it was the preferred solution of the conservative group of councillors.

The second option was to abandon the group areas model altogether and to allow people who could afford to do so to buy property wherever they wanted to within the city. This was the model preferred by the mayor, particularly in the light of his face-to-face encounter with the rates protestors:

[W]hat's caused the problem? It's apartheid. So therefore, to apologise for apartheid we pay a rebate. So that's why I say that I'm sick and tired of apologising for apartheid. Let us look forward to a non-racial city where anyone can live where they like and then only those who can prove, and they must prove, that they suffer hardship will get a rebate. ... I'm tired of everything coming back to race. The people in the White areas could have objected as much as the people in the Coloured and Indian areas. (Cornell interview)

The third option was to restructure the borough of Pietermaritzburg itself. This would have involved not only the abandonment of the Group Areas Act, but also the reincorporation of the African townships into the "locality". This model was punted by the PCRRRA and was also endorsed by certain councillors aligned to the Democratic Party.

Given that all groupings on the city council were in agreement that *some* form of restructuring was necessary, the key issue was only what kind of reform? In this context, the mayor introduced the idea of holding a referendum to test the opinion of Pietermaritzburg ratepayers about whether or not group areas should be maintained.

### **The Pietermaritzburg Referendum**

The idea was first aired publicly on December 6 1989. The Natal Witness reported that the mayor, Mark Cornell, had said that he would ask the City Council to consider holding a referendum to determine whether the city should be opened or not. He was quoted as motivating the proposal as follows:

I am tired of paying for, and apologising for, apartheid and believe that at grassroots level people should be made aware of the cost of maintaining legislation like the Group Areas Act. Subsidising rates in Indian and coloured areas, for instance, is apologising for the Group Areas Act and costs us all extra money, when in fact events have already overtaken the law. At least 300 Indians have bought homes in the city's white areas through using various backdoor methods. (NW 6/12/89)

This recommendation was discussed by the Executive Committee of the City Council the following day, and the full city council unanimously endorsed this suggestion on the 14th December. It was decided that the referendum should take place on January 24 1990, so that it could have some influence on F.W. de Klerk's opening of Parliament speech. At that stage rumour had it that President de Klerk intended making an announcement in regard to the future of the Group Areas Act and Local Government.<sup>4</sup>

The question which was to be posed in the referendum was "Should persons of any race be entitled to acquire and/or occupy premises in any part of the City?". Participation in the referendum was to be open to any municipal voter.

Despite this apparent unanimity within the city council, there were actually profoundly differing interpretations of what the referendum meant. The mayor seems to have viewed it merely as a test of opinion. Although he hoped for a "Yes" vote, he certainly did not campaign for it. This curious laissez-faire attitude to his own initiative probably reflects the fact that he saw the main purpose of the referendum as being to deflect attention away from the city council (and himself as mayor) towards central government as the root cause of the crisis in Pietermaritzburg.

The conservative councillors also interpreted the referendum as a mere opinion poll. Such a test would settle the matter as to what ratepayers thought and would therefore act as a counterbalance to the pressure from various liberal quarters. Furthermore they assumed that because the referendum was organised along ward lines, the views of the ward would be taken into account. In other words, if their ward voted "No" this would be justification for that ward to remain closed<sup>5</sup>. This kind of thinking can be discerned in a comment by Brian Edwards, chairman of the Pietermaritzburg South National Party constituency council and city councillor. He welcomes the referendum:

because we need to see what feelings are. It is important that it is being done on a ward basis as then it will be possible to interpret the needs of the various communities. As far as a Yes or No is concerned we have no fixed ideas. We are looking for guidance from the white electorate and it will be interesting to see what the coloured and Indian communities have to say. (NW 13/1/1990)

The local National Party therefore seems to have seen the referendum as perhaps a way of fine tuning the administration of Pietermaritzburg within the framework of Free Settlement Areas. Furthermore it could test to what extent liberal councillors really represented their wards. Not least, it might even demonstrate some support for group areas among coloureds and Indians.

The liberals on council, by contrast, saw the referendum as an opportunity to push forward the broader campaign for the deracialisation of society. Unlike the mayor, they did not believe

that the bulk of residents would vote in favour of change if left to themselves. Furthermore the referendum could never be a simple test of opinion - a "No" vote would send such negative messages to Pietermaritzburg's black community that it would lead to major social disruptions.

The liberals were therefore unequivocally committed to campaigning on the issue. In this regard they faced a problem, however. Because of the apprehensions among white voters about the effects of the abolition of group areas, this campaign had to be handled circumspectly. In particular, it was very important to reassure these voters and to present a viable vision of a new non-racial urban culture. This, however, required the participation of legitimate "black" organisations in such an "open city" campaign. Overtures were therefore made to various organisations in the black community with a view towards forming an all-embracing campaign committee. Because the "Mass Democratic Movement" was facing its own internal debate about how to handle the referendum, these organisations did not respond to these approaches<sup>6</sup>. The reformists were therefore left in the unenviable position of trying to launch a campaign extolling the virtues of non-racialism but without a credible black presence within it.

They faced a further problem. Obviously the referendum offered the opportunity to increase pressure on the De Klerk government to speed up reform. At the same time, if the referendum was seen as a ploy to discredit the government it might provoke the National Party to campaign for a "No" vote. The "swart gevaar" tactics which this would bring with it, would severely damage the chances of winning the referendum. The problem was therefore how to achieve political pressure through the referendum without "politicising" it. This meant, for example, that the Democratic Party chose to stay aloof from the fray<sup>7</sup>. In the absence of a clear party-political input and without a non-racial "open city" committee to spearhead a broad "civic" campaign, the problem of finding an appropriate campaigning organisation became critical.

These problems were never resolved, but with the referendum approaching and with little

done from any side to stimulate debate about the issues, liberals were facing the prospect of the referendum occurring without any process of political education. As Rob Haswell<sup>8</sup> put it

People began to really fear an apathetic referendum, and particularly a "No" vote under those circumstances. People began saying, "Look, yes it would be nice to have a 'Yes' vote, but it would be an absolute disaster to get a 'No' vote". So the prospect of a "No" vote became more important than the question of how to get a "Yes" vote. And if you look at the Democratic Party, the Witness, the Chamber of Commerce, they were all saying, "If we sit back and keep quiet, and keep neutral, then we have to take what happens". (Interview 23/1/1990)

In this context a feature article "What a Yes or No will mean" appeared in the Natal Witness (NW 13/1/1990). The article clearly supported the deracialisation of the city. Three days later a full-length advertisement entitled "The eyes of the world will be on Pietermaritzburg on Wednesday the 24th January" appeared. Significantly, no source was given, although it was rumoured that the D.P. had organised the advertisement.

The message of the media campaign was that a "No" vote would be absolutely disastrous. It had the effect, however, of also galvanising the right wing. As Ron Robbins explained:

I ... thought that the referendum would clear the matter once and for all. That was based on the fact that on our election the question of an open city did come up and I, personally, am not in favour of an open city until such time as there are more adequate facilities. I do like the idea of Free Settlement Areas [to be newly built]. ... and then when we all had a chance to think about it, we saw these big advertisements in the press "Vote Yes". That is when I think most people put their thinking caps on and said "Steady on. What is this going to mean to me as an individual?" And that is when the people started talking to me, "What are you, as a councillor going to do to protect my right to a quiet environment and a healthy environment?" (Interview)

What the liberal propaganda (limited as it was) had brought home was that if the referendum

returned a "Yes" vote overall, it would be politically impossible to resist the opening of the entire city. Liberal pressure would see to that.

As a result, individual National Party councillors started calling for a "No" vote (see letter by Gerrit Meyer to the Natal Witness, 18/1/1990). The Pietermaritzburg branch of the National Party also attacked the referendum itself. It claimed that the referendum had no legal standing.

It does not spell out the constitutional implications of the proposal nor does it indicate how, if at all, existing interests will be protected. It also does not put all the possible alternatives before the voters. It is a question of all or nothing and is, therefore, totally unreasonable. (DN 18/1/1990)

In the context of a faltering liberal campaign and a gathering right wing backlash, the Natal Witness complained:

[T]he main feature of the run-in to the January 24 referendum has been a lack of understanding of the issues involved. Instead of reasoned debate and rational argument, public discussion has been limited almost entirely to the placing of the occasional advertisement and the publication of readers' letters in this newspaper.

The contribution of those public persons most closely connected with the poll has been minimal. Indeed, the mayor, whose brainchild the referendum was, has been on holiday in Australia during most of the campaign. The political parties, to whom the public might look to for guidance, have maintained an uneasy silence, while the MEC for Local Government has labelled the venture ill-conceived, ill-timed and a non-event.

As a result, debate on the referendum has seldom risen above superficial and emotional levels. Intelligent ratepayers, hungry for solid information, might well be inclined to throw up their hands and cry "Why bother?"

All of this is a consequence of the haste with which the idea of the referendum came into being, and the lack of clarity about the reasons behind it and the campaign as a whole. (NW 18/1/1990)

On the same day that this editorial appeared, the National Party in Natal came out with a public call for a "No" vote. Following this announcement, a special meeting of the City Council was convened the next day, at which it was decided to cancel the referendum.

This scuppering of the referendum can be read as the admission of a stalemate - none of the projects for restructuring the locality could muster sufficient support to impose itself. The conservatives would not be able to achieve reform in the direction of "Free Settlement Areas" through the referendum, and they were not going to allow the deracialisation of the entire city. In this context a non-decision was everyone's preferred alternative. In the words of Deputy Mayor Pat Rainier:

Pietermaritzburg people didn't want to make a decision. They were quite happy to leave the fifteen of us to make decisions and then criticise us. And that's what it boiled down to. (Interview)

## The Locality and the State

The intervention of the Natal National Party in calling for a "No" vote indicated that regional and national politicians took a great interest in the Pietermaritzburg referendum. Indeed, one of the issues at stake in the referendum was the relationship between the locality and the state.

As indicated earlier, the mayor wanted to deflect some of the pressure emanating from the crisis of urban apartheid towards central government. In fact he was quite frustrated with his position:

But at third tier government level, we have been left in such disarray by these changes, ad-hoc decisions, no decisions, at first and second tier government, that I have thought it was our position to take a stand. When I get to the N.M.A.s [Natal Municipal Association] and U.M.E.s [United Municipal Executive] it frustrates me, because as soon as you want to talk about an item such as the Local Affairs Committees and their meaningless role and how to make it more meaningful, you get

told that is an own affair or a general affair and you can't discuss it. But we deal with these on a daily basis. ....

So without becoming antagonistic, an enemy of the state or second-tier government, ... I was also not willing to be pushed around any more. I've been fobbed off too many times with "That's not your problem, we'll sort it out for you". ... They've [i.e. the government] said, "You won't have this system [LACs] by the next election". They've said that since 1988 and that is now one-and-a-half years down the drain, and we haven't heard anything new. (Cornell interview)

The Town Clerk expressed similar sentiments:

We've had the [present local authority] system for twenty odd years now, but nobody really believes that that kind of system should be perpetuated, but nobody has told us what the ultimate goal is, so you can't take the steps to get there. (Nicol interview)

With this lack of clarity about the future status of the Group Areas Act and the structure of local government, the City Council clearly was unsure about how to respond to challenges to urban apartheid. In the words of Mark Cornell:

We are the ones with the egg on our faces if it goes wrong, not the ones who drew up the laws. (Interview)

The calling of the referendum was therefore a deliberate attempt to put pressure on central government. The fact that *all* residents of the borough of Pietermaritzburg (and therefore coloured and Indian residents) were to be included in the referendum could be seen as an attempt to stack the odds in favour of a "Yes" vote.

The fact that the referendum was an attempt to pin down higher levels of government was not lost on them. The Minister of Planning, Hernus Kriel, wanted to be personally reassured by the Democratic Party Members of Parliament, Mike Tarr and Rob Haswell, that the referendum was not a devious D.P. plot to embarrass central government (Haswell interview 23/1/1990).

Peter Miller, the Member of the Executive Council in charge of local government, came out saying that the referendum was ill-conceived, ill-timed and in the context of the overall developments in the country a non-event<sup>9</sup>. He said that the direction of reform would not be significantly affected by the referendum result.

Whatever the result (it) could be harmful to improving community relations ... and this depends particularly on how the result is interpreted and used by individuals and organisations. (NW 16/1/1990)

Val Volker, Natal's senior MEC said that the referendum gave the impression of being superficial and inadequately prepared. He also said

The referendum to be held in Pietermaritzburg deals with a matter where the city council has no legal standing. The outcome of the referendum will also have no legal standing. (NW 18/1/1990)

### **The intersection of organisational paths**

The outcome of the Pietermaritzburg referendum can therefore be seen as the result of actions by agents organised within different spaces. The rise of Indian neighbourhood organisations sparked off a crisis for the Pietermaritzburg locality, leading to the search for an appropriate way in which it could be re-organised. This in turn prompted resistance from certain white neighbourhood organisations.

One of the ways in which these white residents' committees intervened in the conflict was by appealing to regional National Party politicians. The intervention of these regional organisations then led to the scuppering of the referendum. Subsequent change within these regional and national actors (as a result of national negotiations) in turn re-opened the space for local change.

This interaction between different spatial actors can be seen at least partially as a conflict about the *terms* of local dependence. Cox and Mair have drawn attention to the ways in which

spatial scale can enter into political engagements:

the local power of actors is, in part, related to their extralocal relationships: it is thus inversely related to their local dependence. Because of connection to wider scale networks, the leverage which different agents are able to bring to particular local issues varies. To the extent that agents have extralocal alternatives or can draw on extralocal sources of social power - a national labour union in the case of labour, or a national political party, perhaps - their ability to prevail in local politics may be enhanced.

As a result of the utility of extralocal sources of power as potential means of emancipation from the problem of local dependence, many of the more fundamental local political issues are ones in which the very localisation of social structures, and hence local dependence itself, are, in effect, the objects of conflict. Some actors will try to emancipate themselves from local dependence through insertion into those geographically wider social structures which will give them greater local leverage. ...

As local actors reach up the scale division of labour to capture for themselves or create new powers, they may simultaneously seek to entrap their local antagonists at the local scale: to maintain the latter's local dependence. (Cox and Mair 1991, p.203)

The relationship between the city council, national government and neighbourhood associations demonstrates some of the ways in which these processes worked. Another example is the attempt by the PCRRA to forge a broader alliance with organisations in the African areas. Such an alliance was intended to challenge the whole racial nature of the locality. After the referendum was cancelled, Yunus Carrim, the PCRRA publicity secretary went on record as saying:

The initiative now passes into the hands of the broader democratic movement, and the momentum created by the campaign is likely to be taken forward into a fully blown open city campaign by the major sectors of the democratic movement. (S.Trib 21/1/1990)

The creation of such a broader alliance would clearly have enhanced the power that the

PCRRA could have brought to bear on its dispute with the city council. In effect the PCRRA tried to submerge itself into a new agent operating with a more extensive territory and therefore having additional capacities.

This project of the PCRRA was, however, not successful - mainly because the concerns and organisational culture of neighbourhood associations in the African areas was simply too different to sustain a comprehensive open city campaign. In a sense, the organisational paths of these agents was too different to allow for coalescence.

### **Organisational and individual life-paths**

Cox and Mair's work therefore draws attention to the fact how the interaction of organisations can lead to the creation of new agents or the reshaping of existing agents. In other words when two organisational paths intersect one would expect that the subsequent trajectories of the agents bears something of the imprint of their encounter.

Of course organisations are made up of individual agents. Consequently organisational paths and individual life-paths also intersect in complex ways. At one level this means that the trajectories of individuals will leave their mark on the organisation. As an example of this, the fact that many white residents within the central area of Pietermaritzburg ended up selling their houses to Indian buyers led to the demise of Thora Alva-Wright's organised support base.

Similarly the fact that more and more Indians defied the Group Areas Act by moving into white neighbourhoods, led to a sapping of the strength of Indian neighbourhood organisations. Changes in the strength of the PCRRA were also brought on by the fact that in 1991 the city council decided to change the basis on which the rebate to the Indian group area was given. Whereas in the previous year it had capped the rate increase at 40% it now decided to grant a 20% across the board reduction to all Indian ratepayers. Now many of the wealthiest

ratepayers had also had the highest rate increases. They were therefore incensed by this change in the rebate and wanted to re-escalate the campaign. On the other hand, they were also best able to meet the increase and less wealthy Indians were happy to get the increased benefits. Class differences within the Indian community therefore meant that the civics did not have a unanimous view on whether or not the new rebate system was preferable to the old.

Furthermore, while most of the middle-class and wealthiest Indians supported the rates boycott, many of the poorer members of the community felt less equipped to resist pressure from the city council for payment. As the public momentum of the rates campaign waned and as it shifted onto the legalistic terrain of a Supreme Court challenge, the resolve of more and more ordinary residents weakened.

The way in which individual life-paths organised themselves into and out of neighbourhood associations therefore affected the kind of activity which could be sustained. It can be argued, however, that neighbourhood organisation in turn also left its mark on the life-paths of individuals.

In the literature this kind of influence is referred to as the "neighbourhood effect" (Bowler 1991; Kenny 1991). The evidence suggests that attitudes of individuals are influenced to some extent by the people that they habitually interact with. One would therefore expect that the character of one's neighbourhood, and in particular involvement in a neighbourhood association, would lead to changes in the way that one constructs oneself as an agent.

There is some evidence that these kind of processes were at work in Pietermaritzburg neighbourhoods. The most tantalising glimpse of this is perhaps provided by the Pietermaritzburg survey of white attitudes, where there is an interesting association between the degree of ethnic homogeneity of an area and attitudes to desegregation. If the white suburbs of Pietermaritzburg are ranked according to the proportion of English residents of the area, and if they are also ranked according to the proportion of residents who indicated that

they wished residential segregation to remain, a very strong correlation is found. In other words those white suburbs who have the highest proportion of English residents also have the lowest proportion of residents wishing to retain segregation.

The interesting feature about this relationship is that it holds up even if only responses by English-speakers are analysed. In other words, our evidence suggests that English-speakers living in areas with a relatively larger Afrikaans population are more conservative than English-speakers living in a purer English-speaking environment. The Spearman rank correlation co-efficients are given in Table 5. The Table also shows that the proportion of people with University experience does not have an equivalent effect.

There seem to be two ways of interpreting the result<sup>10</sup>. Firstly it is possible that the ethnically most homogeneous suburbs (i.e. the ones with the highest concentration of English-speakers) also have the most cohesive social networks. Consequently residents in these areas might feel that they are better placed to control processes of residential change. Secondly, it is possible that English-speakers in areas which have a larger clustering of Afrikaans-speakers are affected by the more conservative environment in which they live. On either interpretation the structure of neighbourhood organisation has an effect on people's attitudes, i.e. on their perceptions of the social system and their place within it.

Table 5

Neighbourhood effect on attitudes

	English	University
Objecting to area being opened	r = .563 p<0.10	-.253
Objecting to Pietermaritzburg being opened	.628 *	-.148
Different groups should live in different areas	.631 *	-.001
All areas should be reserved for particular groups	.617 *	-.243
The Group Areas Act should remain as is/be strengthened	.727 *	-.497 p<0.10
Object to African neighbour	.687 *	-.012

Notes:

1. Areas were ranked on the attitude scores from highest proportion of conservative respondents to lowest, while on the "English" score they were ranked from lowest to highest. The positive correlation coefficients therefore mean that a low rank on the attitude score (i.e. high proportion of conservatives) is correlated with low rank on the "English" score (i.e. lower proportion of English).
2. The "University" scores were ranked from highest proportion of respondents with University experience to lowest.
3. The ranks for the attitude scores for the correlation with the "English" scores were worked out only over the population of English-speakers.

## Conclusion

It has been argued that the processes by which neighbourhoods, localities and regions become constituted as agents are crucial for the understanding of the processes of change. The concept of local dependence is a useful tool in exploring how this process of organisation happens.

Once a space has become organised, however, this has important effects. The creation of new agents (or the transformation of old agents) has important implications for the distribution of power. In the case of Pietermaritzburg the mobilisation of Indian communities precipitated a crisis in the organisation of the locality. This crisis prompted the emergence of different re-organising projects, none of which was initially strong enough to recast the locality. The particular outcome of this constellation of forces depended crucially on the way in which actors organised within *different* spaces interacted with each other.

This interaction can be understood as a contest over the terms of local dependence. Equivalently it can be seen as the attempt by different organisations to redefine their territory. The intersection of two organisational paths can therefore lead to spatial and organisational change.

A redefinition of territory and organisational path can, of course, also happen through changes in the ways in which individual life-paths intersect with those of the organisation. This is, however, not only a one-way relationship, because organisation can in turn affect the life-paths of its constituent members.

Change in the case of Pietermaritzburg can therefore be seen to flow from the complex ways in which life-paths and organisational paths have interacted.

## Notes

1. This suggests why the "race-class" debate in South Africa ended up being so sterile.
2. It is interesting to note that the mass-media, particularly Television, seem to be playing an increasingly important role in constituting Afrikaners as a community. Perhaps this made the old territorial framework of apartheid less important for the maintenance of cultural identity.
3. In the opening address to the Pietermaritzburg 2000 Conference "Pietermaritzburg as an Open City - The Implications", held on Monday 22 January 1990.
4. Interview with the Mayor, Mark Cornell, 13 February 1990
5. In fact, it had originally been proposed to run the referendum around two questions: a) Do you want the entire city to be opened; and b) Do you want your ward open? (Haswell interview 23/1/1990). These questions were, however, reduced to just the one, i.e. whether the entire city should be opened, because of difficulties of interpretation if a person answered "Yes" to the first question and "No" to the latter.
6. The MDM was divided about the appropriate response to the referendum. On the one hand a grouping of activists, many of them based in the Natal Indian Congress and the PCRRA, argued that the City Council's decision to call a referendum should be seen as a victory for the rates campaign, and that the best way to keep the pressure on the state and the City Council would be to participate in the referendum and so to ensure that there would be a massive "Yes" vote in the Indian and Coloured areas. Furthermore, the danger of non-participation was that the conservative sections of these populations would vote in any case, and this might lead to an overall "No" vote, although on a low poll. This would be disastrous for the cause of deracialising the city.

Another grouping based to some extent in the Trade Unions argued that the referendum should be boycotted because it did not involve all residents of Pietermaritzburg. Furthermore the issue of purchasing properties in White areas was not seen as the most central urban issue facing the majority of residents of greater Pietermaritzburg.

Another issue around which there was debate was whether the deracialisation of a city was an issue which could be addressed at the local level, or whether it was an issue which could *only* be addressed by means of nationally co-ordinated campaigns. These debates could not be resolved by the time the referendum was eventually scuttled. In the meantime the PCRRA did, however, issue a call on White voters to vote in favour of opening the city.
7. It also meant that the two Democratic Party Members of Parliament for Pietermaritzburg, Rob Haswell and Mike Tarr sought an interview with the appropriate minister, Hernus Kriel, to reassure him that the Democratic Party was not behind the referendum and that the referendum was not an attempt to embarrass the government. Instead they presented the referendum as a genuine attempt by local people to come to grips with the specificities of local problems.

8. At this time he was both a City Councillor (and leader of the informal Democratic Party caucus in the City Council) and D.P. Member of Parliament for Pietermaritzburg South.

9. Although Peter Miller was speaking on behalf of *provincial* government, the second tier was at this time an appointed level of government. He was therefore echoing central government views.

10. One could of course also argue that the trend is spurious, a mere artefact of the data.

## Conclusion: Society, Space and Change

In the last few chapters social change in South Africa has been viewed both from the perspective of the *spaces* through which it was organised as well as the organisational and life *paths* by which it was arrived at. Of course these two perspectives are but different sides of the same coin. For example, South African neighbourhoods displayed a fractal character precisely because the life-paths of many black people went through these spaces. Similarly, the emergence of new agents or the transformation of existing paths is possible because people find new ways of "going on" within interactions. The fractal nature of the spaces of interactions is therefore a prerequisite for changes in paths.

Although complementary, these perspectives look at the nexus between social and spatial change from slightly different angles. The former, which might also be termed the "geographical" angle, emphasises the *spatial* or extensive nature of the connection. In other words, change arises due to processes of innovation at all spatial scales and across the breadth of the country. The latter, which could also be called the "historical" angle, emphasises the *temporal* nature of the connection. In other words, change arises due to the way in which the trajectories of organisations and individuals are reorganised.

Soja's argument (1989) that much of Western social science has emphasised history at the expense of geography can be seen as the complaint that paths have received more attention than spaces. Whatever the merits of this contention, it should be clear that an *adequate* description of paths cannot be an aspatial one.

Perhaps a more critical failing of much social theory, is that the description of paths and spaces that is presented is smoothed. In other words the contingent and chaotic processes which underpin socio-spatial processes tend to be ignored or repressed.

Of course this simplification is necessary. It is impossible to represent the full complexity of our interactions. Furthermore, the purpose of our narratives is not simply to describe reality, but to describe it in such a way that action and interaction within it become possible.

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### **b) Newspapers**

DN - Daily News

NW - Natal Witness

S.Trib - Sunday Tribune

### **c) Interviews**

Mark Cornell, Mayor of Pietermaritzburg, 13/2/1990

Rob Haswell, Pietermaritzburg City Councillor and Member of Parliament for Pietermaritzburg South (Democratic Party - subsequently defected to the African National Congress), 23/1/1990

Keith Nicol, Town Clerk of Pietermaritzburg, 2/2/1990

Pat Rainier, Deputy Mayor of Pietermaritzburg, 13/2/1990

Ron Robbins, Pietermaritzburg City Councillor, 14/2/1990

### **d) Survey data**

D.S.R.G. Survey 1990: This was a sample survey of white residents conducted in August 1990. The research was co-ordinated by myself and Simon Burton of the Sociology Department. The sample was extracted in a two-stage process, with an address first

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being randomly extracted from the municipality's consolidated billing list (water and light accounts). The fieldworkers were then instructed to hand the questionnaire to a person within the household, identified by a random number from among those over the age of eighteen. Altogether 242 questionnaires were filled out, which represented about 60% of addresses on the original sample. The reason for this discrepancy is due to addresses which could not be located, people not being at home, refusing to participate in the survey or omitting to return the questionnaire.