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978-0-521-03810-2 - The Limits of Settlement Growth: A Theoretical Outline

Roland Fletcher

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In this study Roland Fletcher argues that the built environment becomes a constraint on the long-term development of a settlement. It is costly to move settlements, or to demolish and rebuild from scratch, so the initial layout and buildings, and the associated forms of communication, may come to shackle further development and also to place constraints on social and political change. Using this theoretical framework, Dr Fletcher reviews world-wide settlement growth over the past 15,000 years, and concludes with a major discussion of the great transformations of human settlements – from mobile to sedentary, sedentary to urban, and agrarian urban to industrial. This book is an ambitious contribution to archaeological theory, and the questions it raises also have implications for the future of urban settlement.

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The limits of settlement growth

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ROLAND FLETCHER

University of Sydney

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A theoretical outline



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FOR DAVID AND ERIC, IN MEMORY

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I have considered it necessary for archaeologists to investigate the archaeological record as a different order of reality, the patterned structure of which represents not a simple accumulation of little events but rather some of the basic organisational constraints and determinants operating on the events or episodes of daily living. The archaeological record is therefore not a poor or distorted manifestation of 'reality' but most likely a structured consequence of the operation of a level of organisation difficult, if not impossible, for an ethnographer to observe directly. This level of organisation is likely to be the unit upon which evolutionary selection operates, rather than at the level of specific events. (Binford 1981: 197–8)

Certainly we will not be answering the questions archaeologists have traditionally asked . . . One thing is clear: no one will want to know. We have strong ideological commitments which none of us would like demonstrated to be wrong. Archaeologists are not going to receive much encouragement if we actually approach our goal. (Dunnell 1982: 21)

CONTENTS

List of figures page xi

List of tables xv

Acknowledgements xvi

Introduction xviii

Summary xxiii

PART I THEORETICAL CONTEXT

The role of the material as behaviour

1 **Archaeology, settlement growth and the material component of human behaviour** 3

The impact of the material on social life 3

Social theory and the role of the material 8

The current paradox of social theory 11

The current chasm between social and biological explanations 13

Filling the logical chasm: the role of the material 16

Conclusions 17

2 **The material as behaviour** 18

Defining behaviour 19

The behavioural role of the material 20

Non-verbal generative 'grammars' and the dynamics of the material 33

Conclusions 41

3 **A hierarchy of social explanation: locating the material** 43

Hierarchies of explanation for human behaviour 44

The hierarchical relationship between active and material behaviour 47

A redefined explanatory hierarchy: the scaling of constraints and selection in human behaviour 55

Implications of the hierarchy and indeterminacy 60

Conclusions 64

PART II THE LIMITS OF SETTLEMENT GROWTH

Behavioural stress and the material management of community life

- 4 The behavioural parameters of interaction and communication 69**
 Interaction–communication stress model: an operational uniformitarian proposition
 69
 The interaction–communication stress matrix 95
 Conclusions 97
- 5 Settlement growth trajectories 99**
 Identifying the interaction–communication stress field 99
 Settlement trajectories and behavioural stress 105
 Classes of settlement and trajectory 113
 Conclusions 124
- 6 Settlement growth transitions and the role of the material 126**
 The nature and occurrence of transition assemblages 127
 Studying the transition assemblage for the 100 ha C-limit 129
 Components of the 100 ha C-limit transition assemblage 134
 The behavioural implications of transition assemblages 151
 Conclusions 159

PART III IMPLICATIONS

Transformations and constraints of community life

- 7 The development of sedentism 165**
 The growth of mobile communities 165
 The initial formation of permanent sedentary communities: the restrictive scenario
 170
 An alternative gradualistic scenario for the development of sedentism 184
 Conclusions 187
- 8 The development of agrarian and industrial urbanism 188**
 The development of agrarian urban settlements 188
 The development of industrial urban settlements 203
 Conclusions 211
- 9 Future urban growth 213**
 Behavioural implications 213
 Trajectories of the future 219
 Conclusions 228

Technical notes 230*References* 246*Index* 272

FIGURES

Note: North is at the top of page unless indicated by an orientation arrow, or the statement 'no orientation'. Metric values added to illustrations previously calibrated in imperial units. Illustrations 'after Fletcher' have been edited, re-lettered and re-positioned to fit the format of this publication. No scale given for mobiliary items.

I.1	Conventional interpretative direction	xxi
I.2	Alternative interpretative direction	xxii
1.1	'Workmen's village' at Harappā, Pakistan, third-second millennium BC	4
1.2	Schematic view of constraints on intervisibility	5
2.1	(a) Ashanti and (b) Tallensi houses in Ghana	22
2.2	A Dagarti residence unit, north-west Ghana, 1970-1	24
2.3	San Ildelfonso, south-west USA, early twentieth century AD – differing visual perceptions by members of the community	27
2.4	Choriban, north Ghana, 1970-1 – sketch view of settlement with location of eating groups on the roof	29
2.5	Awatovi pueblo, south-west USA, seventeenth century AD	30
2.6	Awatovi pueblo, south-west USA, seventeenth century AD – distributions of distances used in the two residence patterns at Awatovi	32
2.7	Deir el Medina, Egypt, sixteenth century BC	34
2.8	Spatial signals, replication and increasing sample size in the East sector of the Top site – development sequence of eleven stages of building additions	35
2.9	Increase in gradient of variation with increase in number of residence units per settlement – a sample of Ghanaian settlements	38
2.10	Variation and loss of message coherence	39
3.1	Munyimba, a Konkomba settlement, Ghana, 1970-1	48
3.2	Large Anasazi sites, south-west USA, fourteenth century AD	53
3.3	Mug House, Mesa Verde, south-west USA, fourteenth century AD	54
3.4	Route access problems in the core area of Mug House	58
3.5	Plan view of the reduction in spatial field around doorways in Mug House from (a) the early phase to (b) the late phase shortly before abandonment	59
4.1	Exponential increase in potential interaction frequency as group size increases	72
4.2	Hypothetical interaction limit (schematic)	73
4.3	Interaction limits – a residential density index derived from densities in a sample of human communities from 700 BC to the 1970s AD	74

<i>List of figures</i>	xii
4.4 Residential densities by region	75
4.5 Local density limits for specific regions	76
4.6 Bracketing the position of the sedentary I-limit	78
4.7 'Mobile' interaction limit – detail	80
4.8 Hypothetical communication limit (schematic)	84
4.9 European and Indian urban size distributions in the nineteenth century AD	85
4.10 Pre-industrial capital cities – maximum size of compact agrarian-based settlements	86
4.11 Maximum growth rates for settlements 15,000 bc to twentieth century AD	88
4.12 Hypothetical successive C-limits (schematic)	89
4.13 Maximum regional densities – a proposed approximate position of the threshold limit	92
4.14 Low-density, dispersed, agrarian-based cities	93
4.15 Dispersed occupation	94
4.16 Interaction–communication matrix	96
5.1 Hypothetical settlement size distribution	100
5.2 World-wide site size distributions for agrarian small-scale communities	101
5.3 World-wide examples of the growth of site and settlement size distributions over time	102
5.4 Stability in maximum site sizes for compact and bounded sites in Europe, fifth to first millennium BC	103
5.5 Site size distributions for Egypt and south-west Asia in the Upper and Epi-Palaeolithic compared to period equivalent from the Dordogne in western Europe	104
5.6 Hypothetical probability of continuing settlement area increase in the interaction–communication matrix	105
5.7 Hypothetical residential density distribution	106
5.8 Residential density distributions for densities above 10 p/ha	107
5.9 Hypothetical probability of continuing density increase in the interaction–communication matrix	108
5.10 Hypothetical form of stress field in the interaction–communication matrix (schematic block diagram)	109
5.11 Density trajectories of the industrial urban transition in Europe	110
5.12 Hypothetical growth trajectories	112
5.13 Largest initial urban settlements in Mesopotamia, the Indus valley, north China, Mesoamerica and the South American montane littoral	114
5.14 Proposed examples of stasis settlements < 100 ha cf. Mari	118
5.15 Snaketown, south-west USA, c. 1000–1100 AD	120
5.16 Proposed examples of bypass settlements beyond the 100 ha C-limit	122
6.1 Relative size and growth of early industrial capital cities	130–31
6.2 Georgian terrace housing in the UK, eighteenth century AD – the Royal Crescent Bath, designed in 1767 by John Wood the Younger (Courtesy of Architectural Association slide library)	132
6.3 Settlement topography and intervisibility	134

<i>List of figures</i>	xiii
6.4 Baffles and barriers	135
6.5 Stored data	137
6.6 Stored data in Oaxaca, Mexico, first millennium BC	139
6.7 Differential access	141
6.8 Spatial signal redundancy	142
6.9 Kabaka's palace at Kampala, Uganda, nineteenth century AD	145
6.10 Spatial segregation of settlement space	147
6.11 Large linear monuments – scaled comparison	148
6.12 Relationship between different spatial messages	149
6.13 Hypothetical model of the constraints on growth	153
6.14 Poverty Point site features, southern USA, first millennium BC	158
6.15 Nan Matol, Micronesia, early to mid-second millennium AD	160
6.16 Cultural 'incipience' in contrast to transition	161
7.1 Different transitions across the 1–2 ha C-limit	167
7.2 Waitaki Mouth, New Zealand – core of moa hunter site, <i>c.</i> 110–150 AD	169
7.3 Anvik Point, Alaska, USA, nineteenth–twentieth century AD	170
7.4 Residential density gradients for mobile and permanently sedentary communities	173
7.5 Possible partial 'sedentary' trajectories	175
7.6 Different I- and C-limit positions	180
7.7 Villages in the Indian sub-continent – residential densities	185
7.8 Differences in growth trajectories according to the gradualist and restrictive scenarios	186
8.1 Cuicuilco, Mexico Basin, Mexico, early first millennium AD – schematic reconstruction from aerial photograph	193
8.2 Signs on bricks, Moche, Peru, early first millennium AD	194
8.3 Moche, Peru, early first millennium AD – sketch aerial view	195
8.4 Mochica decorated beans, Peru, early first millennium AD	196
8.5 <i>Quipu</i> (Inca period), Peru, sixteenth century AD (Courtesy of the Department Library Services, American Museum of National History, no. 325190)	197
8.6 Late Tripolye-Cucuteni sites, Ukraine and Moldova, mid-fourth millennium BC, compared to initial urban settlements	199
8.7 Oppida (Late La Tène), Europe, late first millennium BC	201
8.8 Manching oppidum (Late La Tène), Germany, late first millennium BC	202
8.9 Growth and decline of population in agrarian-based imperial capitals	204
8.10 Hangchow, China, thirteenth–nineteenth century AD	206
8.11 Hypothetical, general 'envelope' of growth and decline of urban communities	208
8.12 Actual combined plot of community growth and decline for agrarian-based imperial capitals	210
8.13 Hypothetical, maximum potential duration of community survival for given population sizes (schematic)	211
8.14 Proposed decay curve of community survival for agrarian-based imperial capitals	212

Cambridge University Press

978-0-521-03810-2 - The Limits of Settlement Growth: A Theoretical Outline

Roland Fletcher

Frontmatter

[More information](#)

<i>List of figures</i>	xiv
9.1 Model of gradual shift between I-limits	216
9.2 Model of abrupt shift between I-limits in the restrictive scenario	217
9.3 Hypothetical new I-limit	218
9.4 Settlement size trajectories and the proposed 10,000 sq km C-limit	223
9.5 Greater New York and the East Coast urban complex, USA, 1960s AD (after Doxiadis 1968)	225
9.6 Tokyo, Japan – a future?	227

Cambridge University Press

978-0-521-03810-2 - The Limits of Settlement Growth: A Theoretical Outline

Roland Fletcher

Frontmatter

[More information](#)*TABLES*

3.1	Familiar levels of a hierarchy of explanation for human behaviour	46
3.2	Locating the material component of human behaviour in a hierarchy of explanation for human community life	56
9.1	Maximum rates of growth for compact settlements after C-limit transitions	226

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xvii

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To Ouma I am ever grateful for her love and aggressive concern. She did not put up with it so I need not add the usual! My son Eliot has interrupted much, absorbed hours of my time and delighted me.

INTRODUCTION

Thirty years after the rise of the New Archaeology the use of social theory in archaeology is spread across a vast and incommensurable spectrum of explanatory viewpoints. To the past decade of dichotomised archaeological debate between contextualism and processualism we have now added the complexities of dynamical systems theory and the several variants of cultural selectionism. It is even doubtful whether conceptual integration is either possible or sensible. Unless archaeology can develop some other logic of discourse, the future of the discipline is liable to reside either in a retreat from cogent theoretical debate or in endemic conflict, or else in the periodic dominance of one fashionable version of the current perspectives. But the discipline will lose its intellectual integrity if any one restricted viewpoint gains ascendancy. No matter what may have been claimed, environmental analysis cannot make the study of individual intent redundant. Nor can the contextually unique be useful or appropriately rendered down to universal generalisation. Conversely, action-oriented analysis and contextualism cannot properly ignore selective pressures and adaptation or reduce environment to mere background. Meanwhile, dynamical systems theory has yet to present its own model of human behaviour, and cultural selectionism still lacks a paradigm of cultural replication.

Instead of continuing futile dichotomised contests, or seeking the triumph of any one side in the various disputes, we might more usefully debate the nature and content of a hierarchy of explanation which could integrate aspects of these diverse positions. A single all-inclusive theoretical position need not be sought, nor could one be persuasively constructed at the present time. We already use a variety of different kinds of explanations. Our understanding of the relationship between the material and the active components of our behaviour requires attention to at least three different scales of analysis – the small-scale spatial and temporal patterning of social life; the longer-term behavioural parameters of human interaction; and the large-scale constraints of resource supply which affect the capacity of a community to replicate itself and its material context. Our partial hierarchy of differing viewpoints and epistemologies should now be integrated into a logically coherent hierarchy of explanations. Because this will require the inclusion of both biological and cultural perspectives, the conceptual chasm which persistently dichotomises the explanations and epistemologies applied to ‘animal’ and ‘human’ behaviour has to be removed. Neither a biological nor a cultural perspective should be allocated priority, otherwise we will be unable to produce an integrated hierarchy of different explanatory levels. What is required is an interpretative device which can stabilise

the otherwise inherent slippage along a conceptual fault line between conventional social theory on the one hand and the differing scales of behavioural, ecological and environmental explanation on the other.

The logical chasm can be filled by recognising that the long-term, operational role of the material component of human behaviour should be inserted as a necessary and appropriate part of a hierarchy of explanation. At this scale of operation the material has a dual role: as a fundamental regulatory factor which assists the growth of human communities, and as a restrictive, potentially deleterious constraint on social life. The material component of human behaviour can be considered as a factor having long-term effects independent of the intentions of its makers. The effect on the viability and growth of human communities may be both advantageous and disadvantageous. Substantial growth may be made possible by effective material controls on interaction and the critical boost required for communication to function over much larger settlement areas. Alternatively, a material assemblage might restrict the possibilities of settlement growth because it does not provide sufficient screening for interaction and cannot facilitate communication, or it could produce a milieu too rigid and inertial to allow adequate adjustment to rapid social change. A complex relationship exists between the rate, nature and magnitude of settlement growth, the behavioural parameters of community life, and the effects of the material on interaction and communication. We should find that distinct, quantifiable rates and magnitudes of settlement growth are recognisable within the broad social categories of cultural change, such as the formation of sedentary communities and the rise of urbanism, which have already been identified by social theory.

This book is concerned with the role of the 'material as behaviour' in restricting and aiding settlement growth. My purpose is to produce a theoretical outline of an operational, uniformitarian model of the behavioural constraints which affect the way the people in a community can interact and communicate adequately; to identify large-scale cross-culturally consistent patterns of settlement growth; and to direct attention to critical cases, some of which may be potential refutations of aspects of the model. The interpretation of the 'material as behaviour' neither seeks to supersede other modes of explanation nor claims to encompass them. The material has variously been regarded as an epiphenomenal derivative, a functional adjunct or a recursive associate of human action and systems of verbal meaning. It can also be viewed as regulatory or restrictive. Questions about the reasons and motives behind the initial appearance and associations of particular material features properly reside in the domain of social theory concerned with human action and the structures of verbal meaning. That human action generates the material component of our social lives or that, in the short term, the material acts as a recursive aid to active social life, is not in dispute. The study of the 'material as behaviour', because it looks only at the consequences which derive from the presence or absence of particular material patterns, does not infringe the concerns of conventional social theory.

Although the search for high-level archaeological theories of cultural behaviour

has so far been rather unsuccessful, the alternative emphasis on contextual, regional case studies leads to a lack of cross-cultural explanatory coherence and even to the feeling that such coherence is unnecessary and meaningless. If, however, our prior premisses about the form of a high-level theory of human behaviour are erroneous, there may be a way out of the present impasse. Large-scale consistent patterns need not be present in those characteristics of daily life which are the prevalent concern of social theory, such as human action, power and social organisation. Instead they may reside in the overall behavioural characteristics of interaction and communication in community life. We need not suppose that 'social phenomena' (as conventionally recognised) and their material associations have simple cross-cultural correlations in order to provide explanations of the different, predictable cross-cultural outcomes which may arise from different, possible material – 'social' relationships. The material, active and verbal components of social life are not deterministically linked and we should envisage that they can become decoupled. For instance, a community might fail to produce the material shielding and behavioural controls necessary for its social organisation to persist. Conversely, a community might generate material patterns which will only serve to promote settlement growth when they combine with later changes in verbal meaning and human action. The associations differ but should be consistently and predictably linked to their respective outcomes.

For the purposes of current social theory the material fabric of a society recovered from the archaeological record has usually been treated as the basal data to which interpretations about higher levels of meaning are applied (Rapoport 1988: 326). We have sought to convert the material into an expression of actions. Using social analysis we try to comprehend those reconstituted actions according to the logic of verbal meaning. The material has been viewed as the bottom of the interpretative ladder (Figure I.1), unfortunately conflating its ontological position in the analytic sequence of the discipline and its role in human society. Statements about the nature of the material are regarded as basal descriptions without substantial meaning content. They are treated as merely the raw material of social interpretation. But the premiss that the material can play a large-scale, slow behavioural role which affects the viability of human communities opens up a new interpretative direction. Instead of moving from the material towards the meticulous, short-term detail of the 'social' we can expand enquiry in the opposite conceptual direction into a vast research field concerned with the coarse-grained analysis of the long-term 'behavioural' role of the material (Figure I.2). The long term is the distinct province of archaeology (Binford 1981; Hodder 1986: 89, 177–8; Isaac 1972; Jochim 1991; Renfrew 1982). Archaeology has access to a two-million-year record of the ways in which hominids have patterned space and time using material entities (Fletcher 1993a). We can ask about the non-verbal patterns of meaning which reside in material assemblages, study the operational effects of the material on human interaction over long periods of time, and seek to identify the material, behavioural parameters of everyday social life.

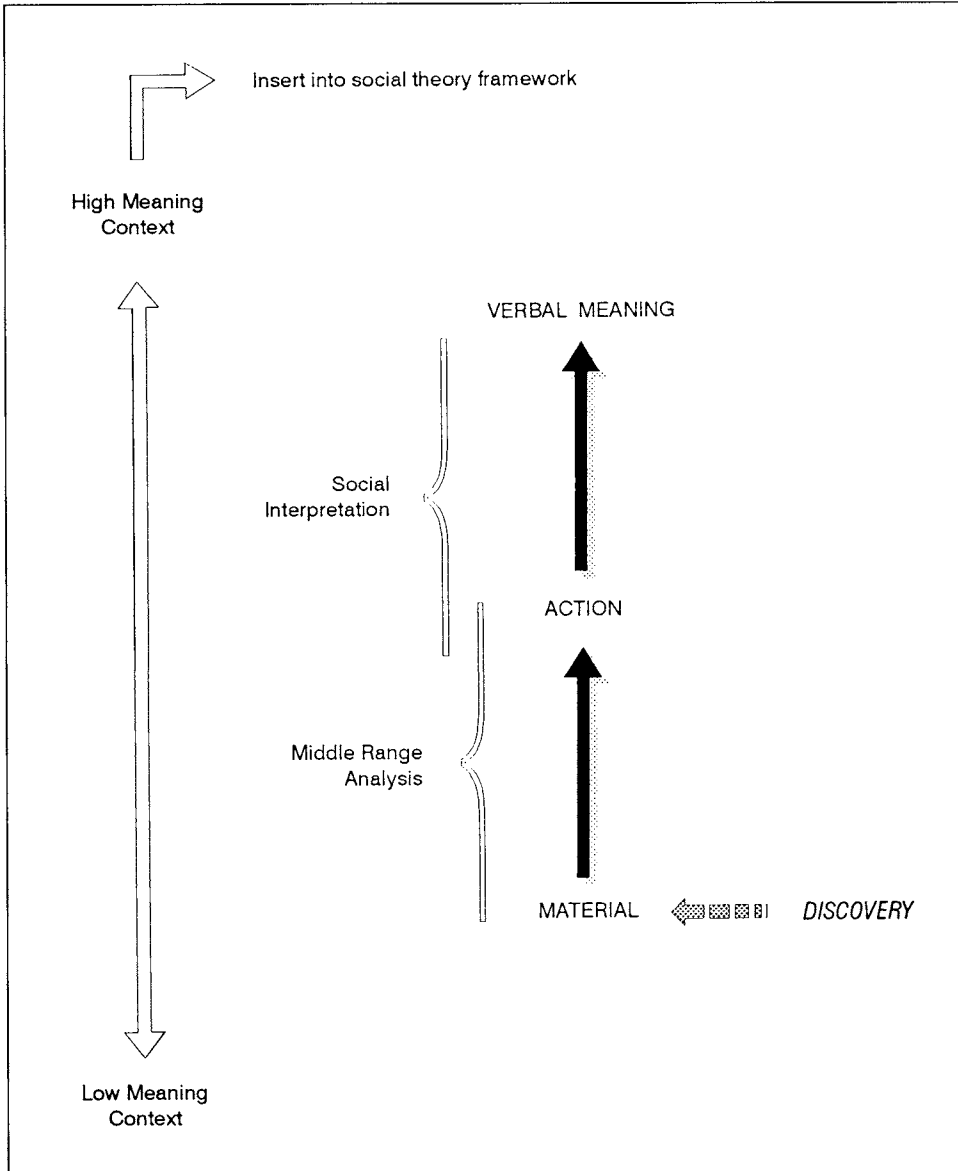


Figure I.1 Conventional interpretative direction

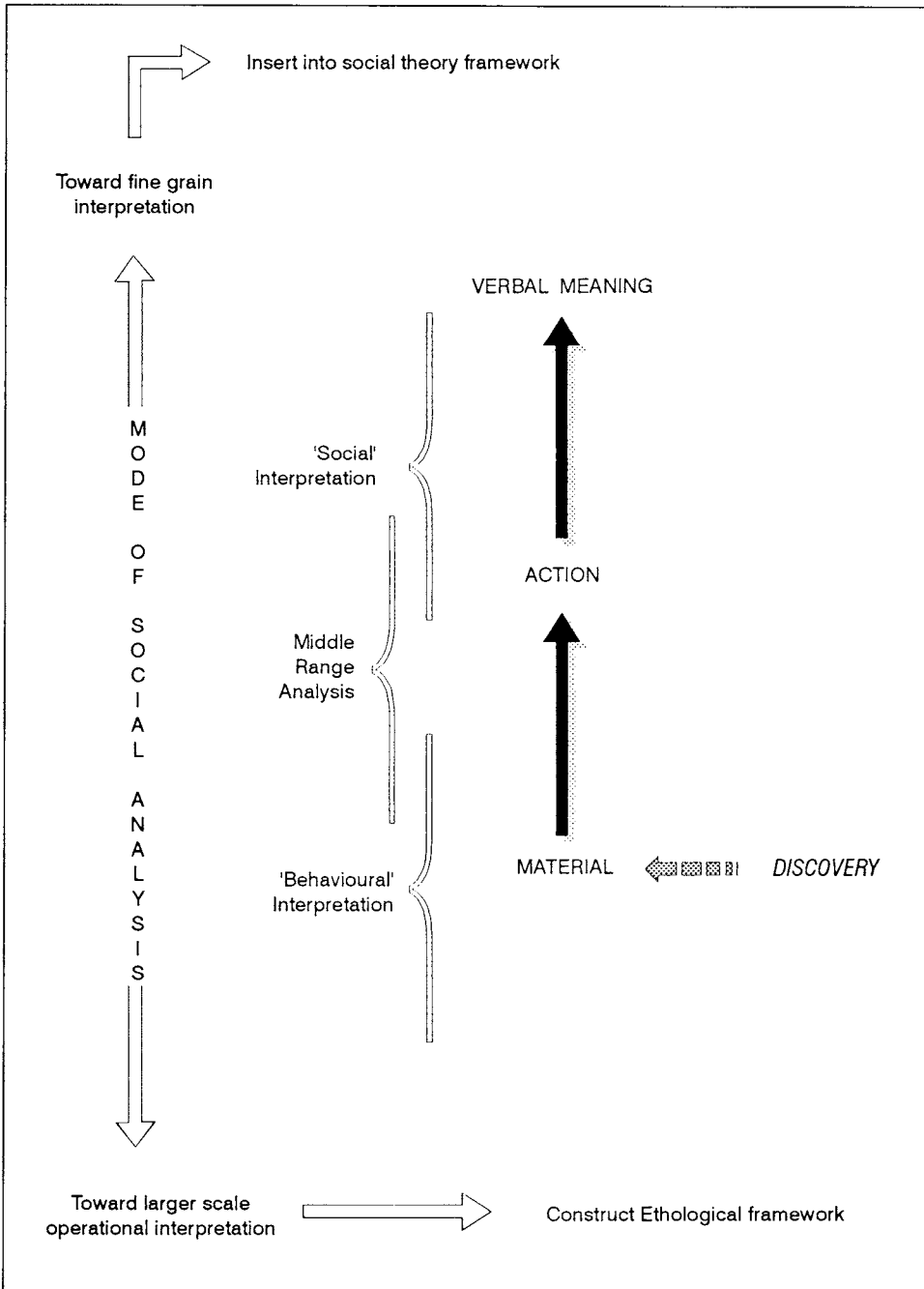


Figure I.2 Alternative interpretative direction

SUMMARY OF THE INTERACTION-COMMUNICATION MODEL

The proposed theoretical model of interaction and communication outlines the basic operational constraints on community life and predicts distinct, large-scale patterns of settlement growth. The model specifies three major classes of behavioural constraint. In a long-term, large-scale perspective they constitute the operational parameters of social life in settlements. The first class of behavioural constraint is an upper limit on tolerable residential density, referred to as an Interaction limit (I-limit). The second class of constraint concerns the limits on the areal extent of a settlement set by the distances over which a communication system can operate adequately. Such a limit is referred to as a Communication limit (C-limit). However, at low residential densities the C-limit constraints do not apply. Communication systems do not delimit the areal extent of dispersed, low-density settlements. Below a threshold density, referred to as the Threshold limit (T-limit), settlement extent is almost unconstrained or else is undefinable. But having exceeded a C-limit by dropping below the Threshold limit, such settlements cannot then easily attain densities above the T-limit again. The three classes of behavioural limit form a matrix of the interaction and communication stresses which affect human communities. The stresses can be managed in various ways by material features such as walls, or script systems, which help to control or aid interaction and communication. On the matrix we can therefore plot different kinds of settlement growth trajectories whose outcome depends upon the relationship between residential density, settlement size and the material assemblage available to the occupants. Viable communities have to reside below their appropriate I-limit and the size of compact settlements is generally constrained by the C-limit for the means whereby they communicate. A community may therefore become trapped in a stasis settlement close behind a C-limit because it does not possess the communication systems which could allow a larger, compact settlement area to be sustained. However, if a community in a compact settlement already possesses a new communication assemblage and the potential to regulate interaction stress, it can follow a transition trajectory across a C-limit and will possess the potential to generate substantial, sustained settlement growth. The third possibility is a bypass trajectory below the T-limit along which a community drops to a low residential density without employing a new interaction and communication assemblage. Very extensive dispersed settlements may result which have only a restricted capacity for change.

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Frontmatter

[More information](#)

Summary

xxiv

Abbreviations

Interaction limit

Communication limit

Threshold limit

Interaction and communication assemblage

Interaction and communication stress model

Interaction and communication stress matrix

I-limit

C-limit

T-limit

I–C assemblage

I–C model

Stress matrix