

2013

# Felt\_space infrastructure: Hyper vigilant spatiality to valence the visceral dimension

Emmett, Mathew Henry

<http://hdl.handle.net/10026.1/1495>

---

<http://dx.doi.org/10.24382/3227>

University of Plymouth

---

*All content in PEARL is protected by copyright law. Author manuscripts are made available in accordance with publisher policies. Please cite only the published version using the details provided on the item record or document. In the absence of an open licence (e.g. Creative Commons), permissions for further reuse of content should be sought from the publisher or author.*

**Felt\_space infrastructure:  
Hyper vigilant spatiality to valence the visceral dimension.**

by

**Mathew Henry Emmett**

RIBA Chartered Architect (2002)

AADipl The Architectural Association (2000)

BSc in Architecture at University College London (1996)

Foundation: Central St Martins College of Art & Design (1993)

Submitted to the Faculty of Arts in partial fulfilment  
of the requirements for the degree of Doctor of Philosophy  
at Plymouth University

January 2013

© Mathew Henry Emmett. All rights reserved.

This copy of the thesis has been supplied on condition that anyone who consults it is understood to recognise that its copyright rests with its author and that no quotation from the thesis and no information derived from it may be published without the author's prior consent.

Signature of author:

Date:



# ***Felt\_space infrastructure:***

**hyper vigilant spatiality to valence the visceral dimension.**

by

Mathew Henry Emmett

## **i. Abstract**

This thesis evolves perception as a hypothesis to reframe architectural praxis negotiated through agent-situation interaction. The research questions the geometric principles of architectural ordination to originate the 'felt\_space infrastructure', a relational system of measurement concerned with the role of perception in mediating sensory space and the cognised environment. The methodological model for this research fuses perception and environmental stimuli, into a consistent generative process that penetrates the inner essence of space, to reveal the visceral parameter.

These concepts are applied to develop a 'coefficient of affordance' typology, 'hypervigilant' tool set, and 'cognitive\_tope' design methodology. Thus, by extending the architectural platform to consider perception as a design parameter, the thesis interprets the 'inference schema' as an instructional model to coordinate the acquisition of spatial reality through tensional and counter-tensional feedback dynamics.

Three site-responsive case studies are used to advance the thesis. The first case study is descriptive and develops a typology of situated cognition to extend the 'granularity' of perceptual sensitisation (i.e. a fine-grained means of perceiving space). The second project is relational and questions how mapping can coordinate perceptual, cognitive and associative attention, as a 'multi-webbed vector field' comprised of attractors and deformations within a viewer-centred gravitational space. The third case study is causal, and demonstrates how a transactional-biased schema can generate, amplify and attenuate perceptual misalignment, thus triggering a visceral niche.

The significance of the research is that it progresses generative perception as an additional variable for spatial practice, and promotes transactional methodologies to gain enhanced modes of spatial acuity to extend the repertoire of architectural practice.

Thesis advisors: Martin Woolner, John Matthias and Charles Jencks.

## **ii. Acknowledgements**

To my wife Julia, my son Henry and daughter Frida who have been so supportive, understanding and patient all these years. To my family who have supported and critiqued me, providing an invaluable framework and critical eye.

To my creative friends Jason Clark and David Strang whose technical advice supported and tested me.

To PerceptionLab for their expertise and generosity.

To all the participants for their time and consideration.

To my director of studies Martin Woolner, my second supervisor John Matthias and my external supervisor Charles Jencks whose collective support has been crucial throughout.

### **iii. Biographical Note**

**Mathew Emmett**, RIBA AADipl BSc (UCL) is an architect, academic and conceptual artist, who questions mediated-realities and mnemonic structures by exploring multi-dimensional total environments. Emmett is the co-founder of transdisciplinary research group *Estranged Space* who recently held an Artist Residency at The Roman Baths at Bath. Emmett has co-directed international summer schools in Detmold, Germany and has lectured at Technische Universiteit, Eindhoven. In 2007, Emmett received a research grant to attend the Karlheinz Stockhausen Composition and Interpretation Course: Kuerten, Germany, for the analysis of compositional strategies of 'Licht-Bilder'; to formulate a system for interpreting sound as a spatial concept for architecture. Throughout his career Emmett, has received many awards for collaborations, including Kaos Theatre and World Heritage project.

### **iv. Author's Declaration**

At no time during the registration for the degree of Doctor of Philosophy has the author been registered for any other University award without prior agreement of the Graduate Committee. This study was financed with the support of the Faculty of Arts, Plymouth University. A DVD is also included with the submission and contains further documentation of projects described in the thesis. Relevant seminars and conferences were regularly attended at which work was often presented; external institutions were visited for consultation purposes and several papers were prepared for publication.

## **Publications (or presentation/exhibition of other forms of creative and performing work):**

1. Emmett, M. 2011. *Bunker auscultation: A classification system for a proto-method of sensory space composition*, Design Ecologies 1: 2, pp. 285-301, doi: 10.1386/des.1.2.285\_7
2. Zupancic, T, Juvancic, M, Verovsek, S & Jutraz, A. (ed). 2011. *eCAADe 2011 Respecting Fragile Places*, Tadeja pp. 261-269.
3. Hemmerling, M. (ed). 2011. *Augmented Reality, Mensch, Raum und Virtualitat*. Germany: Wilhelm Fink pp. 43-49.
4. Jones, W. (ed). 2011. *Architects' Sketchbooks*, London: Thames & Hudson pp.134-137.
5. Hemmerling, M (ed). 2010. *ADAD - Advanced Digital Architectural Design*, Germany: Produktion, Detmold pp. 34-41.
6. Littlefield, D (ed). 2008. *Space Craft: Development in Architectural Computing*, London: RIBA Publishing pp. 82-89.
7. Jencks, C. 2011. *The Universe in the Landscape, Landforms by Charles Jencks*, London: Frances Lincoln Ltd.
8. Littlefield, D & Lewis. S. (ed). 2007. *Architectural Voices, Listening to Old Buildings*, West Sussex: Wiley-Academy pp. 204-207.

## **Papers and presentations:**

1. eCAADe 2011 Respecting Fragile Places, 2011. Ljubljana.
2. Architectural Association: Design Ecologies Symposium, 2011. London.
3. ADAD Advanced Digital Architectural Design: Towards a New Mobility, 2010 International Summerschool, Germany.
4. Plymouth University: Hidden City, 2008. Plymouth.
5. Stockhausen – Kurse, Kurten. Interpretations und kompositinskurse zum werk won Stockhausen, 2007. Germany.
6. Technische Universiteit Eindhoven, Intervention interaction, 2007. Eindhoven.

## **Exhibitions**

1. The Cabinet, Peninsula Arts, 2011. Plymouth.
2. Artist Residency 2010-2012: The Roman Baths, Bath.
3. Royal Academy of Arts Summer Exhibition, 2010. Architecture.
4. The London Group, Menier Gallery, 2009. London.
5. The London Group, Menier Gallery, 2007. London.
6. Royal Academy of Arts Summer Exhibition, 2007. Architecture.
7. Royal Academy of Arts Summer Exhibition, 2005. Architecture.
8. Royal Academy of Arts Summer Exhibition, 2004. Architecture.
9. World Heritage Commission, 2004. Jurassic Challenge multi- media site specific art commission.

Word count of main body of thesis: 38,000

Signed

Date

# Contents

<b>01_Introduction</b>	<b>1</b>
<b>02_Methodology</b>	<b>15</b>
2.0 Introduction	15
2.1 Questions	16
2.2 The host sites	18
2.3 Methodology aims	20
2.4 Communication methodologies	21
2.5 Ordination praxis	22
2.6 Methodology summary	24
<b>03_Case Study 1_ARP Bunker</b>	<b>25</b>
3.1 Overview	25
3.2 Context	26
3.3 Author's site-response	30
3.4 Practice	40
3.5 Methodology	42
3.6 Interpretation of Participant Surveys	46
<b>04_Case Study 2_Dunkeswell Airfield</b>	<b>71</b>
4.1 Overview	71
4.2 Context	76
4.3 Author's site-response	88
4.4 Practice	92
4.5 Field Mapping Precedents	98
4.6 Methodology	104
4.7 Cognitive-tope Mapping	109
4.8 Sensory Editing	116
4.9 Results	118
4.10 Findings	129
4.11 Evaluation	137



<b>05_Case Study 3_Bath Vaults</b>	<b>139</b>
5.1 Overview	139
5.2 Context	141
5.3 Practice: Perception bias for schema-related composition	150
5.4 Form Schema	153
5.5 Coefficient of Affordance	157
5.6 Recursive Durations	160
5.7 Trigger Events	164
5.8 Methodology: Creating the platform	168
5.9 Eye tracking	171
5.10 Bio-feedback	173
5.11 Max/MSP Human Computer Interface	174
5.12 Results	177
5.13 Findings: Categories and themes	190
5.14 Performative and generative engagement	192
5.15 Space-body temporalities	202
5.16 Observations	208
<b>06_Contextualisation</b>	<b>209</b>
6.0 Contextual precedents: Practice	209
6.1 Contextual precedents: Theory	217
<b>07_Conclusion</b>	<b>223</b>
7.1 Felt_space infrastructure	224
7.2 Taxonomy	226
7.3 Ordination	228
7.4 Organisational utilities	231
7.5 Critical reflection on thesis	232
7.6 Hyper vigilant spatial awareness	233
7.7 Visceral space	234
7.8 Site-responsive behaviours	234

7.9 Raumfindung	235
7.10 Relationality	236
7.11 Future work	238
7.12 Potential applications for the research	238
<b>Appendices</b>	<b>241</b>
<b>A1_Field</b>	<b>243</b>
Field: Mnemonic function	247
Field affordances	248
Summary	254
<b>A2_Affect</b>	<b>257</b>
<b>A3_Affect Field</b>	<b>267</b>
Site-responsive negotiation	270
<b>A4_Mobius Manifold Series</b>	<b>287</b>
<b>A5_Mobius Manifold Visceral Sub-sist</b>	<b>299</b>
Summary	308
<b>A6_Visual Catalogue</b>	<b>309</b>
<b>07_Bibliography</b>	<b>319</b>

All images and diagrams were produced solely by the author unless otherwise noted.

# List of illustrations

- Figure 1-1. Investigation aims
- Figure 2-1. Investigation questions
- Figure 3-1. Case study 1: ARP bunker, Plymouth
- Figure 4-1. Case study 2: US Navy Fleet Anti Submarine USAAF airfield at Dunkeswell
- Figure 5-1. Case study 3: The Vaults, Bath
- Figure 6-1. Concept diagram of Felt\_space infrastructure
- Figure 7-1. Diagram of affect-field feedback
- Figure 8-1. Diagram of field of perception
- Figure 1-2. Site-responsive diagram
- Figure 2-2. Site-responsive memory diagram
- Figure 3-2. Author site-responsive mapping
- Figure 4-2. Ordination principles
- Figure 5-2. Diagrammatic sketch overview
- Figure 1-3. ARP bunker locations, Plymouth and West Devon Record Office
- Figure 2-3. Total bombing raids, Plymouth and West Devon Record Office
- Figure 3-3. Wiring of Air Raid Shelters, Plymouth and West Devon Record Office
- Figure 4-3. ARP bunker entrance, Plymouth: vertical panorama
- Figure 5-3. ARP bunker internal passageway
- Figure 6-3. ARP bunker counterblast layout
- Figure 7-3. ARP bunker internal threshold
- Figure 8-3. ARP bunker seat-fixing scar
- Figure 9-3. Plymouth blitz, Plymouth and West Devon Record Office
- Figure 10-3. ARP bunker man holes
- Figure 11-3. Graffiti
- Figure 12-3. ARP bunker escape hatch
- Figure 13-3. ARP bunker corner detail
- Figure 14-3. Participant 1 graphic interpretation
- Figure 15-3. Participant 2 graphic interpretation
- Figure 16-3. Participant 3 graphic interpretation
- Figure 17-3. Participant 4 graphic interpretation
- Figure 18-3. Participant 5 graphic interpretation
- Figure 19-3. **ARP bunker** affect taxonomy workshop
- Figure 20-3. Affect taxonomy interrelationships
- Figure 21-3. Cognitive-tope classification matrix
- Figure 22-3. Zones of influence development schematic # 01
- Figure 23-3. Zones of influence development schematic # 02
- Figure 24-3. Zones of influence development schematic # 03
- Figure 25-3. Zones of influence development schematic # 04
- Figure 26-3. Zones of influence
- Figure 27-3. Zones of influence distortion
- Figure 28-3. Zones of influence: phased transitions
- Figure 29-3. Zones of influence: space consciousness transference
- Figure 30-3. ARP bunker exit panorama
- Figure 1-4. Dunkeswell airfield, Devon: access road
- Figure 2-4. Dunkeswell airfield, B-24 Liberator hard standing
- Figure 3-4. Hangars, Dunkeswell airfield
- Figure 4-4. WWII fire station, Dunkeswell airfield
- Figure 5-4. Dunkeswell record site plan: October 1944, Dunkeswell Airfield Museum
- Figure 6-4. Anti submarine operations, Dunkeswell Airfield Museum
- Figure 7-4. The VB-114 Squadron Office, 1944: Dunkeswell Airfield Museum
- Figure 8-4. Quonset window
- Figure 9-4. B-24 Liberator, Dunkeswell Church Memorial Book
- Figure 10-4. Lt Dustin and crew 4thASSq 479th, Dunkeswell Museum
- Figure 11-4. Type T2 B24 Liberator Hangar, Dunkeswell
- Figure 12-4. Type T2 B24 Liberator Hangar, side elevation

**Figure 13-4.** Type T2 B24 Liberator Hangar, H2  
**Figure 14-4.** Dunkeswell Airfield edge land  
**Figure 15-4.** WWII Bunker Record post box B25  
**Figure 16-4.** Lattice Portal Frame of Type T2 Hangar, Dunkeswell  
**Figure 17-4.** Lattice Portal Frame, roof structure: Type T2 Hangar, Dunkeswell  
**Figure 18-4.** Roof span: Type T2 Hangar, Dunkeswell  
**Figure 19-4.** Mapping field of view sketch development  
**Figure 20-4.** WWII Navigational computer, Dunkeswell Museum  
**Figure 21-4.** Mapping sketch series # 01  
**Figure 22-4.** Mapping sketch series # 02  
**Figure 23-4.** Mapping sketch series # 03  
**Figure 24-4.** Mapping demonstrating site-response  
**Figure 25-4.** Mapping detailed development  
**Figure 26-4.** Cognitive-tope map  
**Figure 27-4.** Cognitive-tope mapping exercise  
**Figure 28-4.** Recorder B: station 5b  
**Figure 29-4.** Cognitive-tope total mapping results  
**Figure 30-4.** Recorder A: station 1a-2a, recorder B: 1b-2b and recorder C: station 1c-2c  
**Figure 31-4.** Recorder A: station 3a-4a, recorder B: 3b-4b and recorder C: station 3c-4c  
**Figure 32-4.** Recorder A: station 5a-6a, recorder B: 5b-6b and recorder C: station 5c-6c  
**Figure 33-4.** Recorder A: station 7a-8a, recorder B: 7b-8b and recorder C: station 7c-8c  
**Figure 1-5.** The Bath Vault site  
**Figure 2-5.** The tunnels leading to the Bath Vault  
**Figure 3-5.** Tunnel network  
**Figure 4-5.** Service pipes  
**Figure 5-5.** Vault entrance  
**Figure 6-5.** Vection-Builder recombinant schema development  
**Figure 7-5.** Vection-Builder recombinant schema strategy  
**Figure 8-5.** Vection-Builder composition development # 01  
**Figure 9-5.** Vection-Builder composition development # 02  
**Figure 10-5.** Vection-Builder feedback series  
**Figure 11-5.** Vection-Builder Form Schema  
**Figure 12-5.** Vection-Builder synthetic aperture composition  
**Figure 13-5.** Vection-Builder audiovisual performative schematic  
**Figure 14-5.** Vection-Builder sensor feedback diagram  
**Figure 15-5.** Vection-Builder trigger series 1, 2 and 3  
**Figure 16-5.** Vection-Builder trigger event parametric, custom software  
**Figure 17-5.** Participant and eye tracking and bio-feedback calibration  
**Figure 18-5.** Eye tracking and bio-feedback sensor technology  
**Figure 19-5.** Max/MSP Human Computer Interface  
**Figure 20-5.** Vection-Builder feedback capture and projector schematic  
**Figure 21-5.** Vection-Builder documentary film  
**Figure 22-5.** Participants' 005, 007 and 010 total mapping  
**Figure 23-5.** Participants' 005, 007 and 010 mapping 01-02  
**Figure 24-5.** Participants' 005, 007 and 010 mapping 03-04  
**Figure 25-5.** Participants' 005, 007 and 010 mapping 05-06  
**Figure 26-5.** Participants' 005, 007 and 010 mapping 07-08  
**Figure 27-5.** Participant 10: Bio-feedback data  
**Figure 28-5.** Collective participant Bio-feedback data  
**Figure 29-5.** First cycle site-responsive exploration # 01  
**Figure 30-5.** First cycle site-responsive exploration # 02  
**Figure 31-5.** Transition cycle 2-3  
**Figure 32-5.** Cycle 3  
**Figure 33-5.** Cycle transition 3-4  
**Figure 34-5.** Participant exploration, synthetic aperture  
**Figure 35-5.** Vection-Builder trigger event

**Figure 36-5.** Agent-environment interaction  
**Figure 37-5.** Synthetic aperture  
**Figure 38-5.** Agent-environment behaviour  
**Figure 39-5.** Trigger event # 02  
**Figure 40-5.** Recursive environment  
**Figure 41-5.** Aperture interaction  
**Figure 1-6.** Stockhausen during the course, Kürten 2007  
**Figure 2-6.** SPIRAL performance, Kürten 2007  
**Figure 1-A1.** Field # 01  
**Figure 2-A1.** Field # 02  
**Figure 3-A1.** Field # 03  
**Figure 4-A1.** Field # 04  
**Figure 5-A1.** Field # 05  
**Figure 1-A2.** Ego-centric space  
**Figure 2-A2.** Ego-centric projection  
**Figure 3-A3.** Affect  
**Figure 1-A3.** Affect-field # 01  
**Figure 2-A3.** Affect-field # 02  
**Figure 3-A3.** Affect-field # 03  
**Figure 4-A3.** Affect-field # 04  
**Figure 5-A3.** Affect-field # 05  
**Figure 1-A4.** Mobius manifold model # 01  
**Figure 2-A4.** Mobius manifold model # 02  
**Figure 3-A4.** Mobius manifold model # 03  
**Figure 4-A4.** Mobius manifold model # 04  
**Figure 1-A5.** Visceral actuality  
**Figure 2-A5.** Visceral space # 01  
**Figure 3-A5.** Visceral space # 02  
**Figure 4-A5.** Visceral space # 03  
**Figure 1-A6.** Raumfindung concept sketch  
**Figure 2-A6.** Felt\_space relative theory,  
**Figure 3-A6.** Overlaid Realities  
**Figure 4-A6.** Overlaid Realities  
**Figure 5-A6.** Affect-field # 06  
**Figure 6-A6.** Affect-field # 07  
**Figure 7-A6.** PhD heuristic mapping November 2010  
**Figure 8-A6.** Felt\_space dynamic aperture concept  
**Figure 9-A6.** PhD network mapping November 2010  
**Figure 10-A6.** Felt\_space concept drawing  
**Figure 11-A6.** Diagram: visceral temporal architecture  
**Figure 12-A6.** Diagram: visceral temporal architecture  
**Figure 13-A6.** Felt\_space ordination concept  
**Figure 14-A6.** Felt\_space concept model

# Glossary

**Affect-field**

The gravitational configuration of spatiality.

**Ambient psychoactive field**

To convey an intense event or abrupt situation triggering a transition, alteration or effective influence.

**Agent-environment capacitance**

An enhanced reception to the body's capacitive effect within the environment.

**Coaction field**

The meeting point between perceptual, cognitive, associative and geometric space.

**Causal patch**

Compositional technique to describe the synchronization of multiple effect cues.

**Phenomenological construct**

Perceptual, cognitive and associative dimension physicalised in space and time.

**Feedback loop**

Situated transactions between agent-environment.

***Felt\_space***

Emergent subspace through the superposition event of agent-environment interference.

**Mobius manifold**

Self-intersecting feedback loop converging agent-environment connections through continuous co-evolution.

**Multiverse**

Multi dimensional subspace framework co-existing within geometric space.

**Neural-environment**

Highly sensitised nervous system attuned to its environment creating a human singularity through somatosensory amplification.

**Niche (co-adaptive)**

The systemic co-evolution of neural-environmental engagement.

**Psychophysical**

Perceptual, cognitive and associative feedback in response to physical stimuli.

**Reflexive**

Denoting a feedback system.

**Sub-space**

Emergent associative space from hyper vigilant agent-environment induction-interaction distortions.

**Superposition**

Emergent affect from the coincidence of separate field conditions.

# 01\_Introduction

This research is concerned with three topics which aim to reconceptualise the notion of architectural design as an expanded field of generative perception; (1) *affect* as active form of operating mechanisms connected to the performative axis of perception, cognition and association; (2) *field* as context-dependent environment to constellate the attentional axis charged by means of organising principles of interaction and relationality; (3) integration of *affect-field feedback* as an emergent agent-environment system of collective sensing, made in the locus of moment, to reveal the palpable intrusion of a transmittable response, enabling the body to be informed with what is happening.

To facilitate this strategy and find a systematic way of communicating perceptual morphology and feedback, the thesis interprets the German term *Raumfindung*, that literally translates as “space-findings” or ‘felt-space’ (Rhowbotham, 1999: 28), to scaffold my work that undertakes the expansion of *Raumfindung* as an operative mode of reflexive architectural thinking and ontology.

The architectural theorist Kevin Rhowbotham (1999) interpreted “felt-space” as the ‘phenomenological aspects of spatial experiences’ (Rhowbotham, 1999: 28). As an abstract concept, critical theory or methodological practice, the term *Raumfindung* or “felt-space” is not commonly used by architects or spatial practitioners, although most architects would generally understand



the interpretive meaning and claim to intuitively utilise multisensory realities as a design parameter. Nevertheless, many architectural projects have been designed without detailed knowledge or understanding of spatial perception or the consequential psychological impact that may arise from encountering the buildings or designed environments. This gap in architectural knowledge and the need to develop a disciplined setting to overcome this deficit provides the core focus for my research.

I propose therefore, to develop a *felt\_space infrastructure* as a means to address this shortfall by originating a design ordination database calibrated to articulate the interrelationship between the body, the mind and serial perceptual experiences to make sense of these readings, but also to establish an inference schema for composing perceptually determined work, and further, to establish an extended contextual underpinning to help locate and guide the argument for the significance of the *felt\_space infrastructure* to extend the parameters of 'reflexive architecture' (Spiller 2002: 5).

In cognitive science, a schema consists of inference sets or behaviour dispositions. My thesis explores the possibility of manipulating these variables to infer amplified agent-environment behaviours. I aim to exploit the condition-action rule of spatial perception through the amplification and attenuation of contextual cues to bias the likelihood of triggering states of hyper vigilant spatiality. By exploring the inference schema as a planning strategy for spatial practice, the thesis interprets the *felt\_space infrastructure* as an alternative root hypothesis for architectural design. The *felt\_space infrastructure* provides a framework that attempts to infer and categorise performative probabilities as an assembly language describing observed agent-environment behaviour. The assembly language consists of an open-ended system comprising of *affect* and *field* feedback systems. *Affect* identifies the sensory precondition

aims

to determine new methods of designing through:

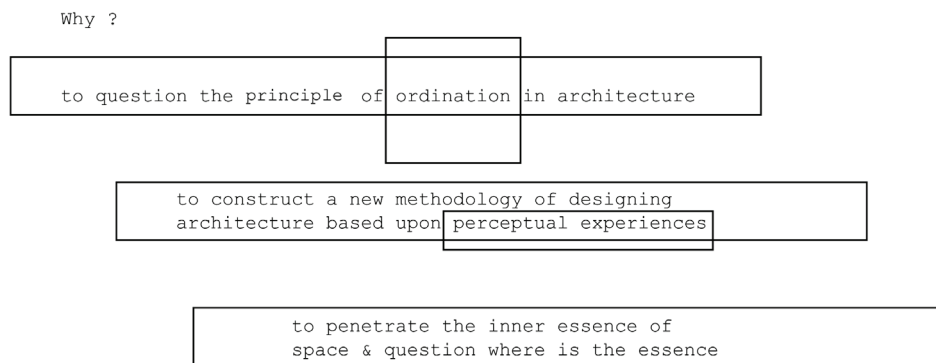
configuring alternative (to geometric) measuring principles for architecture based upon phenomenology of perception

investigate spaciousness as a perceptual field

mapping, documenting & calibrating the forces of coefficient of affordance

to construct a form of spatial notation as a design tool/system (counterpoint to geometric ordination)

**Figure 1-1.** Investigation aims



**Figure 2-1.** Investigation questions

and *field* describes the location of propagation. *Affect-field* interconnections provide the mechanism necessary to trigger a performative reaction, preconditioned by the sensitising state of hyper vigilant spatial awareness. The *felt\_space infrastructure* model interprets site-responsive behaviour sets as a forward chaining condition based upon environmental prompts and reactive observations. Case studies '1' and '2' identify probability inferences, whilst case study '3' exploits these interconnected behaviours. I am suggesting that through an inference planning strategy, the architect becomes a progenitor within the propagation of perceptual space.

The research also offers useful methodological examples that render these issues, often dominated by purely theoretical discourse, by means of negotiating phenomenological perception and architectural experimentation in order to demonstrate the values of the *felt\_space infrastructure* as a medium for opening up spatial realities and developing new relationships.

To demonstrate how the *felt\_space infrastructure* works, the thesis examines the evidential traces of situated feedback loops from three site-responsive case studies. The sites are situated within the research as affective-field propagators, enabling the spatiotemporal manifestation of perceptual feedback to emerge from interactive participant engagement. The case studies serve as a platform to test and evaluate the theories as design practice, shifting the research into dynamic modes of constructive acts and participatory interaction. The case studies channel the enquiry into a methodological practice focused on spatial phenomena to infer compositional rules. The method uses a transactional practice to evolve an analogical strategy to open up lines of creative enquiry. Case study '1' begins with typological diagramming as an analysing tool to study *affect*; case study '2' uses mapping as a differentiated medium to build communication systems and operation grammar as a *field*; and case study '3'

formulates a mixed reality interactive installation that tests the inference schema design model by integrating the *affect-field* experimentation into the work flow to exemplify and demonstrate the objectives in a live way. These interrogative streams are channelled together to form an ecological practice combined with transactional design processes. The investigation sites are situated at: (1) a subterranean air raid bunker in the City of Plymouth, (2) the US Navy Fleet Anti Submarine USAAF airfield at Dunkeswell, and (3) an underground residual void at The Roman Baths, Bath.

In considering how to discover meaning in the visceral encounter and evolve the *felt\_space infrastructure*, these distinct architectural sites are explored site-responsively to establish an enactive framework to interrogate the forces of spatial organisation. The sites were chosen to test and situate the theory as each space provided an extreme *affect-field* signature, a causal atmosphere that could be calibrated between polarities of scales comprising of distinct 'psychophysical' (Schlemmer, 1969: 146) experiential granularities. The sites are linked together by the notion of distinct perceptual feedback, durational immediateness to the body, and the ability to trigger the condition of 'distancing from reality forced by reality' (Vidler, 1992: 6). The sites present intriguing material due to their contrasting physicality, varying historical resonance and disparate scales, for each site exerts an extreme condition on the perceptual, cognitive and associative levels that incite 'visceral awareness' (McLuhan, 1969: 33) as a pervasive force.

By establishing a range of tools and methodologies that are used to analyse, assess and extract aesthetic value and meaning from these sites (although divorced from their intended purpose and era), the thesis also aims to highlight the importance of these forgotten buildings, environments and structures as integral and legitimate architectures.



**Figure 3-1.** Case study 1: ARP bunker, Plymouth



**Figure 4-1.** Case study 2: US Navy Fleet Anti Submarine USAAF airfield at Dunkeswell



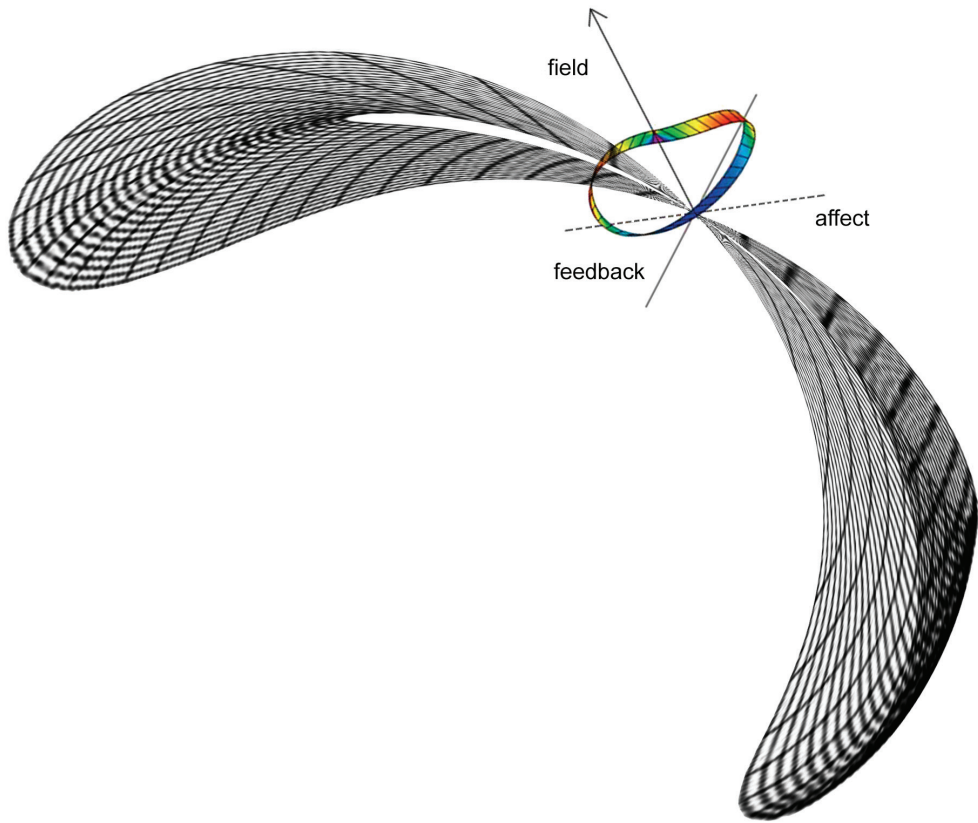
**Figure 5-1.** Case study 3: The Vaults, Bath

The typical architectural design process does not include these considerations explicitly within the brief. Rather, the individual architect ascribes to deliver an aesthetic experience embedded within the service. However I wish to foreground these concepts directly as a focused condition, going into an intensive and extensive spatial development to challenge the architectural problem of perceptual space as a subject not holding 'palpable generic meaning in itself' (Rhowbotham, 1999: 28). By investigating the processes of interaction between human entity and site, a transient experience often articulated in abstract frames, the thesis therefore bridges the gap between the philosophical conception and the physical construction of spatial experiences framed between theoretical rigour and experimental practice.

The research opens up the *felt\_space infrastructure* as a performative framework comprising of *affect-field feedback* operants, to locate, interrelate and make malleable, a non-Euclidian space that oscillates between the physical and psychological space, that I shall argue as a visceral dimension leading to an extended realm of spatiality. The concept of the visceral dimension operates in contrast to the style propelled, object-based, externally driven static forms of architecture commonly found today. The work will extrapolate the visceral dimension as a fragile, unstable and non-linear space that reflects potentiality and actuality through tensional defined situations of causation, intensity, duration and equilibrium. The research functions as a strategy to unlock the visceral dimension that is contingent upon a multitude of interactions, spatial affects and philosophical processes, so as to generate an affective multi dimensional performative space in dialogue with the immediate situation.

The investigation pursues the *felt\_space infrastructure* as an agent-environment multiverse matrix within architectural geometry. The term multiverse derives from quantum mechanics whereby physicists use the term to describe the existence of an infinite realm comprising of parallel instances and multi-state simultaneity. Here the term is used heuristically to describe the complex, mutually reinforcing relationship between local agency and environmental stimulus, giving rise to cognitive and associative extrapolation beyond the physically situated reality. Within this infrastructure the multiverse concept activates notions of worlds within worlds, which can combine in different ways, are non-linear, incite infinite regression and trigger imaginative scenarios with behavioural responses. The word matrix is used as a spatial locus to gather together and promote the ontological values of interaction by forming connections and associations that engenders human circular forms of perceptual feedback.

The function of the *felt\_space infrastructure* aims to describe *Raumfindung* in three-dimensional form, and operates to dissolve the barrier between environment, perception and reality, but also aims to establish an inference forecasting model for architectural experimentation. The model aims to establish an architectural process that is more greatly attuned to 'mutual causal connectedness' (Harries-Jones, 2002: 37). The thesis speculates on the theory of manipulating the interrelationships within the *affect-field feedback* model to advance extra dimensions of spatiality by means of inter-modulation techniques including amplification, inversion, jumping, layering and looping. These less-linear, more dynamic transformations aim to exteriorise the embodied space by re-sequencing the human sensorium to reveal an emerging collective of spatial



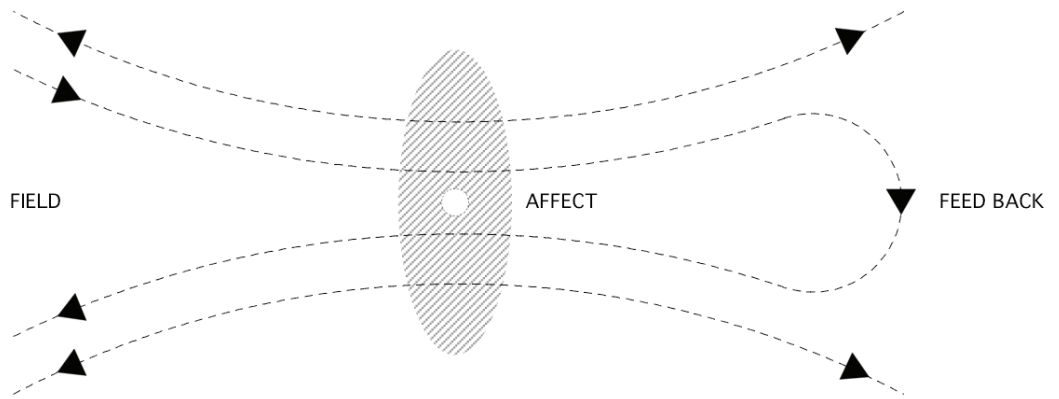
**Figure 6-1.** Concept diagram of Felt\_space infrastructure



consciousness. The *felt\_space infrastructure* thus serves as a meta-form to determine new methods for facilitating an enhanced state of 'spatial intelligence' (Schaik, 2008) making space visible and open to experimentation to reimagine architecture as ways in organising visceral potential.

The thesis introduces the *felt\_space infrastructure* as a sub-space of geometric space, evolving the hypothesis of perceptual feedback as a conveying medium to engage the dialectical tensions between the superposition of cognitive and associative dimensions within architectural space. The sensory role of perception is explored throughout as a multi-modal combination of sensory stimulation that operates as 'the product of an active construction process' (Butler and McManus, 1998: 14). The thesis is contingent upon the 'sensation of perception' (Noë, 2004: 113) by way of interpreting Gibson's (1966) 'ecological' (Gibson, 1966: 8) approach to perception as a displacement force in space triggering signal transference. Cognitions involve mental events and as such the thesis interprets the ecological domain of 'situated cognition' (Wilson and Clark, 2009: 55) by exploring the idea of ontological situatedness in terms of the extended spatialisation at the level of affordances. Whilst the associative dimension is explored as contingencies of 'hyperreality' (Tiffin and Terashima, 2001: 4) of virtual events, constructed as well as reconstructed within physical reality. The *felt\_space infrastructure* thus serves to realise new spatialities leading to the extension of architectural praxis, based on perceptual, cognitive and associative levels of the *affect-feed feedback* model that integrates spatial information into the categories of performative organisation.

Further, the research interprets the *felt\_space infrastructure* as an adaptive ecology with niche tendencies, that is to say, the relationships between agent and environment are considered as a single state of a collective behaviour in space and time. This premise promotes a closer integration of ecological

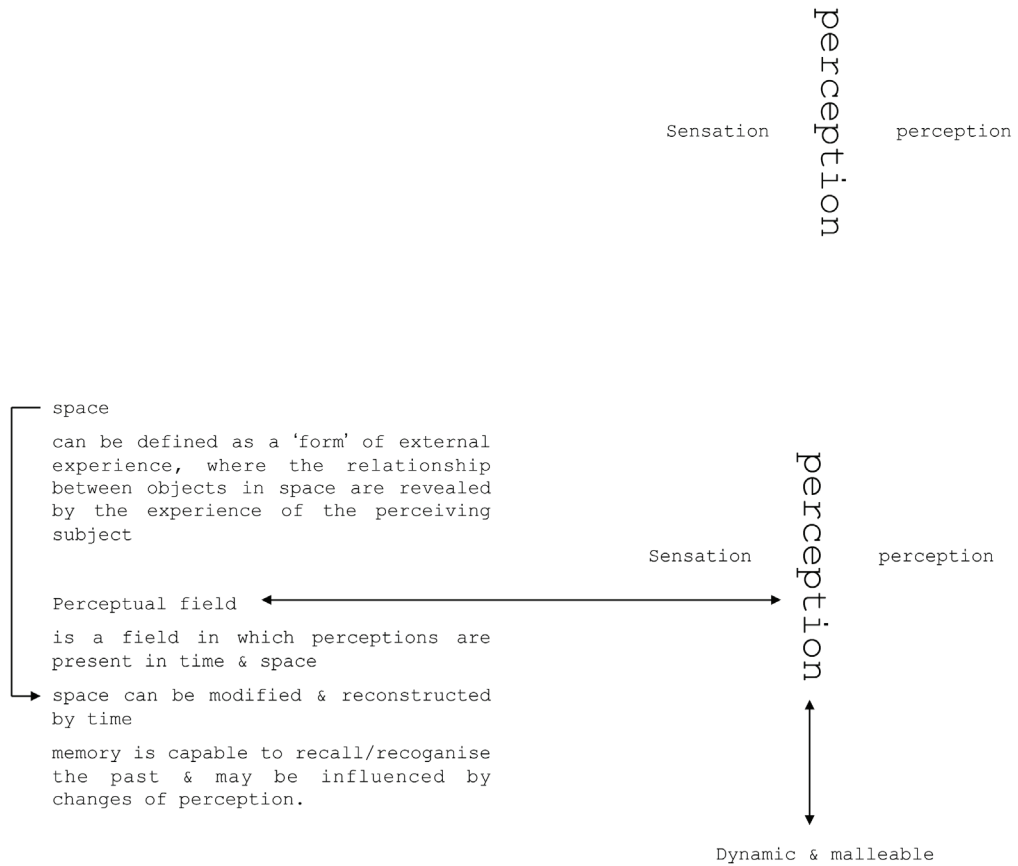
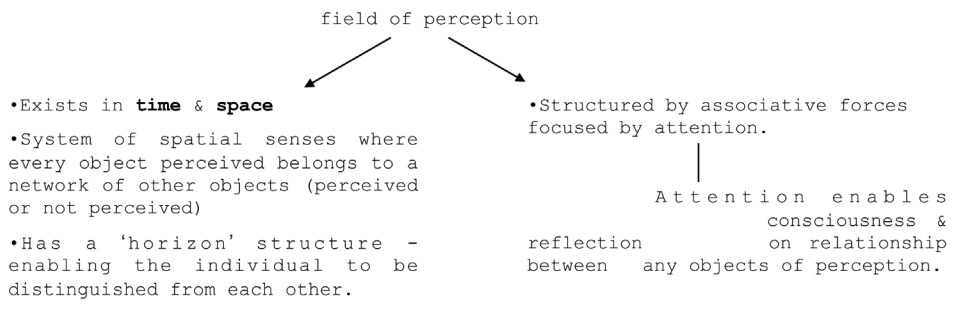


**Figure 7-1.** Diagram of affect-field feedback

consciousness within the architectural framework, whereby the research explores the mutually reinforcing relationship between agent and environment as a capacitance-like system communicated between the interface of perceptual states, ecological effects and environmental feedback. The affect-field paradigm realises these perceptual interfaces as visceral dimensions operating within a field of causal and circular relationships, whilst the Mobius manifold visualisations (see appendix A4) explores this conceptual space as the discharge of latent forces.

To conclude, the research outputs include:

- Correlative material providing an extended transdisciplinary contextual study inferring new knowledge from multiple perspectives of analysis, creating new architectural typologies affording critical engagement and creative agency.
- Ordination mapping tools as a mode of reflexive architectural enquiry.
- The *felt\_space infrastructure* as proto form, enabling the construction of an inference planning model comprising behaviour sets giving rise to *affect-field* assembly language.
- Production and evaluation of a series of high-level visual meta-forms to communicate the nature of *felt\_space infrastructural* principles including visceral space, the Mobius manifold, zones of influences, *affect-field* notation and form schema in an articulate and vivid manner.
- Demonstration of the *felt\_space infrastructure* model as an inference schema for generative perception translating theory into practice to test and reflect on a live exposition of the *felt\_space infrastructure*.



**Figure 8-1.** Diagram of field of perception



# 02\_Methodology

## 2.0 Introduction

The epistemological position of my thesis is that of 'practitioner as researcher' (Gray and Malins 2004: 21), whilst the perspective of the enquiry is orientated towards and includes informed collaborations from expert spatial practitioners including architects, spatial designers, composers and way-finding specialists. This exemplifies the outward-looking attitude of the research, which has been channelled towards advancing reflexive architectural practice.

The time structure for the research is longitudinal, in the sense that the study unfolds over time through iteratively constructed site-responsive projects. The methodology uses site-responsive case studies and a perception based ordination practice to evolve and permit the development of new concepts and theories provoked between the interchangeable 'porous boundaries' (Nauman, 2004: 9) of agent-environment interactions. The longitudinal model for structuring the research also supports the interpretative nature of the investigation, whereby the strategies foster interdisciplinary transitions between environmental psychology, ecological systems and spatial practice.

## 2.1 Questions

The methodology is designed to answer three primary questions a). Can perception be defined as a typology? b). Can site-responsive perception be three-dimensionally mapped to reveal a behavioural parameter? and c). Can these parameters be organised to reveal a new spatial dimension? The first question is descriptive and relates to case study '1' with the origination of a typology matrix for classifying site-responsive *affects*, including sensory, emotional, and psychological registers. The project also includes a series of diagrams that help articulate spatial affects three-dimensionally in a series of tangentially centred zones. Case study '2' is relational and queries the perceptual dimension of *affect* within space and explores mapping processes to notate the *field* condition and proffers a new reflexive concept for coordinating perception through attentional vectors, causation sets and durational interrelations. The final case study is causal and questions generative perception as a design parameter by synthesising an operational praxis to create an inference model for propagating psychophysical inferences.

The case studies use a site-responsive practice to test, reveal and demonstrate the *felt\_space infrastructure* as an alternative root hypothesis for architecture. The research positions the body as an 'affective object' (Merleau-Ponty, 1961: 251) to reveal the 'tactile perception of space' (Merleau-Ponty, 1961: 253) and by considering the case studies from a descriptive, relational and causal perspective, three different epistemological standpoints are created to triangulate the findings within a critical framework. Finally the case studies use participants other than myself to gain greater objectivity and transferability to evolve a perception based ordination tool set.

site responsive

"by engaging with the site, the body comes to know itself" (theory of interchange), each object/space inscribes a particular trace upon the embodied map of consciousness

methodology

forensic science

Classification system, cataloging & retrieving latent trace 'evidence' providing links between contact (coefficient of adversaries) between people & objects/ spaces.

Process of calibration

mapping latent marks

Process of retrieving transference

Human contact traces

Receptor surfaces

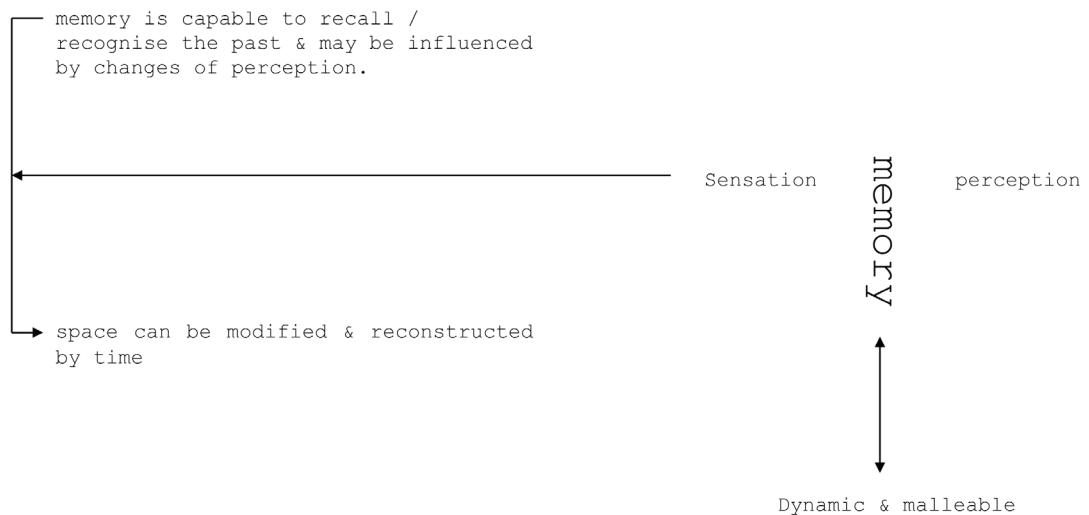
- sampling
- profiling
- amplification

building with memory/expresses time duration

Jane & louise wilson "the fabric of memory"

Excavation into the psychology of architecture

**Figure 1-2. Site-responsive diagram**



**Figure 2-2. Site-responsive memory diagram**



## 2.2 The host sites

The sites were chosen due to their physicality, scale and immediateness to the body. Each exerts a strong reaction on encountering, providing a forward mechanism for advancing the theory of *Raumfindung*. The sites include a) World War II Air Raid Protection (ARP) bunker, Plymouth; b) Dunkeswell airfield including B-24 US Navy Liberator Type T2 hangars, and c) the underground Vaults at The Roman Baths, Bath. The first two sites provide a distinctly different set of physical conditions and yet activated a similar strength of affective response relating to the psychological domain of spatial perception, whilst the third site provides a suspended space enabling me to fabricate and test a generative perceptual structure unaffected by contextual agency.

The sites are interpreted as an historic place for extreme modes of survival, an historic combat operating environment and an uncurated heritage site, cocooned within the sedimentary layers of cultural meanings. The methodology aims to identify the site-responsive conditions that activate a trans-subjective mode of perception, to test whether it was possible to manipulate, control and articulate perceptual space so as to generate an inference schema to bias reactive shifts in spatial consciousness.

The sites provide a critical vantage point as the perceptual registers are more acute, drawing the participants into a closer transactional dialogue with perceptual space. Using perception as an ordination process I want to determine the dimensional aspect of felt resistance that triggers moments of 'psychoanalytical conflict' (Darly Slack, 2005: 159). The new ordination system uses an externalisation methodology to enter the sensation domain of the psychological dimension, which has been previously territorialised by the Deleuzian concept of the 'Event, which being always in disequilibrium' (Deleuze,



Figure 3-2. Author site-responsive mapping

1990, original 1969: 75). The methodology reinforces the transactional approach to the thesis that aims to reveal the *portamento* or carriage of perception through the associative potentials of agent-space interaction. Further, Gaston Bachelard's (1942) theory of the *Coefficient of Adversity* is interpreted as a means to valence the counter-force dimension of the *affect-field* interdependencies, together with contextual support through the interpretation of Merleau-Ponty (1964), Lewin (1936), Sartre (1943), Foucault (1967), Vidler (1992), Massey (2005), Edensor (2005) and Smithson (1967) to help elucidate the site-responsive nature of psychological experience of immersive structures.

## 2.3 Methodology aims

The primary aim for the thesis advances the *felt\_space infrastructure* as an operational design interpretation of *Raumfindung* and includes the following outcomes:

1. The production of an operational grammar to drive *Raumfindung* typologies.
2. Perceptual mappings that three-dimensionally visualise the cognitive and associative attentional systems including magnitude and dynamics of *felt\_space* deformations.
3. Composition schema as a mode of inference planning to propagate generative perception - where 'inferences emerge' (Harries-Jones, 2002: 93) to create a live interactive demonstration of a visceral space.

The case studies advocate the compositional role of augmenting perceptual-environmental feedback mechanisms to extend the psychophysical dimension of space that constitutes the potential to yield the 'extra-existents' (Deleuze, 1990: 42) for spatial practice.

## 2.4 Communication methodologies

The case studies include classification typologies, documentary photography, diagramming, mapping, notational form, schema, audio-visual triggers, custom software, eye tracking video, bio-feedback technology and live participation.

Whilst functioning as a supportive framework to process and articulate the research in an experiential and participatory manner, the communication tools operate as a mode of hyper vigilant sensing, transmitting the conveyance of perceptual transference by interpreting site-responsive feedback and reflexive theory as a conveyance system to transmit perceptual meaning.

The thesis includes the following communication infrastructures:

- Diagrams perform as layering systems within an associative referencing framework.
- Mapping drawings are designed as a tool to sequester perception-centred data, in particular the exteroceptive and interoceptive incidents are mapped against a pentatonic milieu of emotive and physical experiences, which structures a schematic matrix. This establishes the foundation for an ordination database, calibrated to articulate the interrelationship between the body, the mind and serial perceptual experiences - through time and space.
- Schematic notations codify the spatial grammar and develop the diagrams through a durational metric, using detailed tags and signatures, transforming the abstract to a more tangible body of information that is capable of transmitting the structure of spatiotemporal environments.

- Visualisations communicate the work in a visceral manner to raise the threshold of spatial sensitivity and deepen the understanding of spatiotemporal cues/triggers that flavour the spatial experience. A wide screen format is used to induce a more immersive aspect. This methodology gives rise to the integration of the percipient within the field of the work and propagates a deeper, more comprehensive understanding.

## 2.5 Ordination praxis

My thesis re-orientates the architectural conventions of 'axiality, symmetry or formal sequence' (Allen, 1997: 24), to pursue perception as a primary parameter for spatial practice. Akin to forensic profiling, the first case study originates a perceptual friction typology called 'cognitive-tope classification' that calibrates the performative values of multi-modal feedback including expression accent, physiological instinct, behavioural intuition, cognitive attention and experiential dynamics. The cognitive-tope classification makes new links between environmental psychological, qualitative characteristics of situated cognition and body dynamics.

The second case study explores mapping as an ordination tool to challenge the standard geometric codification of spatial organisation and explore a more dynamic, ecologically based form of notation. The mappings explore 'the felt reality of reality' (Massumi, 2002: 16) as a new reflexive way of measuring architectural experience whilst examining the nature of phenomenological feedback through transference recordings.

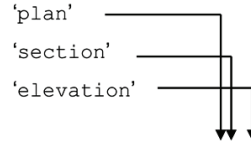
The last case study pursues generative perception as an ordination system for inferring modes of hyper vigilant somatosensory amplification, advocating the extension of architectural space through the attenuation of perception.

Ordination

geometric principle/  
authority to organise  
architecture

process of order,  
coordination & designing

as represented through the  
architectural conventions of



displaying orthogonal geometric reference

Figure 4-2. Ordination principles

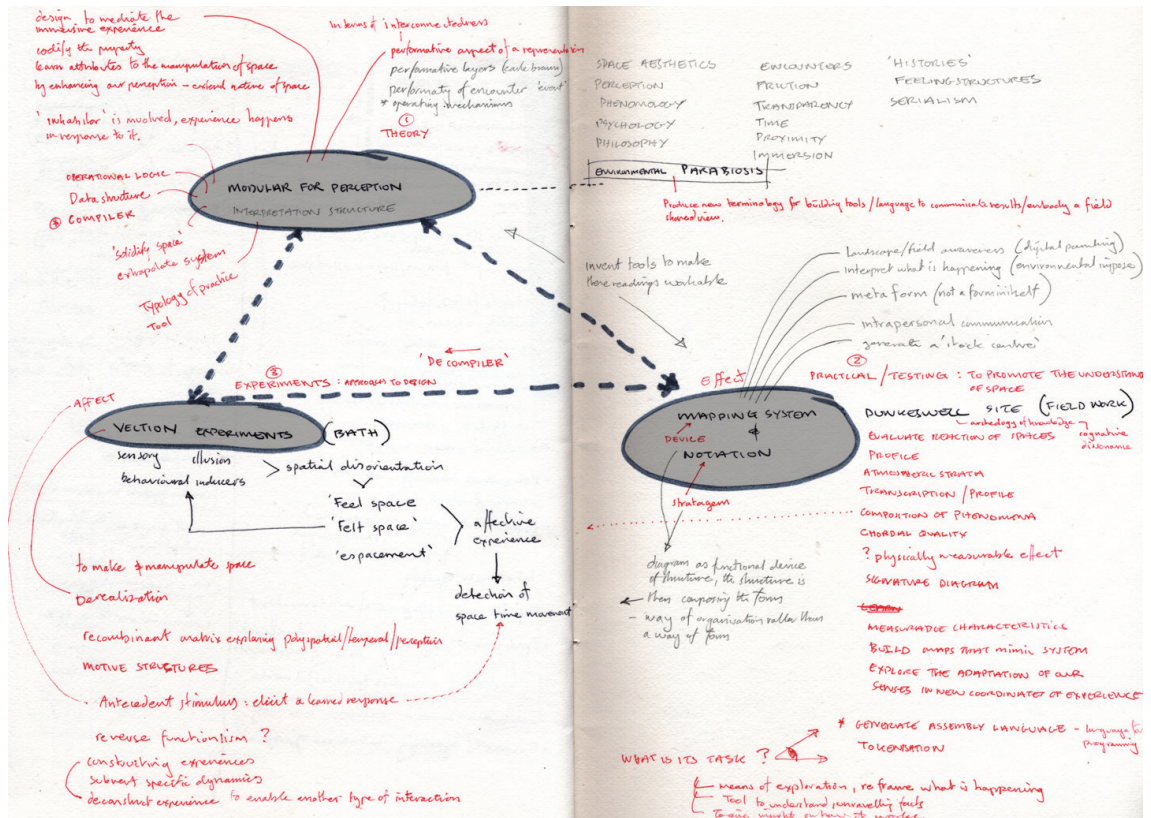


Figure 5-2. Diagrammatic sketch overview

The methodology is tasked to build operational and organisational potentials by exploring the forces or ‘valences’ (Lewin, 1936: 218) of affect-field attributes associated to *Raumfindung*. By re-orientating architectural practice to reveal the visceral dimension of perceptual space, the methodology amplifies the circular causal relationships between agent and environmental modalities.

## 2.6 Methodology summary

By engaging with the site, the body comes to know itself as a relational mode of interchange. The research actively promotes an interactionist methodology at the centre of the thesis, repositioning architectural practice as an ‘effector system’ (Robbins & Ayded, 2009: 7). By advocating perception as an affective structure, the work penetrates the inner essence of perceptual space to provide an in-depth understanding of *Raumfindung* whereby the thesis locates the *felt\_space infrastructure* as an extended parameter for spatial practice. As a result, my thesis situates *Raumfindung* as the unit of analysis and investigates the causal exchange as a mechanism to extend the reflexive terrain of architecture. By questioning how cause-effect-design-affect feedback models of spatial perception can be synthesised into architectural practice (an architecture described in terms of a typology of practice, chartered through moments of transition and counter-force) the research acts as problem statement to synthesise new strategies of reflexive engagement by interrogating the nature of generative perception.

# 03\_Case Study 1\_ARP Bunker

## 3.1 Overview

Case study '1' is descriptive and constructive in nature and analyses the phenomenological presence of a hidden ARP bunker in the City of Plymouth. The study involved participant site-responsive feedback via diagramming, survey notes and workshop. The practice established the first series of transactional engagements to establish the operational behaviour of the *affect* axis of the *felt\_space infrastructure*. The author also included participant observations and recordings that documented the encounter through text, drawings, diagrams, photographs and site-responsive feedback. These readings were hermeneutically developed to evolve a taxonomy matrix to better understand *Raumfindung* as a series of psychophysical events zoned as spheres of influence in which one can distinguish regions of *affect*, representing a site-responsive signature. The spheres identified the relations of *affect* proximity and amplitude to the body, in which the qualitative properties of the *affect* axis were characterised as coaction nodes scaled along the *felt\_space infrastructure affect* axis. The taxonomy makes new connections between psychological terms and reflexive architecture, emphasising the performativity of agent-environment feedback.



The first case study was understood as a form of prosodic analysis, creating an inference schema planning model database for future creative and theoretical stimulus. The exchange-flow between the qualitative site-responsive investigations and the theoretical interpretations introduced the first iteration of the perception-based ordination practice resulting in a series of *affect*-based prototypical diagrams.

### 3.2 Context

The desolation of Plymouth during WWII initiated a new beginning, sparking a new major development in Plymouth's history. Cities are not fixed entities; they evolve, develop and re-invent themselves, exemplified in the case of Plymouth's reconstruction. Shortly following the appointment of architect Patrick Abercrombie (invited by Lord Astor), together with the city engineer James Paton Watson, an optimistic new plan was produced for a democratised population. Work started in 1947, signalling Plymouth to be one of the first cities to be rebuilt after the devastating war:

“Seven months after the Plymouth Blitz, the city fathers retained the services of Sir Patrick Abercrombie, then peerless in town development. A consultancy fee of £800 was agreed for him to prepare plans for a new Plymouth. This vision of a city which would improve the quality of life of contemporary Plymouthians and subsequent generations was accepted and eventually implemented.”

(Wasley: 1991: 164)

The redesign of Plymouth was based on strictly defined functional zones with *neighbourhood units* each having a precinct, serviced by efficient traffic and pedestrian conduits. In moving the new vision forward, Plymouth turned its back on its unique historical provenance, cutting its ties to the past, as a rectilinear north-south grid was laid down over the rubble. Weary of the tormenting ruins, Plymouth's Abercrombie Plan looked to the future, sweeping much of the old city away (albeit retaining the token historic Barbican). Jeremy Gould, Head of School of Architecture at Plymouth University (2004 – 2010), writes about the fatigued past being replaced with a new “regular” vision “both real and irresistible”<sup>1</sup>, and rather than considering a pseudo-historical master plan that reflected the distinctive Naval history or historical harbour (Plymouth boasting a major trading port since the 15<sup>th</sup> Century), a new revitalising vision transformed the immediate environment into a pristine metropolis.

A city's history can help us understand change in the society's values, as modes of behaviour make evident the factors that shape civic ideas and cultural identity. As the home base of the British Royal Navy, Plymouth played strategic roles during the First and Second World Wars, and, as a result, suffered catastrophic damage. The Abercrombie Plan retained some elements of this history, as in the historical Barbican, but perhaps the most striking and revealing image of Plymouth's vision for modernity was the bombed out Charles Church, now marooned on a road island, providing a stark emblematic symbol of the city's historical detachment, a societal disconnection between the past, present and future.



**Figure 1-3.** ARP bunker locations, Plymouth and West Devon Record Office

<sup>1</sup> See link: [http://www.ihbc.org.uk/context\\_archive/96/gould/jeremy.htm](http://www.ihbc.org.uk/context_archive/96/gould/jeremy.htm)

The city of Plymouth seemed to have dispensed with its cultural history and yet buried beneath the city around four hundred and thirty five air raid bunkers, quietly agitating the temporal envelope:

*“After the bright white nothingness of modernity, once again we expect to draw forth from the urban terrain hidden meanings and unconscious memories that we believe lie buried in the material form and generating structure of the city: meanings and memories that offer the pleasure of recognition and collective well-being.”*

(Boyer, 1994: 19)

Splintered deep into the fabric of the city remains the hidden network of Air Raid Protection (ARP) bunkers. Today these subterranean vessels offer an experiential and visceral opportunity to reconnect with Plymouth’s forgotten history.

*“On the other hand, to read across and through the different layers and strata of the city requires that the spectators establish a constant play between surface and deep structured forms, between purely visible and intuitive or evocative allusions.”*

(Boyer, 1994: 21)

Boyer proposes that a tactile investigation of *surface* makes a connection to the *deep structured forms* making explicit the event-evidence of the historical past, and thus to reconnect the ties with Plymouth’s past one must *‘progressively engage the past and the present with the future’*<sup>2</sup> (Abramson, 1999). By investigating these historical traces, although underground, hidden and divorced from time and the social realm of the city above, contemporary value

---

<sup>2</sup> See Daniel Abramson’s *History’s Critique of Memory*, Harvard Design Magazine, Fall 1999, Number 9.

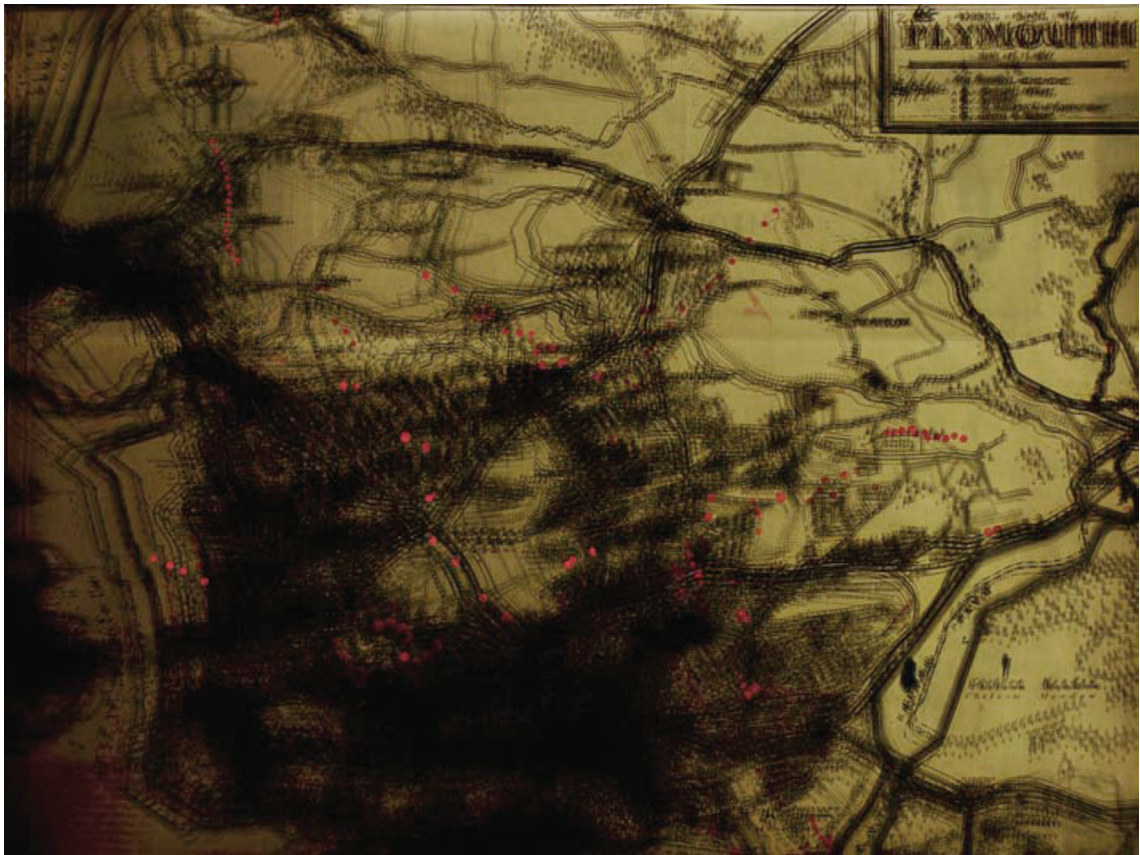


Figure 2-3. Total bombing raids, Plymouth and West Devon Record Office

Wiring of Air Raid Shelters.  
 = = = = =

Further to my report of the 9th instant, I submit for the Emergency Committee the following brief report on the present position of the wiring of air raid shelters :-

	<u>Shelters for Corporation Flats.</u>	<u>Communal Shelters.</u>	<u>Total.</u>
Total number notified to Electricity Department ...	24 sites.	411 sites.	435 sites. †
(a) Completed ...	23 "	262 "	285 " †
Increase since 9th December:	13 "	23 "	36 " †
(b) Nearing completion (work in hand) ...	1 site	7 "	8 " †
(c) Awaiting commencement of Corporation and Contractors work ...	-	141 "	141 " †
Reduction since 9th December ...	-	15 "	15 " †

Figure 3-3. Wiring of Air Raid Shelters, Plymouth and West Devon Record Office

systems and the cultural significance of these hidden structures are questioned to amplify the importance of these bunkers as integral and legitimate structures, sustaining a reconnection to the memories and cultural history of the City of Plymouth:

“Against the century’s traumatic horrors, memory authenticates redemptive witnessing. Against the century’s rootlessness, memory valorizes the aura of place. In a forgetful century, memory resists.”

(Abramson, 1999: 2)

As Abramson notes, these concealed structures act as spatiotemporal receptacles or submerged silos, encoded with the extreme relationship between people, fear and estrangement, with a fermata<sup>3</sup> to the successive layers of a city’s physical and psychological identity.

### **3.3 Author’s site-response**

Entering the dark-filled bunker deeply plunged into the earth, the external day-to-day events fade out as the horizon level steadily rises in descending. Travelling down the access steps cast into the ground, the peripherals of vision and sound are compressed, and focus on the pale light emphasising the threshold entrance and access to the bunker ahead. At the bottom of the steps, the gradual encroachment of confinement shrouds the human sensorium, triggering a perceptual dissonance as the sense of perspective changes abruptly into a strong-locked sense of tight immersion. Combined with the crosscutting of situation and dislocation,

---

<sup>3</sup> Musical notation for the prolongation of a note or pause, used here to describe the bunker structure as a function for modulating the sense of time and history.



**Figure 4-3.** ARP bunker entrance, Plymouth: vertical panorama

the architecture positions the percipient into a progressive encounter with an environment “out of sync” with the surface of the contemporary domain. The anticipation pivots on crossing the opening, and a palpable sense of suspended time pulls at me, allowing the drainage of linear time.

Towards the inside of the internal trench, the temperature drops and signatures of another time stratum become apparent; a polarised suspension gathers pressure, as the inferred trajectory of movement towards the still interior is counter-projected by the acquisition of a clear military provenance, a non-local space, a place of conflict, interned, etiolated and abandoned. A confrontational encounter is registered, allowing for an interrogation between a contemporary environment and the dormant history of a lost but tangible past. As the body adapts to the new climate, the senses register the physicality and volumetric presence of the motionless air, as if being pushed from a place of unrest heightening the three dimensionality of the contained volume, scripted recursively against being found or inhabited. And yet when encroached, ones awareness becomes integrated into the perceptual exchange system, becoming a fluctuating constituent dynamic in the bunker’s niche environment.

The counter-blast layout limits potential movement whilst giving affordance to the frontal plane. The kinesphere space surrounding you is close fitting with a prevailing dimensional direction to the front-back axis, whilst the scale of location is small, dominant and restrictive with limited space for leeway motion or vision. One walks through the figure-of-eight passageways made up of narrow grey reinforced concrete walls, floor and vaulted ceiling. Further exploration reveals a strange quality of a silo and as you pass further away from the light of the entrance, the agency of association rises as if being trapped



**Figure 5-3.** ARP bunker internal passageway



**Figure 6-3.** ARP bunker counterblast layout



within a catacomb. Tension increases with the uncertainty of what lies ahead, perhaps in retaliation to the imposing confinement, and yet the robust forms and directing passageways assert a stable, protective, crypt-like logic with an inferred internment without a destination or centre point.

The first time you explore the underground tunnels, the bunker becomes the centre of your world; as passages connect to passageways, the plan ushers you around with little room to roam freely. There is no vantage point to see the whole extent of the space, you cannot pull back and therefore it is difficult to be objective. The layout controls you, offering no 'slack' in the experience. Further, the perception of the space incites hostile references of war, stimulating your imagination to produce visions of people on the edge of death.

The confined space is tight, relentless and claustrophobic, triggering a memory of fear and entombment. The proximity of the enclosure and the suffocating weight of the ceiling oppresses the distance between the body and the converging walls, activating an expanding framework of sensory awareness calibrated in resistance to the direct communication with the structure. In touching the surface of the walls, the space between becomes explicit, and awakens a deeper, fuller sense of an internally orientated view of reality. The intimacy triggers a haptic telescoping of sense data, blurring the boundaries between the physical and psychological systems.

The physicality develops into a mental set, increasing the generation of a counter-tensioned spatiality, dense with a sense of disequilibrium as complex and multi dimensional atmospheric forces bounce and deform, agitating notes of consciousness, whilst making the isolation of perception complex and blurred.



**Figure 7-3.** ARP bunker internal threshold



**Figure 8-3.** ARP bunker seat-fixing scar

The space is separate and blacked-out from the continuity of the everyday and through the deprivation of light stimulates alternative modes of consciousness, as if psychoactive<sup>4</sup>, configuring involuntary behavioural mechanisms, generating a sense of sensory dislocation.

The darkened interior directs the viewer's attention to a personal system of perception with relational reasoning and multiple fields of interaction. The encounter advances with the sensation of isolation and disorientation, heightening the reception of even the smallest and most reticent of phenomena. The structure performs a form of sensory amplification, inducing the intensification of cognition, and sensitises the detection levels of sensory information that would scarcely be perceptible in the realm above and in the reality of the everyday. The disclosed bunker also maintains a climate of prolongation, manipulating time by conflating the boundaries between the internal and external perceptions of reality.

Sound is also distorted within the bunker, reinforcing a feeling of isolation as reflective echoes loop-back throughout the subterranean container. The embodiment of experience is intensified in these conditions; sensorial negotiations operate dynamically on spectral parameters, enfolding the corporeal in on itself, whilst fluctuations of signal transduction expand throughout bodily and mental states of distortion.

At the same time as feeling cut off and alienated from the world above, the sensory encapsulation gains mental acuity, stimulating overlaid realities adjacent to the architectural form. War consciousness becomes reflected into the very fabric of the bunker. Latent marks blend with the imagination and media saturated images of trauma seep in through the graffiti, the accidental

---

<sup>4</sup> Affecting behaviour, emotion and physical state.



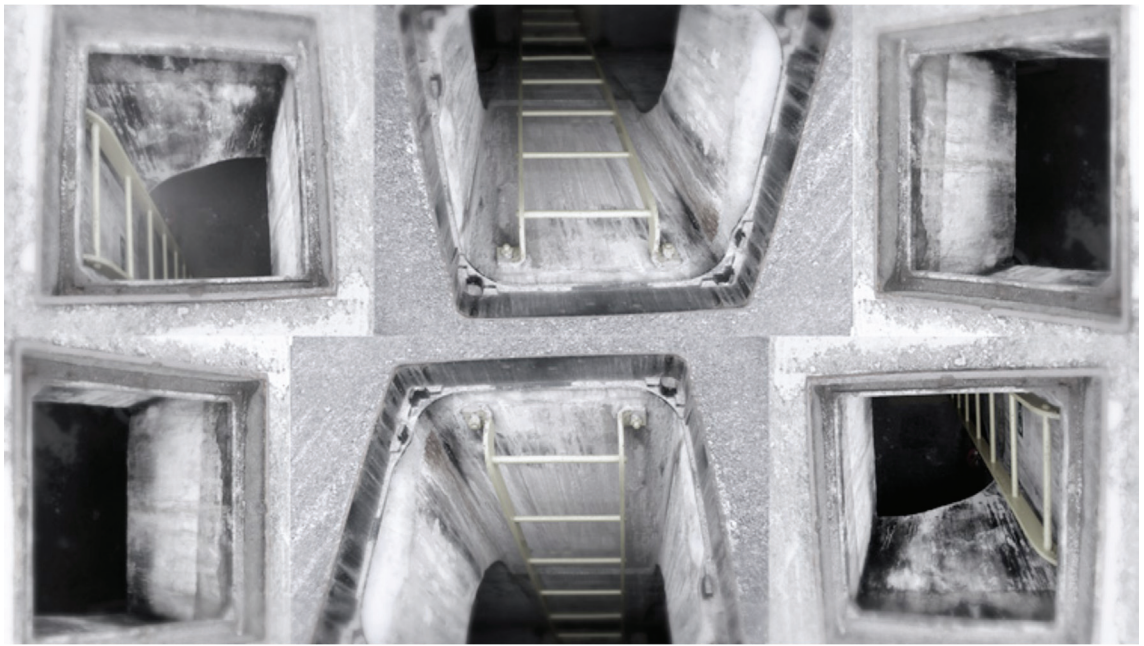
**Figure 9-3.** Plymouth blitz, Plymouth and West Devon Record Office

scratches that resonate with the incisions of history. The immediate and physical are challenged by the imaginary. A direct line to the events and sounds of the people who jettisoned their freedom in seeking protection by burrowing deeply into the ground challenges reality with a trans-subjective experience capable of bridging three generations. Engagement magnifies the context-dependent memory, the absence of the people becoming the presence.

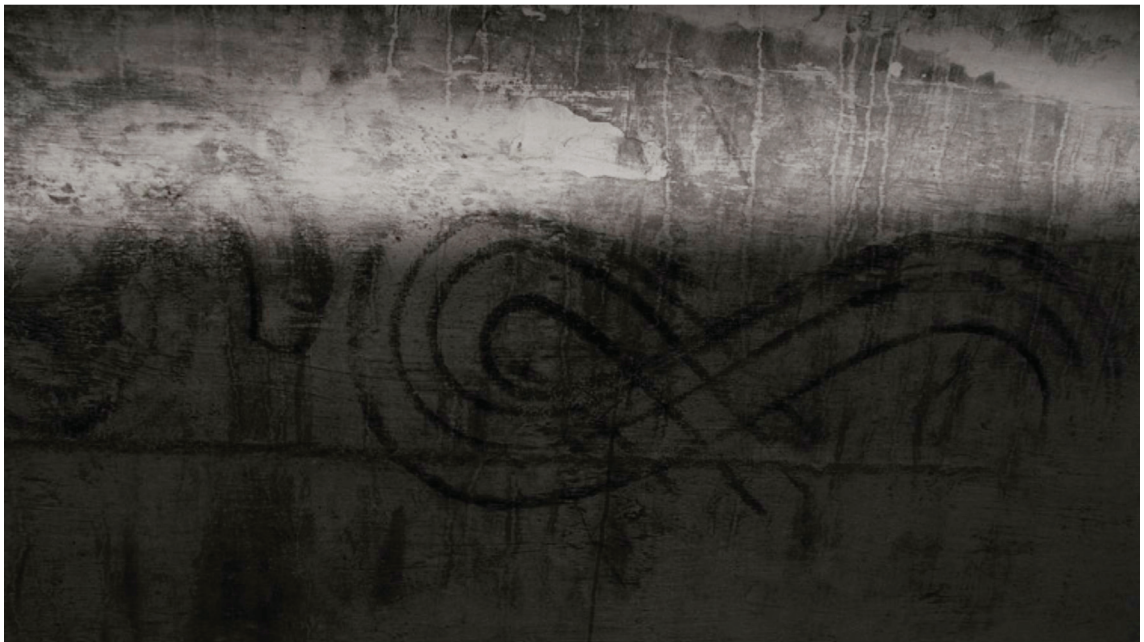
In leaving the bunker, a penetrating shock of light ruptures down through the exit; the rise of the body up the steps acquires necessary readjustment, the territorial features of the WWII bunker predominate the experience as if a semblance of emerging from an immersive fluid, a viscous medium. The smell and atmosphere cling to your person.

The enquiry explored the site as an extensive continuum, treating the physical conditions of the bunker as an infinitely extendable space, where fragments oscillate in temporal planes. Readings and observations of these spaces bring the event evidence of the historical face to face with today, on entering the bunkers it is possible to come into contact with a dissonant past. The work telescopes the perceptible constructs of latent presence by trawling and magnifying the palimpsest.

Concerned with phenomenological presence of the earth-bound structure, Plymouth's neglected site was examined through a system of architectonic experiments to construct a spatio-map codifying the tactile encounter with situation, materiality and the ephemeral. This referential knowledge was acquired by engaging the space. The body registered the space through the counter-force frictions of attention, perception, behaviour and emotional viscosity.



**Figure 10-3.** ARP bunker man holes



**Figure 11-3.** Graffiti

### 3.4 Practice

The project was predicated on the analysis of a WWII ARP bunker, Plymouth. The military site was studied as a self-contained enclosure, because the concrete galleries and atmospheric volume triggered a visceral experience in the percipient's mind. Concerned with the phenomenological presence of the bunker, the project examined the mnemonic structure to construct a perceptual, cognitive and associative *affect* classification database to identify prompts for the inference schema planning model. The bunker provided the experiential framework to gain greater insight into how the felt sense of space played an active part in influencing the creation of a dynamic architectural experience. A participant site-responsive survey and taxonomy classification process was used to unfold the complexities of the synergistic relationship between architectural space and *Raumfindung*.

The research focused on advancing the *affect* component within the *affect\_field* theory to advance the understanding of the *felt\_space infrastructure*. By using qualitative research methods involving data collection from participant observations, diagrammatic interpretations, feedback analysis and a participant workshop, where the architectural "event" was observed as 'the multi-valent, multi-layered social perception of objects in use' (Rhowbotham, 1999: 8), the case study produced a site-responsive *affect* taxonomy matrix and a diagram called *Zone of Influence* to communicate the findings. The research was presented as a paper at the *Hidden City Symposium*, Plymouth University; extracts from the case study were included in the peer reviewed journal: *Design Ecologies* 1: 2, pp. 285–301, doi: 10.1386/des.1.2.285\_7.



**Figure 12-3.** ARP bunker escape hatch



**Figure 13-3.** ARP bunker corner detail



The project heuristically used a field analysis process as a sensitising event to explore the percipient's psychological and physiological response to the architectural encounter. Further, the case study considered 'direct agent-environment couplings' (Clark 2008: 32) as a reflexive practice to heighten the body as an interface for studying the role of perceptual, cognitive and associative adaptability in enacting the bunker's profile.

### 3.5 Methodology

Rather than seeing practice and research as two distinct processes, the methodology integrated practice and research into a cyclical process of planning, acting, observing, reflecting and revised planning. To gain objectivity, the methodology included research participants who were asked to perform structured observations as a form of event sampling to survey the bunker. Following the participants' survey, a structured workshop took place as a form of probing to elicit further information from the participants. The data gathered from this exercise was then used by the author to advance a series of performative diagrams 'as a way of delineating and investigating disciplinary specificity and limits, and the points of similarity and difference' (Garcia, 2010: 37). Further, a taxonomy matrix was produced to build up a framework for the constructive representation of the physical and psychological processes that were adapted to record the special qualities of the ARP bunker. This included both the characteristic of environmental stimuli and affective response from the participant as a method to proceed the *felt\_space infrastructure* as a set of successive approximations to specify the *affect* content in relation to the agent-environment causal relationship.

Five spatial design students volunteered from the University of Plymouth and, although this did not produce a representative cross-section of people, the survey used a variety of qualitative methods in an attempt to produce generalisable data.

The participant survey took place on the ninth of June 2008 between ten am and one pm. The student cohort were introduced to the ARP bunker site-responsive survey as a group prior to the individual surveys that lasted for half an hour respectively. To help structure and focus the survey, I produced a survey form for the participants to complete, including a visual and text-based response, which included the opportunity to specify the number of times the participant had visited the site, as this could influence the freshness of interpretation. The form was simply designed to get a result regarding perceptual, emotional and physical response. I wanted a direct and unpolished response from the participants and the graphic part represented a more intuitive element that could reveal an easier connecting device to facilitate access to a more nuanced spectrum of responses including the psychological level. Further, the graphical interpretive element was included in order to develop a useful diagram-mapping tool to arrive at a non-verbal description, like a choreographed script.

The aim of the participant survey was to identify whether a pattern (or not) emerged as a response to encountering the bunker. If a pattern did exist then I may be able to establish how certain perceptual cues could trigger certain experiential responses, helping me establish an inference schema framework.

The ARP bunker triggered a strong historical dimension within my response and I wanted to see what effect the space would have on the participants' perception, whether they connected to it in a similar way. I chose the site specifically because of its historic patina, which was still vivid in my interpretation, although the

participants were younger; could the historical context radiate a latent memory through the space itself and influence the participants consciously through their knowledge - perhaps also an unconscious element may be detectable? Were the students able to detect the Genus loci, the essence of a place that couldn't be described otherwise? What were the triggers that influenced a multitude of perceptual experiences, and could the responses be classified as trans-subjective in spatial explicit manner to transmit the evidence in a communicative way? These questions helped me generate a more objective understanding as a form of evidence gathering.

By comparing the data sets, I wanted to detect whether there were any common patterns which, when combined with the in-depth workshop after the event, would help elaborate the complexities raised by the survey. Each participant surveyed the ARP bunker individually whilst being asked to complete the form during or immediately afterwards to capture their first reaction to the space.

The area surveyed included the entrance steps and the underground tunnels which had open manhole covers for ventilation. Each participant was free to explore the complex for a maximum time of half an hour. The participants were then asked not to confer their experiences until the workshop timetabled for the afternoon.

## Participants' response

The text-based responses are positioned below to enable general considerations to be gained. This was then followed by my interpretive analysis to summarise what the participants' recorded about the representation of agent-environment relationships, which were grouped together under the categories of *similarities* and *differences* so as to be able to distinguish between a collective underlying spatial reality and subjective regression. The observations roughly correlate between these two categories; however, as the survey dealt with psychological events, a degree of abstraction must be accounted for.

Participant: 01      Date: 09.06.08      Time: 10.30      Visits: 01

"On passing through the entrance to the bunker, I was made aware immediately that I had passed from one atmosphere into another. I had entered into a situation that was strange and different from the rest of Plymouth. Already as I descended the steps down into the narrow passageways I felt quite apprehensive. The walls had black soot with some graffiti, were damp and gritty to touch. I felt tense! And worried. There is little light only from above in shafts. It's eerie and full of atmospheres. The apprehension from the ceiling with the weight of the city above. Triggered patterns of how it must have felt for the people hiding during the war. Would they be able to hear the bombs? The destruction? Were they glad to be down here and safe? All I know is that I feel tense and hemmed in and my body feels tired and dispirited!"

---

Diagram annotations: Echo, smell, cold-proximity, blocked view: focus on details, tight space: hard floor.

---

Participant: 02      Date: 09.06.08      Time: 11.00      Visits: 01

"I can hear my footsteps when I walk through the narrow corridors and there is a slight echo. It raises my awareness of myself in this space. It smells quite damp like in old basements. The walls are painted white and look dirty. There are stains everywhere and graffiti. I'm glad when I can get out of here. There are manholes above, which let some light into the space. Nice to see the sun up there. It's a bit chilly down here. I felt sad for the people who had to hide here in the war. Must have been frightening to hear the bombs and feel the place shaking. Hope I'll never have to go through this myself."

---

Diagram annotations: Unknown space, tight, light = comfort, city seems far away, crust of dirt, marks, dampness, echo, dark, what's underneath?

---

Participant: 03

Date: 09.06.08

Time: 11.30

Visits: 01

“The first thing that hit me when I went down into the bunker was the change of temperature – it was fairly warm outside and I was suddenly aware that I was quite cold and felt a bit damp. This made me want to leave the space quickly again. The space wasn’t very light but it wasn’t dark either – light bulbs were shedding a dim cold light into the narrow corridors, onto the floor and walls and there was natural light coming through some manholes above me. I liked the patterns, which were cast through these openings onto the bare walls and thought that this would make interesting photographs. There were little ladders to each manhole – they looked like a scene in a science fiction film or a stage setting and I started to think about my project. I wasn’t afraid or anxious when I walked through the narrow corridors but my senses were alert and ‘activated’ and I noticed a lot of details on the floors and walls (graffiti etc.). I tried to think of the people who had to hide here in the 2nd World War and I felt strange. It made me realise that I’m just a small part of a never-ending stream of events. – One in a million of past and future generations to walk through this and all other places I’ve been to.

---

Diagram annotations: 1st sphere: seeing, hearing, touching, smelling, me. Senses alert. 2nd sphere: Bunker, cold, light pattern on walls, narrow, history, dimmed light, dirt, damp. 3rd sphere: City of Plymouth, normal everyday life, busy sun, warm, outside world, 4th outer sphere: terror bombs, fear, imagined past, imagined future, research museum, shelter, war?

---

Participant: 04

Date: 09.06.08

Time: 12.00

Visits: 01

“Strong association of history – 2nd WW. Senses are focused by limited sight. Imagination is firing – intense. Cold to touch, solid feeling – claustrophobic trapped. Dark and quiet – strong contrast with outside – bright and warm – strong juxtaposition.”

---

Diagram annotations: Past – Future.

---

Participant: 05

Date: 09.06.08

Time: 12.30

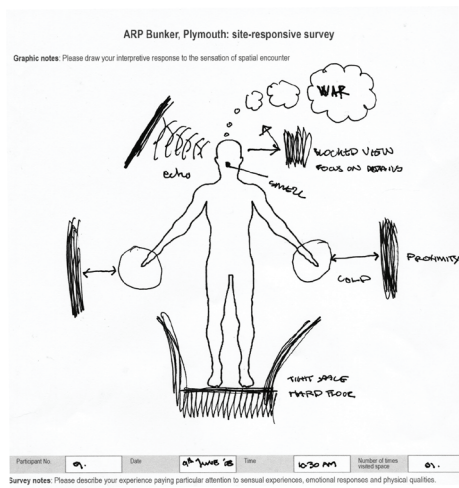
Visits: 01

“I feel heavy in this dark space, my eyes slowly adjust and I feel uncertain as I re-focus. My other senses amplify to compensate. It’s colder than outside and my sense of sound works harder as city noises die away and replaced with own body sounds and footsteps again I feel more aware of my self in this unusual, but slightly scary place. I sense history physically as if time jumping!”

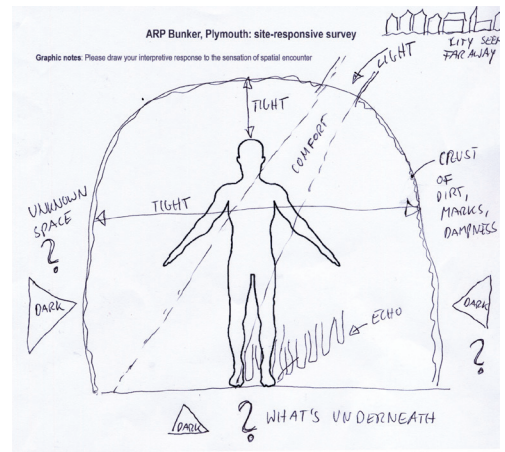
---

Diagram annotations: Blocked sight, sensitive, time jumping, noise, self focused.

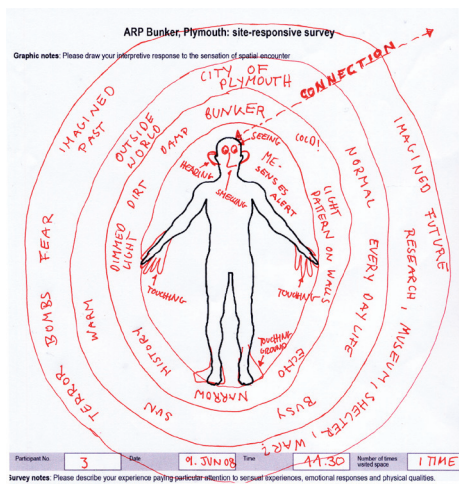
---



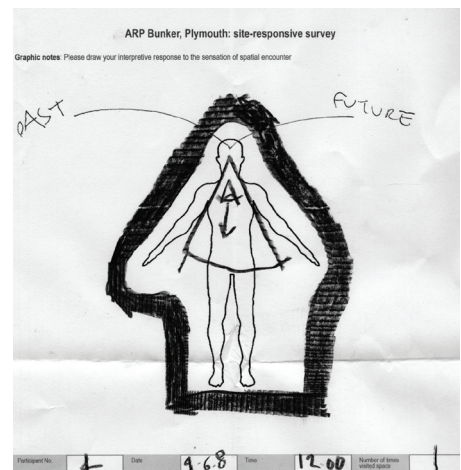
**Figure 14-3.** Participant 1 graphic interpretation



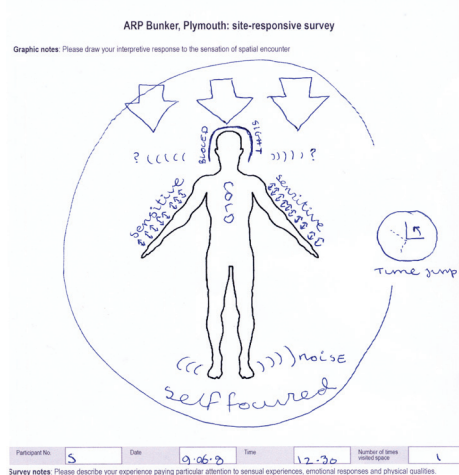
**Figure 15-3.** Participant 2 graphic interpretation



**Figure 16-3.** Participant 3 graphic interpretation



**Figure 17-3.** Participant 4 graphic interpretation



**Figure 18-3.** Participant 5 graphic interpretation

## 3.6 Interpretation of Participant Surveys

### SIMILARITIES

#### Perceptual sensitisation

All the participants commented on how the ARP bunker enveloped them, triggering a heightened sense of perception 'I was made aware immediately' (participant 01), 'it raises my awareness' (participant 02), 'I was suddenly aware' (participant 03), 'my senses were activated' (participant 03), 'senses are focused' (participant 04) and 'my other senses amplify' (participant 05), who included visual arrows expanding from the figure to demonstrate sensory amplification. The onset of this shift in perceptual attention could be attributed to being 'hit' (participant 03) by the 'strong contrast' (participant 04) of passing 'from one atmosphere into another' (participant 01). The decreased level of lighting further increased the effect, which included a focusing condition as a result of the 'limited sight' (participant 04).

## **Perceptual modulation**

The sustaining factor that maintained the increased perceptual awareness was attributed to the subterranean context with the 'weight of the city above' (participant 01), a common theme that materialised within the participants' diagrams, notably participant 05. The text and diagrams also included the sense of 'awareness of myself' (participant 02) because of the acoustic properties enabling the participants to 'hear my footsteps' (participant 02) and also the 'change in temperature' (participant 03) which was also identified by participant 04. The sense of smell also contributed to the fundamental experience of the bunker, where the 'damp' (participant 02) smell triggered a sense of reflection 'like in old basements' (participant 02). The physical attributes to the experience was particularly visible within the diagrammatic responses, Participant 01 visualised a 'tight-space' (participant 01) with 'cold-proximities' (participant 01). This motif was common to all the participants whose diagrammatic interpretations notably included a strong sense of envelopment. Participant 03 introduced concentric rings to depict the proximity value radiating out from the body and linked these zones of 'connection' (participant 03) to different modes of relationality.

## **Emotive behaviour**

The self-awareness directed a rapid onset of perceptual feedback signatures that gave rise to the sensation of tensional *affect* as noted by participant 01 'I felt tense and worried'. This gave rise to the sensation of 'apprehension' (participant 01), 'sad' (participant 02), 'strange' (participant 03), 'claustrophobic, trapped' (participant 04) and 'uncertain' (participant 05). This complex array of codex signals served as the starting point to for the participants to cognitively and associatively expand the dimensionality of the perception field, to include virtual projections of trans-subjective memories.



## **Episodic agency**

Both participant 04 and 05 diagrammatically recorded the sensation of 'time jumping' (participant 05), whilst participant 04 drew linking arrows to the words 'past – future' (participant 04). The agency and content of these experiences primarily related to the 'reflexive, or unconditioned response' (Butler and McManus, 1989: 31) that converged as mental activities associated to the memory of the Plymouth blitz. Participant 02 linked the effects of associating trans-subjective memories of war to the presence or absence of light, as shown by the diagram, where as participant 05 attributed the felt sensation of the affect as if feeling 'history physically' (participant 05). Participant 03 recorded the transference of the access ladders to a behavioural response, interpreting the experience to 'a scene in a science fiction film' (participant 03).

## **DIFFERENCES**

Most of the participants interpreted the ARP bunker experience in a similar way, noting the general negatively valenced sensations of estrangement, however participant 03 was the only person who viewed the survey in a more positive manner and in particular found the light patterns on the bunker's walls inspirational, noting that they 'would make interesting photographs' (participant 03). The visual recordings also were very similar, with each depicting a sense of enclosure around the body, with linking motifs stemming from the head, reaching out to either the city above or more psychological attributes of time and memory. Participant 01 was the only one not to visualise a complete circle enveloping the body, rather zones of tangency were depicted adjacent to the head, hands and feet.

## Workshop

After the site-responsive survey, I ran a focus group workshop to explore the findings in an attempt to collectively organise the data so as to originate the *affect* taxonomy. The session was designed to communicate the behaviour associations and correlate the complexities of perceptual space interrelationships by categorising the qualitative data as quantitative perception values. To help concentrate the session, and place greater emphasis on understanding the spatiality of experience, a schedule of questions based upon Professor Antti Revonsuo's (2006) conceptual map of 'the diversity of conscious' (2006: 30). Revonsuo's book *Inner Presence* argues for a causal role of phenomenological consciousness and established six clearly defined categories of consciousness, which enabled me to expand the survey exercise into a deeper, more detailed account of spatial interpretation.

Revonsuo's six 'basic concepts of consciousness' (Revonsuo, 2006: 32–35), include:

- *Phenomenal consciousness*: the momentary sphere of subjective experience, the 'world-for-me' (Revonsuo, 2006: 32). Revonsuo frames the sensory-perceptual experience of consciousness through perceiving experience via visual, auditory, bodily, olfactory and gustatory experiences.
- *Presence*: a sensation that manifests itself in the subjective perceptual space as both 'spatially and temporal' (Revonsuo, 2006: 33). Revonsuo highlights the importance of dynamic space and temporality by referring presence to "flow" and "momentary"; further, there is no distinction between externally or internally perceived presences.

- *Location*: experience located within 'sphere of subjective experience' (Revonsuo, 2006: 34); Revonsuo articulates the notion of "extension" being triggered by value systems such as colour or intensity.
- *Duration*: the presence of time, experience manifesting itself and passing through a durational value.
- *Intensity*: distinguishing feature of experience expressed through 'dimension of strength' (Revonsuo, 2006: 34) and durational temporalities.
- *Quality*: the "identity" of qualitative characteristic. Revonsuo notes the term "Qualia" defined by C. I. Lewis ([1929] 1956) as the description of qualitative experience, in this context quality was taken to mean the approximate values of *affect*.

Revonsuo's model of consciousness provided a bridging framework enabling me to link my research to the bunker workshop with clearly defined categories providing a useful device to ratchet up the diagnostic discussions into a more multi-dimensional discussion about spatial perception. To further aid this transition, I had produced a summary of questions that accompanied the profiling workshop to help define the limits and context of the exercise. The questions included:

- What were the phenomenal components of the experience?
- How did the presence manifest itself within the bunker?
- Where in the 'sphere of experience' (Lewin, 1936: 94) was *affect* located?
- What values of time were experienced?
- What were the distinguishing features of experience?
- What was the qualitative characteristic of the experience?



Space Perception Value Intensity Direction Proportion Syntax Tempo

Expression Accent

Physiological Instinct

Behavioural Intuition

Cognitive Attention

Experiential Dynamics

Visual System

Auditory System

Taste-Smell System

Basic Orientation System

Haptic System

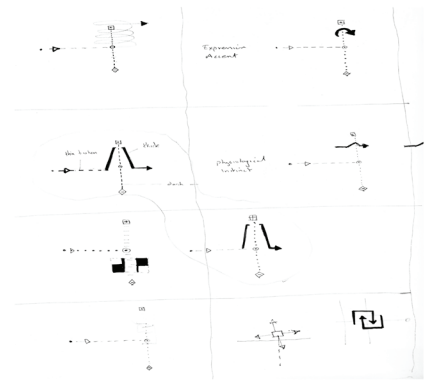


Figure 19-3. ARP bunker affect taxonomy workshop

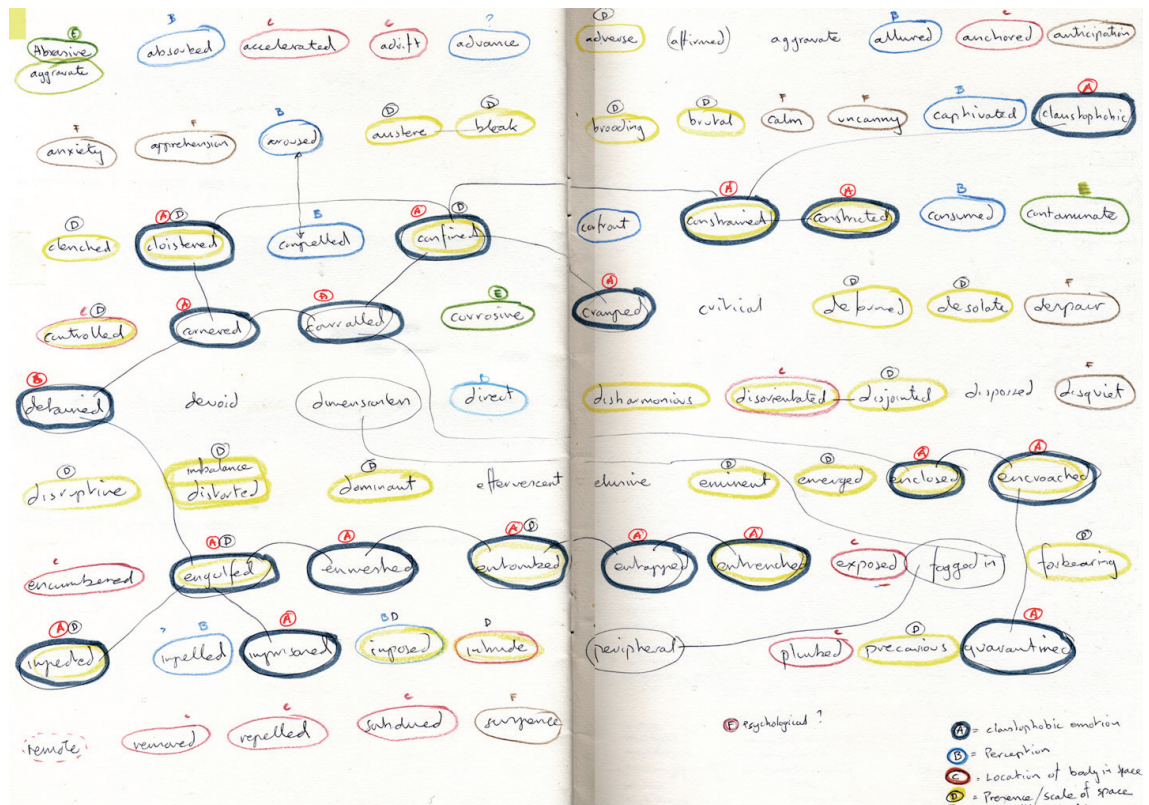


Figure 20-3. Affect taxonomy interrelationships

These questions aimed to decipher the perceptual location and magnitude of *affect*, intensity and duration of perceptual deformation within the ARP bunker. Each question was considered as a form of focused ‘attention’ (Merleau-Ponty [1945] 1962: 3) specifically designed to calibrate the temporal and dimensional values of the case study. The data from this workshop concluded in two outcomes, the *cognitive-tope classification* matrix and the *zones of influence diagram*.

### **Cognitive-tope Classification**

I originated the *cognitive-tope classification* matrix as a new form of spatial taxonomy that classified the behavioural influences of *affect* by linking together the spatiality characteristics of the attention trigger that elicited the psychoactive response. The term *cognitive-tope* was used to describe the nature of interchange between the percipient and the spatially explicit environment. The phrase derived from *ecotope*, an expression coined by the ecologist Arthur Townsley (1871–1955), where *eco* refers to the interaction and *tope* means explicit or defined environment. Combining *cognitive-* and *-tope* together emphasis the interrelationship between the percipient’s constructions of reality directly adjacent to the enveloping environment.

The *cognitive-tope classification* matrix combined the critical observations from the participants, stratified by Revensuo’s interpretation of consciousness. Whilst aiming to provide a hyper vigilant classification system to be used for gathering situational information for the understanding of the ‘mechanisms of place’ (Malner and Vodvarka, 2010: 112), the *cognitive-tope classification* matrix was designed to reflexively extend ‘spatial knowledge’ (Schaik, 2008:31), by including the ‘psychological components’ (Butler & McManus, 1998:62) of perceptual space. The *cognitive-tope classification* matrix re-calibrates a higher level of detailed space analysis by focusing on the reflexive correlation of

perceptual, cognitive and associative experiential dynamics with the immersive qualities of spatial engagement. The work contributes to Gaston Bachelard's psychological study of lived space and the inhabitation of reciprocity termed as 'topoanalysis' (Bachelard 1964:8).

The *cognitive-tope classification* matrix generates a hypothetical environment comprising of three primary domains. The first included components of experiential behaviour and emotion extracted from the participant survey. The second domain included modes of spatial consciousness interpreted from Revonsuo's model of consciousness explored at the participant workshop, and the last domain included experiential dynamics, again as a result of the workshop. To help me structure the behaviour and emotive responses, I interpreted Butler and McManus's (1998) model of emotion, thus the *cognitive-tope classification* matrix included:

Butler and McManus's five components of emotion including: experience, expression, cognition, physiology and behaviour.

Revonsuo's modes of consciousness including: phenomenal consciousness, presence, duration and quality.

Dynamic space values including: tempo, intensity, syntax, proportion and direction.

Revonsuo's model of consciousness (Revonsuo, 2006)	Phenomenal consciousness	presence	duration	intensity	quality
Components of emotion (Butler & McManus, 1998)	Experience	expression	cognition	physiological	behaviour
Dynamic space values	Tempo	intensity	syntax	proportion	direction
Felt-space taxonomy of signal transduction	Experiential Dynamics	expression accent	cognitive attention	physiological instinct	behavioural intuition

**Figure 21-3.** Cognitive-tope classification matrix

The combinatory result of the *cognitive-tope classification* matrix articulates the *felt\_space infrastructure* as a typology contingent on (a) co-emergent agent-environment interrelationships, (b) agent-environment feedback loops, and (c) hyper vigilant spatial awareness. The matrix aimed to describe the affect axis of the *felt\_space infrastructure* as perceptual feedback shifts, which displayed signatures of plasticity, momentum and relational behavioural modification. The taxonomy includes:

### **Expression Accent**

When perceiving accented spatial expressions, the duration and amplitude of *affect* is stressed. The expression accent of *felt\_space* is made distinct by differences in amplitude of *affect*. The expression accent is perception-cognitive dependent, whereby the force of accented amplitude distorts the *field* as concentric affects radiating throughout the field.

### **Physiological Instinct**

Refers to the percipients' bodily processes adapting to environmental conditions, whereby the space between the percipient and the surrounding environment triggers a particular inclination to the experiencing of *felt\_space*. Physiological instinct is not a learnt response, but can progress into a behavioural response within the percipient. Physiological instinct is perception-dependent, whereby the *affect* distorts the field through entrained densities.



## **Behavioural Intuition**

Moves forward the physiological instinct of *felt\_space* as a behavioural or learnt response. The components of behaviour intuition recognise the inherent manner of response as a form of imprinted, learnt content transmitted through a unit of tension between the externally orientated 'pick up' (Gibson, 1966: 251) and the counter tensioned internal orientated force of behavioural insight. Behavioural intuition is associated with memory and is cognitive-associative dependant, whereby the spatial tension is realised forming a moment series between convergences or graining around the externalisation volutes.

## **Cognitive Attention**

Cognitive attention orientates the origin and location of cognitive detection adjacent to the external stimuli. Having been processed through perceptual and associative channels of consciousness, cognitive attention is cognitive-perceptual dependant whereby the voxelated arrays of cognitive force are cued into reflexive currents.

## **Experiential dynamics**

*Felt\_space* consciousness gained through the moving relationship between agent and environment. Experiential dynamics is considered as a force acting upon the mediation and deformation of experience. Experiential dynamics articulates the *felt\_space* consciousness of balance and movement, amplifying the quality of passing through volumes of space. Experiential dynamics has directional dimension, realises the spatial progression, transforming the *felt\_space* components into motion.

The *cognitive-tope classification* matrix systemises the participant surveys into a communicative system of 'relative quality' (Rhowbotham, 1999: 28) promoting and strengthening the perceptual relationship between 'cognitive and affective processes' (Bonnes & Secchiaroli, 1995:16) in reflexive space analysis. Further, the heuristic practice synthesises new 'portmanteau words' (Deleuze, 1990: 53) to help define the meaning and understanding of *Raumfindung*.

Gilles Deleuze (1990) in *The Logic of Sense* explored Lewis Carroll's conjunctive method of forming *portmanteau words* to ramify meaning from compositing two different words or senses together:

"The ramifying function or the disjunctive synthesis offers the real definition of the portmanteau word."

(Deleuze, 1990: 56)

Deleuze described Carroll's portmanteau words as a compositional literature method, which 'guarantees the correspondence of the two series' (Deleuze, 1990: 52). The synthesis of coexisting words or denotations constructs a new 'dimension of proposition' (Deleuze, 1990: 52) signifying a duality between expression and correlative concept. The *cognitive-tope classification* matrix used the portmanteau practice of synthesising new terms to "ramify" the corresponding series between the agent and environment, extending the interpretation of architectural taxonomy.

### 3.7 Zones of Influence

Output two included a series of diagrams aiming to realise the cognitive-tope classification matrix in a more visual manner. This culminated in the Zones of Influence diagram that territorially inscribed the zones of influence as proximity rings on the axis locating the force of *affect*. The diagram was designed to visually communicate the concept of “self” as a locative agent to spatialise affects within a performative schema. The Zones of Influence can be summarised as a the scalar structure including five sphere domains (1) locus: the cognitive, internal furniture for psychological space; (2) micro sphere: the immediate physical space relative to the percipient, perceived by tactile sensations giving rise to a series of qualitative sensations; (3) meso sphere: reflecting the bodily movement-sensation, highlighting the extension of felt change that is natively adjusted relative to kinaesthetic axis; (4) exo sphere: the environmental reference frame or domain contingent on visual and sonic sensations; (5) macro sphere: the cultural relative force, conforming to trans-subjective experiences, independent from geospatial reference points, transmitting temporal information.

The *Zones of Influence* located the *affect* content of the *felt\_space infrastructure* as a space surrounding the agent that belongs to the agent and is ‘filled by his movement’ (Preston-Dunlop, 1984: viii). The diagram forwards the higher dimensional understanding of *Raumfindung* as a visualisation of counter points to the immersive and referential presence of the site.

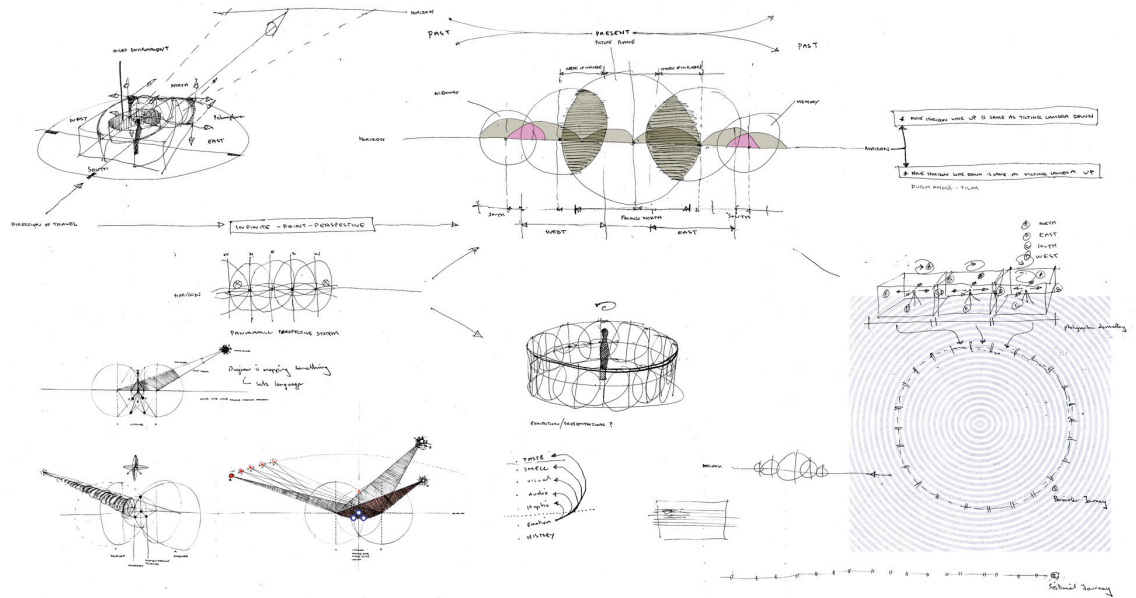


Figure 22-3. Zones of influence development schematic # 01

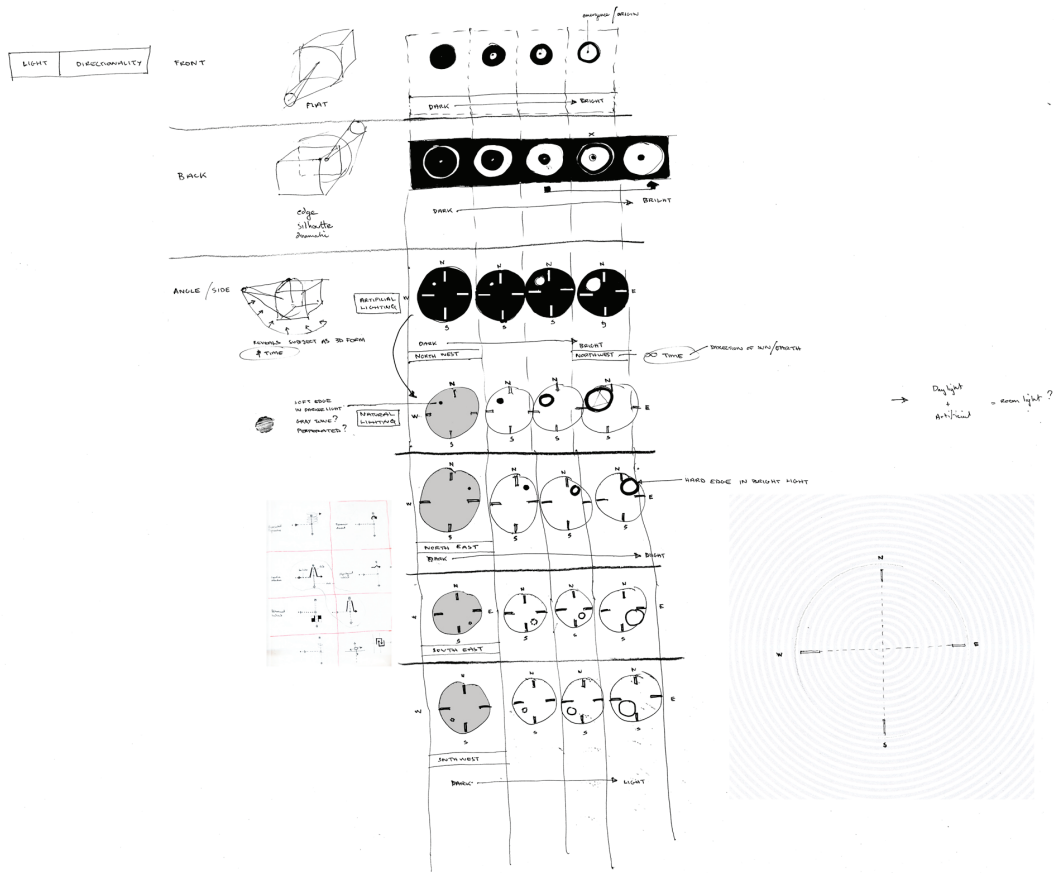


Figure 23-3. Zones of influence development schematic # 02

### 3.8 Findings: Affect-order judgement

The case study interrogated the way in which an ARP bunker could elicit complex perceptual responses. The site-responsive surveys and workshop asked to what extent the space acted as an active agent in triggering perceptual sensations in an attempt to qualify, understand and visualise the governing site-responsive signature of underlying reality within the mnemonic structure. The research revealed a continual transition from the corporeal to incorporeal registers, where the participants' observations consistently observed a scissor-like experience of a being acutely aware of a pressurised body-space, causing an increased mode of somatic awareness, whilst simultaneously registering the virtual domain of episodic memories, including the onset of emotions associated to war. These experiential attributes I termed *affect-order judgement*, which was directly linked to the haptic and psychotropic attributes of entering and negotiating the dark tunnels buried beneath Plymouth.

The bunker acted as a container to focus and direct the participants' attention to modes of 'activated' (participant 03) perceptual feedback. The bunker sensitised the body's capability to register virtual moments in a physical manner, thus establishing a platform to study the causality of reference. The conditions that triggered these responses related directly to the subterranean location, the physicality of the tunnels, reduced light, echoing sound, smell of dampness and historical patina. These attributes combined to create a 'priming' (Foster, 2009: 57) force that influenced the participants in a common manner. The bunker acted as a prompt to trigger states of hypersensitivity, releasing the participants to feel the depth of space physically, and whilst in the state of hyper vigilant spatial awareness, the participants were able to draw out an encoded memory.

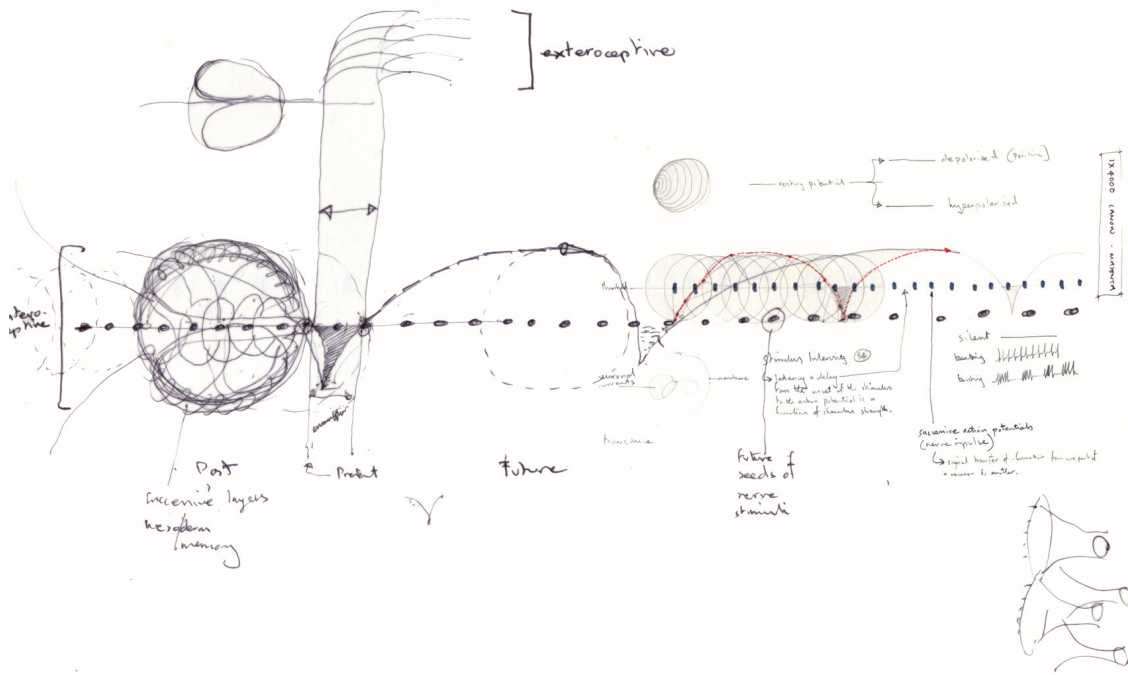


Figure 24-3. Zones of influence development schematic # 03

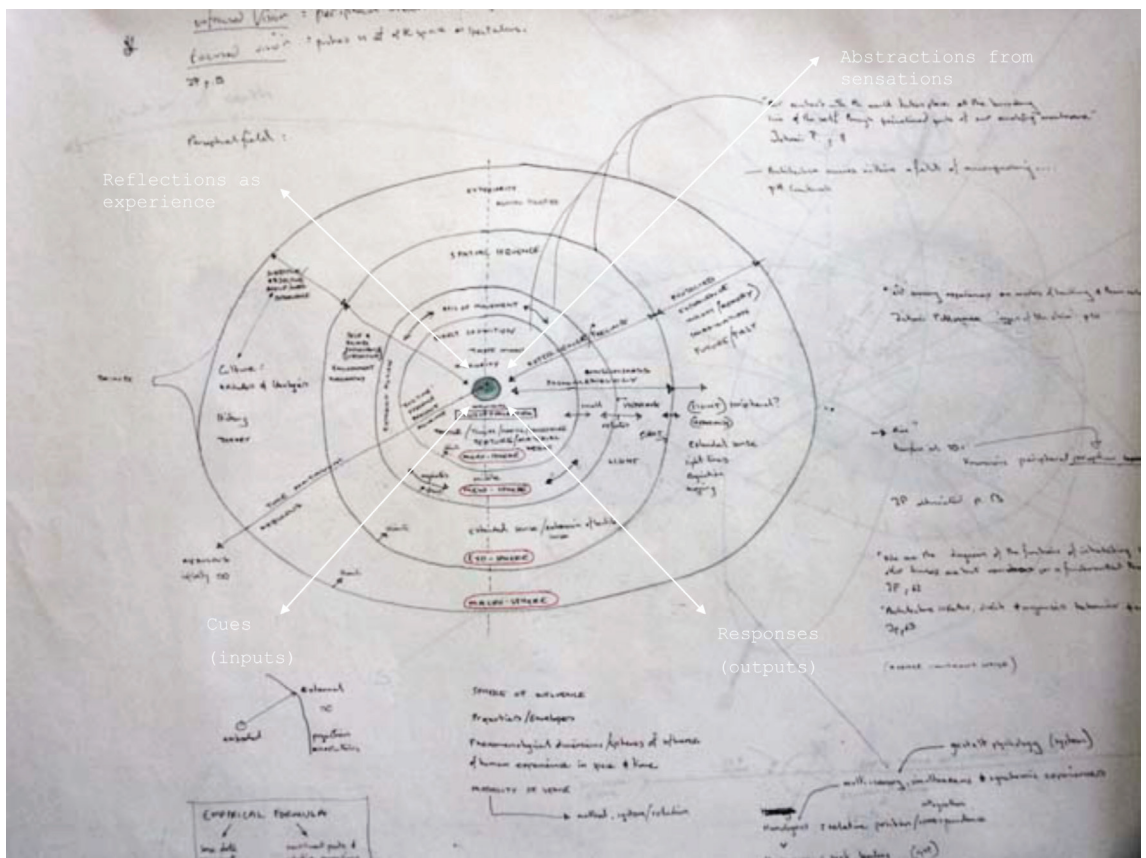


Figure 25-3. Zones of influence development schematic # 04

The data from the survey identified evidence for trans-subjective experience outlined within the similarity column under the headings perceptual sensitisation, perceptual modulation, emotive behaviour and episodic agency. These recursive infrastructural elements were expanded within the workshop and thus interpreted as perceptual prompts, referring to the anticipatory inference schema planning model.

The cultural philosopher Paul Virilio (1994) described the strangely compelling affective qualities of a bunker in his account of the Third Reich's Atlantic Wall:

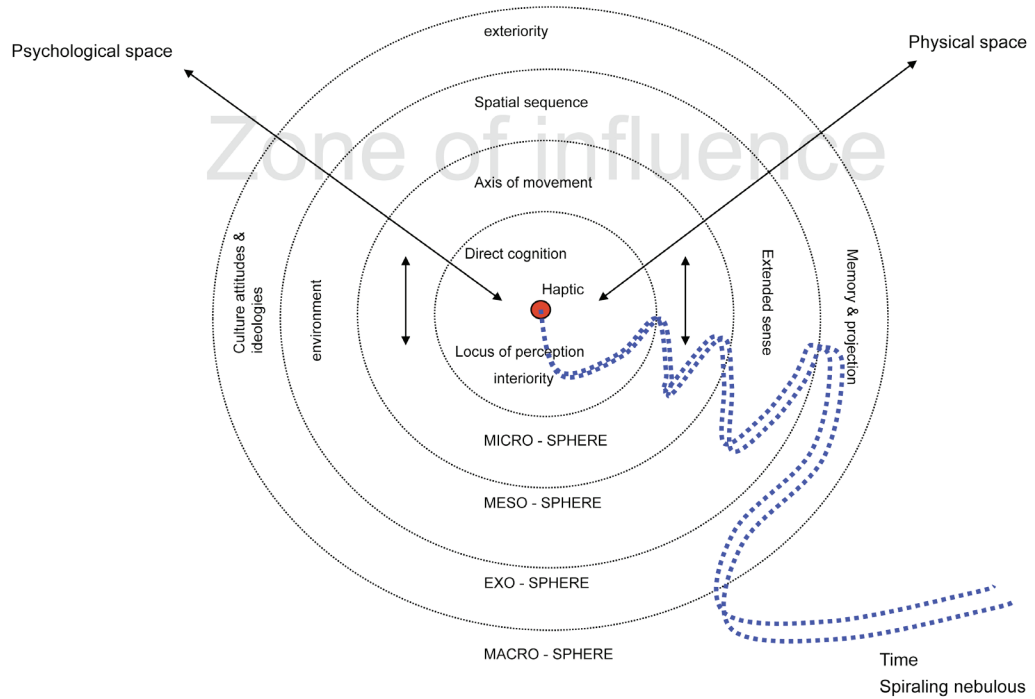
“Slowed down in his physical activity but attentive, anxious over the catastrophic probabilities of his environment, the visitor in his perilous place is beset with a singular heaviness; in fact he is already in the grips of that cadaveric rigidity from which the shelter was designed to protect him.”

(Virilio, 1994: 16)

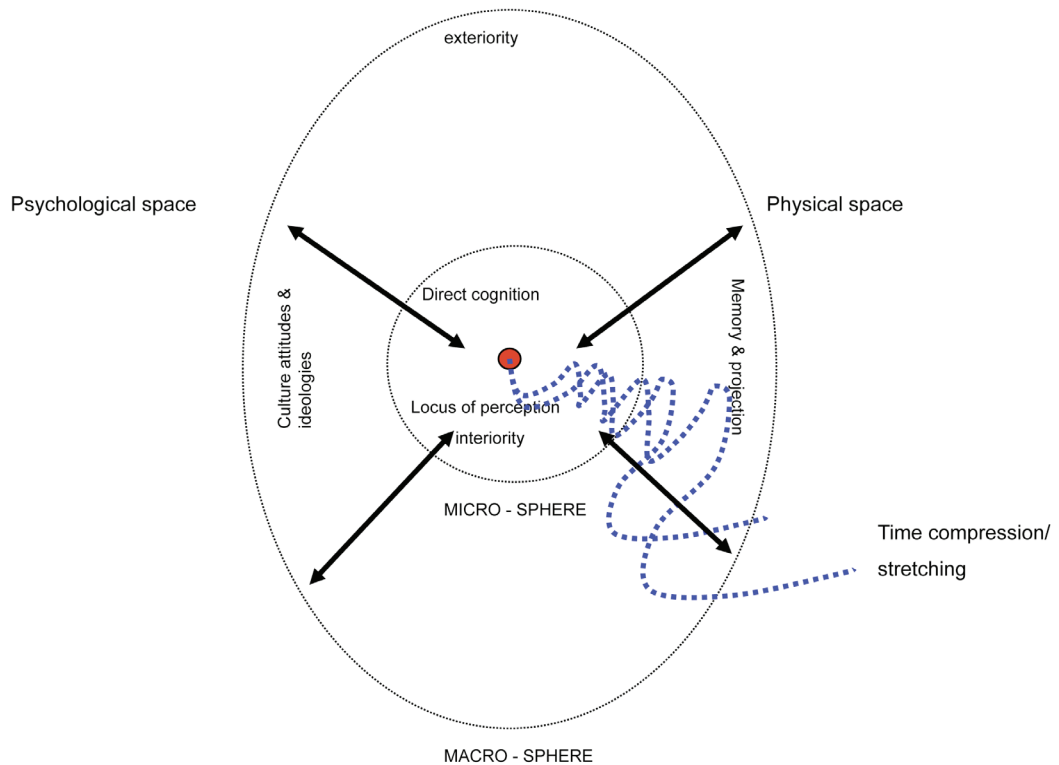
The participants, like Virilio, highlighted the role of the body as a site to disclose the counter-force aesthetics of the agent-environment interface. The architectural phenomenologist Juhani Pallasmaa (2005) also describes the body as a site of exchange:

*“All the senses, including vision, are extensions of the tactile sense; the senses are specializations of the skin tissue, and all sensory experiences are modes of touching and thus related to tactility. Our contact with the world takes place at the boundary line of the self through specialized parts of our enveloping membrane”*

(Pallasmaa, 2005: 10–11)



**Figure 26-3.** Zones of influence



**Figure 27-3.** Zones of influence distortion: the ARP bunker exerts a spatial force precipitating from an overwhelming contraction of the Macro-sphere onto the Micro-sphere, resulting in an amplified sense of latent fear. The ego-loci is further sensitised by occupying a hidden space divorced from the familiar normality.



The bunker's unique situation 'bereft of normal codings' (Edensor 2005: 4), reduced the experiential variables by manner of architectural containment and offered a fully immersive controlled space, liberated in function, to test whether a trans-subjective experience could be recorded, analysed and visualised. The *cognitive-tope classification* matrix organised the categories of the trans-subjective experiences within a higher dimensional understanding that sought to provide a more explicit comprehension of the *felt\_space infrastructure* by establishing a differential system to better understand the psychophysical attributes of architectural space. The system was designed to perform as a mediating device to extend the application of Gibson's term 'egoreception' (Gibson, 1986:115) and bridge the divide between 'propriosensitive as well as the exterosensitive' (Gibson, 1986:115) understanding of space. Whilst the *Zone of Influence* diagram, sought to provide meaning to an unarticulated understanding of reflexive space by visualising the interpretive patterns and directive orders of the trans-subjective cause and *affect*.

### 3.9 Evaluation

The ARP bunker site-responsive case study identified the *affect* component of the *felt\_space infrastructure*, producing a series of text-based and visual-based differential observations that were qualitative and objective. The shortcomings included the small group of participants and the one-instant survey. Further, the mapping procedures were basic which led to freeze-framed moments of perceptual analysis with complex taxonomies. The case study did, however, initiate the notion of an underlying assembly language comprising of psychophysical triggers leading to the better understanding of interpreting *Raumfindung* as an inference schema model.

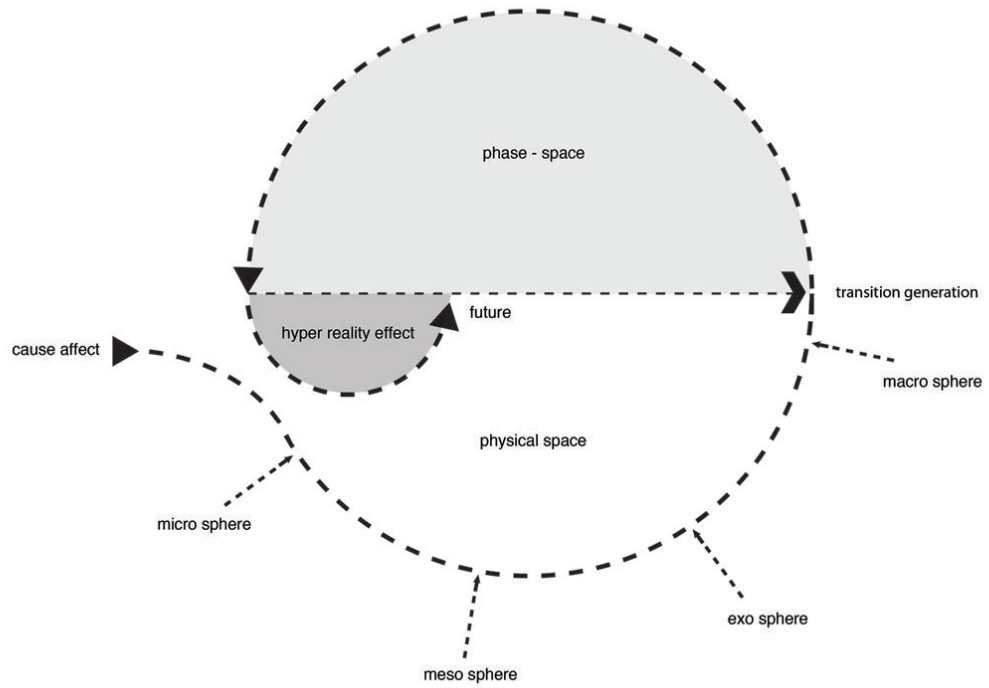


Figure 28-3. Zones of influence: phased transitions

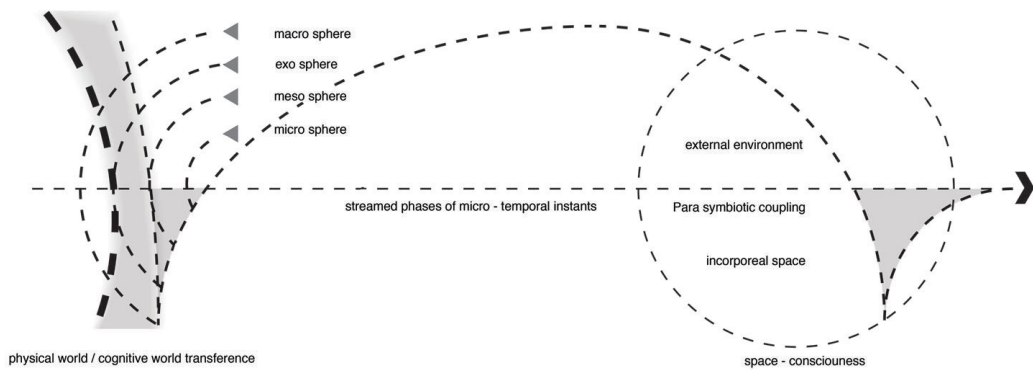


Figure 29-3. Zones of influence: space consciousness transference

At this point, the research turned to case study '2' which evolved the perceptual mapping system to expand the static diagrams of *affect* into dynamical notations of the *field*. In case study '2', I chose a very different site-responsive context, namely Dunkeswell airfield, where I anticipated an extremely different set of results from the physical analysis (because of the opposite conditions of the location as an open field, no boundaries and natural lighting) however, due to the similar historical context, I wanted to see if the psychological response would register similar results to case study '1'.



**Figure 30-3.** ARP bunker exit panorama



# 04\_Case Study 2\_Dunkeswell Airfield

## 4.1 Overview

Case study '2' is relational in nature and originates a mapping system suited for webbing multivariate data together for statistical analysis. The problem of *Raumfindung* is observability, thus the research presents an inquiry into visualising cognitive-tope dynamical concepts as prompting components to reveal the field. Case study '2' evolved, piloted and reflected upon a mapping system originated to observe cognitive-tope geospatial triggers by triangulating attentional deformations of perception against the *field* forces of magnitude and duration, thus interpreting the *field* as a complex domain of interconnected vectors, amplitudes, and feedback transmissions. Case study '2' studied the behavioural properties of the field by mapping the affective displacements of perceptual, cognitive and associative registers to locate and confer the *field* as the agency of propagation.

Case study '2' was predicated on the site-responsive analysis of a decommissioned US Navy Fleet Anti Submarine USAAF airfield at Dunkeswell, Devon. The military site was used as a specific context for centring the investigation, as the military site was considered psychoactive in nature, stimulating a range of psychological, behavioural and temporal responses in regards to Foucault's 'Heterochrominism'

(Foucault, 1967 cited in Dehaene and Caeter, 2008: 20), and Massey's 'time-spaces' (Massey, 2005: 177). Further, the physical character of the site, although very different to the ARP bunker from case study '1', was also considered to contain an 'hereditary topographical memory' (O'keefe and Nadel, 1978: 63), akin to Baudrillard's 'retro scenario' (Baudrillard, 1994: 43). These spatial inferences were studied in context to the object-field relationships of Teresa Brennan's "Transmission of Affect" (2004), that is to say, the site acted as a robust interface for the comparison of data to develop the performative nature of the *field* axis so as to advance the *felt\_space infrastructure*.

Three participants were used in the piloting and observational development of the cognitive-tope mapping process, including the author, an architect and a cartographer way-finding specialist. The team helped to provide a diversity of perspectives within a controlled, manageable focus, mitigating communication complexity. The interdisciplinary nature of the practice-orientated methodology, anticipated an emergent hyper vigilant spatial practice.

The live testing of the mapping procedure considered the future usability of the device for professional spatial practitioners, whereby the piloting of the cognitive-tope map helped to identify and eliminate extraneous variables and reduce the functional problems of over-complication.

The practice functioned to develop the second series of transactional engagements to advance the operational mechanisms of the *felt\_space infrastructure*. The study involved participant site-responsive mapping, survey notes and reflective interviewing. The author also included documentary recordings, photographs and site-specific historical research. These readings were hermeneutically developed to evolve a notational system to better understand the nature and properties of the *field* axis as part of the *felt\_space infrastructure*.



**Figure 1-4.** Dunkeswell airfield, Devon: access road



**Figure 2-4.** Dunkeswell airfield, B-24 Liberator hard standing



Case study '2' progressed the relational development of *Raumfindung* by operationalising the descriptive *cognitive-tope classification* matrix and dynamically systemised the zones of influence with vectors of celerity and intensity. By analysing the *field*, as an organisational space syntax comprised of coordinates, hierarchies, morphological boundaries, patterns and edges, the practice redefined the ordination practice to create a more dynamical referential condition charged with recording movements and durations of affects within the *field*.

A notation system was created that mapped the active fluctuations of environmental stimuli together with internal of-the-moment alliances. As a mode of framing, the reflexive ordination system visualised the field as a 'privileged instant' (Deleuze, 1986: 04) providing an in-between typology of formations and dissipations. Operating in a relational way, the practice pushed the limits of architectural representation, bridging the polar inertia of causal environments by amplifying the experience of time and space, thus accelerating perception to reveal the *field* as a ubiquitous mediator and propagator of *affect*.

Rather than an analytical tool using the greatest of precision, this active procedure served as a discovery framework to amplify the correspondences between external physical space and the internal resonances of psychological space. The origination of a graphical synthesis was explored to aid the understanding of the *field* as a three dimensional perceptual *felt\_space infrastructure*.

Throughout the process of mapping, the work explored the relationships between participants, space and perception with the intention to visualise the *field* so as to better understand our perceptual relationship to physical and mental environments. The visual information created performative information,

whereby the discovery of a recitative resemblance to the perceptual *field* extended my understanding of reflexive architecture by raising the instrumentality of architectural practice to acquire a three-dimensional visual system that yielded to the organisational inferences of the *field*.

Finally, the research avoids psychological explanation, rather it advances new forms of ordination as reflexive architectural instrumentation that builds connecting concepts for the approximation of predictive behaviour. I was interested to compare the results with case study '1' as I predicted similar psychological results from the first case study despite very different sets of physical conditions. Would it be possible therefore to visualise the historic legacy as a *field* condition of prompts? What would the triggers of influence be? And could the mappings triangulate predictions with responsive behaviours? The data would thus provide me further opportunity to cross-reference the findings in order to elaborate and evolve the inference schema theory, as a *field* theory of interconnected condition-action layers. Case study '2' therefore was tasked to:

- Originate a reflexive space mapping system.
- Map geospatial triggers that amplified the relationship between body and space contingent on perceptual, cognitive and associative displacements to reveal the field dimension.
- Notate attention locators, to vectorise the depth, direction, duration and magnitude of field deformation relative to the percipient and external affect cue.

## 4.2 Context

“Vortexing plumes - ‘Beware of prop wash’, ten crew, eight 250-pound depth charges and 3000 gallons of gasoline lift into the air. Four Pratt and Whitney Twin Wasp radial engines buckle the fuselage, scanning for U-boats”

(Emmett, 2009)

Situated within a sparse and open plateau of a ‘decommissioned landscape’ (Farley & Roberts, 2011: 96), Dunkeswell airfield (International Civil Aviation Organization Airport Code: EGTU) presented a spatial cueing paradigm located between dislocation, stored memory and feral abandonment, inasmuch as the site occupied the conceptual domain of psychological reflex and transactional memory exchange, embedded within a referential landscape. Dunkeswell airfield exhibited a behavioural value imbued with the commanding presence of the World War II US Navy Fleet Anti Submarine operations. Importantly, the historical presence of the intensive military sorties were integrated within the very fabric of the mnemonic field because of the presence of the massive B-24 Liberator hangars. The site presented a ‘forsaken military land’ (Farley & Roberts, 2011: 176) that overturned normativity by manner of a vivified memory.

Today, Dunkeswell airfield functions as an aviation training school with pleasure flight facilities and parachuting club. However, the peripheral remnants of the military landscape play an active role in corralling a mnemonic perception of space. The active force of an episodic memory makes the airfield an interesting case study to illustrate the temporal dimension of *Raumfindung*, which I interpret as the felt\_space infrastructure comprised as a time-space grammar of affect-field feedback mechanisms including durations of ‘historical inheritance’ (Saltzman, 2006: 9).



**Figure 3-4.** Hangars, Dunkeswell airfield



**Figure 4-4.** WWII fire station, Dunkeswell airfield

Dunkeswell aerodrome bore witness to an extreme moment in time, namely the Second World War Anti-submarine operations that included '6,646 operational sorties, totalling 62,247 hours, that covered approximately 10,581,990 miles' (Bowman, 1998: 159). George Wimpey constructed the military airfield in 1941; the site was chosen due to its strategic location within '100 miles to enemy airbases in occupied France' (Jarrett and Stevens, 2010: 10), and at eight hundred feet above sea level, the site proved tactical recognition for bombing sorties over the Bay of Biscay. Originally designed as a fighter base for the RAF Coastal Command, the airbase was consequently modified to support bombing and air-sea warfare operations to protect the convoys of munitions and essential war materials reaching the British Isles.

Dunkeswell followed a Class "A" RAF wartime operational design, with three runways, each one a hundred and fifty feet wide, joined together by a connecting perimeter track. The main runway "23/05" ran six thousand feet long, whilst "27/09" and "18/36" were designed to be smaller, measuring between three and four thousand feet. The runway peripherals housed fifty dispersed hardstands, together with additional temporary standings.

With the arrival of the 479th Antisubmarine Group in August 1943, Dunkeswell aerodrome became the 'main base for US Navy aircraft operations in the European war theatre' (O'Regan, Donaldson & Stevens, 1990: 19). Dunkeswell was the 'first US Coastal Command airfield in the country' (Jarrett & Stevens, 2010: 1)<sup>1</sup>. The operations focused on anti-submarine patrols in the Bay of Biscay and with the Wing Command HQ at Plymouth. The Liberators were in pursuit of the German U-boats 'that were situated along the west coast of France and the north coast of Spain' (<http://www.southwestairfields>).

---

<sup>1</sup> The South West Airfields Heritage Trust publication "Out of Dunkeswell US Navy Fleet Air Wing 7 and 479th ASG USAAF" gives a detailed account of Dunkeswell's strategic operations during WW2.

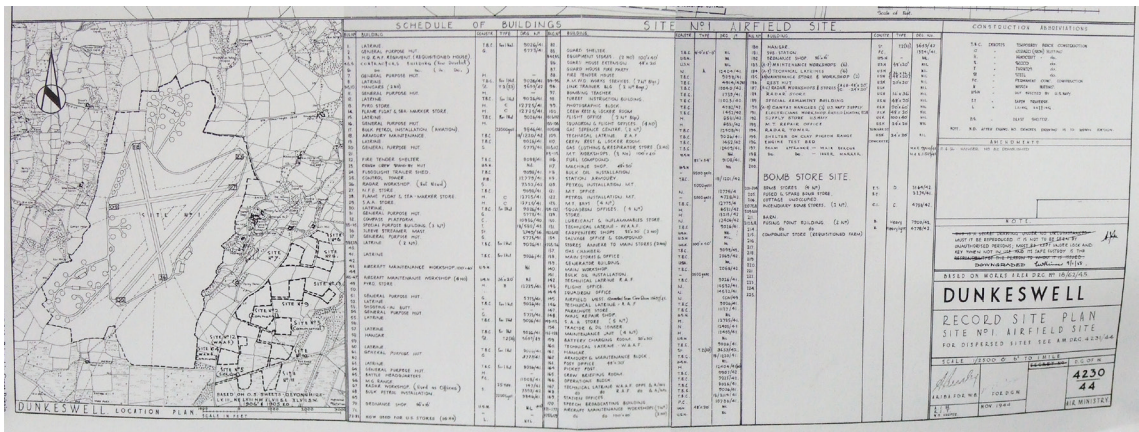


Figure 5-4. Dunkeswell record site plan: October 1944, Dunkeswell Airfield Museum



Figure 6-4. Anti submarine operations, Dunkeswell Airfield Museum

co.uk/?page\_id=53). The bombers searched and destroyed the German U-boats that operated in 'wolf packs' (Jarrett & Stevens, 2010: 1) to stop the destruction of 'vital shipping convoys, which were carrying much-needed supplies across the Atlantic to Britain' ([http://www.southwestairfields.co.uk/?page\\_id=53](http://www.southwestairfields.co.uk/?page_id=53)). To deter further heavy losses of allied shipping, Dunkeswell airfield was operationalised with US Navy long-range bombing aircraft, specially modified to carry the latest microwave radar technology making the planes less visible to enemy detection.

Dunkeswell airfield was nicknamed 'Mudville Heights' (O'Regan, Donaldson & Stevens, 1990: 20) due to the rural location and adverse weather conditions. Although located next to a small village in East Devon that comprised of thatched farm buildings, a Parish Church, Post Office, the Royal Oak public house and a telephone box, which became an 'important communication link' (O'Regan, Donaldson & Stevens, 1990: 19), the US airbase contributed significantly towards the offensive operations, becoming an influential force in the anti-submarine operations during the Second World War.

The Squadrons stationed at Dunkeswell included<sup>2</sup>:

- 4th Anti Submarine Squadron. 479th Anti Submarine Group. August to September 1943.
- 6th Anti Submarine Squadron. 479th Anti Submarine Group. August to September 1943.
- 19th Anti Submarine Squadron. 479th Anti Submarine Group. August to September 1943.

---

<sup>2</sup> <http://www.wartimememoriesproject.com/ww2/airfields/dunkeswell.php>



**Figure 7-4.** The VB-114 Squadron Office, 1944: Dunkeswell Airfield Museum



**Figure 8-4.** Quonset window



- 22nd Anti Submarine Squadron. 479th Anti Submarine Group. August to September 1943.
- VB-103. Fleet Air Wing 7. United States Navy. July 1943 to September 1943.
- VB-105. Fleet Air Wing 7. United States Navy. July 1943 to September 1943.
- VB-110. Fleet Air Wing 7. United States Navy. July 1943 to September 1943.
- 16 Ferry Unit. RAF Transport Command. August 1945 to April 1946.

By October 1943, there were sixty operational bombers based at Dunkeswell '14 of which were PB4Y-1s (VP-63) and the remainder PB4Y-1s' (Jarrett & Stevens, 2010:10). Other aeroplanes stationed at Dunkeswell included the 'PB4Y-1A Catalinas, two Vultee Vengeances plus a single NAF N3N biplane trainer' ([http://www.southwestairfields.co.uk/?page\\_id=53](http://www.southwestairfields.co.uk/?page_id=53)). The principle aircraft operating out of Dunkeswell, however, were variants of the "Consolidated B-24D Liberator", designated by the US Navy as "PB4Y-1" a patrol bomber specialising in long-range anti-submarine operations.

PB4Y-1's were tasked to 'search, find and kill' (Bowman, 1998: 145), and although heralded as 'one of the most remarkable aircraft of all time' (Bowman, 1998: 6) due to its impressively long range and heavy haulage capabilities, the experience of flying the bomber was reported to be treacherous and unpredictable:

"Many mechanical failures were experienced, including turret failures, unserviceable guns, radar and radio failure, fuel leaks, and engine trouble while on patrol"

(Jarrett & Stevens, 2010: 5)

Coupled with poor 'visibility and handling problems' (Jarrett & Stevens, 2010: 32) the bomber had a cramped cockpit, limited vision flight deck, obstructed windshield and suffered high drag from the bow turret. These impairments made the aircraft 'heavy on the controls and extremely difficult to fly in a tight formation' (Jarrett & Stevens, 2010: 32).

On a typical mission, the crew would fly up to ten or twelve hours on Z-2 patrols in a single sortie. The unyielding flying conditions 'mid the groans of the tortured gear' (Jarrett & Stevens, 2010: 6) pushed the limits of the airmen to uncompromising levels of task saturation. Often flying in the dark or in adverse weather conditions, the experience must have played heavily on the crew, with mental and physical fatigue contributing to the 'uncertainty of returning to base' (Jarrett & Stevens, 2010: 5).

Manufactured in California, each Liberator was operated by a crew of ten. The wingspan measured one hundred and ten feet in length, with a metal fuselage carrying a 'gross weight in excess of 36 tons' (Jarrett & Stevens, 2010:32). The aircraft had four gun turrets and a large bomb bay, which enabled the crew to squeeze access to the different compartments:

"The fuselage was divided into five major compartments: Nose, Nose-wheel, Flight-deck, Bomb-bay, and Rear. The crew moved from the nose to the flight deck through a passageway around the right side of the nose-wheel gear. Access to the rear was by way of a narrow catwalk along the centreline of the bomb-bay, and access to the aircraft from the outside was through the nose-wheel compartment, a hatch in the bottom of the rear fuselage compartment, or through the bomb doors".

(Jarrett & Stevens, 2010:30)

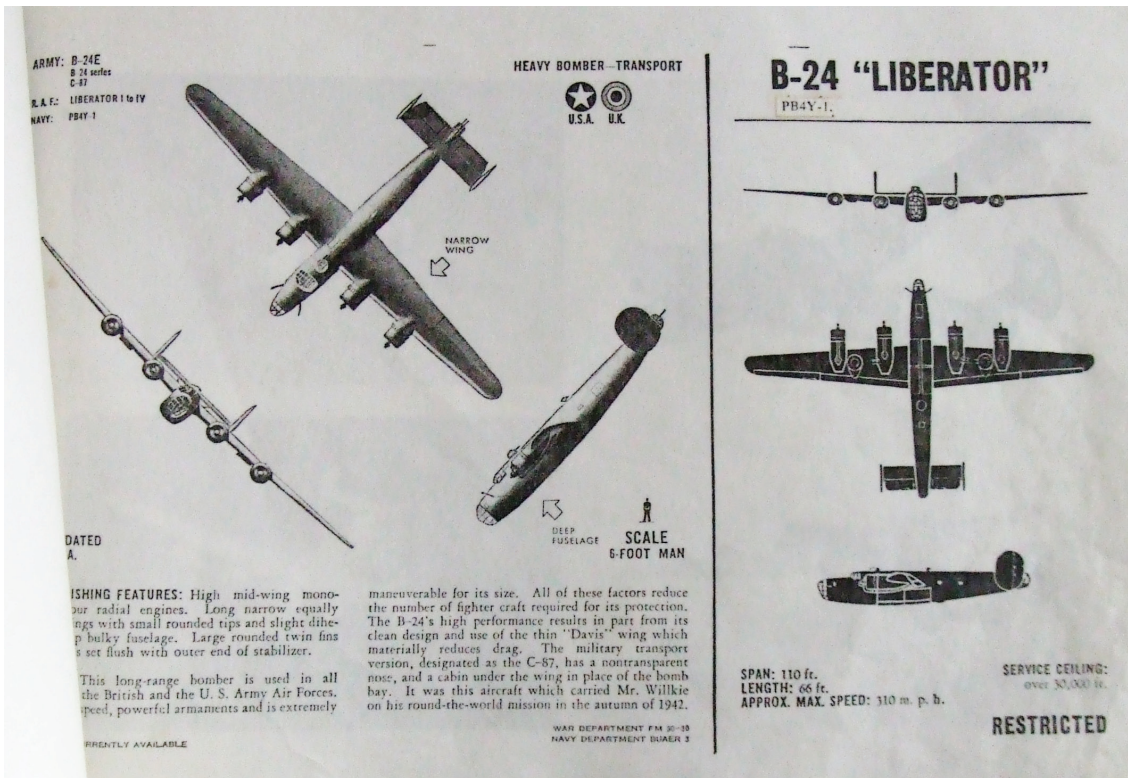


Figure 9-4. B-24 Liberator, Dunkeswell Church Memorial Book



Figure 10-4. Lt Dustin and crew 4thASSq 479th, Dunkeswell Museum

Around five thousand US Navy personnel were stationed at the airbase, famously including Squadron Secretary Lt. Joe Kennedy who had ‘aspirations to become President of the United States’ (O’Regan, Donaldson & Stevens, 1990: 20). Joe Kennedy was tragically killed on 12th August 1944 when his “Anvil” flying bomb mission prematurely self-destructed mid air.

The 479th Anti Submarine Group lost ‘four Liberators while based in Dunkeswell and twenty nine men had been killed in action by the time the group ceased operation on 31st December 1943’ ([http://www.forces-war-records.co.uk/4849/RAF\\_Dunkeswell\\_](http://www.forces-war-records.co.uk/4849/RAF_Dunkeswell_)). Further, the Fleet Air Wing 7 ‘lost 183 officers and men, a further 49 were killed in connection with the FAW-7 operation’ ([http://www.forces-war-records.co.uk/4849/RAF\\_Dunkeswell\\_](http://www.forces-war-records.co.uk/4849/RAF_Dunkeswell_)).

The squadrons were stationed in basic accommodation huts called “Quonsets”. These were temporary brick Nissan type buildings with tin or asbestos roofs and basic accommodation facilities. Although the site is contained within a Listed Buildings and Conservation Area, many structures are not protected including the omnipresent WWII hangars that ‘performs affect’ (Saltzman, 2006: 10) triggering an intense multiplicity of encounters and ‘inter-corporeal relations’ (Edensor, 2005: 84).

The WWII Control Tower together with the WWII Operations Building are Grade II listed. However, as mentioned, there are many significant buildings that currently are not listed, yet present special historic interest. The schedule of buildings at Dunkeswell aerodrome includes around two hundred and fifteen buildings including associate structures<sup>3</sup>. The principle buildings include operations and the administration block, battle headquarters, the Hedron

---

<sup>3</sup> A schedule of buildings and ancillary structures can be found on the record site plan No.1 drawing Air Ministry 4230/44, Dunkeswell Museum.

technical site, mess, aircraft maintenance workshops, turret instruction building, a bombing teacher, parachute store, the flight office photographic block, station armoury, the speech broadcasting building, a radar tower with workshop, compass platform, gas defence centre, battery charging room, fusing point, incendiary bomb store, fuel compound, ordnance shop, fire tender house, latrines and various store buildings. Other military structures include the sleeve streamer mast, rifle range, aircraft parking and dispersal platforms.

The Type T2 B24 Liberator Hangars dominate the skyline at Dunkeswell. These vast, arresting structures played a significant role in the WWII anti-submarine operations, providing aircraft maintenance, repair and refurbishment facilities. There are approximately one hundred Type T2 hangars left throughout the UK<sup>4</sup>, and as the structures were built for temporary use, their future legacy is vague and open to alternative forms of industrialisation, or as the geographer Tim Edensor puts it 'activities characterised by an active and improvisational creativity' (Edensor, 2005: 21).

The presence of these structures created a defined sphere of contracted space-time characterised by the notion of a stationary space, charged by an intense military history, but trapped and locked up between the infinitum expansion of space-time before World War II and the contracted space-time continuum felt today. That is to say the felt\_space infrastructure local to the hangars developed a compacted bond between 1943 and present day, whereby a direct and influencing space-time conduit opens up to the historically charged

---

<sup>4</sup> Defence Works Functional Standards: Guide to World War II Hangars, 02-Type T2 Hangar. Ministry of Defence, estate organization works.



**Figure 11-4.** Type T2 B24 Liberator Hangar, Dunkeswell



**Figure 12-4.** Type T2 B24 Liberator Hangar, side elevation

events of the past. This charged pocket of time discharged an abrupt shift of psychotemporal awareness. The site therefore represents a visceral potential that emerged experientially as an overlaid reality, creating a series of complex synchronic events that led to moments of irreality and dissociation.

### **4.3 Author's site-response**

My reading of the site at Dunkeswell included the feeling of dislocation and curiosity that come together to form a distinct notion of an overlaid reality. Illicitly entering the site amplifies this condition that felt like an infiltration of a tangential terrain. The experience was codified through the defamiliar profile of colossal hangars, graffiti clad Nissan huts and disorientating road surfaces interspersed with broken concrete slabs transgressed by plant life. The site evoked a relative scale of haptic proximity and sensory immediateness. Characteristic of a disembodied time, the campus style layout formed a peripheral crust to the airfield runways. The interplay of military buildings, no-go security fencing, abandoned vehicles redolent of decaying carcasses, coalesced to create a deeply visceral and intense experience, constituting an altered territory, liberated and now adrift from its offensive purpose.

The site elicited an intense experience of time, place and history, triggering a causal atmosphere or immersive psychologically lived space that vectorised temporal distortions of the *felt\_space infrastructure*. The nature and condition of this abrupt frisson triggered a visceral implosion of sensory space, like an intensive moment of time-space phrasing. The sense of mistrust and transgressed occupation characterised the site as a military 'edgeland' (Farley



**Figure 13-4.** Type T2 B24 Liberator Hangar, H2



& Roberts, 2011: 4). The amorphous ionisation of perception and time signalled Dunkeswell to be a highly mediated field. These affective moments were considered as site-responsive signatures transmitting a sense of historical trauma, abandonment and estrangement.

The mediated domain 'psychifies' (Franz, 1964: 208) the tension between time and space, cueing deformations and intersections of interior and exterior space shifts between the real and the virtual. The flying field at Dunkeswell resonated with this imprinted token, the military remnants materialised the traumatic 'mentalities' (Buchanan, 2010: 314), bringing to the surface a collective consciousness presented against a mnemonic *field* that subsisted on misbegotten maintenance.

The unpredictable re-use and shanty aesthetic amplified this *affect*, endowing the site as a 'counter-hegemonic space' (Hetherington, 1997: 21), enmeshed between historic meanings, civil aviation, extreme sports and contravene resistance. The site modified your perception by surpassing elementary ordering of experience to propagate intense extra-sensory behavioural alteration cues that pervaded the experience as an interruptive puncture. These 'transgressive spatialities' (Edensor, 2005: 15) were mapped as dissonant registers to reveal the *field* axis within the *felt\_space infrastructure*.

The nature of my photographs, drawings and mappings was derived from a transactional methodology to unfold the *felt\_space* dimension to reveal the complexity and syntactical structure of a site-responsive signature. This practice rendered the causal atmosphere as a *field* concept that situates affect within a conveying medium of spatial relationships, thus providing a new infrastructural model to visualise space as an analogical system comprising of operating mechanisms within performative layer paradigm. This process sequentially



**Figure 14-4.** Dunkeswell Airfield edge land



**Figure 15-4.** WWII Bunker Record post box B25

scored the sense modalities and temporal dynamics of *felt\_space* as a series of notations that operate as a form of reverse functionalism. This methodology provided a new way to understand reflexive architecture contingent on the affect-field continuum.

#### 4.4 Practice

The strategic orientation of the project sought to expand and extend the domain of *felt\_space infrastructure* as a visual score, to access a deeper, more operational understanding of *Raumfindung*. The case study questioned what strategy could reveal and communicate the inferred arrangement and influence of the perceptual *field*. This inquiry developed the search for an appropriate ordination practice to systemise a reflexive typology as a conveying medium to reveal perceptual inferences as a way to extrapolate the perceptual *field*, whereby the project originated a de-composition methodology to structure a totality framework of *field* differentiation. And by considering mapping as a reverse functionalist approach to enactive practice, the case study enabled me to originate, pilot and test a notational system as a mimetically charged communication strategy to convey *field* displacements.

The mapping procedure was considered as a conflating device, to induce a state of hyperawareness in the percipients' spatial processing, intensifying *felt\_space* causation and externalisation of perceptual feedback signals, so as to register the *field* by visual means. The recording action was focused on gathering two principle forms of data, the embodiment of (a), spatial cognition in relationship to (b), the *field*. This practice established a visual codex that notated the sensory differentials as a coaction *field* of two forces.



**Figure 16-4.** Lattice Portal Frame of Type T2 Hangar, Dunkeswell

The task of case study '2' explored how to evolve an insight-orientated analysis system, that could transcribe the *field* into a visual summary, thereby producing a measurable, communicative and proportional graphic display to visualise *field* behaviours. With the development of the graphic score the research derives operational parameters for evolving the inference planning model, wherein causal continuums were visually abstracted and linked to *affect* referents as constituent data, entailing the identification of the *field* as perceptual correspondences. By decoding this behaviour, the work anticipated possibilities to re-sequence and exploit the condition-action rule as a reflexive forward mechanism.

As a form of reflexive 'situational analysis' (Clarke, 2005: 37) the work was orientated to analyse the relational framework using mapping as an analytic research instrument to visualise the *field* as a sequence of interconnected, multi-layered scores charged by relational modes of perceptual, cognitive and associative analogies. The mapping system advanced the typological understanding from case study '1' by creating a new form of spatial notation that functioned as a mode of reverse functionalism; the case study evolved a multi scale capture map that could de-compose the performative aspects of the *field* into a series of locational and frequency vectors with magnitudes of intensity and density.



**Figure 17-4.** Lattice Portal Frame, roof structure: Type T2 Hangar, Dunkeswell



**Figure 18-4.** Roof span: Type T2 Hangar, Dunkeswell

The organisational development of the ordination system derived from interpreting the *field* concept called 'life space' (Lewin, 1936: 193) originated by the social psychologist Kurt Lewin (1890-1947). Lewin's theory argued that everything in reality had a spatial dimension, and in his book "Principles of Topological Psychology" (1936), Lewin established a dimensional framework for situating the influences of dynamic experiences:

"One might also think of representing the person as a region which belongs at the same time to more than one level of reality. In this case the person, like the environment, would have to be represented as a region of at least three dimensions. It may sometimes reach farther, sometimes less far into the different planes of reality and the "centre of gravity" of the person may belong to different levels at different moments."

(Lewin, 1936: 201)

Lewin asked how far our bodies extended out into the environment and questioned the influence of the force field like properties on a 'person's 'boundary zone' (Lewin, 1936: 121). My mapping process attempted to visualise these conditions as *field* actualities within a three-dimensional potential that I considered to be a prompt mediator, propagator and modulator. The visual interpretations aimed to reveal this operational logic as a network of vector, magnitude and durational dimensions providing me with the operational logic to form an inference schema planning model.

Dunkeswell airfield was used as a site-responsive ‘cognitive anchor’ (Geary, 2011: 46)<sup>5</sup> that drew the participants’ attention to register *field* displacements. By producing a measurable, communicative and proportional graphic score, the project aimed to visually transcribe the *field* signature as a codex displaying a ‘tightly coupled interface’ (Furness, 2001:80) between receptive agency and environmental stimuli. The mapping attempted to chart these perceptual signatures amid the driving-restraining relationships of ‘affordance’ (Gibson, 1986:134) and, by placing greater emphasis on a visual language, the research aimed to identify the nature, conditionality and dimensionality of the transactional forces so as to better understand the role of the *field* as a conveying medium for the condition-action rule.

Finally, the work aimed to make accessible a mapping tool for spatial practitioners in a bid to amplify the sensitisation of site-responsive analysis for a more critically reflexive form of spatial engagement. By raising the practitioner’s spatial acuity problematised by Leon van Schaik (2008) in his book “Spatial Intelligence”:

“What has eluded us is a construct with which to connect these founding experiences, unique to each individual, yet shared through the templates we all inherit,”

(Schaik, 2008:33).

The practice therefore provided a focused neural-environment connection activating a hyper vigilant perceptual, cognitive and associative reflexive space practice, to mediate the higher amplitudes of the immersive experience.

---

<sup>5</sup> Geary, D. (2011), *Primal Brain in the Modern Classroom*, Scientific American Mind, p45-49.



## 4.5 Field Mapping Precedents

The project was inspired by the duality of physical and psychological space and examined the perceptual *field* as a process of de-composing the multiple interwoven layers of quantitative and qualitative dimensions. The French theorist Jean Baudrillard (1929 – 2007) in *The System of Objects* (original French, 1968) considered different valuing processes such as the “functional value”, “exchange value”, “symbolic value” and “sign value”. Baudrillard questioned living space through these *field* values as a ‘counterpoint between design and atmosphere’ (Baudrillard, 1968: 30). Baudrillard’s organisational value system was deemed an extension into ‘a new operational field’ (Baudrillard, 1968: 52), and through the process of attentional engagement, Baudrillard explored the *field* as ‘performative embodiment’ (Edensor, 2005: 63) of perceptual affordances between the object and its perception.

Teresa Brennan (2004) in her book “The Transmission of Affect”, also explored the notion of emotional values as latent energies capable of influencing neighbouring subjects within the *field* of transmission:

“The idea of “atmosphere” in a room tells us at once that the transmission of affect does not only work between two persons, let alone only between parent and child. As noted, the concept is potentially relevant to understanding the behaviour of groups and gatherings,”

(Brennan, 2004: 20).

Brennan interpreted the field as the medium by which the *affect* could be transmitted. This form of immediacy can be visualised as a form of “cognitive map”, a term originated by Edward Tolman (1948)<sup>6</sup>. A “cognitive map” is used to describe the embodied, mental modal representation of the experiential world and includes the somatic values of meaning including the multi variant processes to sense, feel, encode, store and retrieve behavioural associations relative to an environment. “Cognitive maps” join the domains of cognition and ecology, in O’keefe and Nadel’s essay “Cognitive mapping in humans” (1978), cognitive mapping is described as a form of environmental psychology or ‘behavioural geography’ (O’keefe and Nadel, 1978: 74) where no one is isolated or stands apart from the surrounding environment:

“Thus, environments involve actions which are purposeful because they possess meaning and ambiance. This emphasis upon action relative to a meaningful environment has been incorporated within most work in this area, and it has led to the assumption that cognitive maps must encode both meaning and response.”

(O’keefe and Nadel, 1978: 74)

---

<sup>6</sup> Tolman’s ‘Cognitive Maps in Rats and Men’, *The Physiological Review* 1948; 55(4): 189-208 can be retrieved from the internet source: Classics in the History of Psychology, developed by Christopher D. Green, York University, Toronto.

O'keefe and Nadel make the collective connection between cognition and the environment as an explicit linking paradigm that can be traced back to Bachelard's 'Topoanalysis' (Bachelard, 1964: 8), which concentrated on personal spaces and the domain of memories:

“A psychoanalyst should, therefore, turn his attention to this simple localization of our memories. I should like to give the name of topoanalysis to this auxiliary of psychoanalysis. Topoanalysis, then, would be the systematic psychological study of the sites of our intimate lives.”

(Bachelard, 1964: 8)

Following on from these precedents, I termed my system cognitive-tope mapping to emphasis the internal, mind-based connection to the spatially explicit and external '-tope' environment. By coupling the mental and somatic value through the lens of 'locational analysis' (Haggett, 1965), I wanted to place greater emphasis on the location, orientation and spatial distribution of the percipient's mental extension within the *field* condition. The result generated a somatic-attentional-time extensibility value, which mapped the percipient's cognitive extension within the *field*.

Further, by originating a graphic score, I aimed to visualise the intangible as in William Owen's (2002) interpretive essay "I saw a man he wasn't there" that described the unveiling of the intangible in the book "Mapping":

“The attraction of mapping intangibles (as opposed to using words or tables to represent them) is that the map can make the relationships of things to one another real and create an intuitive understanding of their dimensions and properties”

(Owen, 2002:154)

Owen described map-making as a 'medium for reorganising thought' (Owen, 2002: 154), and promoted the 'intuitive' language of visual maps over the linguistic alternative:

"The alternative to linguistic search is a graphical interface that may allow for less exact but ultimately more successful investigations."

(Owen, 2002:155)

By interpreting Owen's graphic interface as intuitive communicator as a descriptive analysis system for revealing the perceptual *field*, which should not be confused with symbolic modes of representation, I aimed to emphasise the 'denotative' (Goodman, 1976:93) expository account of the *field*, enabling the prescriptive features of attack, location and duration to be recorded as a systemic multi-layered notational signature. Nelson Goodman (1976) in his book *Language of Art* stressed the importance of communication of maps, highlighting the transferability value of 'how we are to read it' (Goodman, 1976: 170), thus a key criteria for designing the system included usability, adaptability and communication strategies. The methodology therefore included iterative design strategies, participant interaction and piloting before being used at Dunkeswell airfield.

The method aimed to develop an objective tool for subjective mapping, situating the role of the participant as receptive agent. Conventional maps use visual representation to record an area or subject external to the user, whilst the cognitive-tope map emphasised the connections and relationships between

external stimuli and internal registers in a similar fashion to *cognitive mapping* but also includes the geospatial vector attributes tied to topological mapping. Maps visualise forms or information, and help us situate ourselves in a context, as Dirk van Weeldon (2006) describes in his essay *Possible Worlds*:

‘Maps are interfaces between knowledge and experience’

(Weeldon 2006: 01)

The activity of mapping refers to a critical mode of enquiry, a process of measuring and revealing, enabling analysis of data with a realisation potential:

“Mapping has emerged in the information age as a means to make the complex accessible, the hidden visible, the unmappable mappable.”

(Abrams and Hall, 2006: 12)

The mapping methodology emerges from this contextual framework and was supported by a practice-led design methodology. By plumbing the nuances of multi-layered and bi-communicational relationships, the project delaminated spatial experience to reveal the micro changes within the *field* to extend the term observer into a percipient or self-locative agent. The project traverses the gravitational forces polarised by O’keefe and Nadel’s subject-object framework in an attempt to evolve an architectural symbiosis, resonating between agency and host.

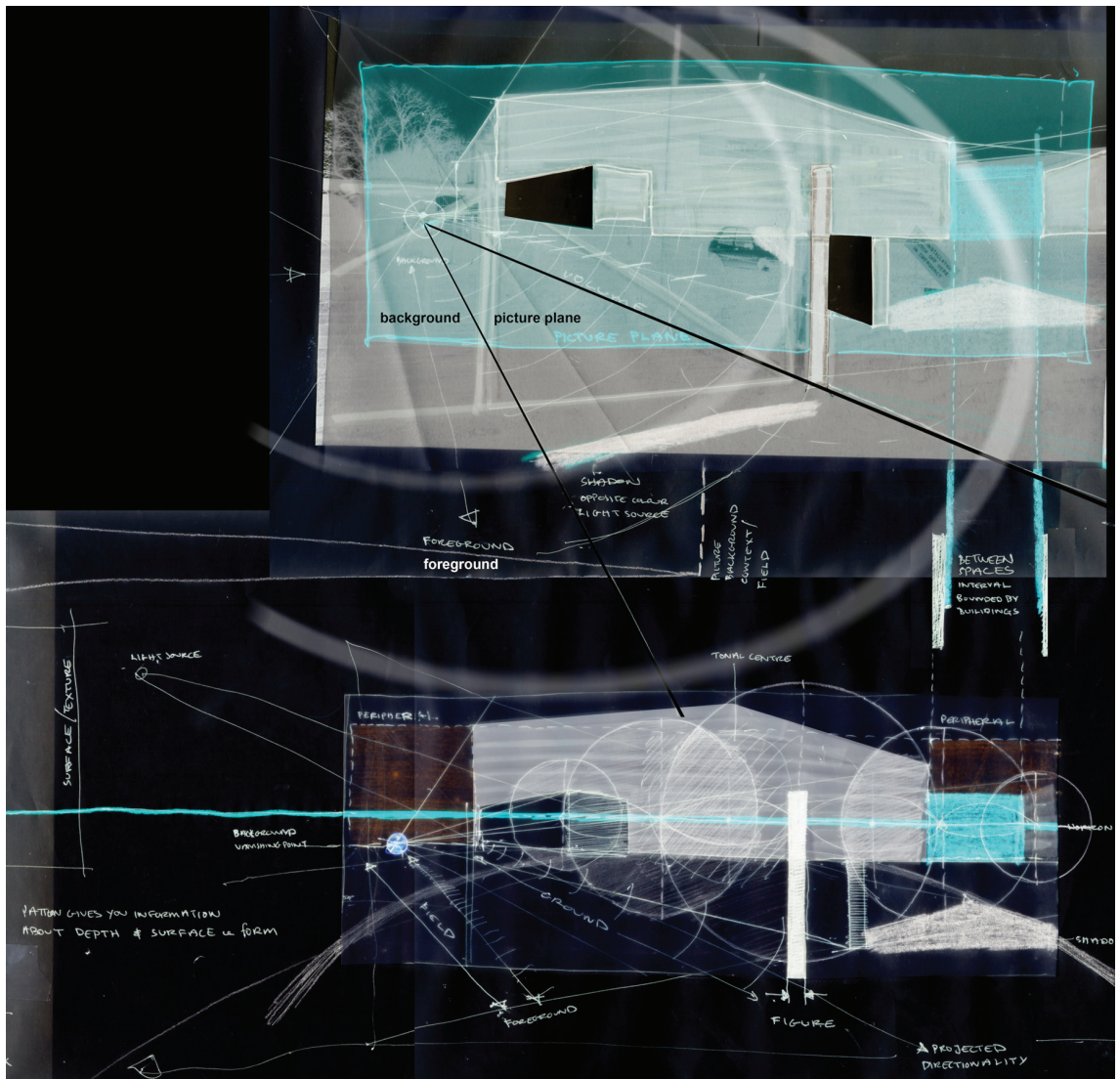


Figure 19-4. Mapping field of view sketch development

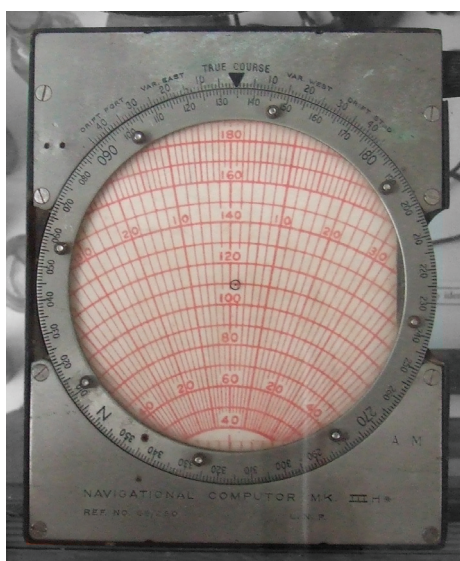


Figure 20-4. WWII Navigational computer, Dunkeswell Museum

## 4.6 Methodology

Despite the ambition to create a graph(ic) that could capture numerous response types, it was also imperative to ensure it was designed to be as usable as possible. Moreover, within cartography, there is a general rule to not have more than seven different variables to decipher, as it is acknowledged through cartographic research and practice that more than this creates recall problems for the user—and thus increased difficulty completing the graphic.

There are numerous individual tools and techniques for recording our response to single physical or psychological stimuli in the environment, but what options do you have if you want to try and record numerous responses at once? There did not seem to be anything that was practical or simple to implement. As such, a new tool was conceived and designed to provide a first attempt at recording both physical and psychological responses within the built environment.

The basic concept of the tool is that of a graph with the participant or recorder placed at its centre. In order to be reflective of our 3D world, the graph needed to have a way of recording stimuli in all planes. As such it represented a 360° view with graphic codes employed to represent attributes such as location, elevation and signal. A form of graph was devised as it had a basis in familiarity for a potential user, and also enabled quick and easy recording of mark-making.

The design of individual graph elements was based upon the human form; that which was related to vision occupied an appropriate *field* of coverage at the top of the graph (heads-up and forward looking). Sound had 360° coverage, as did smell and touch, although in ever diminishing extents to reflect the distance at which they are normally detected.

The way of representing responses was again chosen to reflect some of the norms in the respective fields. For example, a wave form was used to signify sound recordings, with a greater magnitude for louder sounds. Throughout the design processes, a balance was being sought between recording numerous (sometimes simultaneous) stimuli in a clear graphic form that was also relatively simple for the user to undertake.

In terms of recording, it was also envisaged that these would be conducted in a serial fashion, such that at regular intervals new recordings would be made. This would then help construct a response image of a larger site at a particular moment in time; in essence, re-examination of the completed graphs should help re-construct the site.

By placing the researcher into the centre of the inquiry, the method formed an 'integrative observation' (Schwalbach, 2009: 17) as identified in Adele E. Clarke's (2005) book *Situational Analysis* where the researcher carrying out the task was considered the 'research instrument' (Clarke, 2005: 85). Like Clarke I, considered the experiences of the three participants to be an essential component to the research:

"Researchers should use their own experiences of doing the research as data for making these maps."

(Clarke, 2005: 85)



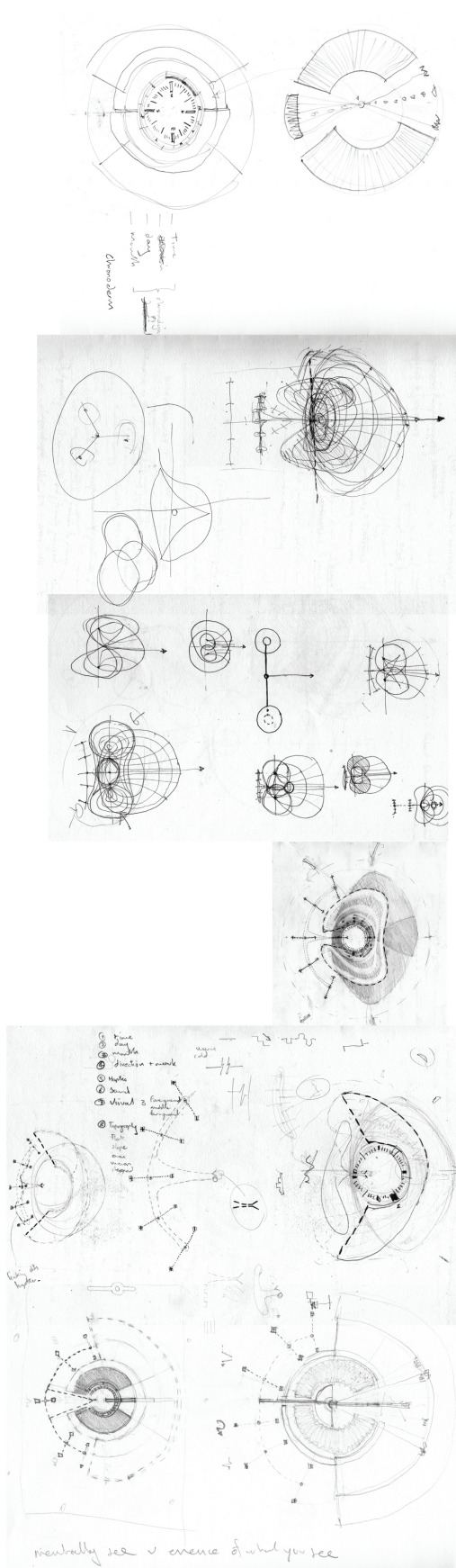


Figure 21-4. Mapping sketch series # 01

Clarke puts forward three helpful modes of situational analysis. Firstly, doing situational maps does not inform a 'final analytic product' (Clarke, 2005: 85), rather establishes a rigorous strategy for interrogating the data. Secondly, situational analysis uses visual codes and abstracted diagrams to convey meaning and aid comparison and communication. Thirdly, the process of situational analysis situates the researcher directly within the investigation, whereby the experience becomes tacit within the research:

"Situational maps and analysis can be used as analytic exercises simply to get the researcher moving into and then around in the data."

(Clarke, 2005: 84)

The project's methodology integrated Clarke's transactional approach to situational analysis by considering mapping as an 'auxiliary apparatus'<sup>7</sup> (Freud, 1963: 208), providing the spatial practitioner with a specific field-work tool to directly investigate the 'spatial qualities and atmospheric impressions' (Schwalbach, 2009: 34), through a continuous 'toolpath management' (Krasojevic, 2007: 17) system, connecting the recorder to the multitude of spatial phenomena via the mapping procedure that created a hyper vigilant mode of interaction.

The work exploited a series of visual abstraction processes to circumnavigate problematical linguistic representations of *field* theory, and constructed a set of radial vertices projected into a plan arrangement. The cognitive-tope mapping system generated a series of overlapping metrical layers of perception-specific domains, breaking down perception into a series of concentric fields that were graphically distributed on the page to represent the phenomenal self mimetically.

---

<sup>7</sup> First published in 1925, Sigmund Freud's essay *The Mystic Writing Pad* offers writing as a tool to bring together modes of sensations, both conscious and subconscious within a recording framework to make the data available for later recollection.

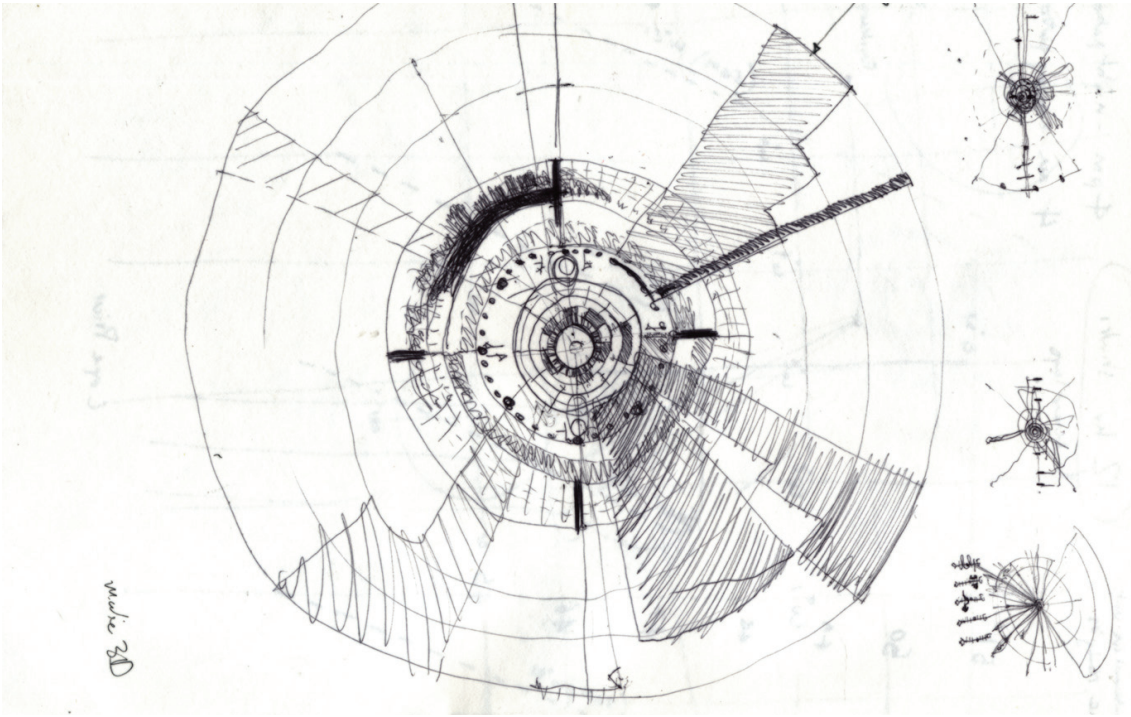


Figure 22-4. Mapping sketch series # 02

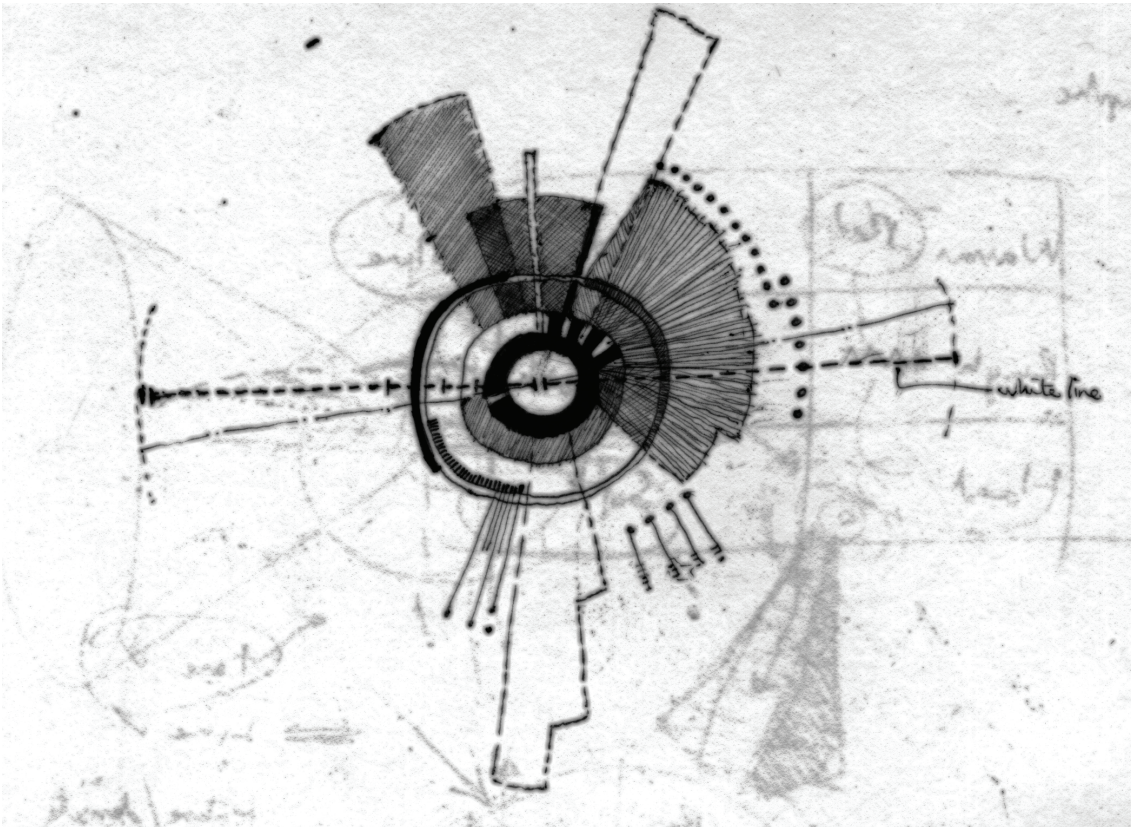


Figure 23-4. Mapping sketch series # 03

The perception-specific domains consist of a limbic field, visual field, auditory field, somatic field and chronological. These domains were developed from the five sphere domains from the Zone of Influence diagram that incorporated both the innately experienced sensations of embodied space together with relative extensions from the domain of psychological space proceeding outwards in ever more expansive graduations of environmental associations. Each domain had a field view of 360° that converged on two nodal points equidistant from the concentric rings of radial geometry. Each nodal point corresponded to the percipients' left eye/ear and right eye/ear, thereby establishing the bi-polar loci of vision and hearing. The cognitive-tope mapping system operated as a form of 'Homuncular or systemic decomposition' (Robbins and Aydede, 2009: 107).

## 4.7 Cognitive-tope Mapping

Below is a detailed description of each *field* domain:

### **The limbic field segment**

The name limbic<sup>8</sup> was interpreted from neurological science and relates to brain structures associated with emotion, behaviour and memory. Further, 'limbic' stems from the Latin word "limbus" referring to 'border', which neatly corresponded to the notion of boundary addressed herewith. The limbic *field* domain used a likert-type scale to chart the percipient's psychological response to capture a value of intensity on a visual analogue scale consisting of radial lines. The limbic *field* domain used a bi-polar scaling method to record a hyper vigilant response to psychological stimuli in conjunction to a positive or negative relationship towards the enveloping environment. The self-report scale operated as a psychometric scale with the addition of a locational component, thus

---

<sup>8</sup> The book *The Neuron Cell and Molecular Biology* (2002), by Irwin B. Levitan and Leonard K. Kaczmarek, provides an understandable overview of the role of the limbic system with regards to neurobiology.

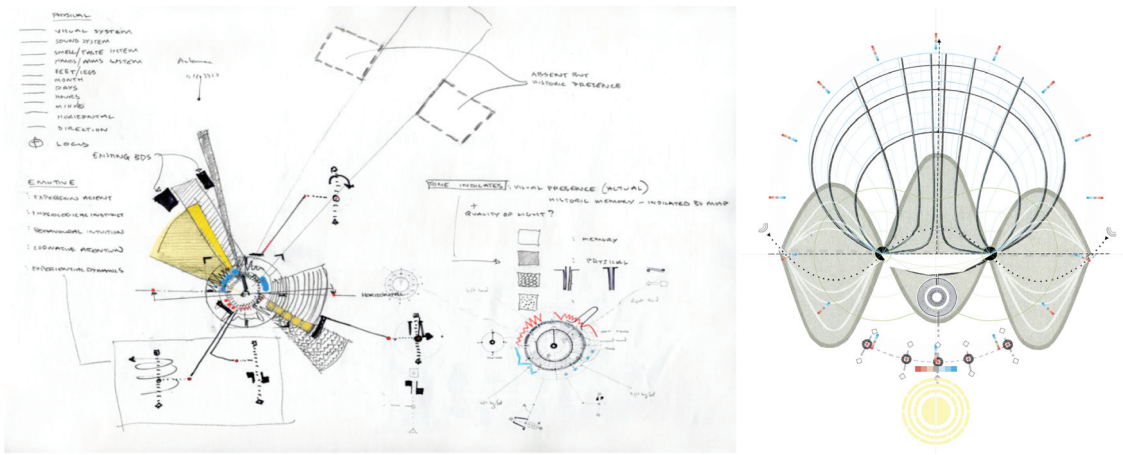


Figure 24-4. Mapping demonstrating site-response

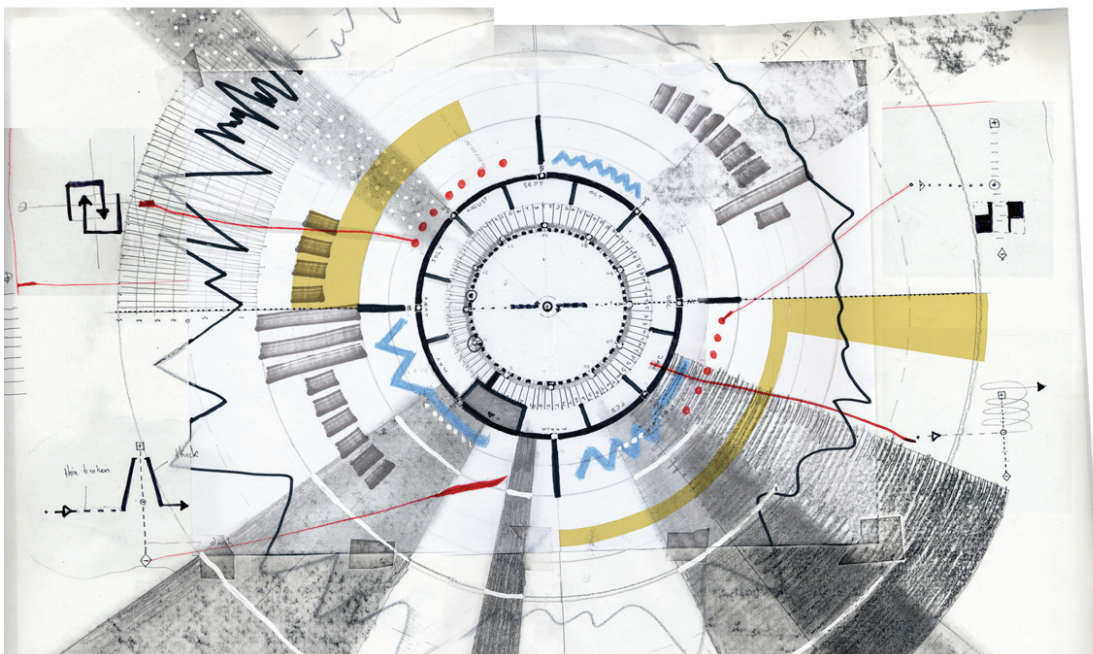


Figure 25-4. Mapping detailed development

making it possible to site the incidence of cognitive dissonance relative to the percipient's origin. The limbic *field* domain had a four-point scale with interval levels, which were colour coded to aid legibility. The scale enabled the user to reflect on and chart the performativity of the emotive response establishing a seed line vector for empirical observation, whereby the responses would be collected and summarised in statistical data procedures. The categories of the limbic *field* domain were sensitive to a psychological interrelationship of the spatially-explicit tope.

### **The visual field**

Had a bi-polar coordinate for locating the left and right eye, with a centreline that ran through the entire spherical *field* to immediately establish the direction of the percipient's visual direction. The visual *field* was designed to record the user's spatial orientation and visual point of view<sup>9</sup> identified by three hyperbolic curves denoting foreground, mid ground and background; the visual *field* also identified the users fovea and peripheral vision. The organisational framework for the visual *field* had evolved from the interpretation of Veith-Müller's (Wagner, 2006: 33) *diagram of visual geometry* in Mark Wagner's book entitled *The Geometry of Visual Space*. This model, however, was further developed by the addition of Blain Brown's 'rule of thirds' (Brown, 2002: 42), which divided the *field* reference frames into thirds enabling the visual *field* to be broken down into clearer 'building blocks of scenes' (Brown, 2002: 9). This framing device established a strategy for decomposing the visual scene and introduced the three dimensional element of 'visual forces' (Brown, 2002: 37), including compositional lines, wide and narrow perception of visual space and perspectival gradients relative to the horizon at the three different focal lengths.

---

<sup>9</sup> In film making the visual point of view is abbreviated to 'POV' and can assume objective and subjective associations according to the location of the camera in relation to the performers perspective.

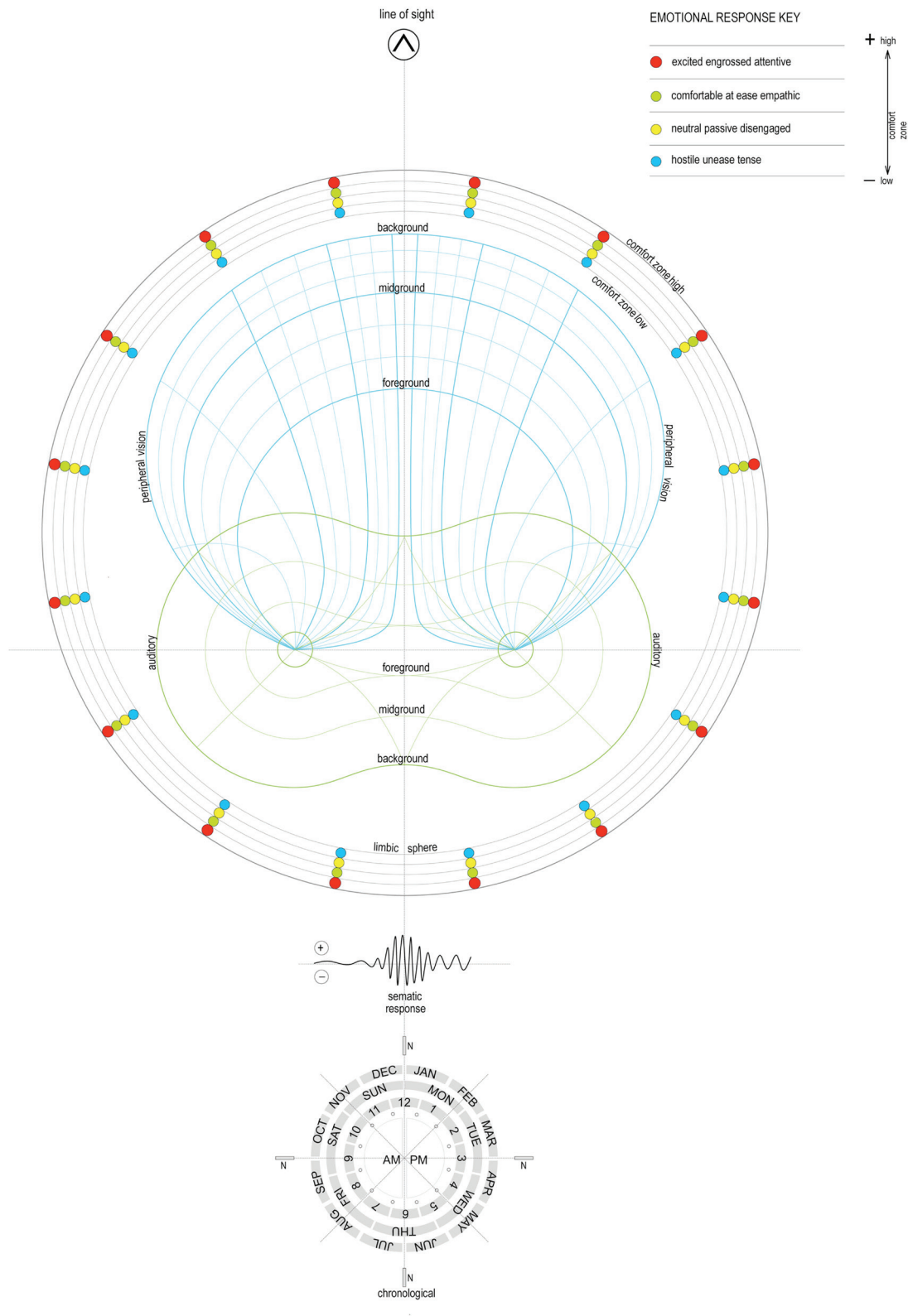


Figure 26-4. Cognitive-topo map

The visual *field* used the eye's ability to detect electromagnetic waves and enabled the user to map visual space as a simplified ubiquitous three-dimensional field of tones, distinguishable by the relative amplitude of light and densities of shade. The medium of light and dark formed the essence of the visual *field* and was one of the simplest ways to establish the user's perception of visual space. This enabled the user to simplify the range of visual perception and concentrate on evaluating the tones locally, assessing the relationship between form and space, whereby the qualities of the visual scene were abstracted and extended through the interplay of contrast, proportion, intensity, distribution and direction. Three dimensionality arises from the percipient's use of the fore/mid/background zones, with depth being noted through overlapping of compositional elements and relative size, following a similar concept to Rhowbotham's 'weather map' (Rhowbotham, 1999: 30) analogy:

'space and object are considered to be made of the same stuff, distinguishable by their relative densities alone.'

(Rhowbotham, 1999: 30).

By reducing the visual scene into basic tonal elements, the process put greater emphasis onto the forces of visual composition, rather than scenic detail, which was more suitable for studying the influences on the *field*.

### **Auditory field**

The contextual soundscape was acoustically sectioned into three zones of 360° concentric graphs, centred on the bi-polar loci of the left and right ear. The percipient used the auditory map to graphically visualise the spatial appearance of the spatially explicit sound event. The auditory *field* map interpreted R. Murray Schafer's (1977) sound envelope topology, to visualise the sonic



'attack, body, transient and decay' (Schafer, 1977: 129). By adding a locational component, the user could chart the directional content of the sound, enriching the aesthetic quality of the sonic *field* study with a three-dimensional locator that charted the movement and durational content of the auditory *field*.

The auditory *field* charts the propagation of sound vibration through the medium of hearing. The mapping exercise did not intend to disintegrate the sound impression into a classification system of individual components; rather the exercise drew greater consciousness to the ambient conditions of the spatial experience and sought to amplify the communicative levels of an atmospheric narrative. The visualisation processes involved in the auditory segment attempted to make the sonic presence more visually comprehensible and, by sequentially mapping the area, the user was able to trace the audible signature by linking the frames together to form a temporal section.

### **Somatic Field**

Somatic perception related directly to body position and movement in the kinesphere and was distinct from the psychological domains of the phenomenal self. This *field* domain was specifically devised as an opportunity to group and simplify the interrelated fields of kinaesthesia and equilibrioception into a single section of body awareness, namely the sense of motion, acceleration and balance. The user could chart their somatic awareness on a graph denoting the intensity of transmittable data that marked the level of joint and muscle tension, together with the ability to maintain a postural equilibrium or balance. The somatic *field* enabled the user to calibrate the body's position adjacent to the environment in a three-dimensional *field*.

## **Chronology**

The chronological dial enabled the user to note the time, date and orientation relative to the north point, allowing a temporal and directional framework to be established for sequential mappings and accurate retrieval of data.

## **Seed line Three-Dimensional Location**

A series of directional symbols could be added to the seed line to indicate the directional content and three-dimensional location of the perceptual feedback. The seed line started from an anchor point within the kinesphere and projected out beyond the body to form a definite directional value according to where the presence comes from. The seed line visualised the axis of felt\_space realisation and could indicate the vertical and diagonal inclination of feedback.

## **Interpenetrating Matrices as Signal Transduction**

Following the initial subdivision of the primary senses into five elemental domains, the superimposition of an organisational framework subdivides each segment into thirds. These were designed to help provide the user with a reference frame to ease the distribution of input values across the operating *field*, and help navigate distances at various levels according to the specific situation. The graph lines provided a subtle radial framework of space region as a dimensional matrix, which manifested the phenomenal self as a *field* occupying a space of sense perceptions. The framework represented an alignment mechanism for the location of the line of perceptual feedback and developed a transitional reference point with perspectival attributes. This device aided the conversion of sensory stimuli into a receptor value, namely the visualisation process.

The matrices demarcated notions of expandable psychological regions bounded by sensory differentiation, enabling the user to chart the perception of the position of sensory affects in spatial relationship to each other, thus revealing the *field* as mediator and propagator of *affect*. The mapping process positioned the percipient as a transactional observer within the *field*, whereby the different domains of sensory feedback mechanisms isolated certain capacities of space-consciousness values in a simple mechanising mapping process. When the separate layers were aggregated as an encapsulating profile, the interpenetrating demarcations of the perceptual *field* became visible as transient thresholds of response signatures. Mapping therefore, was considered here as a syncretic tool with a particular focus on examining the distribution of spatial behaviour throughout the *field*.

## 4.8 Sensory Editing

Because the cognitive-tope mapping system was intended for field use, the human-map interface considered accessibility, usability and ease of understanding. The mapping system was, therefore, limited to five primary categories of sensory systems in an attempt to make the procedure a more responsive instrument for use, and in this instance omits temperature fluctuations and chemoreception senses such as the olfactory system of taste or smell. Touch was also reduced, whereby the haptic senses were abbreviated within the somatic *field*.

### Causal Orientation Map Blending

The cognitive-tope map could be used as a hybridised tool to combine a form of cognition mapping with the traditional orientation properties of a geospatial map. A digital or transparent version of the cognitive-tope map could be overlaid onto the topographic map by the synchronisation of North points together with

grid references. The user could then proceed to map the individual perceptual feedback transmissions together with charting the 'isovists' (Benedikt, 1979: 47-65), or visual polygon, to record the percipient's visible location in the plan. This unique combination enabled the user to map both a subjective construction of salient perceptual causations, together with the objective array of "isovists", which Benedikt introduced to study the behaviour of visual "affordances". By blending the two systems, it is possible to analyse the user's interaction within the environment, comparing the visual navigational system with an embodied cognitive function.

## 4.9 Results

Each recorder was issued an Ordnance Survey Sitemap that identified their specific area together with eight mapping stations. The mapping exercise was carried out on the 20.10.10 by three recorders including the author.

Recorder A: Station 01a		Chronology: 15.00
Limbic Field	High attention, strong experience with intense force of perception related to northwest region and northeast segment, seed line vector 0°- 45°connected directly to these points respectively. Point of application Type T2 B24 Liberator Hangars.	
Visual Field	Focused attention went to Type T2 B24 Liberator Hangars, with spatial orientation to foreground northwest and northeast peripheral regions, resulting in peripheral bookending. Strong external influences, close proximity determining high degree of connection between these parts, resulting in compression of space. Central regions selective relative importance to one or two midground, with overlapping situations within the open frame visual coverage. Horizontal location, closed field with central perspective to visual background.	
Auditory Field	Wide expansion of space behind recorder, southwest tracking of sound, medium amplitude background, midground and foreground.	
Somatic Field	Action representation: medium.	
Recorder A: Station 02a		Chronology: 15.10
Limbic Field	Medium attention, medium experience with medium force of perception related to northwest segment and northeast region, seed line vector 0°- 45°connected directly to these points respectively. Point of application Type T2 B24 Liberator Hangars.	
Visual Field	Change of position to left visual field, moving relation to midground external influences, peripheral regions strong right eye with medium degree of differentiation to central regions. Spatial orientation more forwards, perspective leading northeast. Empty frames of isolation within midground-background northwest with cutaway frame northeast. Horizontal location.	
Auditory Field	Midground northwest tracking sound north to west. Behaviour high amplitude, then fading. Tracking sound midground east, vector 45° - 80°.	
Somatic Field	Relative equilibrium.	

Recorder A: Station 03a		Chronology: 15.16
Limbic Field	Decreased attention, low experience with minimum force of perception related to northwest region and southeast segment, seed line vector 0°-45° connected directly to these points respectively. Point of application undetermined quality.	
Visual Field	High degree of connection between foreground left eye, directing spatial orientation. Close proximity to peripherals, undifferentiated region in fovea region. Deep, selective focus goes to background determining depth of space. Open frame entering and exiting the midground-background visual overlap with right eye insert.	
Auditory Field	Wide constellation of sounds ranging between 0° - 80°. Change of position, moving region of low to mid amplitude with high volume directly above. Sound source southeast – southwest. Expansion of space behind recorder, tracking sound in background.	
Somatic Field	Action representation: low = equilibrium.	

Recorder A: Station 04a		Chronology: 15.22
Limbic Field	No change in attention, low experience with minimum force of perception related to northwest region and southeast segment, seed line vector 0° - 45° connected directly to these points respectively. Point of application undetermined quality.	
Visual Field	High degree of visual differentiation within foreground, midground and background regions. Strong central focus, high connection between user and midground. Left eye close proximity to point, with jump cuts to mid and background peripherals. Strong horizon line, depth of space with selective focus central regions.	
Auditory Field	Narrow focused pockets of sound directly above recorder tracking in midground, with background sound northeast ranging between 0° - 45°. Changing position.	
Somatic Field	Action representation: very low = equilibrium.	

Recorder A: Station 05a		Chronology: 15.30
Limbic Field	Minimum change in attention, insert new segment of medium experience with medium force of perception related to northeast region, seed line vector 0°- 45°connected directly to these points respectively.	
Visual Field	External influences at mid to background, depth of space with pockets of open frames between constellations of overlapping situations. Strong horizon left eye, with inserts at foreground. Peripheral and central regions offer degrees of differentiation with panning point of view.	
Auditory Field	Wide expansion of space behind recorder, southwest tracking of sound, medium amplitude background, midground and foreground.	
Somatic Field	Action representation: low = equilibrium.	

Recorder A: Station 06a		Chronology: 15.33
Limbic Field	Minimum change in attention.	
Visual Field	Minimum change in visual forces, focused on central region of horizon, with pockets of open and closed frames between constellations of overlapping situations.	
Auditory Field	Sound source quietening, southwest tracking of sound, low amplitude background distance.	
Somatic Field	Action representation: low = equilibrium.	

Recorder A: Station 07a		Chronology: 15.40
Limbic Field	New insert, high attention, strong experience with high force. East vector 0°- 45°connected directly to this domain.	
Visual Field	Minimum change in visual forces, sound attack of dog barking drew visual attention east.	
Auditory Field	Loud amplitude of sound attack east registered at foreground through to background. Vector 0°- 45°connected directly to this domain.	
Somatic Field	Action representation: low = equilibrium.	

**Recorder A: Station 08a****Chronology: 15.43**

Limbic Field	Minimum change in attention.
Visual Field	Selective focus went to peripherals of vision but also included high degree of connection between background, foreground and midground, resulting in compression of space between these domains. Horizontal location, closed field with central perspective to visual background.
Auditory Field	Loud amplitude of sound attack west-southwest registered at foreground through to background. Vector 0°- 45° connected directly to this domain.
Somatic Field	Action representation: low = equilibrium.

**Recorder B: Station 01b****Chronology: 15.00**

Limbic Field	Medium experience of perception related to south region, seed line vector 0°- 45°. Point of application indeterminate.
Visual Field	No background, prime directive to peripheral attention, foreground with overlapping into west midground, closed frame.
Auditory Field	Wide expansion of space west of recorder, medium amplitude background, midground and foreground with seed line vector 0°- 45°.
Somatic Field	Action representation: low.

**Recorder B: Station 02b****Chronology: 15.10**

Limbic Field	Medium attention, medium experience of perception related to north region directly in front of recorder at seed line vector 0°- 45°.
Visual Field	Moderate change of position to left visual field, moving relation to foreground and midground external influences, peripheral regions strong left eye with medium degree of differentiation to central regions. Spatial orientation more forwards.
Auditory Field	Constellation of sounds ranging from foreground through to background surrounding the recorder on all axes. Behaviour low - high amplitude, then Tracking sound vector 45° - 80°.
Somatic Field	Relative equilibrium.



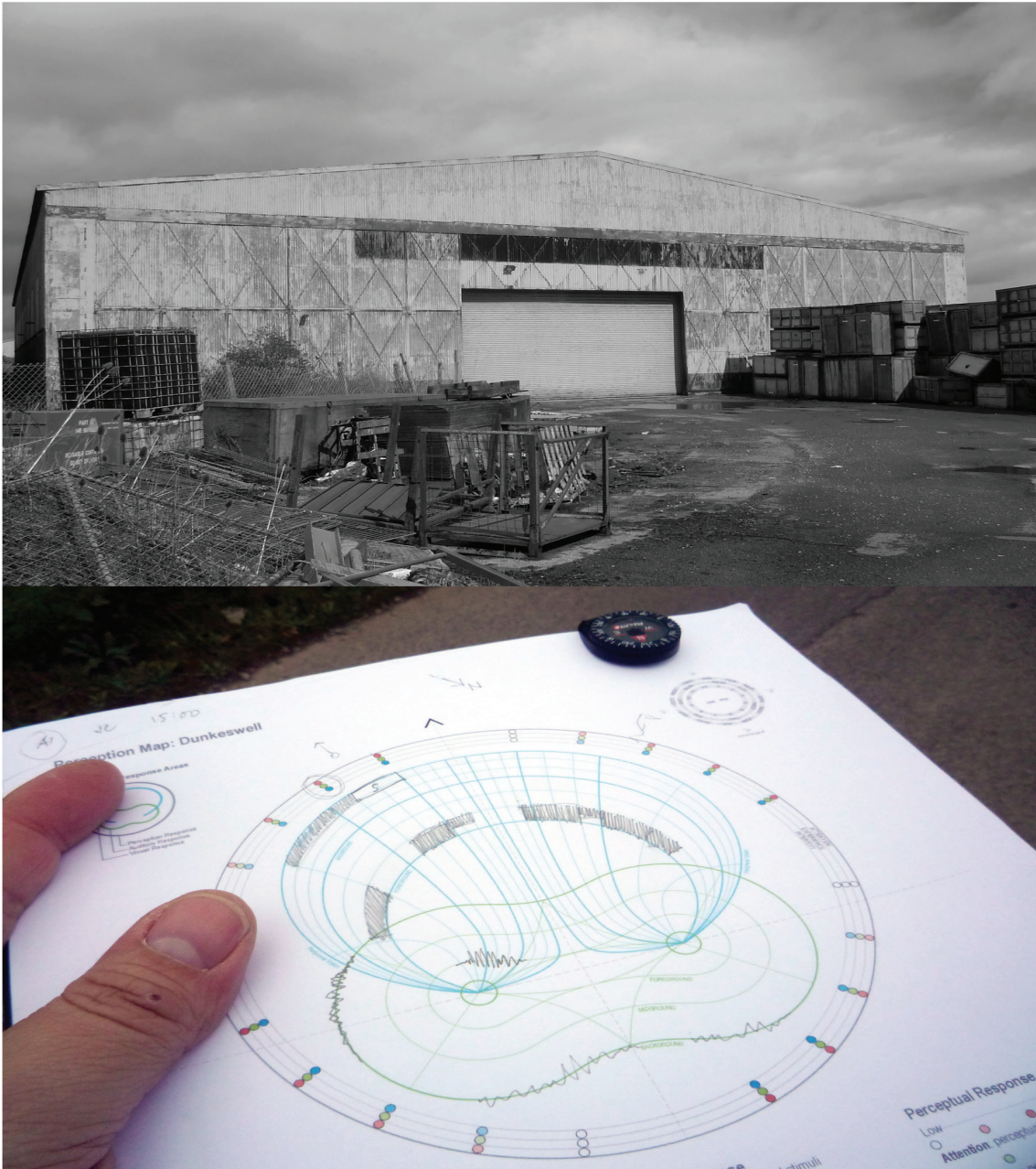


Figure 27-4. Cognitive-tope mapping exercise

Recorder B: Station 03b		Chronology: 15.20
Limbic Field	High perceptual response to attention, related to north region, no seed line.	
Visual Field	Moderate change, introduction of background closed frame in front of recorder, with medium degree of differentiation to peripheral regions. Spatial orientation more forwards.	
Auditory Field	East and north constellation of sounds ranging between 0° - 45°. Amplitude ranging from mid-high, sound dynamics entering and exiting the all frames.	
Somatic Field	Action representation: low = equilibrium.	

Recorder B: Station 04b		Chronology: 15.25
Limbic Field	Medium attention northeast and southwest, no seed line.	
Visual Field	Relative importance of one or two or more overlapping situations within the visual midground coverage central to recorder. Left eye connected to peripheral background west of recorder, whilst closed frame right, foreground.	
Auditory Field	Northwest sound directly above recorder between 45° - 80°, changing position.	
Somatic Field	Action representation: very low = equilibrium.	

Recorder B: Station 05b		Chronology: 15.35
Limbic Field	High attention to aeroplane taking off, with medium experiential attention linked to dogs barking southwest.	
Visual Field	Strong west peripheral attention ranging from foreground through to background, including central focus overlapping frames in midground region. East eye also recording midground peripheral frames of visual attention.	
Auditory Field	Frontal and west orientated sound sources ranging from mid-background with high amplitudes.	
Somatic Field	Action representation: high = disequilibrium.	

Recorder B: Station 06b		Chronology: 15.40
Limbic Field	High perceptual response to east attentional domain, with low-medium experiential force southeast of recorder, no seed line.	
Visual Field	Open frame within foreground, overlapping with midground with strong connection to left eye and horizon eye line. Focused of attention to midground closed frame and right eye foreground-midground peripherals.	
Auditory Field	Constellation of sound sources, ranging from foreground to background with high amplitudes. Vectors 0° - 45°.	
Somatic Field	Action representation: low = equilibrium.	

Recorder B: Station 07b		Chronology: 15.45
Limbic Field	High attention north and strong experience with high force east, no seed line.	
Visual Field	Strong focus on horizon line, deep space with empty frame north overlapping with closed frame. Strong horizontal orientation.	
Auditory Field	Constellation of sound sources, ranging from foreground to background with high amplitudes. Vectors 0° - 45°.	
Somatic Field	Action representation: low = equilibrium.	

Recorder B: Station 08b		Chronology: 15.50
Limbic Field	Minimum change in attention.	
Visual Field	Selective focus went to central domain with overlapping connections between foregrounds – background. Empty frame at horizon line in front of recorder. Horizontal location, closed field with central perspective to visual background.	
Auditory Field	Constellation of sound sources, ranging from foreground to background with high amplitudes. Vectors 0° - 45°.	
Somatic Field	Action representation: low = equilibrium.	

# Perception Map: Dunkeswell

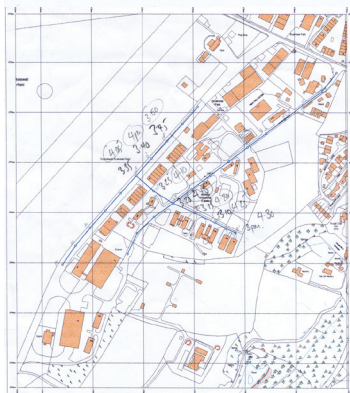
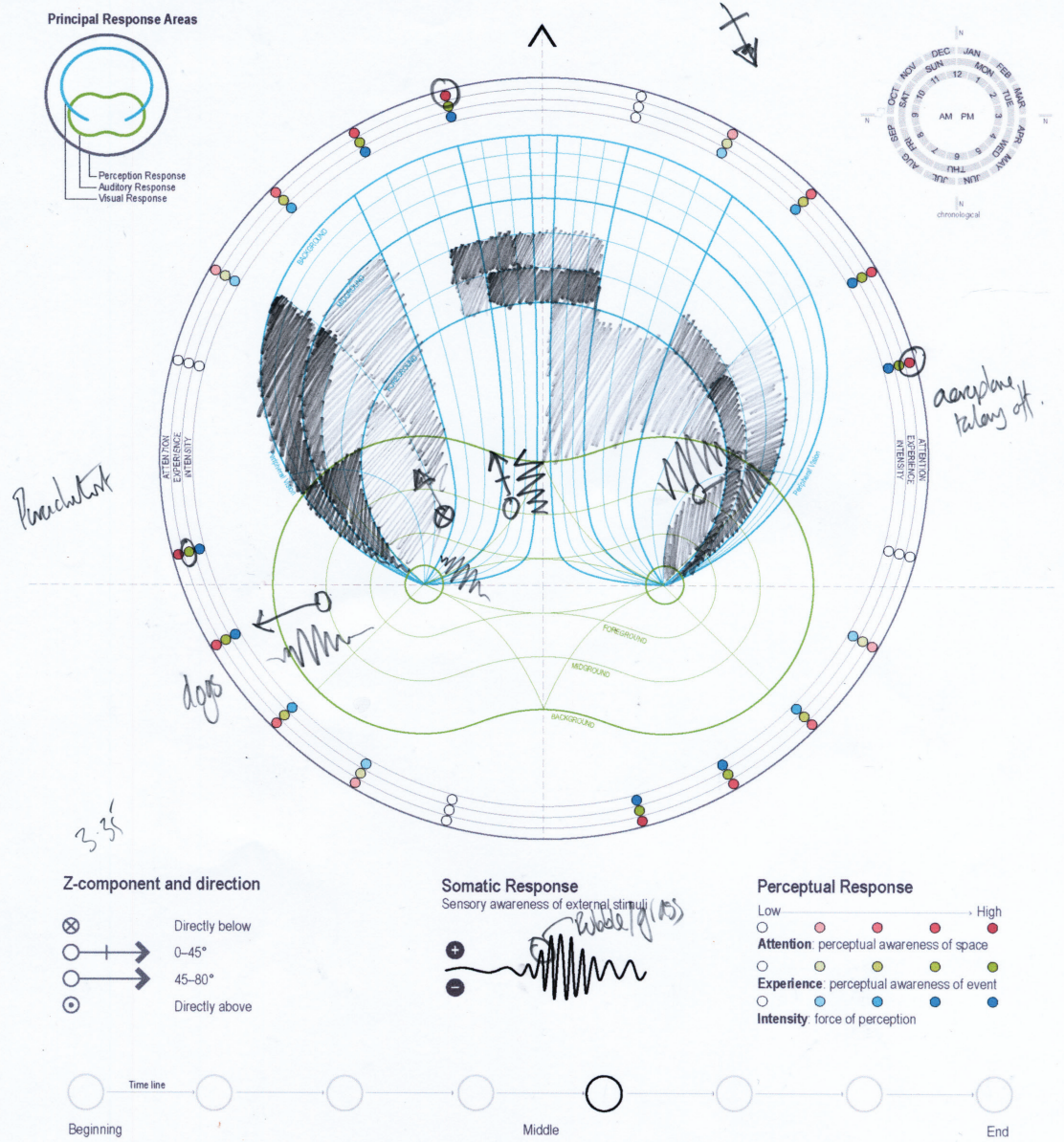


Figure 28-4. Recorder B: station 5b

Recorder C: Station 01c		Chronology: 15.00
Limbic Field	Medium-high experience of perception, medium-high attention and medium-high force of intensity, related to north region, seed line vector 45°- 80°. Point of application indeterminate.	
Visual Field	Panning field of view with focused attentions within midground and northwest background. Open fame focus on north horizon domain.	
Auditory Field	Wide expansion of space surrounding recorder, low amplitude background.	
Somatic Field	Action representation: low.	

Recorder C: Station 02c		Chronology: 15.06
Limbic Field	High experience of perception, high attention and high force of intensity, related to north region, seed line vector 0°- 45°.	
Visual Field	Moderate change of position, stronger connection to horizon line with closed frames at the background domain. Strong peripheral attention to left and right eye midground.	
Auditory Field	Constellation of sounds ranging from foreground through to background surrounding the recorder. Behaviour low - medium amplitude, sound vector 45° - 80°.	
Somatic Field	Relative equilibrium.	

Recorder C: Station 03c		Chronology: 15.08
Limbic Field	High experience of perception, high attention and high force of intensity, related to front region of recorder, no seed line vector.	
Visual Field	Moderate change, stronger focus on background, panning vision surrounding front of recorder, with closed frames within midground.	
Auditory Field	Low sound amplitude background and midground north and southeast of recorder, sound vector 45° - 80°.	
Somatic Field	Action representation: low = equilibrium.	

Recorder C: Station 04c		Chronology: 15.20
Limbic Field	High experience of perception, high attention and high force of intensity, related to front region of recorder, no seed line vector.	
Visual Field	Relative minor change, panning vision surrounding front of recorder, with closed frames within midground.	
Auditory Field	North sound directly above recorder between 0° - 45°, changing position.	
Somatic Field	Action representation: very low = equilibrium.	

Recorder C: Station 05c		Chronology: 15.24
Limbic Field	No change.	
Visual Field	Moderate change, stronger focus on background, panning vision surrounding front of recorder, with closed frames within midground and overlapping frames in mid-background region. Cutaway, insert, connecting foreground with midground.	
Auditory Field	West and east orientated sound sources ranging from mid-background with medium amplitudes.	
Somatic Field	Action representation: high = disequilibrium.	

Recorder C: Station 06c		Chronology: 15.35
Limbic Field	High perceptual response to east attentional domain, with high experiential force west of recorder, no seed line.	
Visual Field	Moderate change, stronger focus on background, panning vision surrounding front of recorder, with open frame within midground and overlapping frames in mid-background region. Cutaway insert, connecting foreground with midground on west and east of recorder.	
Auditory Field	West and east orientated sound sources ranging from mid-background with medium amplitudes.	
Somatic Field	Action representation: low = equilibrium.	

**Recorder C: Station 07c****Chronology: 15.38**

Limbic Field	Medium-high attention west and strong experience with high force east, no seed line.
Visual Field	Strong overlapping closed frames on west of recorder linking foreground peripheral vision to central midground and central horizon line.
Auditory Field	Constellation of sound sources to west of recorder ranging from foreground to background with high amplitudes.
Somatic Field	Action representation: low = equilibrium.

**Recorder C: Station 08c****Chronology: 15.43**

Limbic Field	No response.
Visual Field	Strong degree of balance and visual unity – organisation in front of recorder, with overlapping closed frame to east midground.
Auditory Field	Medium-low background noise to west of recorder. Vectors 0°- 45°.
Somatic Field	Action representation: low = equilibrium.

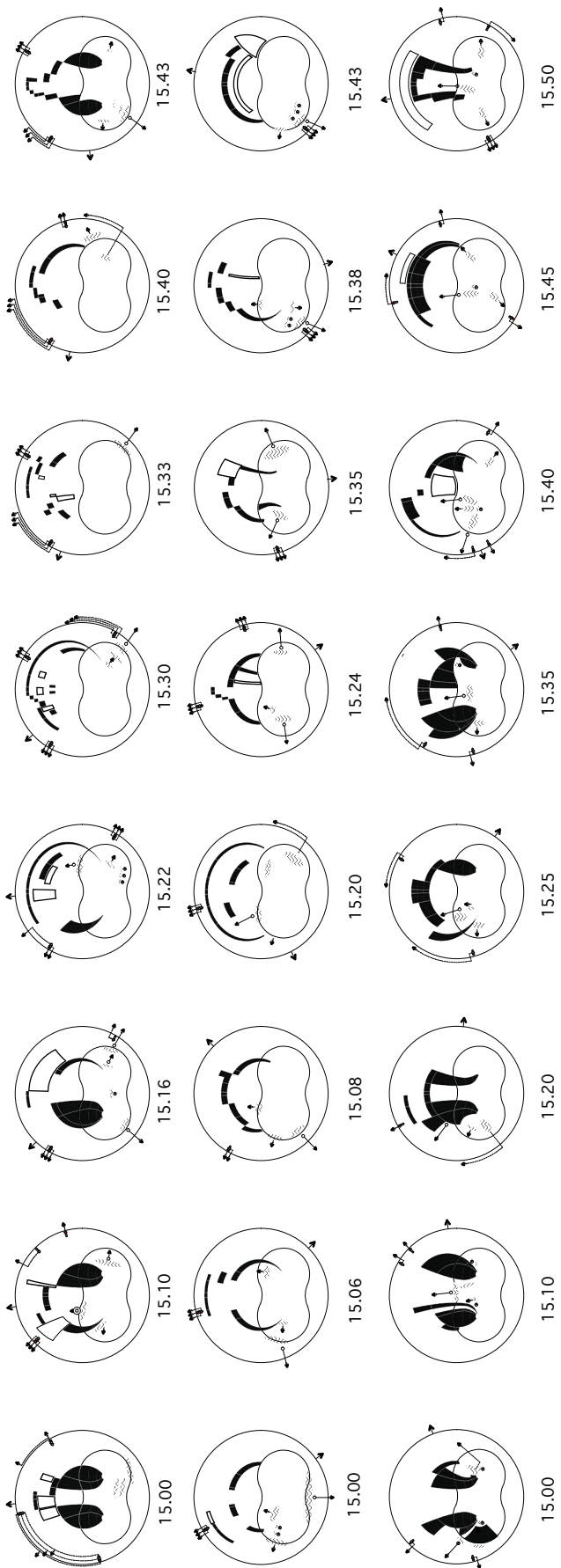
## 4.10 Findings

The central question explored the *field* by questioning if it was possible to map the behavioural characteristics whilst creating a notational system for its representation. Case study '2' examined the interconnections between the *field* and systematical causation by considering the *field* to have mediating characteristics, representing the locational and collective totality of possible *affect* events in terms of meaning and modes of relationality. The operational framework promoted a heightened existence of spatial awareness, where the recording processes overcame the passivity of normal modes of spatial attention, raising the percipient's acuity to the attentional patterns that inferred the *field*.

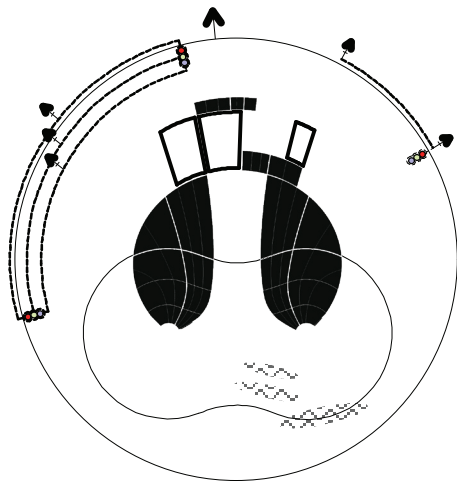
### Behaviour

In general, the results demonstrated the polydimensional patterning that characterised the momentary and immersive situation of attentional forces of perceptual organisation. The characteristics were intertwined with overlapping amplitudes of diverse tendencies, as revealed by the mappings that visualised significant interaction throughout the different layers of perception, creating a montage series with a constellation of forces prompting causal directionality, proportion, and duration, lateral and vertical trajectories. The structure formation revealed an action tendency characterised between the underlying forces of complex, unbalanced, multi valenced dynamic behaviour (Recorder A: stations 4a - 5a and Recorder B: stations 5b) and balanced unity of visual organisation (Recorder B: stations 4b and Recorder C: stations 2c, 3c and 4c). The site-

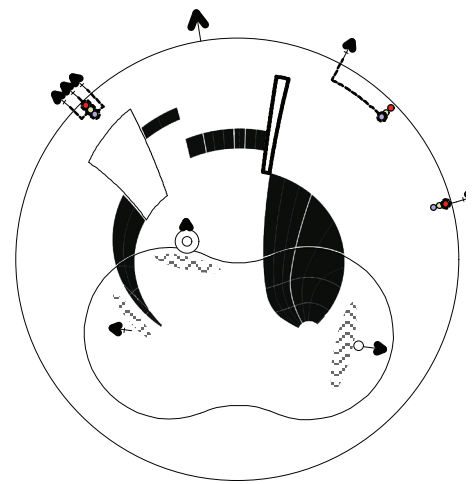




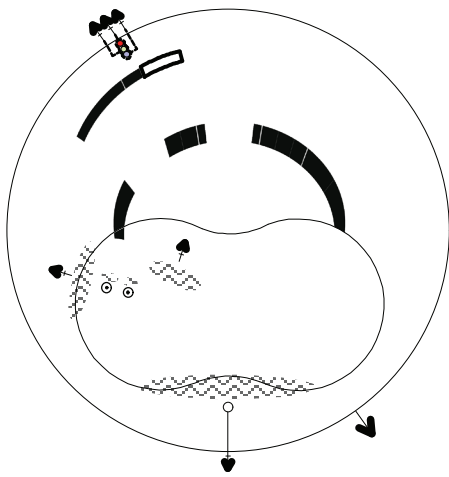
**Figure 29-4.** Cognitive-topo total mapping results



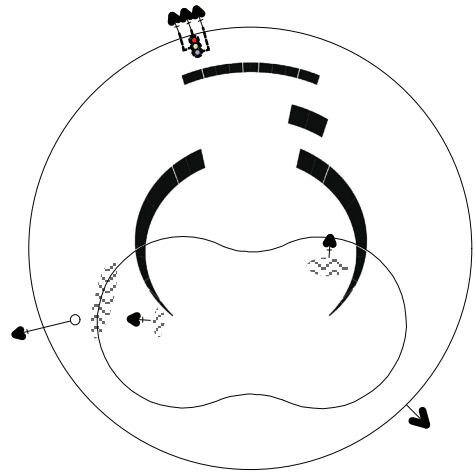
Recorder A 15.00



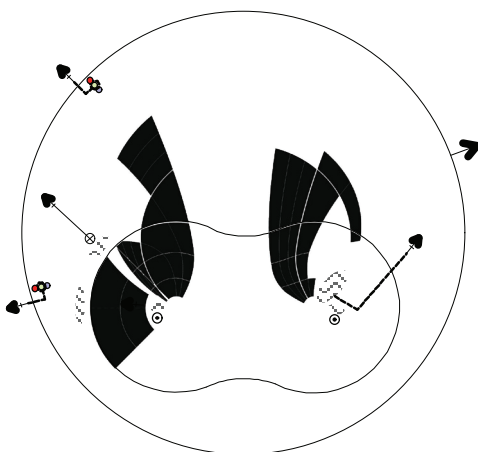
15.10



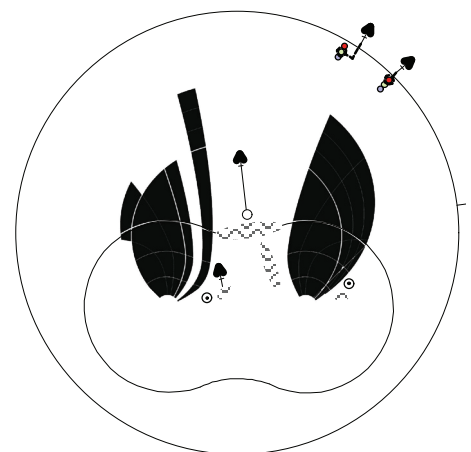
Recorder B 15.00



15.06

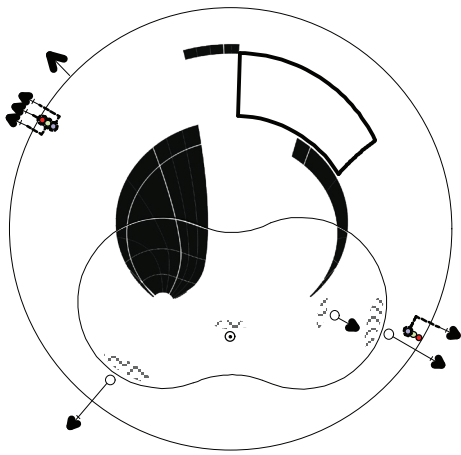


Recorder C 15.00



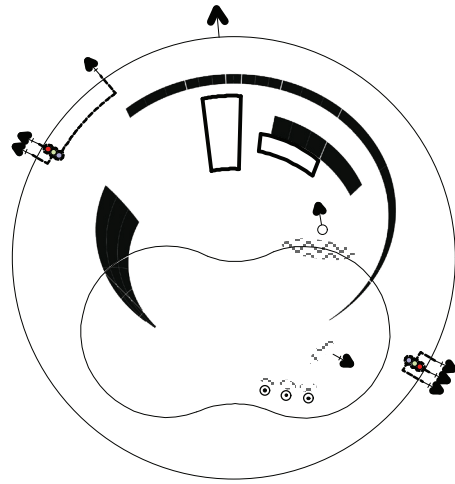
15.10

**Figure 30-4.** Recorder A: station 1a-2a, recorder B: 1b-2b and recorder C: station 1c-2c

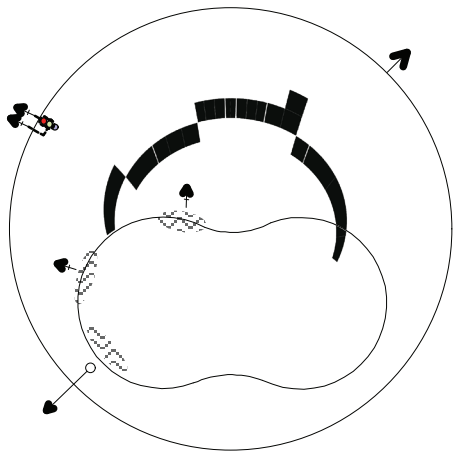


15.16

Recorder A

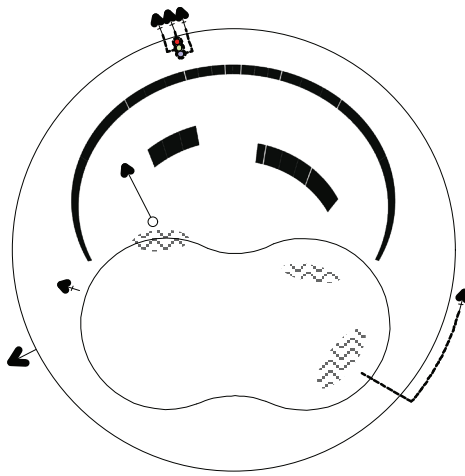


15.22

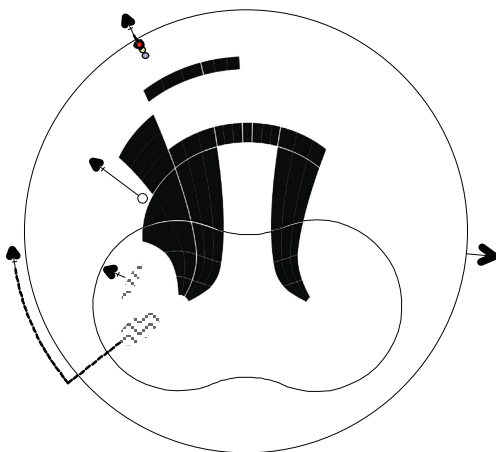


15.08

Recorder B

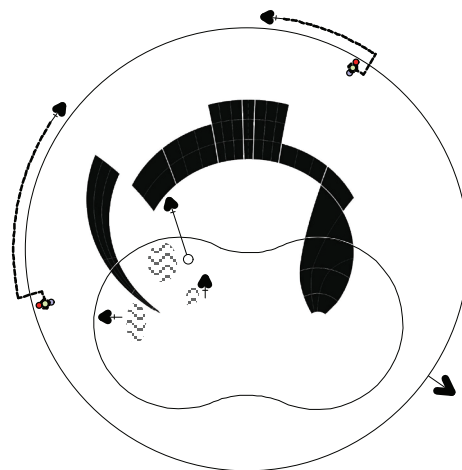


15.20



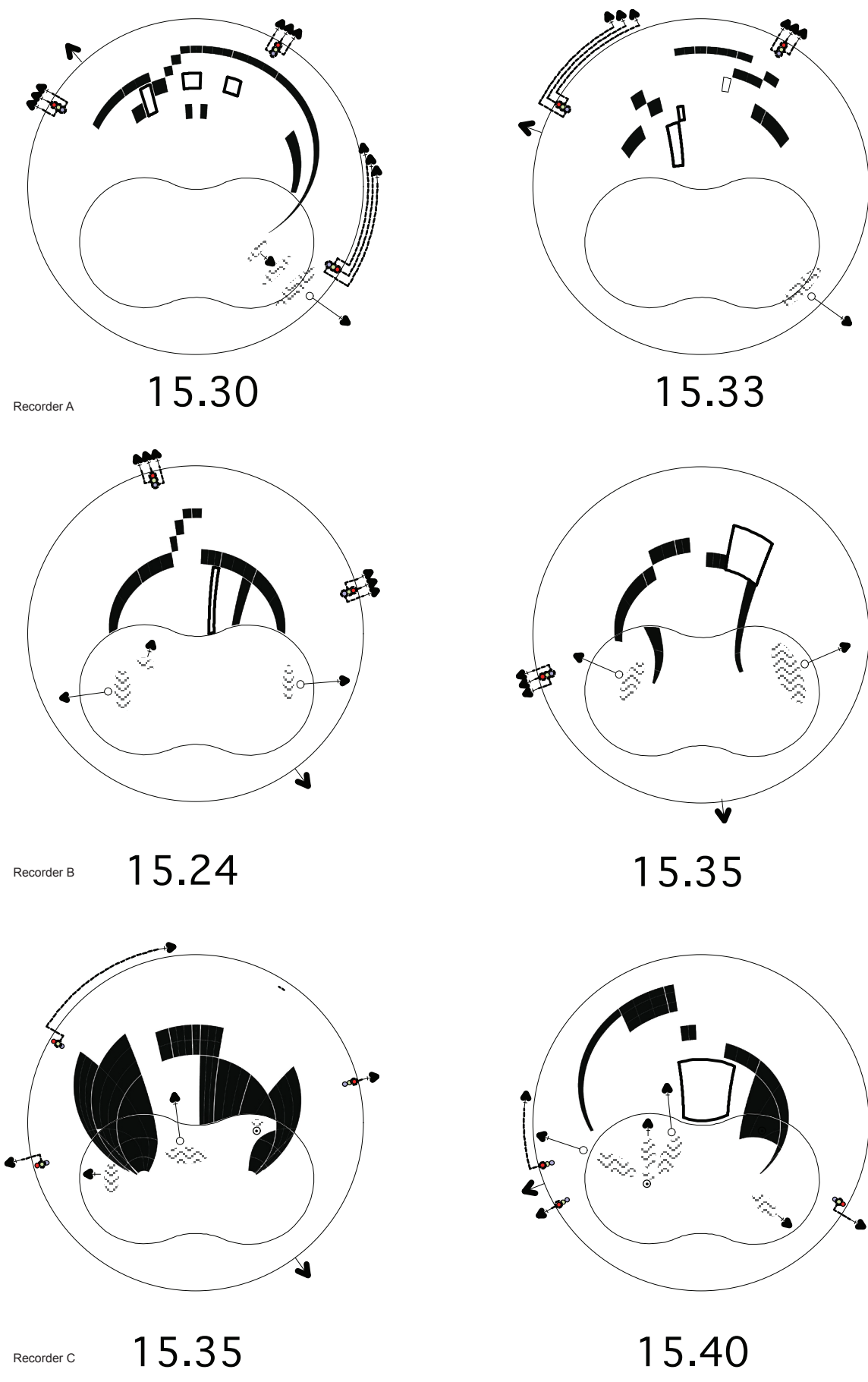
15.20

Recorder C

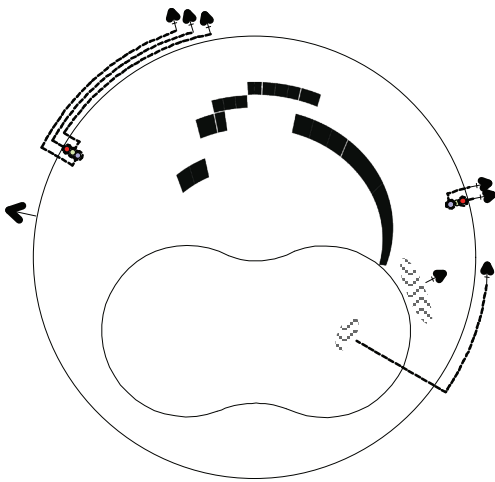


15.25

**Figure 31-4.** Recorder A: station 3a-4a, recorder B: 3b-4b and recorder C: station 3c-4c

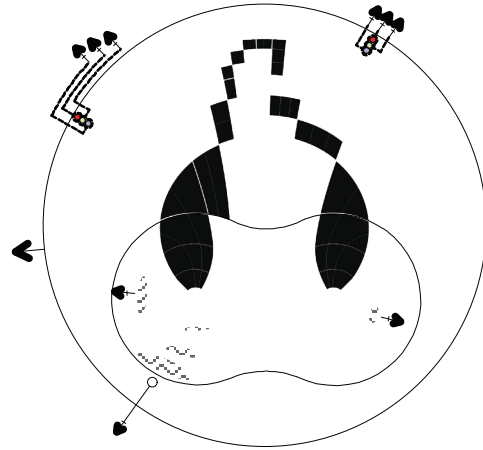


**Figure 32-4.** Recorder A: station 5a-6a, recorder B: 5b-6b and recorder C: station 5c-6c

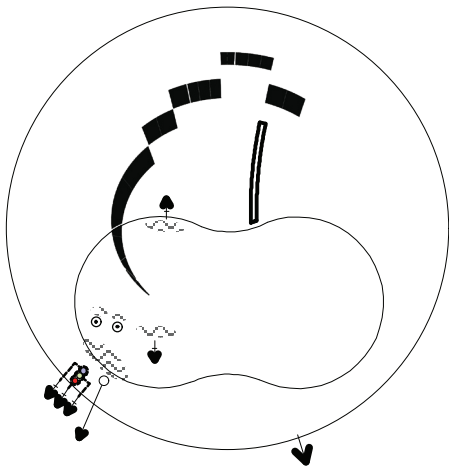


15.40

Recorder A

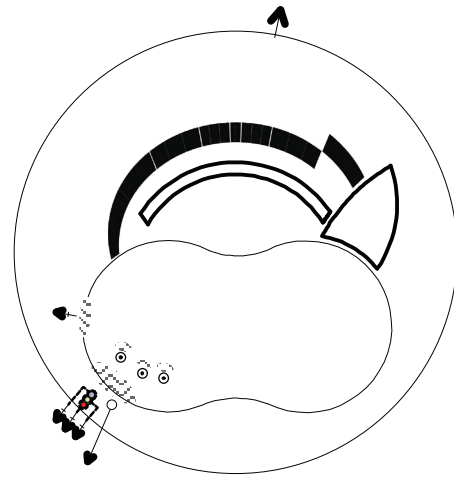


15.43

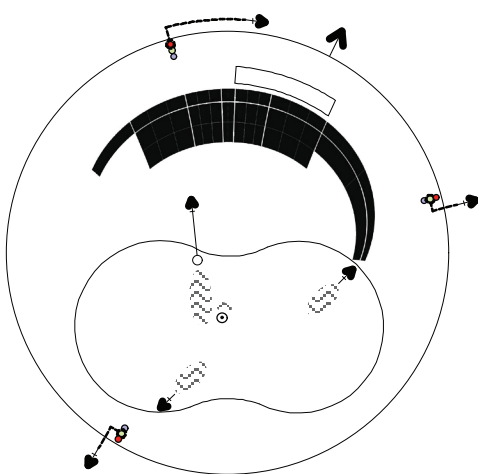


15.38

Recorder B

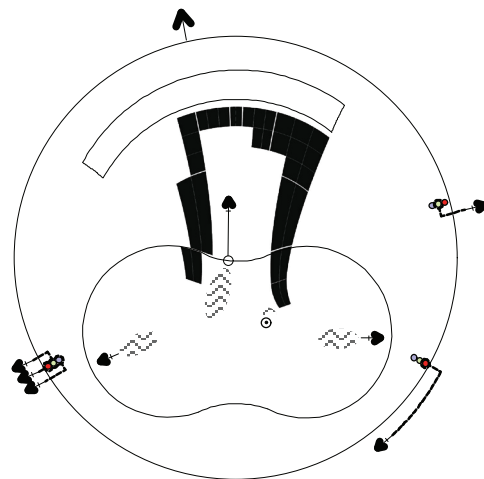


15.43



15.45

Recorder C



15.50

**Figure 33-4.** Recorder A: station 7a-8a, recorder B: 7b-8b and recorder C: station 7c-8c

responsive results showed a *field* signature that was not linear with respect to attention sets, rather there were multi layered, overlapping, deep, near, open and closed domains, cueing and propagating different onsets of time/space distortions, simultaneously superimposed with sound and somatic articulations.

## **Attention sets**

The study has shown that the *field* was defined by attentional onsets. The map alignment method revealed the effect of selective attention; whereby attentional-sets captured jump cuts or salient stimuli more acutely when the target triggered interference, contrast, or other defining properties, leading to perceptual entrainment (Recorder A: 2a-2b & Recorder B: 4b). Generally, the attentional shifts were activated in the feedforward sweep of the visual field (Recorder A: 8a, Recorder B: 4b & 6b and Recorder C: 4c & 8c,). Sequences of attentional events were grouped together with varying numbers of internal subdivisions or frames within frames (Recorder A: 4a, 5a, & 8a). States of equilibrium and continuity inferred a balanced trajectory of the *field* or undifferentiated perceptual regions without points. The register of range and depth formed grouping clusters of moments that entered and exited the foreground, midground and background frames of the visual field (Recorder A: 8a, Recorder B: 8b and Recorder C: 7c).

## **Forces of cueing**

The findings also provided evidence that the *field* cues caused endogenous and exogenous attentional orienting (Recorder A: 1a & 2a, Recorder B: 1b & 5b and Recorder C: 2c, 4c, 5c & 6c). Psychologically, one can interpret a more sharp differentiation between changes in perceptual regions when a state of tension relative to proximity or relative weight of situation. Recorder A: Station

01a recorded a high tensional awareness on the limbic and visual *field*, with a medium on the somatic graph, when the recorder was closely situated between two adjacent hangars. In a more open aspect as recorded by Recorder C: stations 7c-8c, a psychological regression took place, corresponding to a decrease in psychological differentiation of the person. However when the limbic *field* was low-medium the effects were not as pronounced, probably being linked to the presence of a visible cue set, causing a shift in spatial attention.

## **Depth of field**

Furthermore, during the *field* study there was a continuous perspective distortion, most noticeably visualised as overlapping frames in which the elements captured shifts between foreground, midground and background, revealing the optical reception of depth transformations relative to the recorder.

In conclusion, this study has identified a new five-response mapping paradigm, which has associated the *field* to reflexive shifts in spatial attention, helping to build the dynamic values and behaviour of the *field* axis situated within the felt\_ space infrastructure model. Through the visual interface and visual extrapolation, the *field* has gained spatial trajectories with greater granularity of situational depth, and has highlighted the important connection between the *field*, cueing forces and attentional sets that can evoke agent-environment reflexive behaviours. The cognitive-tope mapping system has demonstrated how the character and dynamic values of the *field* can be represented and expressed culminatively, giving both the critical tools to better understand the *field* and the creative tools to more fully exploit the reflexive potential of the medium.

## 04.11 Evaluation

Following real-life tests with the mapping tool, a number of issues became clear. This was to be expected, and formed the basis on which to refine and improve it.

It was expected that a custom-designed and unfamiliar tool such as this was open to interpretation and variation in approach to completing it. As a new type of tool, this should not be unexpected, but as the purpose is to record an individual's physical and psychological response, you could argue the propensity for variation would be even greater.

Improvements to the recording graph should centre on clarifying the type of marks to make and how to make them. Moreover, further clarification on how it is used within an environment would ensure that those using the graph complete it in a meaningful way.

The final case study will look at the affect-field as an integrated feedback system for a potential score to compose a reflexive environment.





# 05\_Case Study 3\_Bath Vaults

## 5.1 Overview

Case study '3' was causal and cumulative. Where as case studies '1' and '2' increased the spatial awareness of *affect* and *field* as reflexive independencies, case study '3' integrated affect-field feedback cueing forces to exploit their interconnected behaviours to propagate a performative event shaped by attentional sets to trigger a visceral 'niche construction' (Odling-Smee, 1988).

The work now looks at perceptual material physically, realised in the compositional processes of a inference schema planning strategy. The final case study turned to space-making intimately tied to the integration of affect-field feedback operants to demonstrate how the felt\_space infrastructure worked. I wanted to see if I could compose a series of attentional sets that would put the participant into a heightened perceptual awareness of both themselves and of the situation, to push them into confronting an intimate self-structuring collective order through the coaction of receptive agency and environmental entrainment. The ambition was to pursue an adaptive ecological model of higher ordered space, explored as a behaviour-based inference infrastructure that shifted spatial experience from the first-person singular to a shared collective fusion of correlated systemic interactions.

I called the performative event Vection-Builder, which was a progressively active and tangible manifestation of affective-field propagation, designed as an interactive, site-responsive live exposition of the composition strategy. Sponsored by Bath Heritage Services, Vection-Builder was a two-day 'countersituation' (McLuhan, 1967: 68) located at the Bath Vaults in February 2011, that involved participant improvisation, eye tracking and bio-feedback sensors, custom software, two data projectors and a condition-action audio-visual feedback score. Vection-Builder embodied ecological, non-linear, perception-based modes of hyper vigilant space sensing, to evolve a mutually modulatory niche, attributable to collective mirroring.

The project involved live participation and technical support from PerceptionLab: Detmolder Schule für Architektur und Innenarchitektur, Germany, whose specialist knowledge in eye-tracking and biofeedback systems, enabled me to create the performative event as a medium to simultaneously receive, transmit and observe agent-environment interaction. Vection-Builder used notational modes of inference schema planning to demonstrate the *felt\_space infrastructure* as a fused participation of *affect* and *field* to generate a hybrid form of composition strategy, unified as a poly continuum generative platform that cued visceral moments of body-space hyperawareness.

Vection-Builder triggered reciprocal causations by amplifying and extending the modulation and attenuation of psychophysical space, in effect remodelling architecture towards systemic behavioural ecologies.

## 5.2 Context

In 2011 I realised the work entitled Vection-Builder as an interactive site-responsive exemplary felt\_space performance for my Artist Residency at the Roman Baths supported by Bath Heritage Services UK. The production took place at the xenomorphic 'suspended space' situated within the Bath Vaults.

What fascinated me about the Vaults deep within the Roman Bath complex was the discovery of a semi-forgotten, non-temporal space, which registered an abrupt interval of sensory input outside the normal range of experience. When travelling through the City of Bath or the historic Baths, one is made aware of a prevailing sense of time-consciousness, especially within the modalities of kinaesthetic experience, vision, cognition with historical associations. The suspended space however, operated myopically, propelling spatially direct moments of nearsightedness. The environment corralled intense 'tensless time'<sup>1</sup> (Lawrence, 2004: 76) moments of space-continuums that were drastically immediate and all consuming. This was because the environment denied any sense of perspective, both physically and cognitively, as if a glitch within the unfolding spatial depth of perception. The space prevented any consciousness beyond the immediate moment.

This had a direct experiential counterpart that I would like to call a sensitisation event, that is, the environment triggered an intense magnitude of spatial acuity, or heightened attentional focus on the perceptual faculty, vivifying the kinesphere as a direct result. This space took you out of your comfort zone, making you more dependent on your senses that in turn amplified the moment of perceptual feedback.

---

<sup>1</sup> A space-time continuum conceived by Albert Einstein in his theory of relativity.



Figure 1-5. The Bath Vault site

Where as the previous site-responsive projects explored the counter-force zones of the *affect* axis and dynamical and propagative behaviour of the *field* axis in relation to the felt\_space infrastructure, the Bath Vaults presented a site seemingly laden with history, but actually was very blank like a black hole in an historic context. As an intervening of time and space, the site was seen as the point of delivery for me to direct influence on the space, to see if I could extend attentional acuity in order to raise the potential of spatial perception. The suspended space was dissociated from the historical knowledge, affording an analytic opening for a concentrated exposition of agent-environment reflexivity. The site thereby presented the opportunity to establish a horizon point in space and time explicated from any pre-comprehended dimension of inherited meaning, cognitive or associative experiences that had previously been demonstrated to *affect* the epistemological understanding of space. In the absence of these relational and mnemonic values, the site effectively introduced a zero datum, clearing the ground from which any receptive activity could be registered as a deformation value. The suspended space acted as a plumb line to mediate difference, a counter point for the progenitor to act upon and to differentiate from. Further, the site naturally created a sensitising environment due to the negated anticipatory scenarios and failed ontological frameworks that induced an uncomfortable dispossessed feeling, leading to the amplified somatosensory experience and raised the level of experiential granularity.

The relationship between the Baths' cultural heritage and the suspended space created a sense of 'estrangement' (Vidler, 1992: 4), making the experiential quality more powerful. The Vaults' architecture isolated this *affect* to create a distinctly alien environment to the surrounding Roman complex that forms the UNESCO epicentre of a World Heritage Site. The experience could be attributed to the sense of 'umheimlich' (Vidler, 1992: 6) a term that Sigmund Freud (1919) used in *The Uncanny* to describe the evocation of 'unhomely'

(Freud, translated version 2003: 124). These notions of alienation and relational tension were heightened by the unpredictable nature of qualitative dynamics, as the stabilising omnipresence of the surrounding Roman archaeology and 18th Century Palladian-inspired crescents was abruptly juxtaposed with a disruptive force of non-communicative space.

The neglected site was situated half way along a curious system of service passageways. The nautiloid tunnel system of internal cavities opened up into an independent space noticeably creating a spacing moment that seemed impervious to the historic envelope, or hereditary ambiance, as if resisting the radiative transfer of mnemonic narrative from the surrounding environment. Nullified by lack of historical provenance or extractable heritage, the space was absent of human occupation, memory or associative simulation. Looking at the historic maps to regain a sense of orientation, the area I was interested in sat outside the heritage zone, as if precluding the space to be a suspended space meaning without value or pre-determined function. Further, when you entered the non-space, you felt in some manner decontextualised, as if inherently devoid of narrative, function or tangible history.

To access the site you entered the visitor entrance at street level, adjacent to the Neo-classical Pump Room. Having signed in and picked up your security pass, you circumnavigate the tourist route by travelling down the exit steps in a contraflow direction, passing the museum and Queen's Bath. You then travel down through the Roman structures to a subterranean level, which has archaeological roots dating back to the prehistoric origins of the Celts, who built a shrine dedicated to Sulis around the Pennyquick fault. Skirting past the east side of the Great Bath, you pass through the security door gaining access to



**Figure 2-5.** The tunnels leading to the Bath Vault



the back-of-house Vaults that form a network of nautiloid tunnels and chambers behind the Great Bath. Half way along these historic passageways, cluttered with Roman artefacts, bric-a-brac and knots of service pipes, you suddenly entered a concrete non-space with vaulted ceiling above.

The site denied any view of the outside world or indeed any linkage to the archaeological context. The non-space had no inscription of antiquity, function or reported mnemonic narrative. The walls peeled with paint, some bearing graffiti, whilst the electrical conduits and service pipes presented instances of sound and functional speculation that seemed to be more reminiscent of an engine room rather than ancient structure.

The situated experience generated a frisson that passed straight through me, to the extent that the intensity of experience reconfigured my spatial configuration producing a stop-gap moment that gave rise to the disaffected feeling of distance and alienation. The immersive experience channelled an intense emotional situation that created a mode of participative engagement, rather than spectator. Estranged by the reality of physical irreality, the intensity of moment presented me with the opportunity to harness the direct convergence of agent-environment interaction.

This particular Umwelt (environment) propagated a non-local space I would like to call xenomorphic, relating to the etiolated sensation of perceptual uptake. Bracketed by the Roman archaeology, Georgian architecture and Victorian services, the xenomorphic site asymmetrically framed a perceptual fault in space and time. Affected by the jolting permutations of uncertainty in absence of cognitive or non-communicative associative references, I wanted to be able to exploit the experience by creating a serial procession analogued to the perceptual moments of affect-field feedback.



**Figure 3-5.** Tunnel network



**Figure 4-5.** Service pipes

Furthermore, as the service passageways were in the process of being redeveloped to accommodate increased demand for visitor attractions, the Vaults' sense of estrangement was on the cusp of being forever lost. This threat, together with the xenomorphic substance that induced a high mode of spatial sensitivity, enabled me to identify an environment within which I could site a performative open system that would exemplify the theory of *Raumfindung*. By using the felt\_space infrastructure to recursively script a reaction prompt consisting of three parts, a perceptual precondition (agents' anticipatory response) an attentional cue (environmental stimuli or trigger) and feedback (forward chaining rule interpreter), Vection-Builder demonstrated the condition action rule of *Raumfindung* as performance transforming the passive architectural viewer into active agent by means of reflexively choreographed interaction.

In terms of potentiality and abstraction, the suspended space presented an opportunity marked by its disjunctive quality and juxtaposition potentials. The space yielded to my concept of being able to re-configure existing architectural spaces to create a causal patch as in psychophysical coded spaces augmented to trigger non-linear improvisational behaviours as serial moments dependant on spatial perception. This advanced the performative role of perception within the felt\_space infrastructure, as the perceptual dimension could be purchased more distinctly within the parameters of the xenomorphic environment.

The xenomorphic response presented a highly charged perceptual *affect* within a spatially defined *field*. Using a human-computer interface (HCI) and participatory engagement, I wanted to amplify the direct fusion of agent-environment analogical interactions as an audio-visual interface. The xenomorphic environment and acute sensory system would give rise to an action programme comprehended as a series of performative feedback loops. These were designed to prompt non-linear, agent-environment improvisation moments, attentionally



**Figure 5-5.** Vault entrance

cued from the condition-action, audio-visual feedback score that merged perceptual input signals with attentional cueing sets as output signals. Using the sensor technology and custom software, I wanted the agents' perception to be recorded live and transformed into light and sound, in a way creating moment splinters of direct attention, creating a visceral moment of chordal feedback. In addition, the audio-visual feedback loops would be both interactive and cut with predetermined trigger events or forecasting affects designed to prompt moments of affect-field coaction to highlight the system as an internally reflexive co-operation between perceptual parameters and feedback formation, on which the exemplary moment of emergent complexity was dependent.

Not only did this project directly set out to exemplify the agent-environment affect-field by means of systemic feedback transaction and behaviour-based niche construction; the project also archived, interpreted and mapped a foredoomed xenomorphic environment by creating a site-responsive signature that could be made available to visitors post renovation on a dedicated website<sup>2</sup> thereby expanding the scope of aesthetic value at The Roman Baths.

### **5.3 Practice: Perception bias for schema-related composition**

Vection-Builder aimed to elicit the visceral dimension by inferring abrupt modes of relationality linked to the dynamical counter-forces of resistance between corporeal and incorporeal adversity.

Vection-Builder did not reproduce *felt\_space* theories as representational forms of affect-field feedback, but rather used the *felt\_space infrastructure* to bias perception-related schema to generate 'mutually modulatory influences' (Clark, 1997: 163) linking perception, body and environment through a live, adaptive,

---

<sup>2</sup> [www.estranged-space.net](http://www.estranged-space.net)

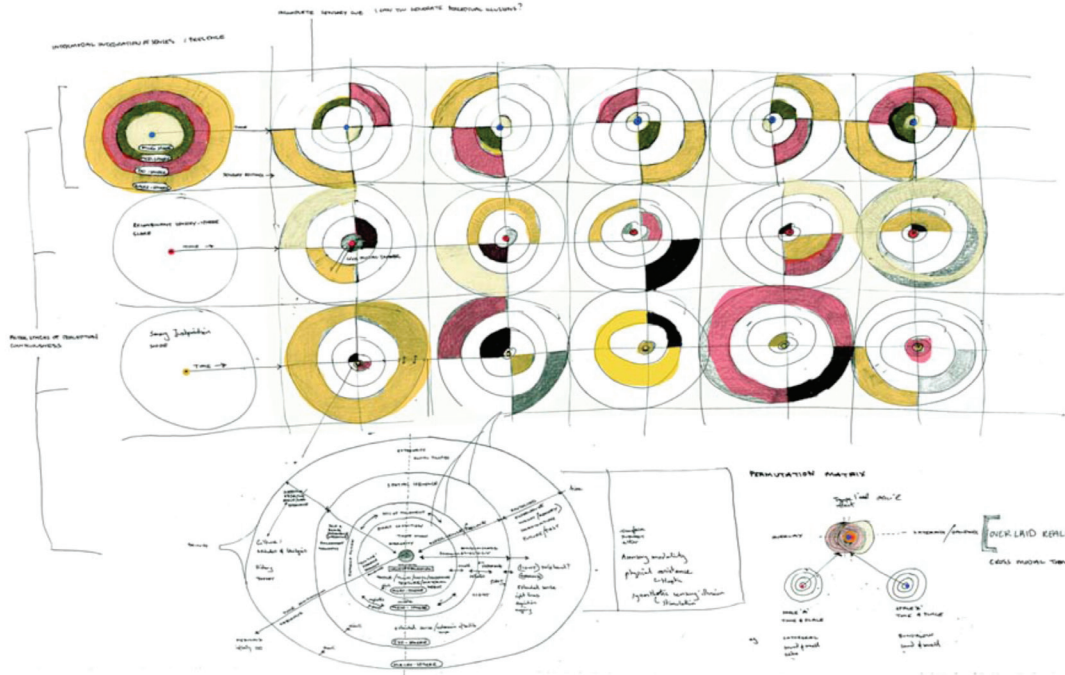


Figure 6-5. Vection-Builder recombinant schema development

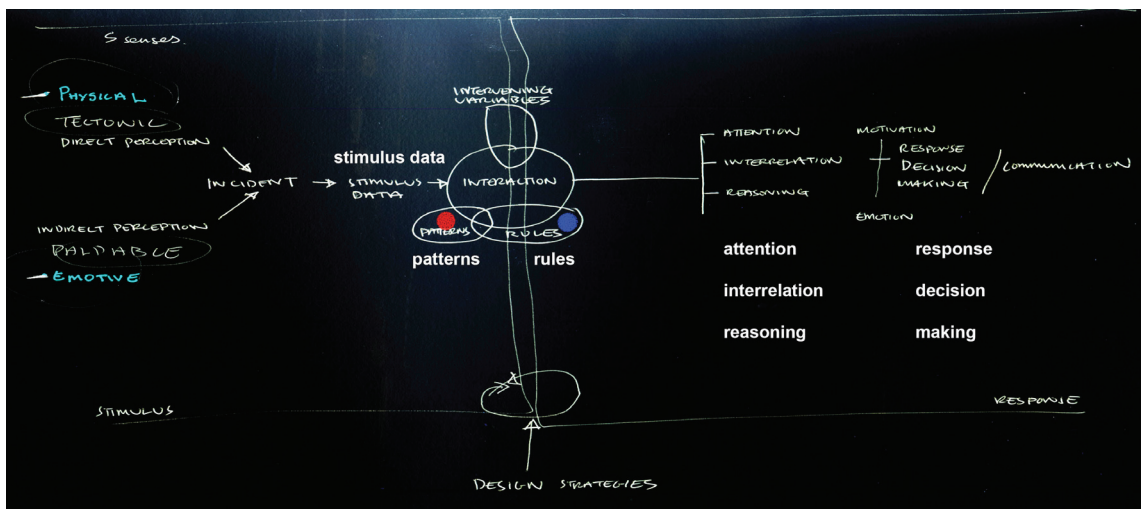


Figure 7-5. Vection-Builder recombinant schema strategy

site-responsive performance. Situated within the cyclical feedback loops were trigger events, asynchronously cut to contort the flow of activity, introducing the adversity technique to defamiliarise the engagement necessary to bring the percipient more directly into the cueing paradigm. I predicted that the discordant procedures would effectively heighten the agent's spatial reception, triggering a visceral moment.

The inference model for Vection-Builder used a form schema I termed *coefficient of affordance* that comprised of an assembly language predictively selected to 'reinforce' (Gibson, SPS 1966: 271) perception by eliciting extreme shifts of perceptual disturbance. The two principle types of stimulus information, designed as perception events to break down the habitual processes of spatial understanding and prompt high magnitudes of directed perception, where optical motions of depth transformations, coupled with the vection illusion used to trigger imbalance through misperception, producing mismatched or out of conjunction perceptual structures. The findings from case study '2' identified a connection between depth of field and an intensified degree of *field* propagation as identified by the framed domains that overlapped to create connections between foreground, midground and background. Further, by accentuating the effect of perceptual counter-force, recorded in case study '1' as a stimulus induced bias, concentrating the participant on their kinesphere zones of influence. And by choreographing visually abrupt onsets of perceptual-driven shifts in the participants' sense of balance, I anticipated corresponding responses of jarring affect-order judgement. As such the felt\_ space infrastructure was deployed as an inference initiator, matching attentional behaviours against a database of perceptual action rules.

## 5.4 Form Schema

The form schema represents the formula for the total performative event, where everything was specified in their entirety. This system of organisation was interpreted from Stockhausen's *super formula* that established the 'coherent determination of the different musical parameters as part of one whole' (Bandur, 2001: 47). The form schema enables polydimensional thinking of the processes of structure formation, allowing a higher level of performative agency to be achieved.

The organisational apparatus consisted of a sequence of performative events made up of an assembly language with intervals of entry, evolution, echo, pause and trigger. These dynamics were cross referenced with the *affect* and *field* operative layers which are subdivided into different zones of influence, perception values including causation and intensity, and lastly dimensionality that determines the duration and equilibrium register. Each operative layer corresponds to a three-dimensional parameter in space. For specifying the distribution of affect-field movements, duration, register, dynamic levels and manipulations, one can construct the affect-field feedback elements by means of consecutive orders of defined parameters. The form schema thus introduced the means for organising the principles from which I could deduce the values according to Vection-Builder.



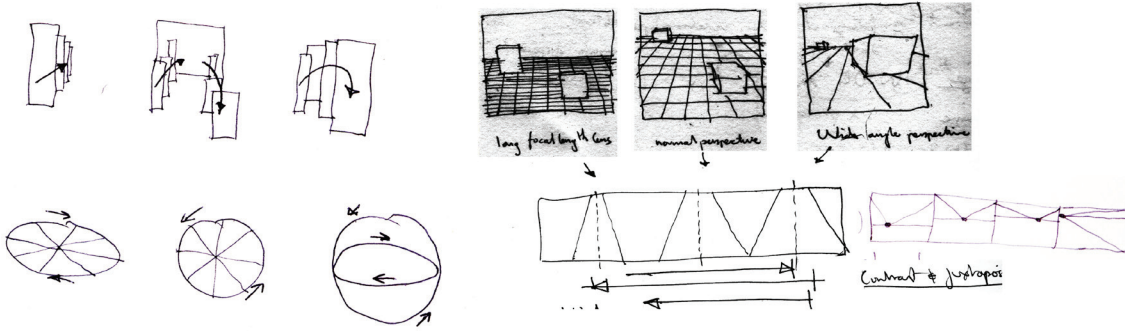


Figure 8-5. Vection-Buildup composition development # 01

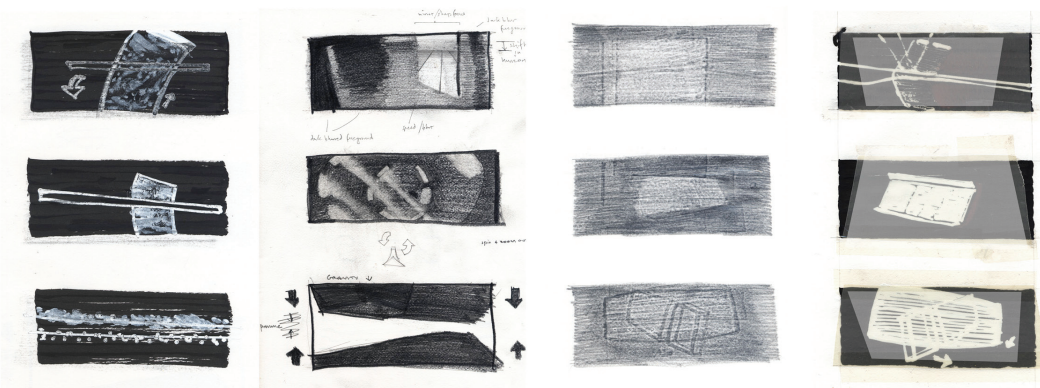


Figure 9-5. Vection-Buildup composition development # 02

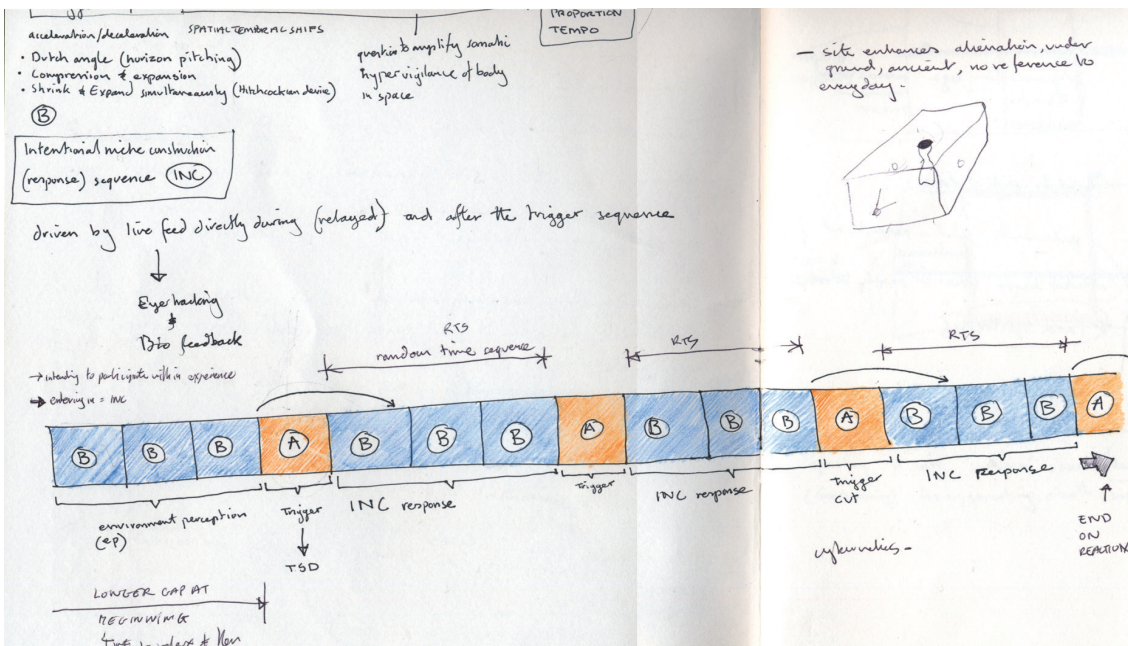


Figure 10-5. Vection-Buildup feedback series

The form schema for Vection-builder consisted of three elements (i) participant interaction or *affect* agents, (ii) the xenomorphic space as causal *field*, and (iii) a co-operative system of audio-visual feedback loops for which a computer, prepared Microsoft Kinect sensor, eye tracking device and bio feedback system served as automatic attention capture device with real time sequencing and sampling, allowing direct forms of communication between the situated engagement and reverberating series of endogenous mirroring.

Vection-Builder used agent-environment interaction as an auto-generative composition system for audio visually demonstrating felt\_space as a dynamic spectrum alive with three-dimensional effects polarised within a *field* of forces. Participation and improvisational reciprocal action was facilitated through an experimental capture and relay system that was natively adjustable and tuned to the site controlling the parameters of audio-visual mirroring/cueing paradigms in terms of calibrating the sensitivity and dynamic range of feedback genesis, evolution and rest.

In addition to the circular activity of 'continuous reciprocal causation' (Clark, 1997: 163), an audio-visual choreographic score was designed to achieve the stimulus-driven shifts of spatial attention and trigger behaviour modification. The score directly connected the percipient to the extended corporeal space by evoking a hyper vigilant spatial encounters generating series of spatial variations cut with disfluent and dissonant trigger vignettes (a technique called syncopation in music theory), to exaggerate the spatial affects of a corporeal extended space. By accenting the syncopated moments that 'are felt to go against a regular pattern' (Taylor, 1989: 44) the trigger events are designed to 'indicate a disturbance in the normal flow' (Taylor, 1989: 20) thereby evoking a hyper vigilant response to the spatial explicit environment.

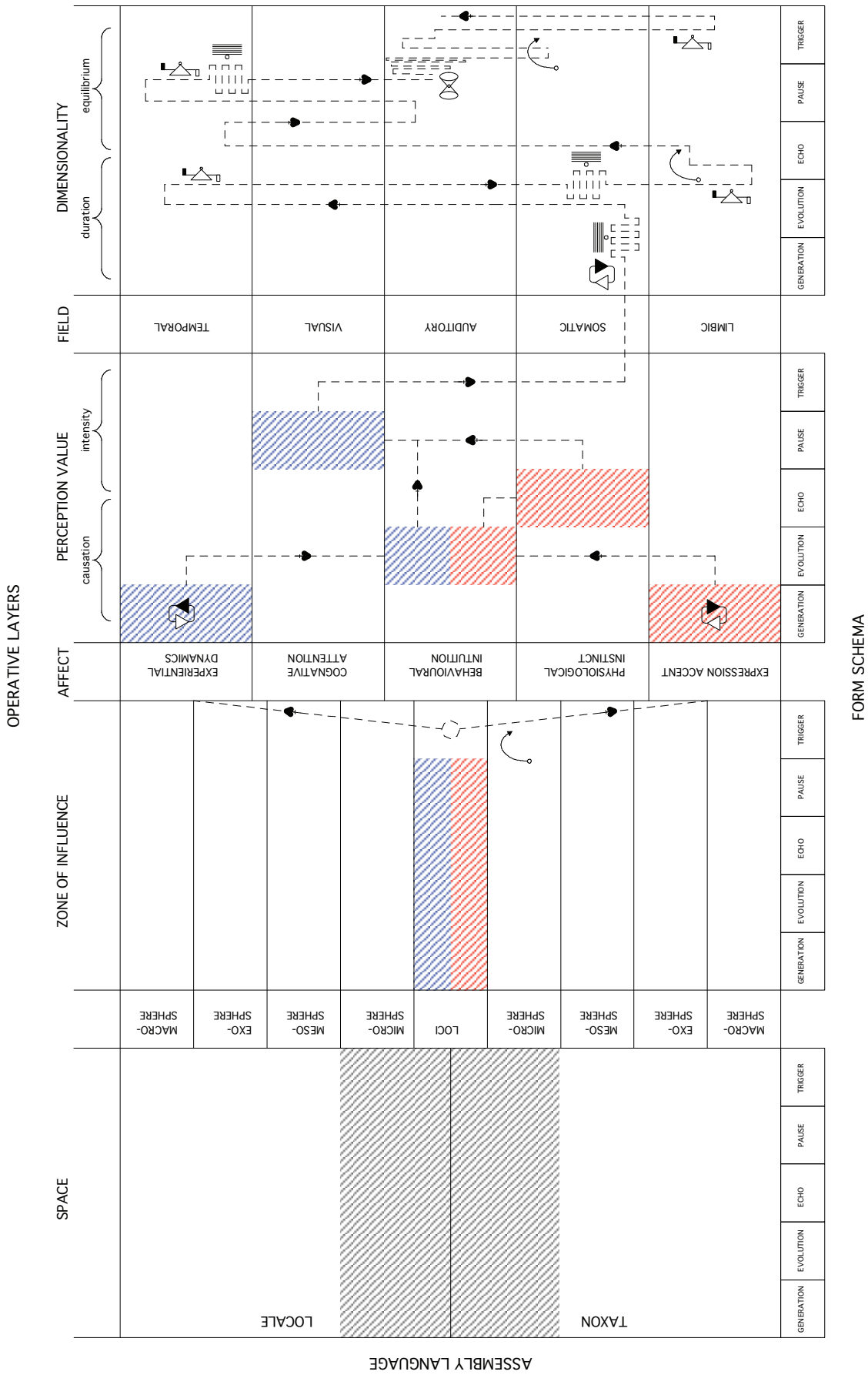


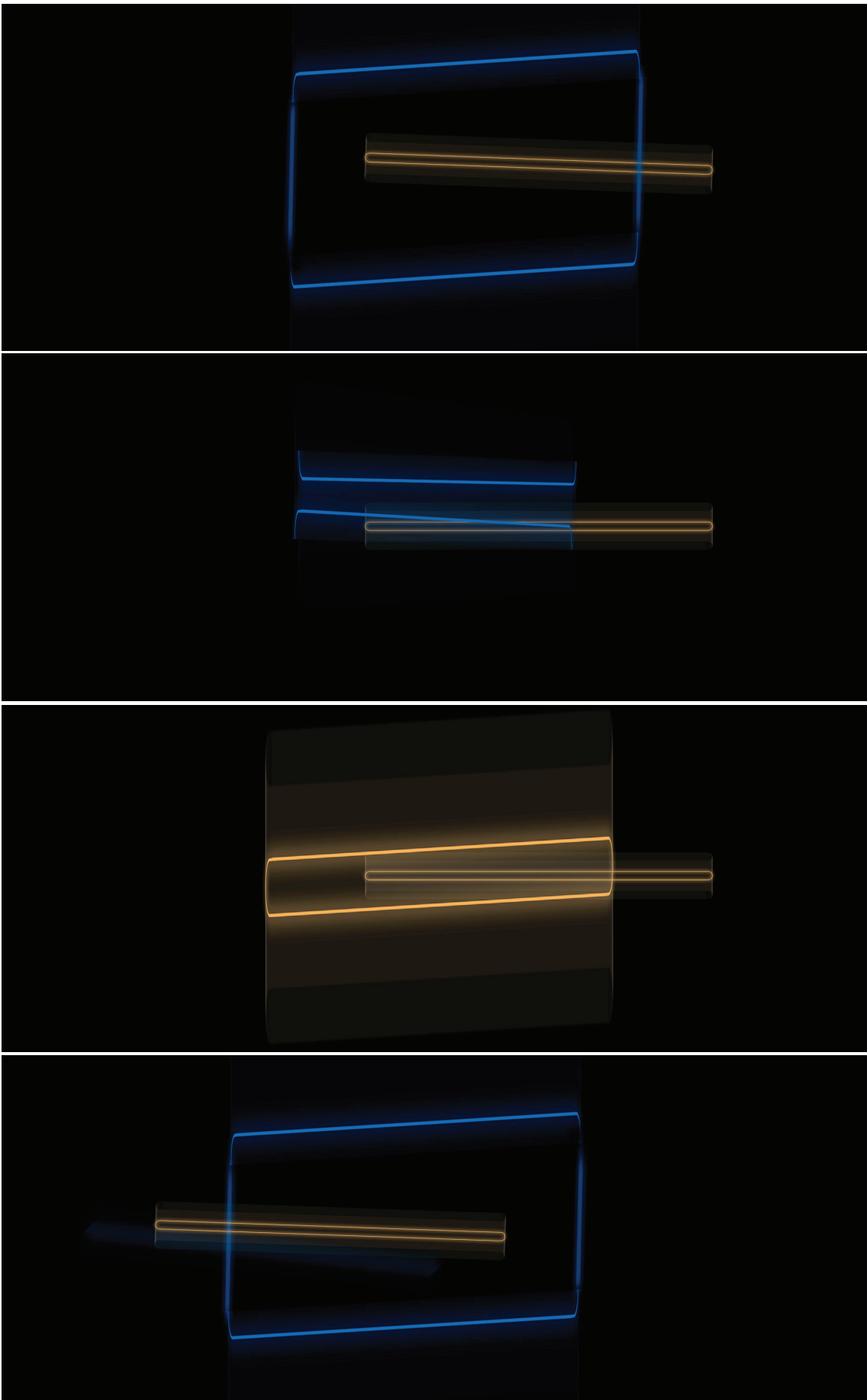
Figure 11-5. Vection-Builder Form Schema

I have called the strategic contingency of this platform coefficient of affordance, derived from combining Gaston Bachelard's *coefficient of adversity* (1942) with James J. Gibson's *affordance* (1979) theory; the coefficient of affordance addresses the latent capacity to effect variable modes of relationality through the perceivable possibilities of adaptive interplay between *affect* agency and *field* stimulus.

## 5.5 Coefficient of Affordance

The *coefficient of affordance* consisted of an assembly language comprising of opposing situational forces such as causation, intensity, duration and equilibrium. Case studies 1 and 2 identified the operational logic of this reflexive system, that amalgamated the behavioural affect responses from case study 1, with the locational vector attributes from case study 2 to form a three dimensional forecasting score that correlates adaptive systems of interaction. The assembly language emphasises the percepto-centric model of interaction with chordal degrees of moments forming a collectively adaptive affect-field ecology. The dynamics and magnitude of these interactions were identified from the case studies to establish a simple rule based system of protocols derived from the attentional analytics of the situational aesthetic studies. The action of assembling these analogies of operating mechanisms generated inspiration and direction for Vection-Builder.

The composition strategy for Vection-Builder included the following recombinant operations: amplify, invert, dimension jump, looping and layering. These configuration strategies succeed to put into effect the adversity index leading to the rearrangement of perceptual information by artificially generating a component of force between the agent and environment relative to the felt resistance of interaction. *Amplification* refers to somatosensory amplification,



**Figure 12-5.** Vection-Builder synthetic aperture composition

generating a hyper vigilant impression of felt\_space, affecting perceptual tendency by nature of sensitising the agent to the environment so as to intensify the affect-field input signals. *Invert* indicates a change in behaviour, generating a state of resistance between the agent and environment relative to the force of reversal, switching or sequential transformation. *Dimension jump* represents a step-function from one point in space to another level or point in space. This is used to incite non-linear behaviour and discontinuity. *Looping* is achieved by repeating a moment several times in recursive succession. Looping distorts time by reintroducing past moments into the present. Perceptual looping generates re amplification and iteration of cause and *affect*, generating degradation of coherence. Finally, *layering* is used as a manner by which dense sets of moments are generated. These are comprised of multiple combinations folded in *affect* to create depth.

Vection-Builder used the *adversity of affordance* index to incite the embodied goal-orientated propagation of frictional affect-field modes of relationality. The adversity index generates the interplay of intimate and collective conditions of opposing forces between agency and environmental stimuli. As a consequence of re-sequencing, partitioning and re-polarisation, Vection-Builder artificially composed increased amplitudes of affect-field forces to release the visceral dimension.

Vection-Builder consisted of series of these moments separated by trigger events. Learning from the previous case studies, the composition was realised on the basis that coordinated moments would provide the basis for anticipating experiential changes to modes of agent-environment coupling. Using the site-responsive signatures from the preceding case studies as instrumental anticipators or markers of 'presonance' (Zwann & Kaschak, 2009: 369) to bring forward likely experiential behaviours, Vection-Builder parametrically scored these moments as chord like expansions, contractions and concentrations,

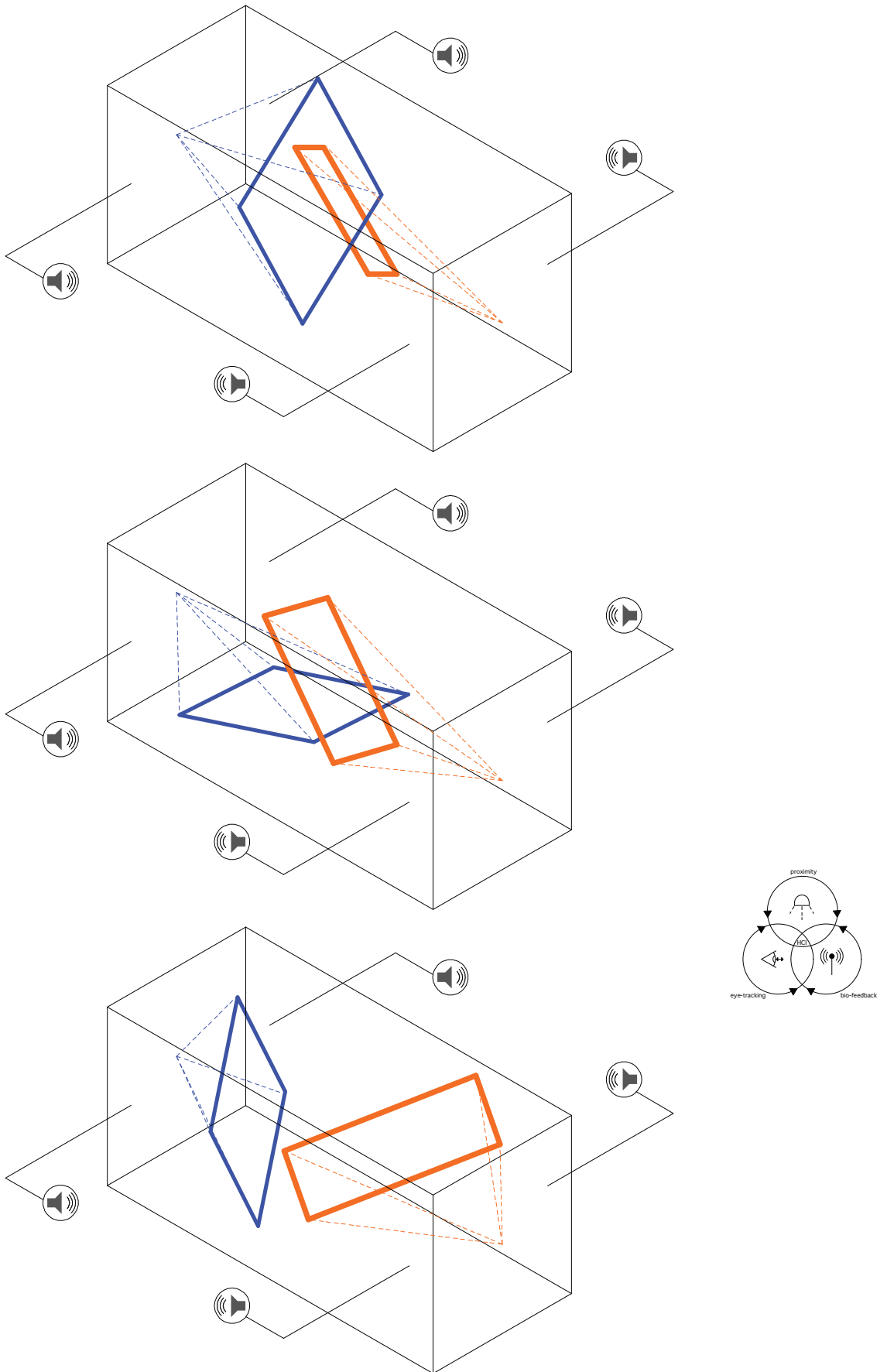
to generate psychophysical moments of mutually modulated moments of agent-environment coupling. In addition alternations of these moments were generated via the sensor technologies programmed to introduce improvisational characteristics to yield oscillatory behaviour.

Operating as reversed relational combinations Vection-Builder determined a reflexive behaviour in regard to the performative knowledge gained from the previous case studies and thereby could provide the mechanisms to exteriorise the embodied space, reconfiguring perception as an externalising force to conflate the sub space of mind into a non-linear, poly-dimensional, serially mutated and corporeal extended space liberated from bodily subjectivity.

Vection-Builder mixed and interrelated the felt\_space infrastructure to synthesise incorporeal performativity from the corporeality of encounters creating hyperreal experiences of spatial awareness. The felt\_space infrastructure acted as a triaxial space score with scalar functions enabling a generative order of motive structures to be evolved. Comprising of the affect-field axis, the feedback axis and durational axis, the felt\_space infrastructure offered a new kind of spatialisation from which degrees of recursive organisation with experiential granularity could be parametrically originated.

## **5.6 Recursive Durations**

The first cycle of Vection-Builder ran for the duration of two minutes, enabling the percipient to explore the space unaffected by the augmentation processes of recursive feedback. Initially designed to run for thirty seconds, I changed the duration of this priming phase after realising that the host site was not being fully explored within the event, as Vection-Builder did not present a new space, but presented amplified variations of existing spaces, transformed by distortion.



**Figure 13-5.** Vection-BUILDER audiovisual performative schematic

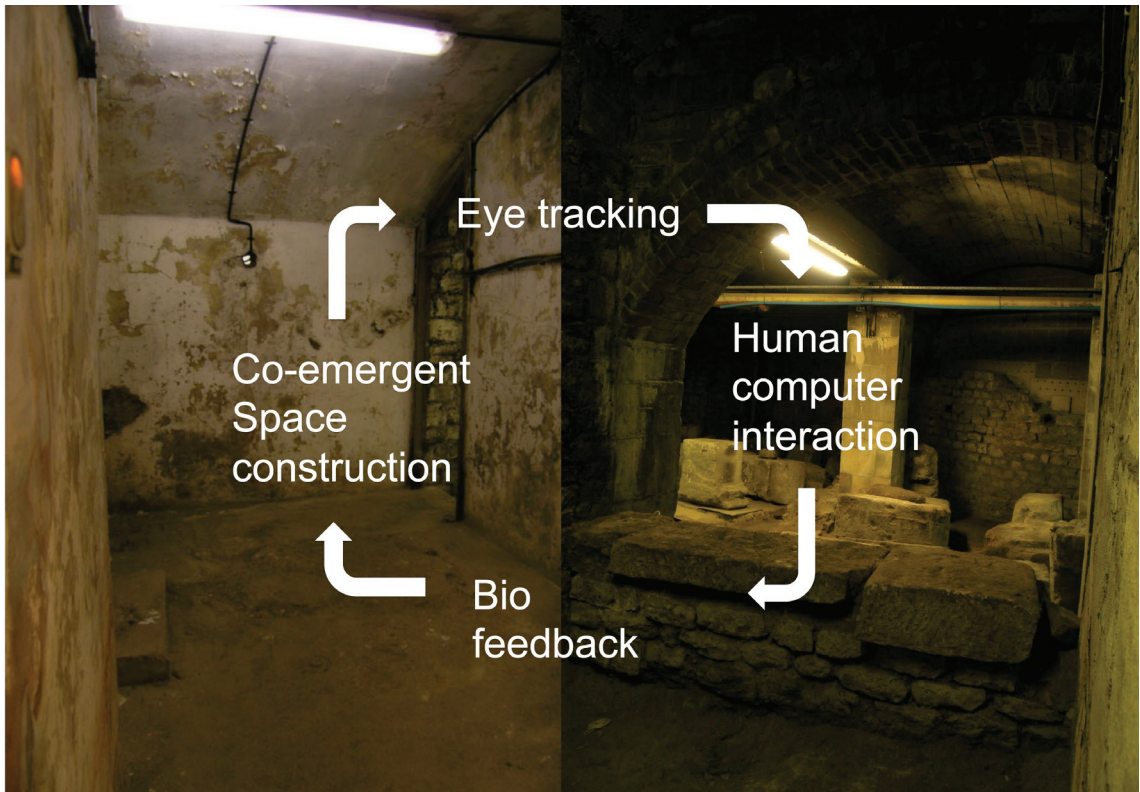


Because Vection-Builder pulled the percipient into an extended corporeal space via manipulated perceptual feedback, the priming phase had to be extended so as to more effectively introduce the theme of embedded space from which all the subsequent relationships were recorded, transformed into audio visual data and projected.

The second cycle of Vection-Builder lasted for fifteen seconds. The purpose of this stage was to relatively slowly and subtly phase out the lights, reintroducing the space staged in darkness.

The third cycle simultaneously linked to the second, introduced the audio-visual agent-environment coupling paradigm as a live component to the project, consisting of projected synthetic apertures and concrete samples of site-specific sound events. This cycle spanned a six-minute duration, and performed a series of recursive analogical interchanges between agent and environment generating an open series of montaged coactions.

The sound material for Vection-Builder comprised of pre-recorded site-specific samples, which were digitally amplified and parameterised to the score via the computer sequencer, resulting in a very alienated noise when coupled to dynamics of the event form schema. The volume, pitch, proportion of intervals and vertical layering resulted from the agents three-dimensional interaction within the space, captured by the Kinect sensor, forming a sonic soliloquy to articulate the affect-field process itself.



**Figure 14-5.** Vection-Builder sensor feedback diagram

For the construction of the visual cues I deduced a simple formula of synthetic apertures derived from the mapping exercises and notational scores. The apertures were designed to dilate and contract according to the serial structure of the score parametrically related to the spatial location of the agent within the space. The visual values mirrored the spatial movement of agent-environment coaction and when looped to the sound parameters, generated a recursively immersive realisation of the performance through variable deformations, emergent complexity and unpredictability. The visual apertures were coloured either red or blue to enhance the illusion of spatial depth. Further, the apertures pulsed as if self aware through sensory fibrillation.

The fourth cycle consisted of three trigger events abruptly crosscut within the third cycle. These dissonant cues were designed to abruptly break the agent-environment coupling, to disrupt the perceptual continuum to trigger perceptual and temporal spatial discontinuity. The trigger events abruptly accelerated the frames of spatial reference creating moments I call spatio-taxis, meaning transitions of cognitive-tope affect-field differentials spatially registered as felt inertia. Signalled by an instantaneous flash of light, they were fast, high impact episodes designed to modify the agents' behaviour specific to the spatial encounter, generating a spectral array of stochastic resonances.

## 5.7 Trigger Events

The trigger events were equally distributed within the open system at fixed intervals so as to provide anchor points for analytical comparison. The trigger events cued perceptual impact by distorting the *field* of forces in relation to the agent, stimulating highly unsettling moments that dominated the previous settings. Each trigger event aimed to direct attention by challenging how spatial perception was structured, disrupting the preconditioned assumptions of a

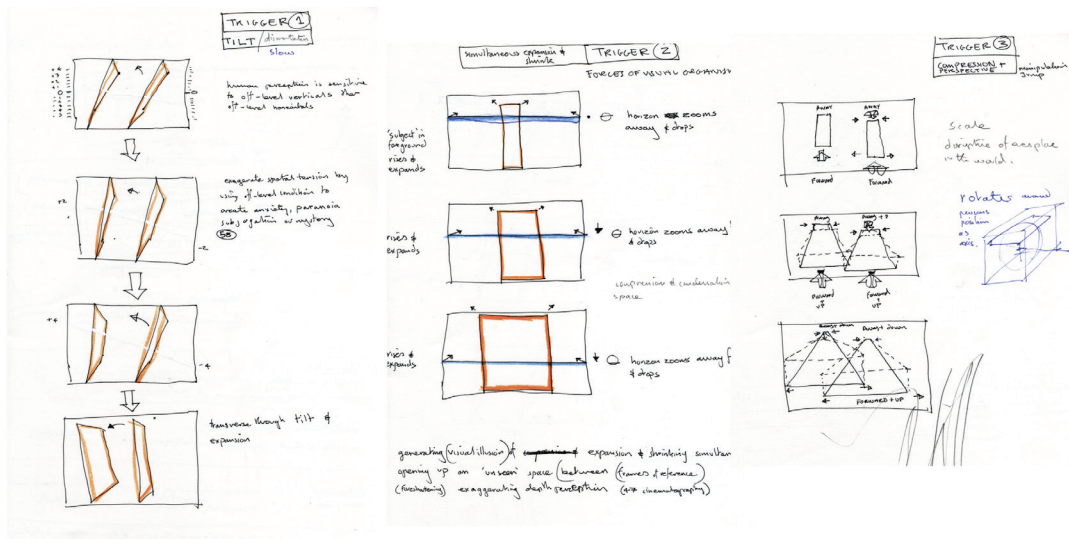


Figure 15-5. Vection-BUILDER trigger series 1, 2 and 3

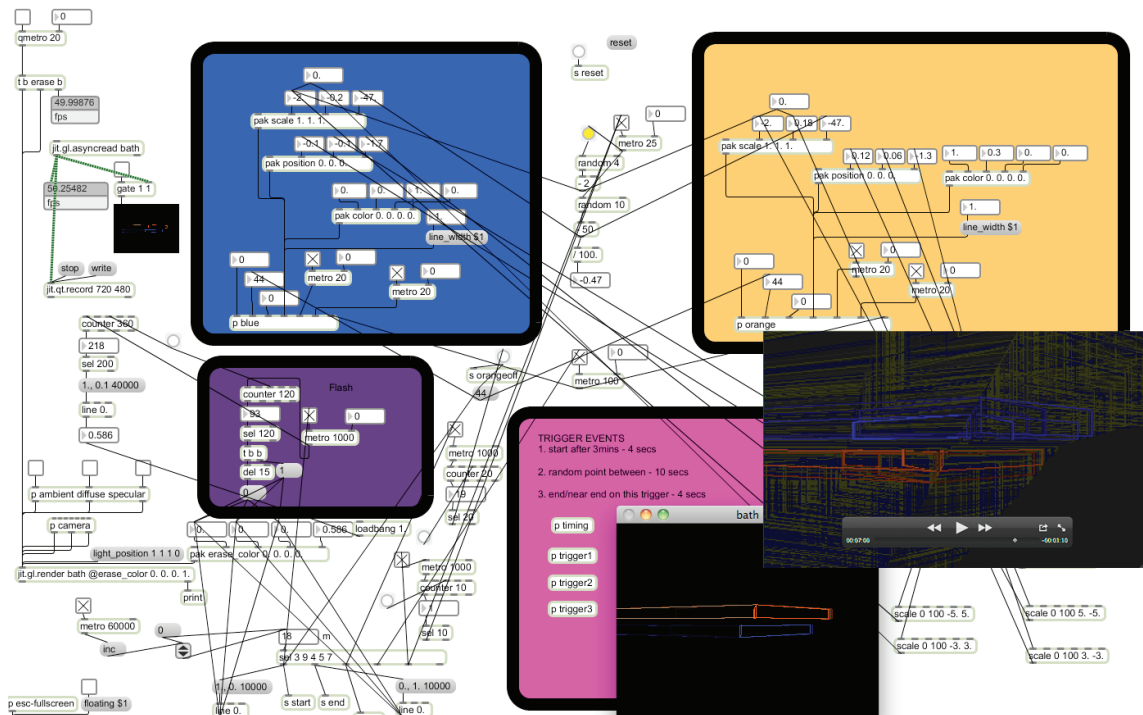


Figure 16-5. Vection-BUILDER trigger event parametric, custom software

learnt mode of spatial negotiation by form of displacement activities. Each trigger sequence created a hyper vigilant spatial awareness activating the visceral dimension of psychological sensation. Common to all the trigger events were the serial forms of opposing forces of causation, intensity, duration and equilibrium to create a participatory site-responsive event aimed to amplify the somatosensory experience of space by technique of temporal spatial discontinuity. The trigger events, however, were differentiated by manner of setting the adverse technique.

Trigger event 1 focused directly on the disorientating effects of tilting verticals. The human eye is 'much more sensitive to off-level verticals' (Brown, 2002: 58), more so than off-level horizontals. The tilt exaggerates the forces of spatial tension by using the off-vertical condition to create a conflict between vision and balance. By exploiting the imbalance and asymmetrical nature of the tilt 'both the problem and solution are externalised' (Van Sijll, 2005: 22) to create moments of anxiety or 'psychological schism' (Hirsch, 1981: 134) by destabilising what the body senses as vertical and what the eye sees as vertical. The tilting trigger known as the Coriolis illusion in flying terminology or 'dutch tilt' (Brown, 2002: 58) in cinematography, disorientates the agents' position relative to three-dimensional space by providing unreliable or false visual references to relate the body's position in. The tilting trigger is used specifically in Vection-Builder to introduce a perceptual glitch between the vestibular system of balance and visual signals of verticality, thereby effectuating the crossing of a boundary from relative self-reflexivity to sequences of agent-environment conflation.

Trigger event 2 elicits moments of destabilisation. The effect is achieved by generating the audio-visual illusion of simultaneous expansion and contraction by forces of perceptual stimulation. By manipulating both the size and perspective cues of space relative to the percipient the 'trombone' (Morris, 2007:

61) moment triggers a correlative confusion between perceptual focalisation. The 'contra-zoom' (Morris, 2007: 34) technique was used to trigger giddy feelings associated with continuous perspective distortion. Famously realised by Alfred Hitchcock in "Vertigo" (1958), the effect is used in Vection-Builder to exaggerate depth perception to heighten the sense of perceptual presence in relation to your position in three-dimensional space.

Trigger event 3 challenged the percipient's placement within the environment by pitching the horizon line in accelerating moments of falling away to emphasise the sense of gravitational pull. The illusion attracts the percipient's eye to a falling ground level, denoting a shift in perception and bodily recognition. Vection-Builder uses the vertical pan to perceptual disturb the sensory illusion along the horizontal axis.

Each trigger event was conceived as an 'anti-environment' (McLuhan, 1969: 30) moment that anticipated the misperception of balance, orientation, movement and position of body in direct relation to the environment. By using unreliable cues as external audio-visual references, the trigger events cause spatio-sensory illusions, or vection illusions. Vection is the perception of 'phi phenomenon' (Corrigan & White, 2009: 524) giving rise to the psychophysical illusion of movement and in extreme situations can be felt as an inclination to nausea. Vection-Builder uses the trigger events as adverse perceptual frictions to illicit hyper vigilant moments of agent-environment acuity, whereby the perceptual conflict and subsequent phases of re-equilibrium conflates the recursive analogical interchange to create a syncretic fusion of agent-environment feedback, legitimising the evocation of a visceral space.

## 5.8 Methodology: Creating the platform

Vection-Builder evolved a continual formation of causal and circular relationships using perception-based systems to measure the impact of the environment on the percipient. The sensor technologies include:

- Participatory agents;
- Eye tracking device: visual perception;
- Bio-feedback system: physiological reaction;
- Max/MSP custom software;
- Auxiliary mapping feedback: matrix of spatial frisson.
- Participatory agents

Twelve subjects or agents (as the person provided a transactional role in the event) were chosen from a variety of professional backgrounds including architectural and non-architecturally related professions. Each agent was asked to sign a consent form enabling me to explain the purpose and activities of the project and confirm the number of times they had visited the site. After being initiated with an ID number to keep the results anonymous, each agent was installed with the eye tracking and bio-feedback systems and individually escorted (as a form of control to systematise the comparison of data) to the perceptual-orientated situation, where the agents separately explored the interactive environment during which the perception-methodologies were deployed to record the perceptual experiences.



**Figure 17-5.** Participant and eye tracking and bio-feedback calibration



The project was split into two principle phases, the first consisted of site exploration where the space was unaffected by the digital augmentation processes, followed by the second and third cycles which included the trigger events, to test whether abruptly triggered audiovisual space-events could elicit distorted spatial consciousness, perceived as adverse moments of felt\_space.

The experiments were recorded and timed against cued trigger marks, enabling the results to be measured, comparable, and to situate the experiments within a defined space and time frame.

During each running of Vection-Builder, the perceptual experiences of the agents were examined to measure the impact of space on the human body, both physically and psychologically. Directly after the event, the agents were escorted out of the prepared environment and asked to record their experiences on how the event impacted on them. To capture the multiple understandings and range of interpretations, the agents were asked to complete eight mapping exercises (adopted from case study 2), one for each minute of the event. This included a visual interpretation of the event, which acted as a memory of perceptual awareness. This cognitive mapping exercise verified and brought into consciousness the unconscious forms of perceptual feedback recorded by the sensor technology, creating a notational process that reinforced the performativity of interaction.

This mapping exercise served as a diagrammatic questionnaire, which resembled a complex floor ground, containing all ranges of human spatial perceptual levels including visual, auditory, and kinaesthetic registers. The act of recording the event forced the participants into objectifying the experience, producing a mode of operating outside of normal consciousness. I was interested in the complexity and diversity of perceptual interaction and asked

each agent to comment on the situation-dependant experiences in relation to the psychophysical affordances. These controlled conditions helped eliminate the innumerable spatial distractions and provided a focused arena to survey how people directly responded to the reception of perceptual spatiality.

## **5.9 Eye tracking**

Eye tracking systems map the eye movement of subjects by recording vision fixations. The head-mounted, video-based system was used to analyse visual perception, orientation and user behaviour, whereby the order and number of fixations are documented by image processing software. The subject wears a helmet, on which two cameras are mounted; one records the pupil movement, whilst the other records the subject's field of view. Both cameras are calibrated, making it possible to manually plot the subject's eye movements in relation to the viewed scene. The system is mobile (iViewX™ HED by SMI), allowing free movement in space whilst tracking the movements of the pupil relative to the head and field of vision. The software presents a documentary video comprising of a scene made up of fixations and saccades, creating a scan path to show loci, duration and salience of visual stimulus.

The eye tracking set up at Bath momentarily caused concern due to the lighting conditions that ranged from low-total darkness. However as the system used an iris-pupil contrast tracking, the poor light did not interfere with the monitoring.

The eye-tracking system produced a vast amount of data and, rather than calculating statistical static representations for the aggregate analysis of the subjects, Vection-Builder used the live eye-tracking data sequestered from the software to parametrically drive the audio-visual score, generating instantaneous feedback loops from the visual perception patterns clustered in

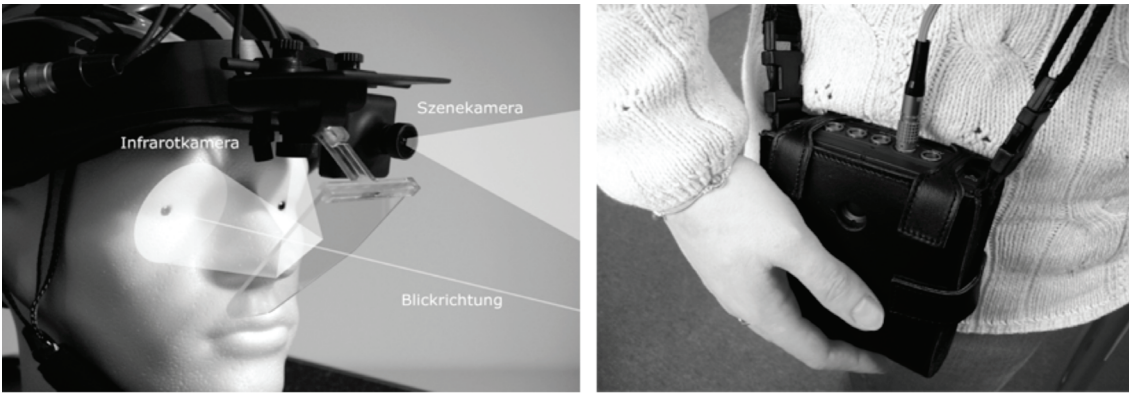


Figure 18-5. Eye tracking and bio-feedback sensor technology



Figure 19-5. Max/MSP Human Computer Interface

temporal dimensions. Further investigations could explore the agglomerated analysis of the data to reveal patterns across the subjects, however the primary role of the eye tracking system in Vection-Builder was to generate perception-based data as an interactive interface.

## **5.10 Bio-feedback**

Vection-Builder also used a bio-feedback system to record the temperature and conductance of the skin during the event. Each participant had a sensor attached to their finger and carried a mobile device that recorded the physiological and biometrical impact of the event by means of a graph line showing the relation between variables over time. The subjects were requested to keep their fingertip sensor static during the event, as the system measured temperature differences due to blood flow in the hands in response to stress or relaxation. A technical assistant was able to mark the graph with a predetermined series of anchor points, enabling comparison of data after the event.

Each biofeedback recorded a gradient merged with marked time units, creating graphical images with deformation values comprising of amplitudes per time unit.

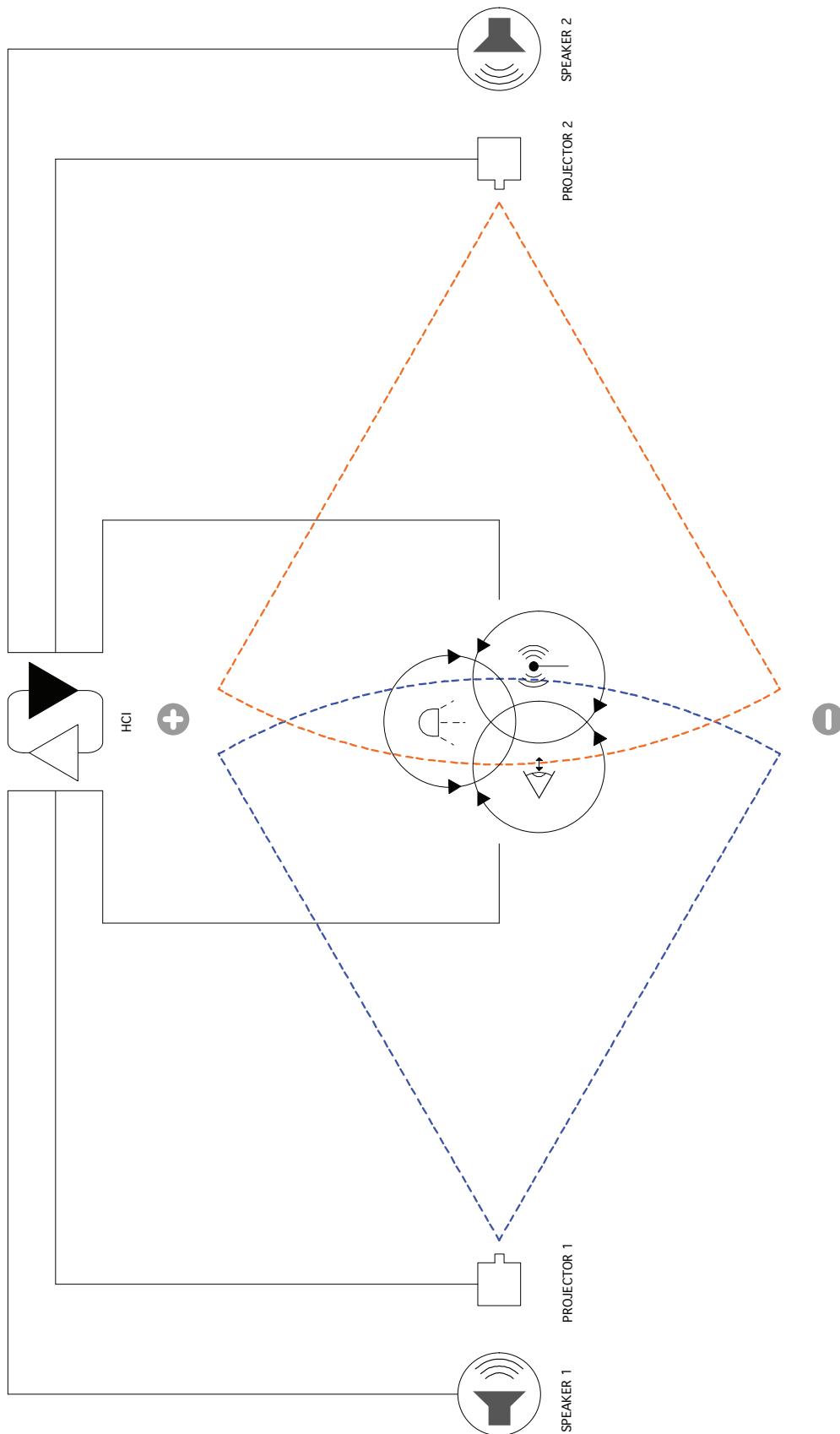
Vection-Builder used the bio-feedback technology to monitor the subjects physiological and psychological response to the trigger events, to see if perceptual disruptions and perceptual illusions created a direct visceral response. However, as some of the subjects involuntarily moved their rigged hands during the event, the validity of the data makes the interpretation of the results variable. And yet, what is surprising when you look at the results, eight out of the twelve subjects responded with a temperature drop ranging between 2.8° and 10.5°.

When you follow the basic rules of interpreting temperature changes in bio-feedback analysis, namely that a temperature rise indicates relaxation, whereas conversely a temperature drop relates to the activation of tension or stress. The temperature drops as a result of the blood being directed away from the subjects' extremities straight to the vital organs to facilitate a raised level of arousal. This is known as the "fight or flight" response, whereby blood flow is increased to the brain and muscle groups to facilitate engaged action. To reach a better understanding of these results, the subjects were asked to complete a feedback task directly after the event to collect a greater range of evidence to support a more interpretivist validity of the findings.

### **5.11 Max/MSP Human Computer Interface**

The software used for Vection-Builder was Max/MSP due to its real time processing capabilities. Since the project was designed to evolve movement and interaction in space, the software was conceived as a processing vehicle allowing participants to engage and trigger responses from the audio-visual score thereby creating a site-responsive event of choreographed interaction.

The custom software received data from the eye tracking and Microsoft Kinect depth sensor, whilst simultaneously transmitting the audiovisual projections that were parametrically calibrated to operate within the specified time-space zone. As everything took place in real time and three-dimensional space, the software enabled the system-system communication, creating a live, interactive and immersive experience that concomitantly triggered and responded to participatory interaction.



**Figure 20-5.** Vection-Builder feedback capture and projector schematic

Essentially the software applied the inference planning rules established in the form schema, to create a live processing engine, that would drive the event which was tuned to the perceptual feedback parameters of the Bath Vaults. This gave rise to a site-responsive causal patch or 'coaction field' (Terashima, 2001). This 'sensuous apprehension of space' (Mcluhan, 1969: 61) utilised the software as a 'virtuality' (Horrocks, 2000: 4) process to amplify the 'discontinuous space-and-time' (Mcluhan, 1994 original 1969: 162). By blending the two simultaneous worlds of the corporeal and incorporeal space, the system-system software, spawned new combinational permutations of immersive moments creating a collective environment.

Documentation of Vection-Builder can be found on the DVD's, including video footage, eye tracking recordings, sound production and audiovisual score.



Figure 21-5. Vection-Builder documentary film

## 5.12 Results

After each event, the participants were asked to complete a mapping document for each minute that included a visual interpretation and survey notes, to record the relationship between physicality of experience and perception of space. The perception map was calibrated to record magnitudes of disorientation (interaction between vision and balance), disturbance (interaction between cognition and space) and distabilisation (interaction between orientation and space).

Participant 001	Number of times previously visited the Bath Vaults: 1
# 1/8	<p>“Trying to orientate, to find a place, first outside of the projection, view fixed on the projection (all the time)”.</p> <hr/> <p>Sensory awareness of external stimuli: graph line gradually rises from negative to positive.</p>
# 2/8	<p>“Moving in space, trying to get acoustic response – trying to evolve visions”.</p> <hr/> <p>Sensory awareness of external stimuli: graph line hovers at maximum response.</p>
# 3/8	<p>“Trying to find a place or a movement that influences the visions and the acoustics. Getting aware of the ceiling projection”.</p> <hr/> <p>Sensory awareness of external stimuli: graph line hovers at maximum response.</p>
# 4/8	<p>“See 3, enjoying the possibilities to evolve sound”.</p> <hr/> <p>Sensory awareness of external stimuli: graph line extends above maximum response, marking peak semantic response.</p>
# 5/8	<p>“Trying to interact with the space, thinking about the meaning of the installation and the confusing disorientation: do I really have influence on sound and vision via my movements?”</p> <hr/> <p>Sensory awareness of external stimuli: graph line returns to hover at maximum response.</p>
# 6/8	<p>“Disorientation, disturbance, distabilisation, is this space autonomous? Which role do I play? Knowing about the installation: what role does the existing catacomb play? Is it important or not? Would the general feeling be the same in another room with same size but different climate? Feeling the floor and smell of the room”.</p> <hr/> <p>Sensory awareness of external stimuli: graph line hovers at maximum response.</p>
# 7/8	<p>“Starting to give up”.</p> <hr/> <p>Sensory awareness of external stimuli: graph line gradually descends to midway point.</p>
# 8/8	<p>“Waiting for the end”.</p> <hr/> <p>Sensory awareness of external stimuli: graph line returns to negative semantic response.</p>



<b>Participant 002</b>	<b>Number of times previously visited the Bath Vaults: 1</b>
# 1/8	"Noticed some rectangular shapes on wall blue and orange. Not very big though. What is going on? Noise loud, thumping noise. Visuals foreground: high disorientation, medium disturbance and low distabilisation".
# 2/8	"Noticed shapes projected on ceiling. Not sure if they were there before. Noise still loud but changed frequency. High disturbance, high disorientation, low distabilisation, medium disturbance, high disturbance, low distabilisation".
# 3/8	"Noises become background after a while, barely noticed changes. Now used to the situation. Noticed graffiti on wall (I think). Low disorientation".
# 4/8	"Shapes changed in size, wasn't quite sure what I was supposed to be doing. Can't remember what noise was doing at this point. Loss of concentration hence why I l've selected all as low".
# 5/8	No response.
# 6/8	"Light started flashing as I moved backwards – shapes were quite big. Noise became like a loud heartbeat".
# 7/8	"Shapes quietened down, became smaller. Noise became a quiet heartbeat".
# 8/8	"Noise still at low heartbeat. Images still quite small".

<b>Participant 003</b>	<b>Number of times previously visited the Bath Vaults: 1</b>
# 1/8	"Did not move much, was trying to establish scenario, aware of loud noise all around".
# 2/8	"Some movement, was interested in the difference from projection above and one in front".
# 3/8	"Generated more sound, moved closer and backwards, moved left and right somewhat".
# 4/8	"Aware of some flashing of one box or another – walked towards it when flashed. Not aware of sound so much here (concentrating)".
# 5/8	"Became more aware of sound in an attempt to reduce and maintain more soothing".
# 6/8	"Was not aware of time by this point. Felt like a gamer in which I was enticed by the blue box with impression of reduced sound".
# 7/8	"Was much closer to the image. Enticed by the colour squares swopping. Aimed to get blue closest to the corner without swopping to opposite wall".
# 8/8	"Felt like a long time. Satisfied with assessing behaviour of squares to my movement. Settled on quiet positions – squares very small".

<b>Participant 004</b>	<b>Number of times previously visited the Bath Vaults: 1</b>
# 1/8	No feedback.
# 2/8	No feedback.
# 3/8	No feedback.
# 4/8	“Period where not much happened. I did not at any point feel distabilised throughout”.
# 5/8	No feedback.
# 6/8	“A period of relatively loud noise and flashing lights changing places quickly. Did not know where to look – a lot of info at a very fast pace”.
# 7/8	No feedback.
# 8/8	No feedback.

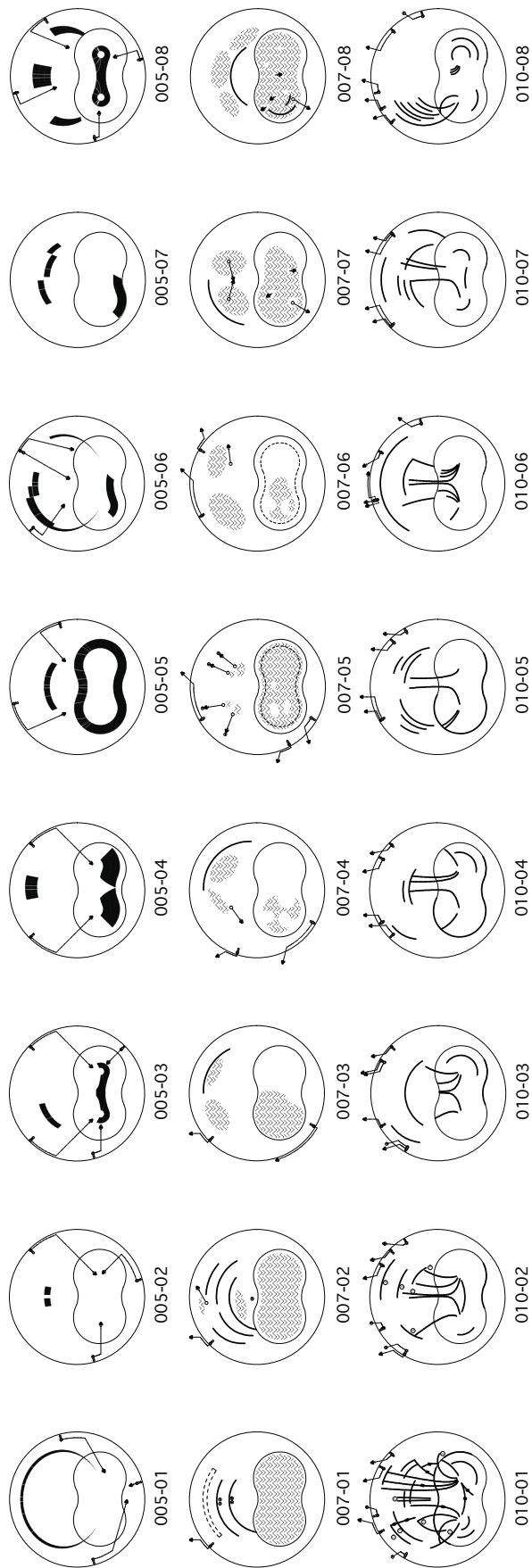
<b>Participant 005</b>	<b>Number of times previously visited the Bath Vaults: 1</b>
# 1/8	“Anticipation and curiosity, no sound”.
# 2/8	“Waiting for something to happen – unsure of my movements and should my movement trigger the start”.
# 3/8	“Disorientation and apprehension to move”.
# 4/8	“Starting to interact with the space, first time – no idea how the space/ my body/the sound related to each other. Second time – understood the three zones so could interact more”.
# 5/8	“Wanting to figure out the relationship between the instruments and my body – used to the irregular sounds. Careful with my footing. Not looking behind me but moving all the around the space”.
# 6/8	“Became confident in the space – playing with space + shapes + sound”.
# 7/8	“More interested in projection shapes than the naked space”.
# 8/8	“Acutely aware of the space again”.

<b>Participant 007</b>	<b>Number of times previously visited the Bath Vaults: 6</b>
# 1/8	“Silent to begin with, with no lights other than the two projected ‘openings’. Quite a lot of attention to the room itself, orientation and exploring space. Mild disorientation. Mild awareness of background noise”.
# 2/8	“Started to read the projections of the white light as ‘roof lights’, but then one on the right seemed like a cubic space coming into the space. View out of space through hole in the wall. More foreground information and awareness of the texture of the walls. Imagining of spaces beyond white lights”.
# 3/8	“Sound from headphones – slow thudding, quite distant. Coloured rectangles that seem to relate to the orientation of the white light ‘openings’. Experience becoming more internalised. Shift of experience to coloured boxes. Awareness of room is less strong ”.
# 4/8	“Stronger sound, two pitches or more oscillation between sounds. Still focused on relation between movements and lights/sound”.
# 5/8	“More focused attention, but shifting as boxes become more complex. Higher level of disturbance. Slight destabilisation. Jumping between internal and external. Internalised spatially with sound. Starting to realize the connection between movements and sound, and the light ‘boxes’ proximity and distance. Started to co-ordinate, but slightly confused as to relation. Shifting attention between implied space of boxes and actual space”.
# 6/8	“Experience more internalised”.
# 7/8	“Moving more systematically than at first to manipulate and coordinate sounds and projected boxes. Slightly obsessed by line of left hand box and line of wall. Shifting attention”.
# 8/8	“Oscillation between foreground and background or rather distant sound. Couldn’t believe that eight minutes had gone by – seemed disappointed that ended to soon. Room coming more into attention. Suddenly sound disappears and attention brought more back to space”.

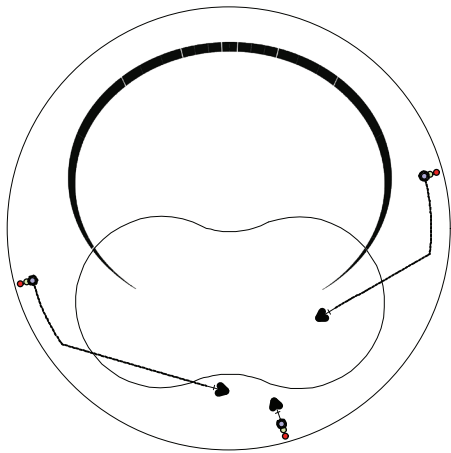
Participant 008	Number of times previously visited the Bath Vaults: several
# 1/8	"Conscious of defining the parameters of the space and mapping surfaces, junctions, corners and floor, walls, details of building and my location. Aware that part of the space could not be explored in detail due to equipment and people. Felt space was limited to two walls, floor and ceiling".
# 2/8	"Interest in detail at eye level and slightly above and below. More interested in details and wall surfaces and texture and colour eroding surface of wall scape. Interest in drainage and repairs to surfaces, wires, cables. Continued to establish other parameters that defined the space. Obstacle on floor, doorways, defining edges, corners and junctions".
# 3/8	"Change to light and sound stimuli. External source – spent initial time in orientation and understanding the changes. Initial movement to explore how my movement interacted with sound, light and pattern stimuli. Looking for feedback through the eyes to demonstrate I have control over the visual landscape and soundscape become three dimensional with boundaries/ parameters in space which I spent time trying to find the boundaries of. Aware sound source behind me and coming from different sides but become all consuming".
# 4/8	"Beginning to explore edges of the soundscape. Explain de-familiar sound and how this was interacting with my movements through space. Strong desire to control sound and visual images but needed to define edges. At some point during this period control was lost and I was aware of a change in sound and light scape – and it took a little time to re establish what was happening. Became fixated with image and sound and playing/exploring the space. Not very aware of entire physical space".
# 5/8	"Emerged in exploring sound and visual scape and playing with trying to control image and sound. Entire physical space retreated to background, still trying to orientate the sound and image space. Moving physically to understand boundaries of sound and image (large movements) and exploring detail (small movements) to establish edges".
# 6/8	"Aware of a change again in my expectation of how to manipulate the space. Momentary loss of control – disorientation, control to some extent found again – very aware of exploring sound and image but not physical space".
# 7/8	"More of the same".
# 8/8	"At end much more conscious of physical space with loss of sound and image space".

<b>Participant 009</b>	<b>Number of times previously visited the Bath Vaults: 1</b>
# 1/8	"White space/light, feels like waiting time for the event to happen. No glasses, therefore shape interest – not texture".
# 2/8	"As previous, still waiting, feels a long wait. White light not stimulating. Fixating on a couple of shapes. Not aware or interested what is behind me".
# 3/8	"Almost ignored the upper left projected areas. Concentrated on my level. Trying to influence shapes".
# 4/8	"Only aware of sounds and coloured shapes. Space not important. Still trying to affect sound and shapes by moving in a small area (focus). Rest of space not important now".
# 5/8	"No real feeling of disorientation, disturbance or distabilisation. Looking for pattern of position or size to repeat sounds or shapes".
# 6/8	No feedback.
# 7/8	No feedback.
# 8/8	"Moved away. No sound. Respite from sound and shapes".

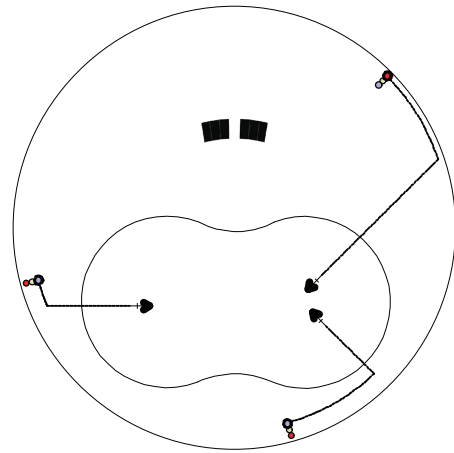
<b>Participant 010</b>	<b>Number of times previously visited the Bath Vaults: 1</b>
# 1/8	"Discovering a space which comes from story. Trying to sense what might happen and what is going on, also what is going to happen. Imagination driven me to put story on the wall which is full of texture and marks of history. I wanted to know the exact word written on the wall and what story behind!".
# 2/8	"Image comes out, unexpected. Confused. Lines remind me of the neon lighting put out on the outside of cinemas".
# 3/8	"Trying to get involved in the image. Sound does follow the video, but it doesn't interest me, just feel the frequency and amplitude of both image and sound response each other, so that, surprisingly I am comfortable with the sound".
# 4/8	"Stay calm, trying to follow the flashing, not much physical movement, random brainstorming activities".
# 5/8	"Trying to look both sides so I look at in the middle point, but focusing on both sides. Start feeling bored".
# 6/8	"Noise in brain of image. No focusing, look around frequently, lost patience. Ignoring sound completely".
# 7/8	No feedback.
# 8/8	"Focus on image, silence in brain. Conclusion: Influence from some unexpected images. Feels like getting into Tate Modern and trying hard to reading, watching the exhibition of contemporary art, surprise, getting agree with, then more confused in understanding, interest reduced rapidly through the time. If I was being told to be creative at second minute, I may respond completely different, and being very artistic creative and making fun. But overall, the sound did not work well with the images, and strangely, this type of sound even bring my brain into a very focusing status, and this doesn't usually work this way as I know. I suppose this is how well the sound and image work together".



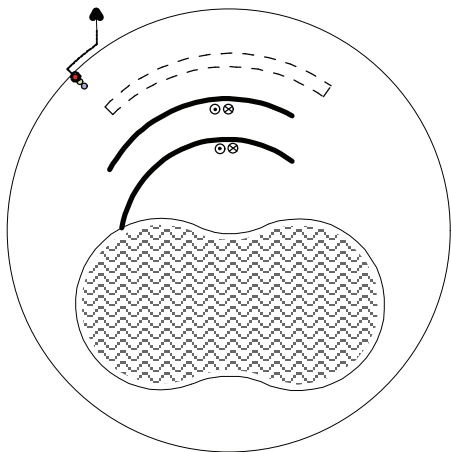
**Figure 22-5.** Participants' 005, 007 and 010 total mapping



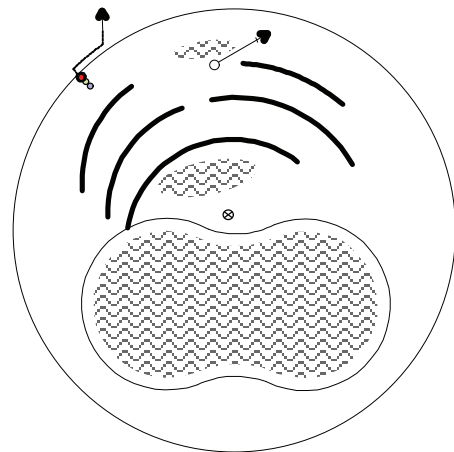
005-01



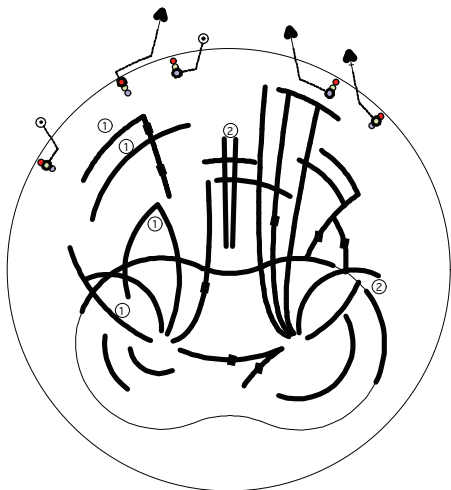
005-02



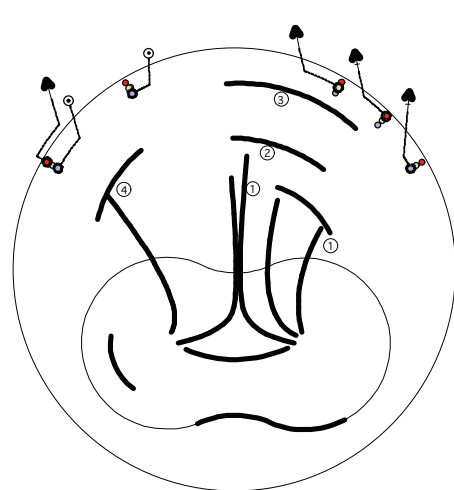
007-01



007-02

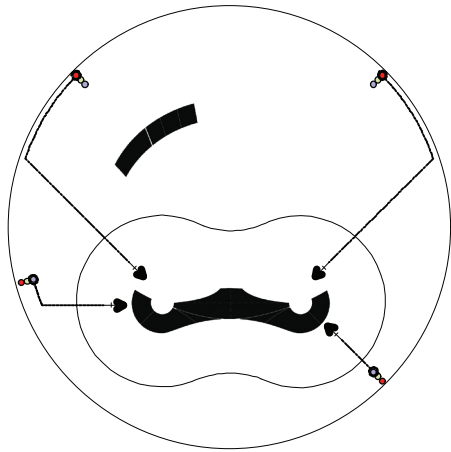


010-01

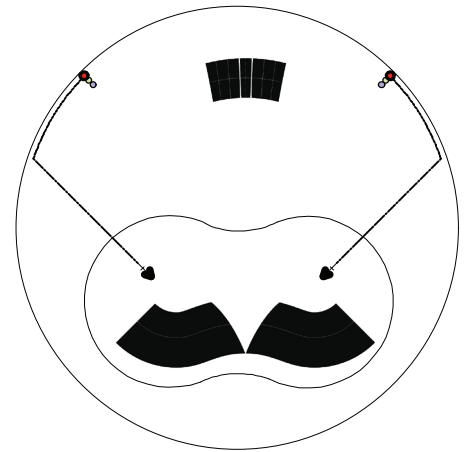


010-02

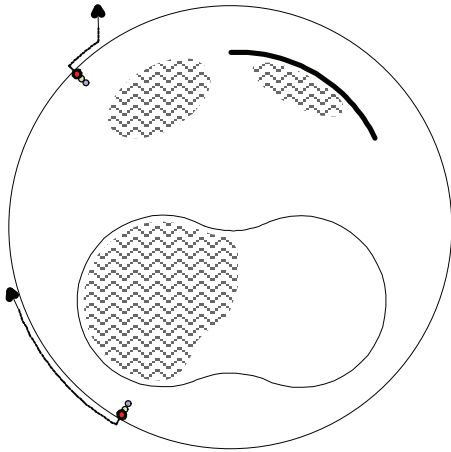
Figure 23-5. Participants' 005, 007 and 010 mapping 01-02



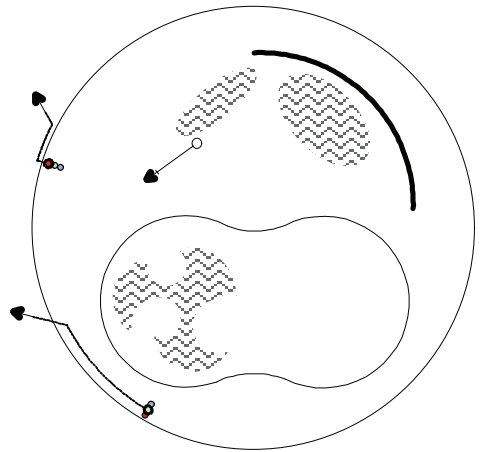
005-03



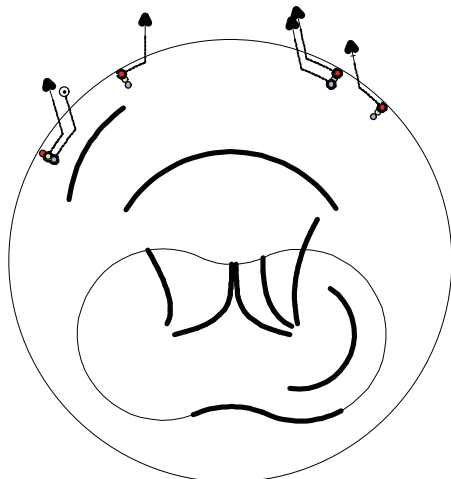
005-04



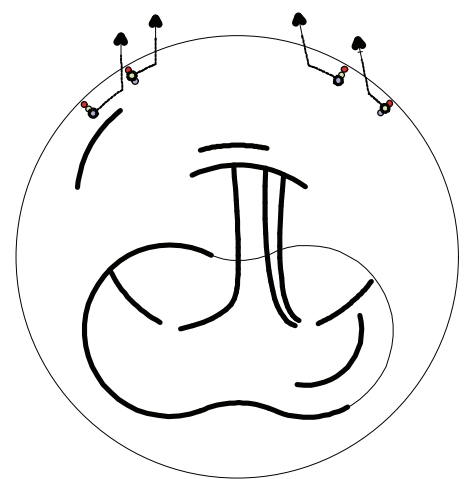
007-03



007-04



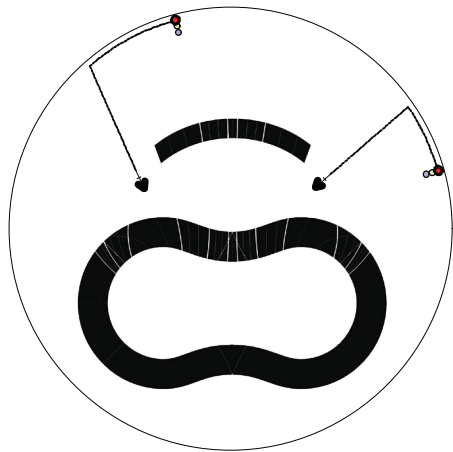
010-03



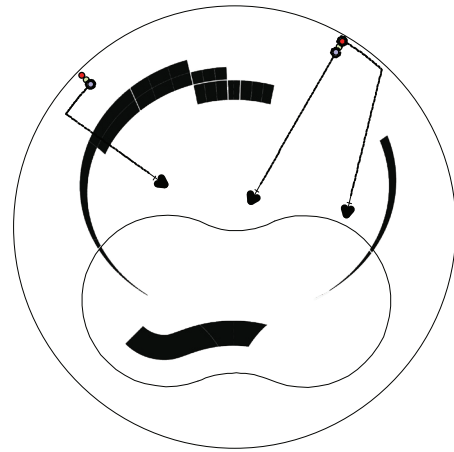
010-04

Figure 24-5. Participants' 005, 007 and 010 mapping 03-04

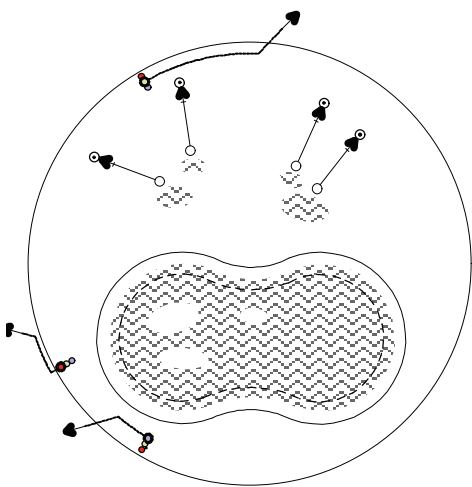




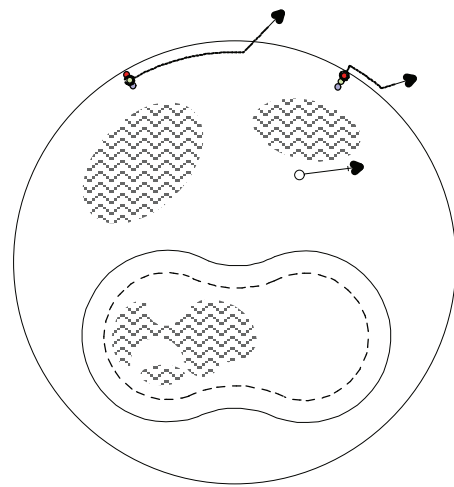
005-05



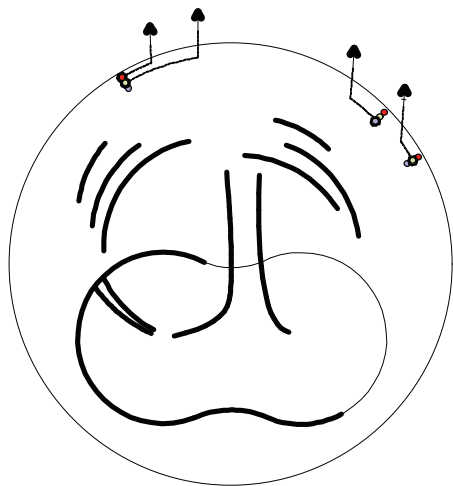
005-06



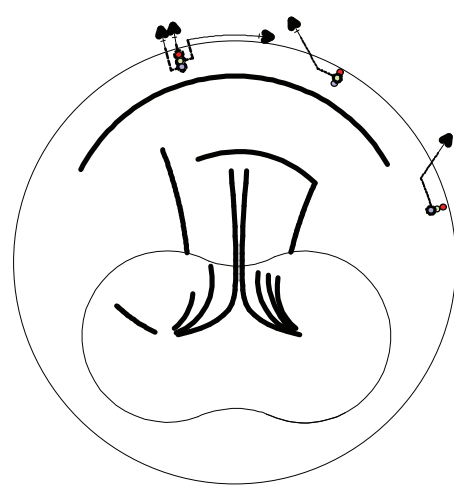
007-05



007-06

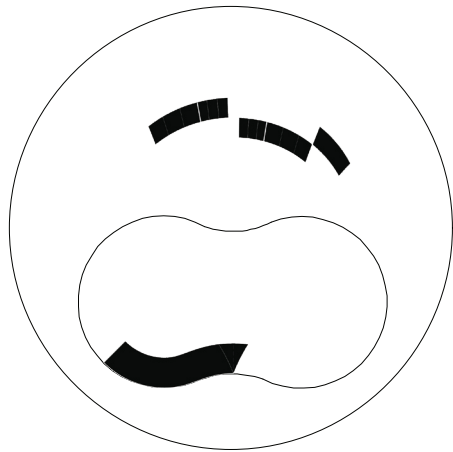


010-05

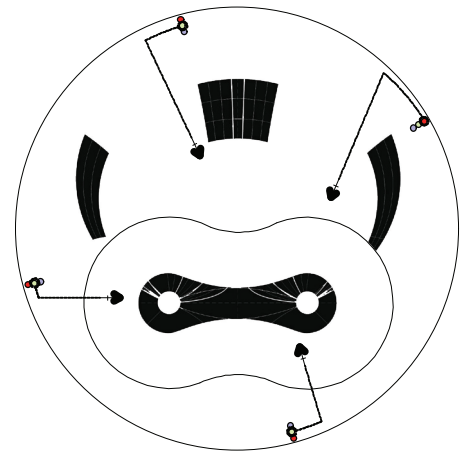


010-06

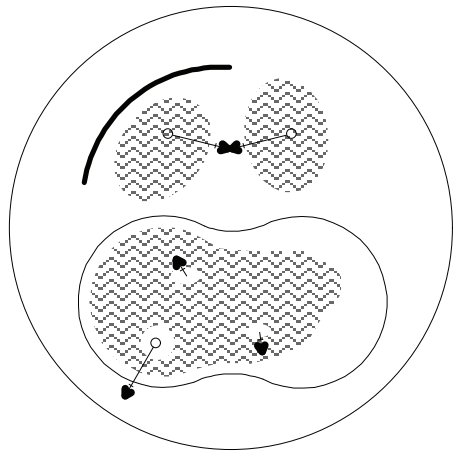
Figure 25-5. Participants' 005, 007 and 010 mapping 05-06



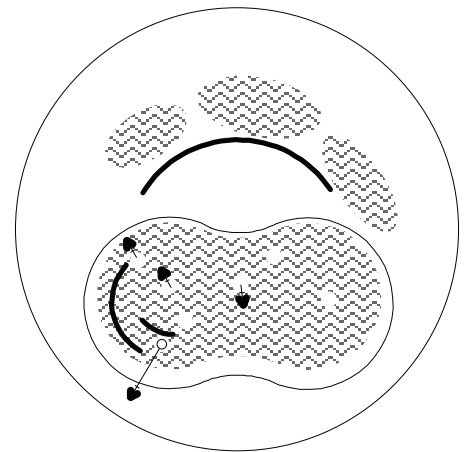
005-07



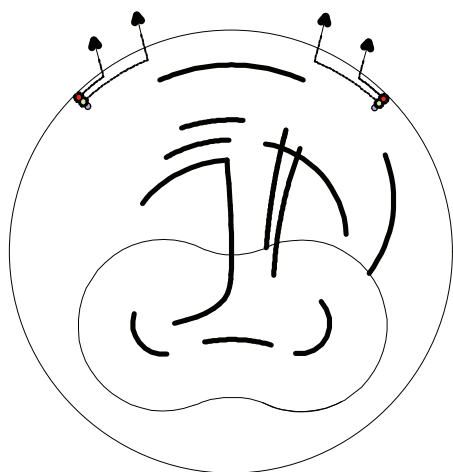
005-08



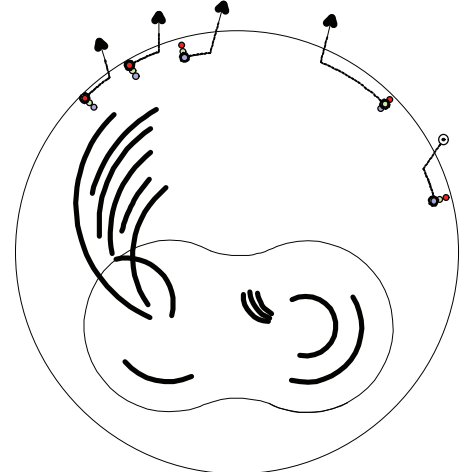
007-07



007-08



010-07

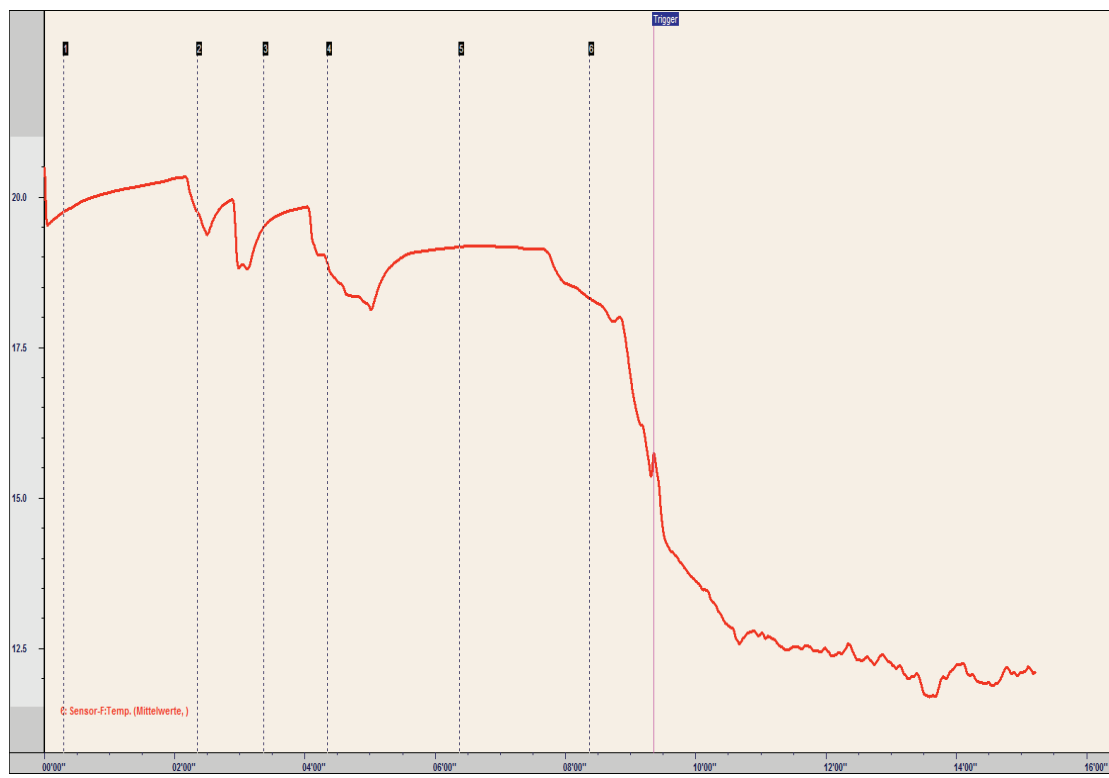


010-08

Figure 26-5. Participants' 005, 007 and 010 mapping 07-08

Übersichtliche Klienten- und Sitzungsinformation:

Klient: ,PP10 [ID=00000139 ]  
 Sitzung: Prob10  
 Datum Zeit: 15:58:19 24-02-2011  
 Dauer: 15min13sek.

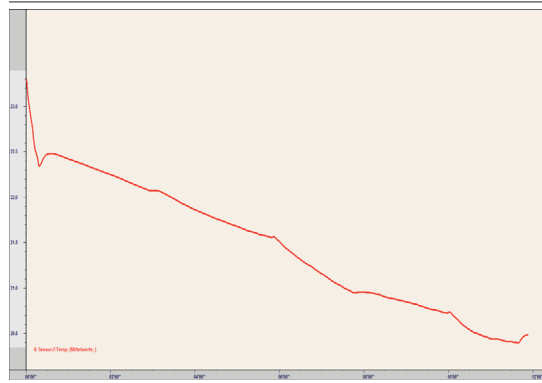


Kanal	Min.	Max.	Mittelw.	Varianz.	StdDev.	%>GW1.	%<GW2.
Sensor-F:Temp.	11.68	20.34	16.61	10.86	3.30	0.00	0.00

**Figure 27-5.** Participant 10: Bio-feedback data showing decreased temperature indicating activation of tension or stress

Übersichtliche Klienten- und Sitzungsinformation:

Klient: ,PP02 [ID=0000131 ]  
 Sitzung: Prob02  
 Datum Zeit: 17:04:20 23-02-2011  
 Dauer: 11min53sek.



Kanal	Min.	Max.	Mittelw.	Varianz.	StdDev.	%>GW1.	%<GW2.
Sensor-F:Temp.	30.39	32.20	31.46	0.47	0.68	0.00	0.00

Übersichtliche Klienten- und Sitzungsinformation:

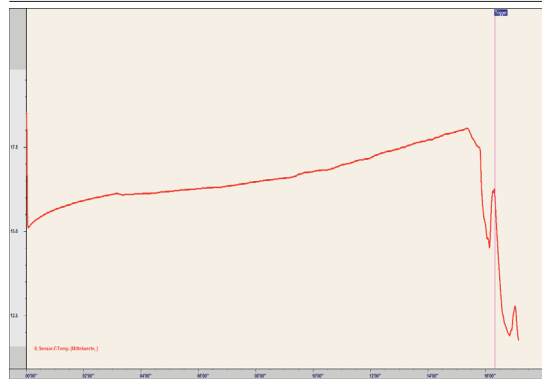
Klient: ,PP06 [ID=0000135 ]  
 Sitzung: Prob06  
 Datum Zeit: 13:16:29 24-02-2011  
 Dauer: 11min9sek.



Kanal	Min.	Max.	Mittelw.	Varianz.	StdDev.	%>GW1.	%<GW2.
Sensor-F:Temp.	32.86	32.76	32.61	0.15	0.39	0.00	0.00

Übersichtliche Klienten- und Sitzungsinformation:

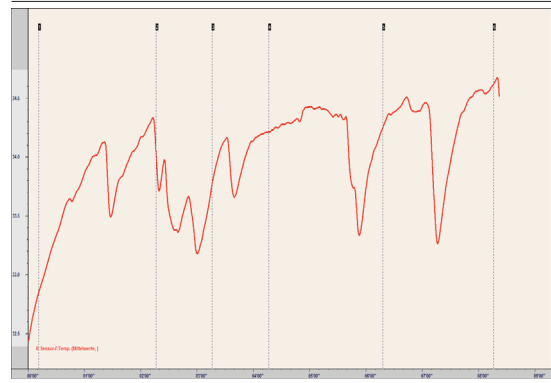
Klient: ,PP03 [ID=0000132 ]  
 Sitzung: Prob04  
 Datum Zeit: 17:24:38 23-02-2011  
 Dauer: 17min10sek.



Kanal	Min.	Max.	Mittelw.	Varianz.	StdDev.	%>GW1.	%<GW2.
Sensor-F:Temp.	31.71	32.06	31.61	1.22	1.11	0.00	0.00

Übersichtliche Klienten- und Sitzungsinformation:

Klient: ,PP12 [ID=0000141 ]  
 Sitzung: Prob12  
 Datum Zeit: 16:34:54 24-02-2011  
 Dauer: 8min22sek.



Kanal	Min.	Max.	Mittelw.	Varianz.	StdDev.	%>GW1.	%<GW2.
Sensor-F:Temp.	32.47	34.09	33.98	0.20	0.44	0.00	0.00

Figure 28-5. Collective participant Bio-feedback data showing decreased temperatures

### 5.13 Findings: categories and themes

The purpose of the research was to demonstrate the inference planning potential of the *felt\_space infrastructure*, by predictively linking perceptual behaviours with attentional triggers. The study explored the manner by which a visceral space could be induced, amplified and made explicit.

The findings are organised under different themes, drawing together the data to form categories of interpretations, rather than separate methodological data sets. These themes include performative and generative engagement, and space-body temporalities.

### 5.14 Performative and generative engagement

The data from Vection-Builder, may be interpreted to link stimulus-driven shifts in perceptual attention, to amplified spatial responses, that I interpret as an emergent order of hyper vigilance. Further more, the observations suggest the triggered shifts in perception, resulted in the participants fixating on spatial attention, leading to an emergent behaviour of amplified experiential granularity, which I interpreted as the onset of visceral space. The audio-visual cues did aim to generate a physical geometric space, rather, a re-tuned perceptual space, that amplified the aesthetic perception of a *felt\_space*.

Participant 006 noted a direct link between the perceptual cueing paradigm and the facilitation *affect* of a modified space:

“Changed the perception of the space, felt more hostile, looked around to try to understand the full extent of the highlighted space”.

(Participant 006 # 6/8).



**Figure 29-5.** First cycle site-responsive exploration # 01



**Figure 30-5.** First cycle site-responsive exploration # 02

Participant 006 in a sense described the experiment, as a work that pulled you into a 'some what focused' (Participant 006: # 3/8) mode of relationality, by generating moments of 'anticipation and curiosity' (Participant 005: # 1/8). Participant 005 describes how generative engagement and variation, become an interesting and effective technique to elicit the emergent behaviour of agent-environment performativity:

“Waiting for something to happen – unsure of my movements and should my movement trigger the start”.

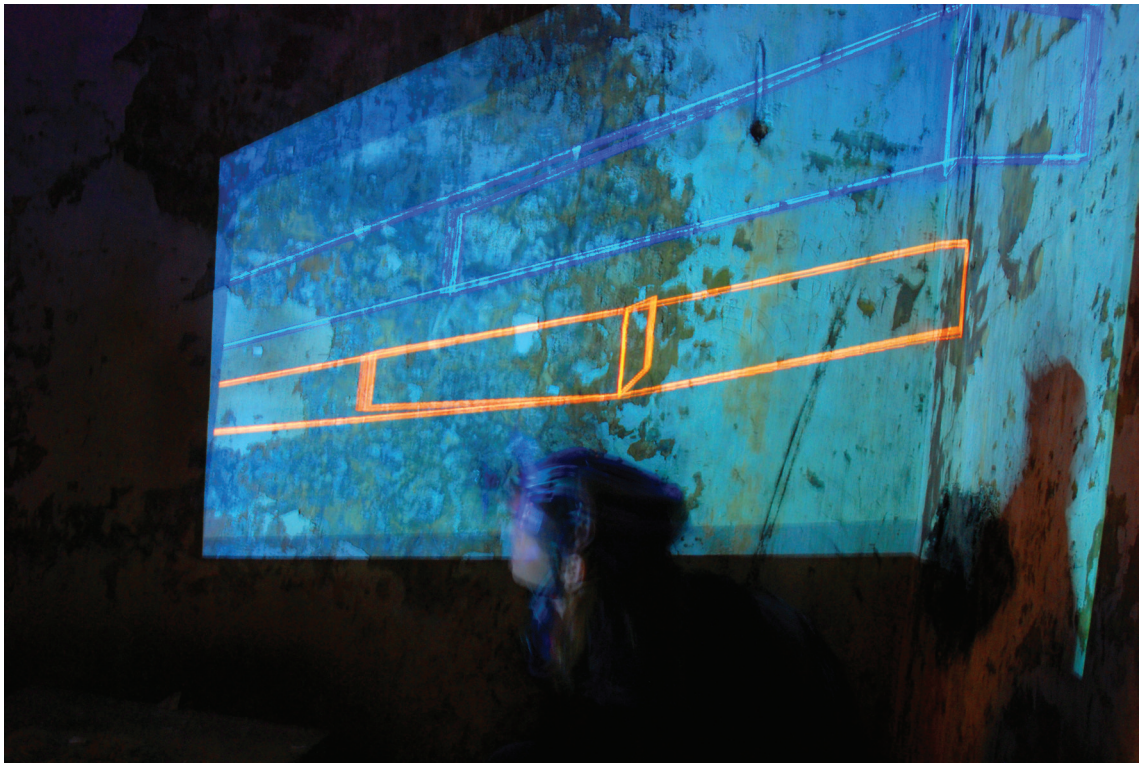
(Participant 005: # 2/8).

The identification and clarification of an interaction grammar become an important theme for the participants. Participant 002 describes this idea as an evolutionary process attributed to mobility and interaction:

‘Moving in space, trying to get acoustic response – trying to evolve visions’.

(Participant 002: # 2/8).

Participant 001 also described this relational behaviourism as 'possibilities to evolve' (Participant 001: # 4/8) situational engagement. The survey suggests that the majority of participants felt a 'shift of experience' (Participant 007: # 3/8) that brought 'my brain into a very focusing status' (Participant 010:# 8/8) 'enticed by' (Participant 003 :# 7/8) the affective engagement of performative 'movement triggered by 'sound, light and pattern stimuli' (Participant 008: # 3/8).



**Figure 31-5.** Transition cycle 2-3



Much of the survey continues the development of the audio-visual score as a technique responsible for building intensity and interaction ‘very much removed from every day life’ (Participant 006: # 1/8). Participants described how they really felt the space itself, how it penetrated their reasoning, leading to an ‘experience becoming more internalised’ (Participant 007: # 3/8) and psychological:

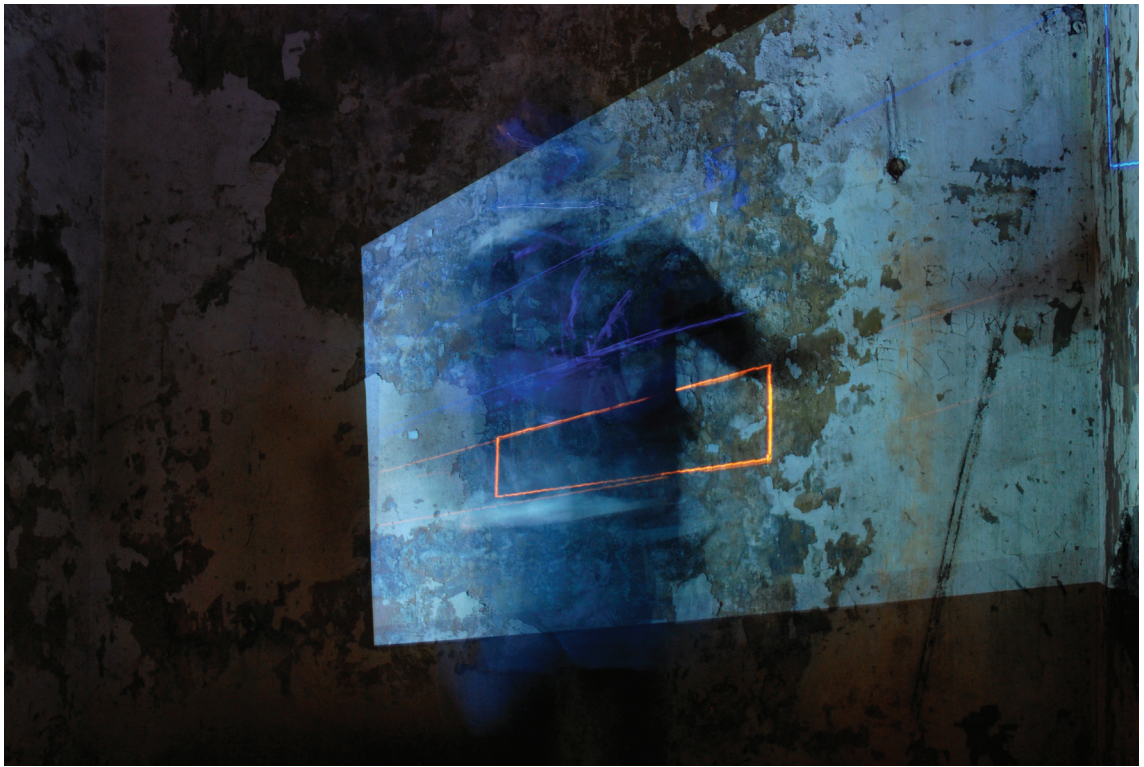
“Started to read the projections of the white light as ‘roof lights’, but then one on the right seemed like a cubic space coming into the space. View out of space through hole in the wall. More foreground information and awareness of the texture of the walls. Imagining of spaces beyond white lights”.

(Participant 007: # 2/8)

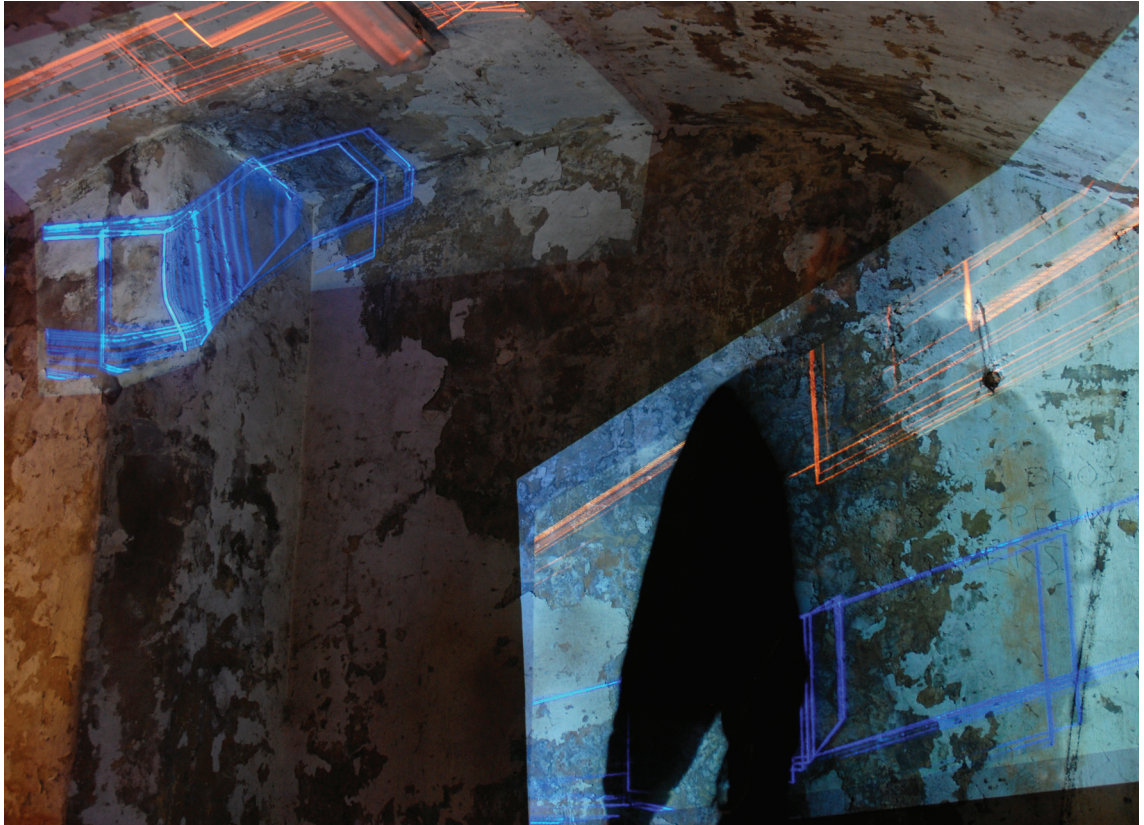
This spatial ambiguity was made more apparent by the rule-based feedback grammar, as all participants explored the generative use of the performative interactivity. Participant 003 commented on the participatory engagement as if feeling ‘like a gamer’ (Participant 003: # 6/8) whereby the participatory activity of interactivity and attitudes led to an experience akin to ‘playing and exploring the space’ (Participant 008: # 4/8). This scenario enhanced the sense of non-linear modes of iteration and variation, as the participants explored their influence over the spatial feedback system:

“Spent initial time in orientation and understanding the changes. Initial movement to explore how my movement interacted with sound, light and pattern stimuli. Looking for feedback through the eyes to demonstrate I have control over the visual landscape and soundscape become three dimensional with boundaries/parameters in space which I spent time trying to find the boundaries of”.

(Participant 008: # 3/8)



**Figure 32-5.** Cycle 3



**Figure 33-5.** Cycle transition 3-4

Many participants tried to decode the behaviour of the receptor-control-affecter paradigm, leading to the sensation of reality 'oscillation' (Participant 007: # 8/8) that elicited phase-shifts of spatial consciousness:

“Shifting attention between implied space of boxes and actual space”.

(Participant 007: # 5/8)

The project used various perceptual feedback parameters including continuity-disruptive grammar, passive-reactive performativity and autonomous-agent systems of feedback, whereby the trigger events built intensity through perceptual jarring triggering an unsettling nature of control/autonomy. The presence of interaction led to explorative moments of engagement, whereby the participants investigated the boundaries in an attempt 'to define edges' (participant 008: 4/8) to the space of relationships between 'my position and orientation, and the visual-audible stimuli' (Participant 006: '# 5/8).

This performative morphology generated a series of active-tension patterns, whilst moments of disengagement resulted from 'looking around frequently' (Participant 010: # 6/8) resulting in the sensation of being 'confused' (Participant 010: # 2/8) or even losing 'patience' (Participant 010: # 6/8). An emotional feeling had therefore been triggered, implying a conflict between a goal approach to interaction and a fragile operating environment, embodying transient boundaries. Participant 001 also questioned whether the system was 'autonomous?' (Participant 001: # 6/8) applying a self-determining metaphor in accordance to the inability to affect change by asking 'which role do I play?' (Participant 001: # 6/8).



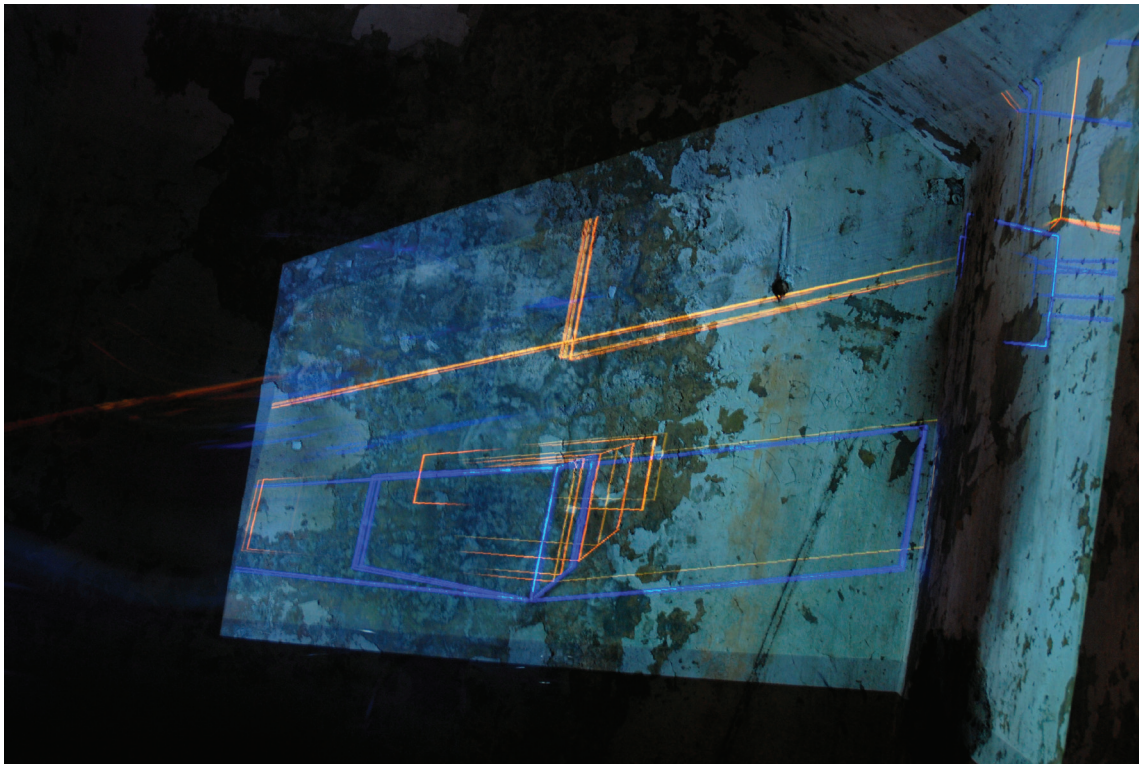
**Figure 34-5.** Participant exploration, synthetic aperture

The performative engagement of the agent-environment interactions, initiated behavioural cues and perceptual pressures that resulted in shifts of affect-field polarity, resulted in the amplification of both the automatic and attentive spatial responsiveness of the participants. On the one level the participants experienced a greater level of site-responsive acuity, whilst on the other the participants also appeared to respond to the non-linear modes of the interactive spatial cueing, by fixating on the attentional shifts in response to the recursive environment offset from their physical surroundings.

The participants highlighted the reception of 'disorientation, disturbance, distabilisation' (participant 001: # 6/8) as some participants recorded an 'apprehension to move' (Participant 005: # 3/8). The trigger events stimulated 'slightly obsessed' (Participant 007: # 7/8) attentional cueing affects that were related to the transient modes of scissor like experiences, whereby the physicality of spatial acuity was perceived as a force-defined system realised through movement.

### **5.15 Space-body temporalities**

By interpreting the transient states of space-body temporalities from the participant feedback surveys, the findings demonstrate a raised level of attentiveness to the physical and psychological characteristics of perceptual encounters of space. In particular the participants focused on the behavioural changes connected to the audio-visual modifications, whereby the participants



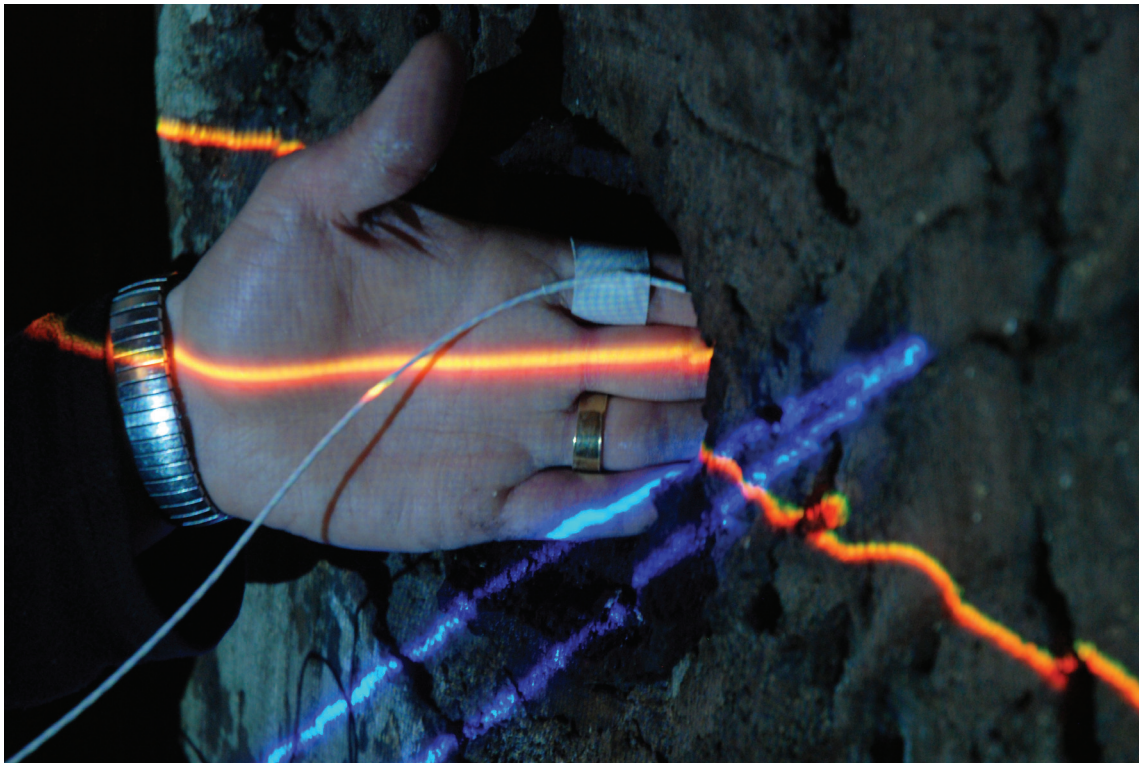
**Figure 35-5.** Vection-Builder trigger event

described the body as a medium for perceiving moments of experience, reconstructed by time. The sensory receptors of the body were directly implicated in the instrumentality of the event, creating moments of phase-shifts of spatial consciousness that included depth and proximity relations:

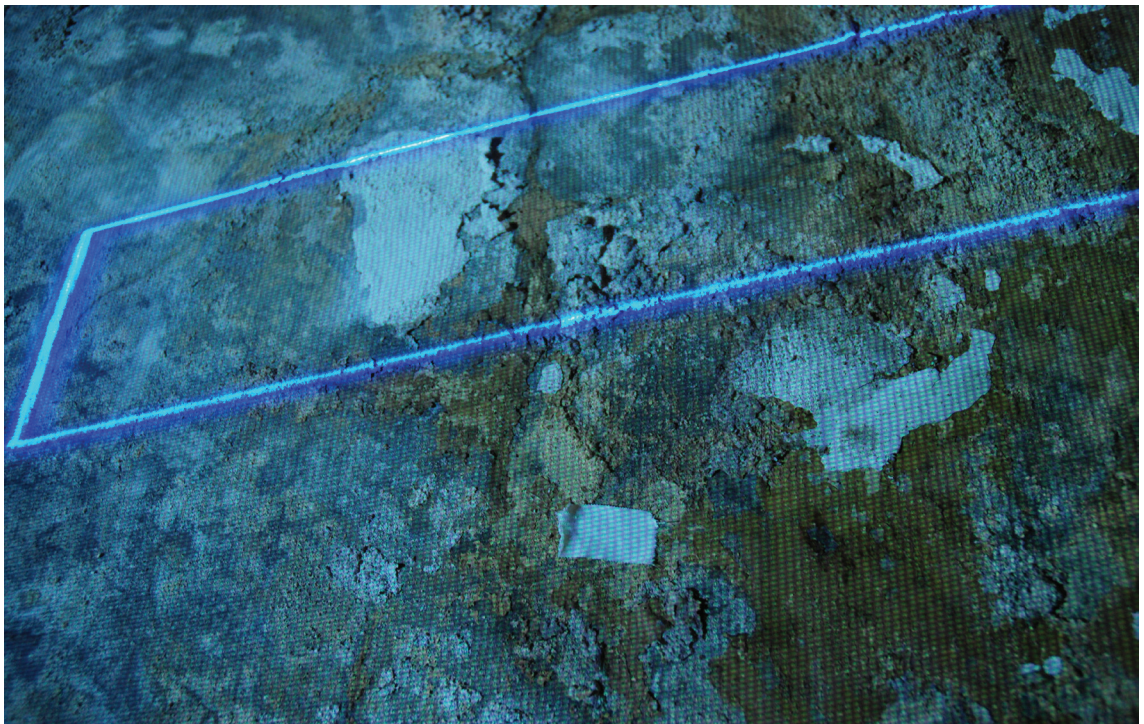
“More focused attention, but shifting as boxes become more complex. Higher level of disturbance. Slight destabilisation. Jumping between internal and external. Internalised spatially with sound. Starting to realize the connection between movements and sound, and the light ‘boxes’ proximity and distance. Started to co-ordinate, but slightly confused as to relation. Shifting attention between implied space of boxes and actual space”.

(Participant 007: # 5/8)

By focusing on the relationship between space, movement and perception, the participants related the environment to a space of bodily flows calibrated to articulate the interrelationship between the body, mind and serial perceptual experiences. The participants favoured the more synchronised cause and affect interactions, whereby states of active and behavioural alliance with the space generated moments of being ‘satisfied with assessing behaviour of squares to my movement’ (Participant 003: #8/8). The disfluent modes of interaction were triggered as a result of being unable to change or achieve synchronisation. The participants explored this dialogue between environmental pressures and sensory inputs, and as a result, generated complex and periodic patterns of agent-environment relationships.



**Figure 36-5.** Agent-environment interaction



**Figure 37-5.** Synthetic aperture



The participants also placed value on the interconnection between time and sound, making explicit the continuity or discontinuity of the durational aspects of the event. By fixating on the visual triggers, the participants noted how the notion of time or sound faded into the background and, even took on physical properties, whereby the participants were stimulated in exploring the 'edges of the soundscape' (Participant 008: # 4/8).

The sound was also interpreted as a cueing force to induce more 'internalised' (Participant 007: # 3/8) modes of introspection. Time was also accredited with physical qualities as participants marked its presence or absence by comments such as 'felt like a long time' (Participant 003: # 8/8) or 'was not aware of time by this point' (participant 003: '# 6/8) and 'impossible to gain a sense of the time' (Participant 006 1/8). Time and dynamics were linked to the development of psychological traits such as suspense, in particular Participant 008 highlighted this link between consciousness and space, by noting a relationship between anticipation and external realisation:

“Aware of a change again in my expectation of how to manipulate the space”.

(Participant 008: # 6/8)

This anticipation and development of time as an axis of situated cognition indicates a heightened awareness of space as a temporal plane experienced as fluctuating states of consciousness giving rise to trans-temporal affects.

Vection-Builder composed a recursive environment, that used interactive technologies to create amplified forms of experience through physical and perceptual manipulations; triggering a hyper-vigilant sense of spatial awareness. The interpretation of the bio-feedback results amplifies the participants

interactions between the externally orientated realities and the inner realms of perceptual cognition, providing a shift in perspective to reframe architecture as a total-environment, attentive to the spatio-temporal experience. Thereby extending the morphological qualities of space, and in particular accentuating the visceral experience of spatial perception.

Analysing the bio-feedback displays in consultation with PerceptionLab, the majority of temperature feedback results dropped as a direct consequence of Vection-Builder, suggesting a general state of discomfort caused by various degrees of perceptual tension. The results imply a mutual relationship between temperature drop and participatory involvement. Although the trigger events and anchor marks do not directly align, the results invariably show a strained set of relationships or conflicts, between perceptual feedback and environmental cueing paradigms, demonstrating a correlative relationship between cued moments of vection and hyper vigilant states of perceptual response. The interpretation of these experimental findings can be construed as a causal conjunction corresponding to the adverse spectrum of a visceral response.

The diagrammatic questionnaires also described a diverse range of responses in relation to calibrating body-space temporalities. Each participant completed a diagrammatic form of experiential mapping to communicate the findings as a spatialised language with durational qualities. Participant 005 generated a



**Figure 38-5.** Agent-environment behaviour

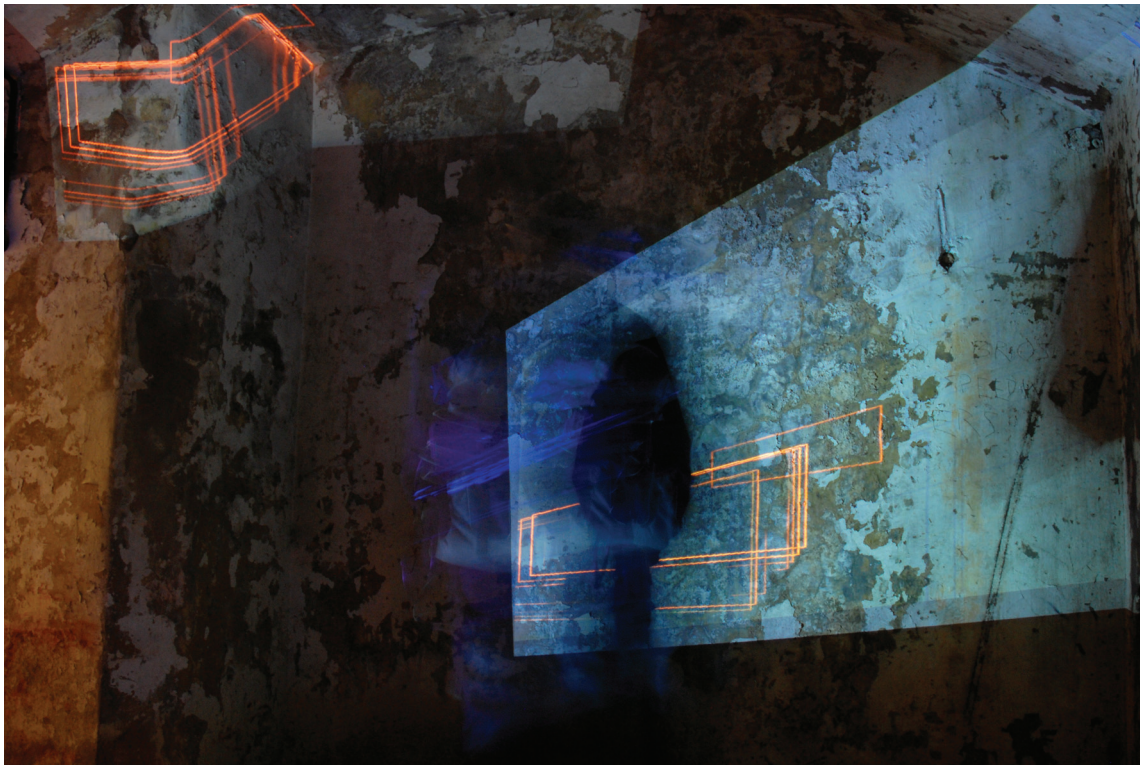
visual notation distinguishable by its territorial language, whereas participant 007 concentrated on a visual grammar that notated the phased distribution of *field* events, whilst participant 010 accentuated a more fragmented-linear field of affect markers projected in space.

The mapping exercise put the participants into a focused form of spatial engagement. Common to all visual responses, the participants' mappings demonstrate the perceptual corollaries of attentional, experiential and behavioural awareness, which can be interpreted as a *field* of reception uptakes or transmission feedbacks.

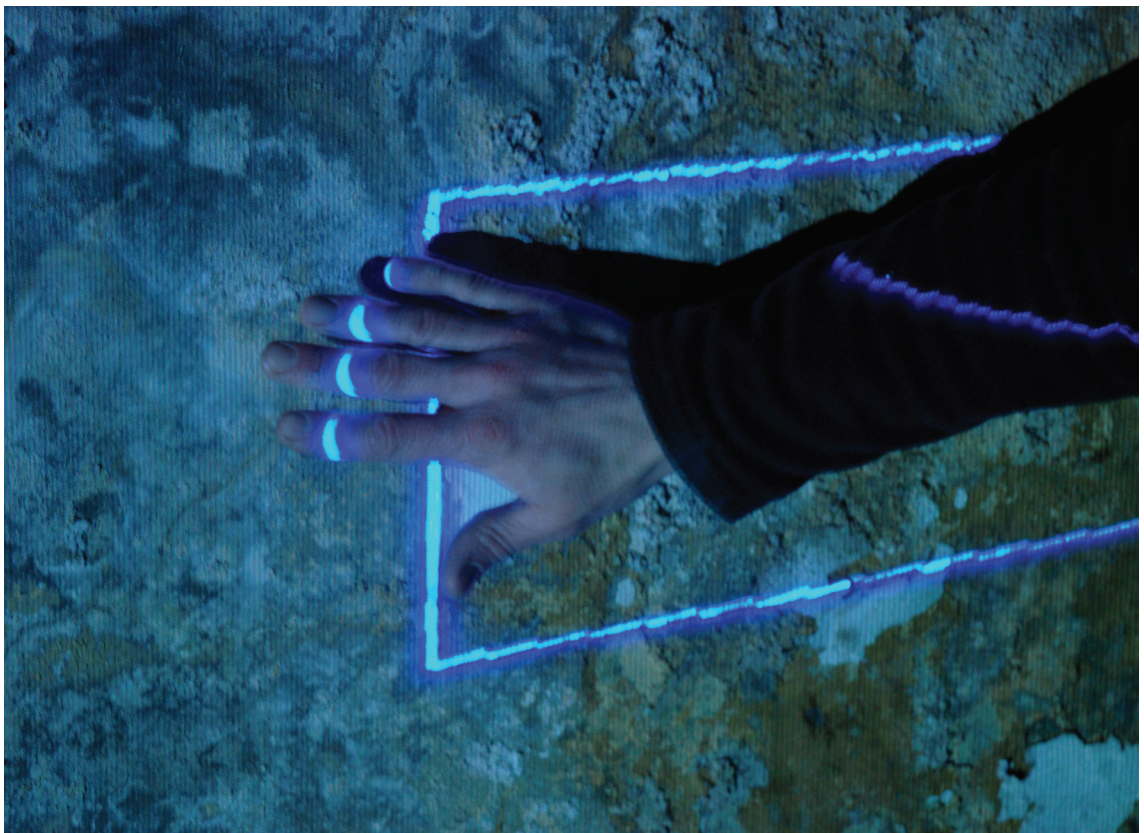
To read the mappings one can intuit how the percipients' perception transformed throughout the event. Thus, the mappings draw out a mimetic transfer, making permanent the felt perceptual response.

## **5.16 Observations**

The Artist Residency at Bath explored a non-mnemonic environment to demonstrate the co-emergent patterns of *felt\_space*. The case study examined architectural space as a set of stimulus - response - stimulus relationships by focusing on perceptual feedback systems to generate heterogeneous encounters that challenged the notion of space-blindness.



**Figure 39-5.** Trigger event # 02



**Figure 40-5.** Recursive environment

Vection-Builder points to the significance of manipulating situational experience by engineering modes of amplified somatosensory reception as a method to enhance spatial acuity. By combining the circular feedback with a series of high impact perceptual inputs, Vection-Builder distorted the perception of space by intensifying the sensation of corporeal extended space as tangible phenomena, whereby the architectural space at the Bath vaults was perceptually manipulated to exert a visceral dimension.



**Figure 41-5.** Aperture interaction



# 06\_Contextualisation

## 6.0 Contextual precedents: Practice

The architect Siegfried Ebeling (1894-1963) published *Raum als Membran* (Space as Membrane) in Dessau in 1926. Ebeling interpreted architecture as a 'multi-celled spatial entity' (Ebeling, translated 2010 original 1926: 8) and introduced the notion of experiential friction as a 'physically defined character that works on our bodies in an analogously imbalanced way' (Ebeling, translated 2010 original 1926: 9). Ebeling explored the counter-trajectory force as a characteristic of interaction between embodied space and external spaces:

“the clearer it becomes that the character of the skin or membrane between the exterior space and the dimensions of the body basically relates to the way in which the space is defined and dimensioned on a psycho-physical level”.

(Ebeling, translated 2010 original 1926: 9-10)

Ebeling described the agent-environment interaction as 'parapsycho-logical interconnectedness' (Ebeling, translated 2010 original 1926: 15) an ecological idea of psychological symbiosis, which I interpret as non-linear collective behaviour. Ebeling described this 'law-governed interaction' (Ebeling, translated



2010 original 1926: 8) as a model for designing buildings on the level of 'spatial activation' (Ebeling, translated 2010 original 1926: 17) however, the process and mechanisms of spatial composition within the text are left indeterminate and unclear, rather, Ebeling presented a schematic depiction of agent-environment interaction ionised by malleable forces of *affect*.

The idea of an ionised atmosphere comprising of electric currents and magnetism, was also central the work of the architect and theorist Frederick Kiesler (1890-1965). Kiesler designed the *Endless House* which was published in 1966, and although not realised, has inspired contemporary architects and engineers in the pursuit of biomorphism. Kiesler also conceived architecture as a collective order, comprised of ecological systems and agent-environment interconnectedness. Kiesler put forward the *Correalism and Biotechnique* (1937) manifesto as a treatise of essential relationships between man, environment and technology. Kiesler termed this exchange of interacting forces 'co-reality' (Haines-Cooke, 2009: 94). Kiesler's model of architectural design proposed an architecture of 'interplay of action with one another and nature' (Haines-Cooke, 2009: 104). Kiesler designed Correalist environments as reflexive sets of interaction trading between the integration and disintegration of forces. The tensioning intervals between these forces identifies Kiesler's manifesto as a reflexive potential for exploring the *felt\_space infrastructure*.

Around this time, Ebeling designed his circular metal house, taking technical inspiration from the Junkers aeroplane factory in Dessau. The building was designed to capture and transform radiant energy via special transmitters, that was hailed to be one of the first 'energy-autonomous' (Scheiffele, 2010: IX) building prototypes. The concept embodied an ecological collective and pays incredible resemblance to J.G. Ballard's (1971) psychotropic building in *The Thousand Dreams of Stellavista*.

At the level of agent-environmental interaction, Ebeling, Keilser and Ballard, introduced the notion of an ecological model for architecture and although left vague, their work alluded to modes of sensing, systemic behaviours and the possibility of operating analogies. The final, but equally important attribute observed from studying Ebeling's theory was the notion of a counter-force, or spatial friction between internal affects and external triggers. This counter-force enabled me to evolve the concept of *Raumfindung* as a theoretical framework for evolving reflexive theories for architectural space.

Because the research questioned the conceptual fabric of this epistemological space by principle of *affect* measures, I researched artists who work with perceptual phenomenon and site-responsive projects that 'remains to a very great extent an abstract system' (Baudrillard, 1996: 6).

The most direct examples of this practice includes projects like Robert Smithson's (1938-1973) *mirror pieces* that questioned spatial perception through the percipients' negotiation and acknowledgement as a 'double, ever-changing space' (Smithson, 1993: 205). Smithson's work was particularly interesting, not only in the sense of the explorations into the physical act of sensing 'mental space' (Smithson, 1993: 176) but also in the way Smithson argued for abandoned industrial buildings to be recognised as monuments saturated with 'environmental coding' (Smithson, 1996 original essay 1966-67: 340). In a similar vein Gordon Matta-Clark (1943-1978) was also preoccupied with the apprehension of space 'by movements of the viewer's eyes and by the body's place in time' (Diserens, 2003: 6). Matta-Clark collaged tensions between interior and exterior space, playing with visual connectivity and recombinant sequences of space. Similarly, the artist Michael Asher (1943-) explored the immersive experience of space. His work amplified 'architecture's own perceptual spectrum, beyond its visual presence' (LaBelle, 2006: 91).

Using space and sound as a 'phenomenological composite' (LaBelle, 2006: 91), Asher used the performative potential of perceptual displacement to incite moments of experiential 'stutter' (LaBelle, 2006: 96) creating intense moments of hyper vigilant immediacy.

In July 2010 I travelled to Wolfsburg to experience James Turrell's *Wolfsburg Project* at the Kunstmuseum. The attraction of Turrell's "Wolfsburg Project" offered a window to externally experience an inter-metaphysical place as a reflexive experience. The ganzfeld put you into a state of inverted perception, where you are 'seeing your own eyes from behind' (Bruderlin, 2009: 133). The American psychologist, James Jerome Gibson (1904-1979) who, like Turrell, shared an interest in flying, developed a theory of visual perception comprising of optic arrays, textured gradients and affordance. Gibson's book *The Ecological Approach to Visual Perception*, written in 1979, argued for the understanding of 'direct perception' (Gibson, 1986: 10) as means to describe the direct realism of agent-environment interaction. Gibson's theory of the ganzfeld or 'total field' (Gibson, 1986: 151) describes the affect of seeing a three-dimensional mist saturated with light:

"It would arise if the air were filled with such a dense fog that the light could not reverberate between surfaces but only between the droplets or particles in the medium. The air would then be translucent but not transparent."

(Gibson, 1986: 52)

Turrell's *Wolfsburg Project* presented me with a room that shifted my attention to the ganzfeld experience, making specific the perceptual experience of a *field* structured out of situation. The light and colour took on a physical presence that mediated and designated an extended zone of interaction of a *field* of experience. The *Wolfsburg Project* liberated the senses from the body, whereby the external environment drew out the perceptual facilities of an internalised nature, extending the sensation externally as if a sensitised membrane.

Like Marshall McLuhan, who wrote on the extensions of 'human faculty-psychic or physical' (McLuhan, 1967: 26) the environment is described as an active agent:

"Environments are not passive wrappings, but are, rather, active processes which are invisible. The ground rules, pervasive structure, and over-all patterns of environments elude easy perception. Anti-environments, or counter situations made by artists, provide means of direct attention and enable us to see and understand more clearly."

(McLuhan, 1967: 68)

Further, the philosopher Alva Noë (2004) describes the content of experience 'as potentiality' (Noë, 2004: 215). thus ascribing the external environment as a *field of affects* with influencing potentials:

Turrell's project at the Kunstmuseum thus enlarged my thoughts on a more philosophical nature together with establishing a desire to explore the 'action in perception' (Noë, 2004) as reflexive architecture.

In order to develop this practice and establish a set of rules and visual code for designing a perception-bias inference model, I was fortunate enough to be accepted on the Karlheinz Stockhausen *Composition and Interpretation Course*, Kürten, Germany, for the analysis of compositional strategies of *Licht-Bilder* (2007). Previously having met Stockhausen whilst studying at the Architectural Association, I was invited to attend his master class that provided me the opportunity to gain a much greater level of understanding of the late composers composition methodology.

A particular interest was Stockhausen's *SPIRAL for a soloist* (1968), which was performed on the 14<sup>th</sup> July 2007 as part of Inteterpreten–Seminaire. This piece was of special interest to me, because it introduced the open system-system network for composition and improvisation. *Spiral* consists of a sequence of 'moment-forming' (Stockhausen, 1989: 60) events in which the soloist improvises with a short-wave receiver. The piece has predetermined pauses of various lengths, and whilst tuning the short wave receiver, the soloist's voice or instrument, fuses the transmission and reception of radio signals, creating a reflexive event formed from mutually reinforcing relationship between soloist and the short wave receiver. The observation of this performance notably became a major influence for my reflexive exploration of open systems as an architectural theory.

Stockhausen recognised the importance of time structures in his compositions that explored temporalities as 'three-dimensional sound movements in space' (Bandur, 2001: 46). Stockhausen's compositions were parametrically organised in multiple time and space dimensions, which all stemmed from a 'superformula' (Stockhausen, 1989: 131). The organisational structure of Stockhausen's *superformula* together with the invention of 'previously un-established instructions' (Bandur, 2001: 48) that incorporated graphic elements as

communication devices for improvisation, helped provide the theoretical and practical underpinning to establish a visual code and form scheme to evolve a communication platform for the *felt\_space infrastructure*. Case studies '2' and '3' explore these methodologies directly as a result of embedding the methodological hybridisation of mapping and notational systems into the practice to evolve, test and reflect upon a principle formula to underpin the *felt\_space infrastructure*.

## 6.1 Contextual precedents: Theory

The case studies interpret the interrelationship between perception and the environment as an operational 'valence' (Lewin, 1936: 218). The term valence is used to describe affect-field tensions of a positively *valenced* or negatively *valenced* psychological dimension. The psychologist Kurt Lewin (1890-1947) describes valence as:

*"A valence corresponds to a field of forces whose structure is that of a central field. One can distinguish positive and negative valences".*

(Lewin, 1936: 218)

A valence thus describes the constellation of forces that direct and influence behaviour patterns relative to the environment and situation. A valenced force can shift or bias the persons' perceptual, cognitive and associative relationship in terms of perceptual feedback.

This explanation of perceptual reciprocity builds upon Gregory Bateson's ecology model of 'metalogues' (Bateson, 1972: 3-38). Bateson's *metalogue* technique functioned as a 'multi-level system' (Harries-Jones, 1995: 238) to convey the cross-correlation of systemic interaction and multi-level feedback



**Figure 1-6.** Stockhausen during the course, Kürten 2007



**Figure 2-6.** SPIRAL performance, Kürten 2007

organisation. Peter Harries-Jones' book *The Recursive Vision* (1995) described the feedback system as 'reflexive thought' (Harries-Jones, 1995: 93) and went on to explain the elliptical nature of the communication system as being made up of interchanging 'interlocutors' (Harries-Jones, 1995: 93) similar to the hologram:

"Much like a hologram, the two initial patterns interweave as they become woven into a larger whole – producing 'a double woven' vision".

(Harries-Jones, 1995: 203).

Harries-Jones suggested that Bateson's 'double bind' (Harries-Jones, 1995: 137) theory, acts as a '*moiré* pattern' (Harries-Jones, 1995: 202) denoting the 'superposition of two regular fields' (Allen, 1997: 28) yielding a third three-dimensional 'cumulative interaction' (Bateson, 1972: 112).

The *affect-field* images, like Bateson's language model, are interpreted as an analogical format to evolve a theoretical strategy for developing the research as an operating grammar with hyperaesthetic qualities.

Maurice Merleau-Ponty (1908-1961) recognised these interrelationships as a *field* phenomenon, stating that the constantly changing organisation of environment-agent interactions comprised of reflexive correspondences:

"Through its sensory fields and its whole organization the body is, so to speak, predestined to model itself on the natural aspects of the world. But as an active body capable of gestures, of expression and finally language, it turns back on the world to signify it. As the praxis shows, there is in man, superimposed upon actual space with its self-



identical points, a virtual space, in which the spatial values that a point would receive... are also recognized. A system of correspondences is established between our spatial situation and that of others,”

(Merleau-Ponty, 1964: 07)(The Primary of perception)

Merleau-Ponty suggested that the perception of space could be determined through the phenomenological register of spatial associations. The scope of this ecological perspective, expands the notion of ‘reflexive architecture’ (Spiller 2002: 5) and reconceptualises architectural practice to include situated cognition theories of perception as outlined by Philip Robbins and Murat Aydede in their book *Situated Cognition* (2009):

“First, cognition depends not just on the brain but also on the body (the embodiment theory). Second, cognitive activity routinely exploits structure in the natural and social environment (the embedding thesis). Third, the boundaries of individual organisms (the extension thesis).”

(Robbins & Aydede, 2009: 3)

Each idea expresses the concept of mental activity as contingent on situated context and the notion of the ‘extended mind’ (Clark & Chalmers, 1998) a dynamical theory of agent-environment interaction; maintaining the argument that *felt\_space* is contingently linked to cognition, and as such, is ‘distributed across individuals and situations’ (Robbins & Aydede, 2009: 8).

This founds the idea of repositioning architectural design as an ‘effector system’ (Robbins & Aydede, 2009: 7) whereby my thesis advocates an enactive perceptual feedback systems as affective structures, pertaining to a psychoactive architecture.

This intentionally problematises the mind and matter division of Cartesian dualism, by evolving a superpositional model of spatial reality that emerged as a consequence of amplifying the cognitive and associative levels of spatial perception as enactive components of causal dependencies and correlative feedback loops. Such an architectural theory, necessitates a dynamical model serving to interpret, explain and contextualise, the *felt-space* exposition, which can be found in John Odling-Smee, Kevin N. Laland and Marcus W. Feldman's theory of *Niche construction: The Neglected Process in Evolution* (2003). This biological model recognises the integration of ecology and environmental modification through the notion of cognitive extension:

“Niche construction should be regarded, after natural selection, as a second major participant in evolution. Rather than acting as an “enforcer” of natural selection through the standard physically static elements of, for example, temperature, humidity, or salinity, because of the actions of organisms, the environment will be viewed here as changing and coevolving with the organism on which it acts selectively.”

(Odling-Smee, Laland & Feldman, 2003: 2)

This theoretical approach emphasises the important theme of parallel adaptive environments, leading to the advocacy of psychophysical *affect-forms* as compositional schema.

Gilles Deleuze (1925-95) contextualised the mind-body dualism as a sensation-affect contingent on modes of relationality:

“I become in sensation, and something happens through sensation, one through the other and one in the other”.

(Deleuze, 1993: 187)

My research focused on analysing the negotiation of space through the mediation and deformation of *becomings* to use a Deleuzian term, and infers compositional understanding of the perceptual processes that generated multiverse experiences as ‘phenomic environments’ (Cassidy, 1997: 23).

By interpreting the mind-body dualism of Deleuze, the thesis used the philosophical structures as methodological precedents to explore the multimodal affects between ‘the matter of the perceptual field’ (Deleuze, 1990:347) and reflexive synthesis of co-adaptive niche structures.

Deleuze in *The Logic of Sense* (1990) articulated the ‘dualism’ (Deleuze, 1990:9) concept as a conditional effect of the perceptual field:

“It is the structure which conditions the entire field and its functioning,”

(Deleuze, 1990: 348)

My research penetrates into the ‘dualism of bodies or states and effects or incorporeal events’ (Deleuze, 1990: 9) by propagating the zone of intersections between agent-environment co-adaptation and develops mutually reinforced feedback loops to externalise the *Raumfindung* concept. This transactional dialogue propagates the parallel adaptive practice of an advanced reflexive architecture.

This thesis expands the spatial territory of Neil Spiller’s ‘hybrid sites’ (Spiller, 2002: 5) by determining the *felt-space infrastructure* as an emergent subspace insofar as considering the superposition event of perceptual feedback and site-responsive priming with cognitive and associative modes of perception. By

exploring Deleuze's dualism as a 'site of ecologies' (Spiller, 2002:5) comprising of a dipole environment, charged between agent and environmental conditions, my thesis evolves the hypervigilant praxis to amplify and sustain the reflexive continuum:

“between the effects of the “structure Other” of the perceptual field and the effects of its absence”.

(Deleuze, 1990: 348)

By advancing an extended understanding of the 'reflexive idea' (Spiller, 2001: 05) my thesis rearticulates spatial practice as salient 'reflexivity' (Spiller, 2002:21) and argues to improve spatial consciousness through the medium of perception and transactional feedback. The thesis operates on the reflective level, and generates modes of highly sensitised spatial cueing paradigms focused on better understanding of the space as a conveyor of gravitational affect-field configurations.

The *felt\_space infrastructure* maintains a 'process ontology' (Lawrence, 2004: 170) to describe the situated environment as a force or *affect* in which the agent is immersed and influenced. The *felt-space infrastructure* amplifies this force through processes of attentional transference. Jean-Paul Sartre (1943) describes this situation as an 'existential environment' (Buchanan, 2010: 436) arising from the complex systemic conditions of the agent-environment coupling:

“Situation. The For-itself's engagement in the world. It is the product of both facticity and the For-itself's way of accepting and acting upon its facticity”.

(Sartre, 1958 original 1943: 655)

Whilst *Raumfindung* is considered to be a quality or condition of situated phenomena, it is the relationship between the perceptual, cognitive and associative dimension of architectural space that I interpret as the visceral dimension. The *felt\_space infrastructure* extracts these laws of inter-dependencies, playing an instrumental role in the formulation of compositional grammar to orchestrate the *felt-* sensation of perception within a geometric reference frame of three dimensional *-space*, thereby inferring new interpretations to reflexive theories, whereby reflexivity refers to the circular feedback relationships between cause and effect, situating the agent and environment in a bidirectional relationship that acts as a whole.

# 07\_Conclusion

The conclusion of this thesis describes the integrated model of the *felt\_space infrastructure* as a perceptual model for design. My thesis details the operational extension of perceptual processes in terms of specifying the concepts, taxonomy, ordination and intentionality with regard to empirical observations so as to make the components and drivers clearly distinguishable and measurable. The thesis began with looking at the primary concepts behind reflexive architecture, adaptive ecologies, Correalism, *affect-field* phenomenology, site-responsive perception, recursive behaviour, ordination and inference schema planning. The primary focus of attention, and the main return on architectural research, has shifted from an object-based platform towards behavioural environments as interconnected affect-fields that moves design beyond style driven applications.

The *felt\_space infrastructure* has been explored as the enhanced integration of perceptual, cognitive and associative spatial reality in reflexive architecture, and in terms of its overall scope the infrastructure provides an increased performative application of agent-environment feedback systems to enable a new way of organising the performativity of knowledge within a boundary-less information flow.

The intention of this thesis has been to increase the capabilities of organisational structures, which enables spatial practitioners to gain significant operational and instrumental solutions to the integration of information spanning many fields of study and improve access to that information through the interface of the *felt\_space infrastructure*. The research has provided reflexive portals that allow greater integrated access to site-responsive information.

One of the key challenges for the architect is to design communication strategies; the *felt\_space infrastructure* has provided a series of insights related to rules and standards to assist in purchasing solutions within the value structure. The following subsections discuss the infrastructure in more detail whilst providing critical reflection on the thesis.

## **7.1 Felt\_space infrastructure**

Through this research my intention has been to produce an increased structural coupling between agent and environmental interactions. As explained throughout, the model assumes the underlying existence of perceptual reality and a feedback reflex that acts as a platform to address the developmental relationship between local agency and environmental stimuli. The infrastructural model comprises of three types of application outputs:

- Taxonomy information contributor, which manages the interdisciplinary contextual research to and across the boundaries of related disciplines.
- Ordination tools, which provide the transactional capabilities to develop site-responsive, reflexive applications that extends the access to a higher dimensional form of architectural praxis in an integrated manner consistent to perceptual and ecological principles.

- Organisational utilities, which provide the necessary systems to understand, operate, tune and manage the condition-action rule to exploit the performative and durational plans.

My thesis has tested the *felt\_space infrastructure* in a practical setting to elucidate the performative aspect of *Raumfindung* which I have expressed as a meta-form comprising of the triaxial *affect-field* feedback model. I have revealed the domains of interaction to interpolate the *affect* axis as the interplay of local agency consisting of an intensity index of space-mind differentiation. The second case study invented tools to locate the *field* axis as a vector with magnitude and duration, charged by propagation and modulation. *Raumfindung* was thus made manifest via the sensitisation of perceptual feedback that was amplified as a method of analysis to measure the spectromorphology of circular causal relationships.

The *felt\_space infrastructure* supports a closer synergistic relationship between the dynamic complexities of behaviour within the interaction of space-time and has evolved the role of circulatory feedback processes by introducing the model to differentiate, visualise and intervene within the *affect-field* systems underlying spatial consciousness. The *felt\_space infrastructure* detects and makes evident the agent-environment inter-dependencies as counter-forces of interaction, oscillating between geometric space and perceptual feedback. These states belong to the realm of a collective behaviour, where I have linked the active role of agent-environment interactions to a salient mode of reflexive architecture.



## 7.2 Taxonomy

The *felt\_space infrastructure* has facilitated a hyper vigilant array of affective experiences to differentiate an explicit taxonomical classification of experiential and situated aesthetic, increasing the spatial acuity of site-responsive relations. The thesis has evolved the term *Raumfindung* to reveal an extended platform for the analysis of spatial consciousness, including the visible, virtual and conceptual components of the performative content of spatial experience. Through the case study methodology, I have looked at why causal environments trigger moments of corporeal extended consciousness. By fusing situational analysis with spatial notational strategies my work has introduced a calibrating factor, which sensed, captured and measured site-responsive signatures enabling greater understanding of phenomic constructs. Case study '1' established the *cognitive-tope classification* matrix to increase the performative qualities of *affect* within a spatially defined proximity axis. The findings established a grammatical structure of spatial affects that arose from negotiating the Air Raid Protection bunker at Plymouth. As a form of 'action research' (Cassidy, 1997: 7) the case study actively incorporated the percipient's lived reciprocity within the study to realise the calibrating mechanisms of 'person-environment psychology' (Walsh, Craik, and Price, 2000).

The detailed taxonomy includes diagrams to extend the classification component, which provides performative access to the knowledge, helping to communicate and deliver content on the spatial practitioners behalf. Through the process of diagramming I have developed a visual language to describe and convey spatial sensation, which is an elusive, multi-dimensional and

complex phenomenon. The taxonomy has therefore created an envisioned method of communication, providing a rich set of information for brokering spatio-perceptual information by integrating site analysis with the human factors of situational behaviour.

Whilst implying a greater understanding of the roles of mnemonic structures, the taxonomy calibrated affective modes of occupying space, raising awareness of a greater consciousness of gravity, body and movement through volumes of space. The work dissolves the barrier between environments, perception and reality, establishing an architectural process that is greater connected to the environment, with a heightened perceptual awareness of experiencing space through body and inner spectacle.

To summarise case study '1', the descriptive profiling deconstructed the performative aspects of a site-responsive phenomenological construct, to identify and classify *affect* behaviours as counter-force components. The situational analysis functioned as a sensitisation event to gain empirical evidence in the way agent-environment interactions respond to a particular lived space that included mnemonic signatures to originate the *cognitive-tope* classification system. The site-responsive classification system communicates the behavioural associations of *affect* by correlating phenomenal complexities of perceptual space with environmental stimuli. The method incorporated participant interaction to assess and identify the granularity of environmental affects, linking specific responses to zoned aspects of perceptual influence. These correlates of spatial consciousness led to a taxonomy of registers that were defined as transition differentials revealing the graduations of

perceptual feedback as an affect-force scalar axis. The taxonomy enhances the understanding of perceptual *affect* and legitimises Plymouth's hidden bunker as a psychoactive receptacle encoded with the extreme relationship between people, fear and memory.

Although the taxonomy system depicted a detailed reflexive understanding of spatial consciousness, accessing the data in a performative and design based manner was complexly conjunctive and heterogeneous in nature, to the extent that the information was held hostage to conceptual interpretations. To liberate the information from the linguistic structures, the ordination systems were developed, providing more practical end-user capability including increased notational capacity.

### **7.3 Ordination**

The contextual research identified reflexive architectures with ecological precedent studies comprising of recursive concepts and Correalism theories, yet operational design practices did not appear in the manuals of architecture or spatial practice. By linking mapping and notational operations to the relationships of agent-environment interaction, my thesis has addressed the need for an operational setting required to access the multiple information sources to interrogate our relationship with the *field*. Channelled through the distribution and propagation of attentional cues, the ordination system originates a collective platform to generate an inference schema planning model through the brokerage of perceptual, cognitive and associative levels of spatial consciousness.

The ordination component synthesised a highly developed process-based methodology specifically designed for developing, managing, and operating an integrated perceptual system that considered the notational and compositional capabilities of the *field*. The mapping exercise was designed to amplify the perceptive study of the trajectories of attentional cues as syntactical grammar, relating the vector coordinate to perceptual attention. As a form of applied reception theory, the ordination process transferred the attack dynamics and entrainment patterns of attentive recognition propagations, to the perceptual content of the *field* to visualise how the body adapts to a site-responsive condition. The ordination platform codified these recordings as score to notate the infrastructure of agent-environment interconnectedness centred upon the distorting influences of environmental prompts.

By raising the spatial awareness threshold of site-responsive analysis, the mapping exercise has expanded the notion of the spatial practitioner as an attentive interface emphasising the accrual of spatial awareness. Mapping makes urgent the interconnection between perception and space, situating the recorder as a hyper vigilant detector, sensing through space to retrieve and discharge a locative system that integrates documentary value studies with an intensification of spatial engagement. As a mode of relation to self, the ordination process framed the *field* as a spectrum of perceptual, somatic, affective, emotional and psychological registers, forming systematic description that enhanced the interrogating processes, showing greater attention to comprehend perception. Thus enabling the practitioner to gain advantage to better understanding the sets of relationships that define the sensation of spatial experience.

To summarise case study '2', the *cognitive-tope* mapping developed an advanced operational space analysis tool that recorded the deformation and mediation of the perception *field*, making it possible to visualise multiple dimensions simultaneously with interpretable *field* gradients, thus enhancing statistical power when considered in aggregate. By de-composing the spatially-explicit environment, the *cognitive-tope* mapping system calibrated a higher level of perceptual acquisitions as scalable value registers, highlighting the nature, conditionality and three-dimensionality of the propagating forces within *field* space. The system was mimetically designed for usability to raise the practitioners' spatial acuity. By inventing graphical notations based upon reductionist abstraction, a pictographic short hand or code was created that, when compiled together acted as a meta-form to express the operational logic as a three-dimensional coordinate frame comprising of performative layers. The practice reframed static principles of architectural ordination to include the propagation of *field* values comprising of attention locators, that vectorised the depth, direction and magnitude of perceptual deformation relative to the recorder and external reference cues.

As a means of exploration the thesis has inter-web the spatial practitioner more acutely within the environment, that was extrapolated as an infrastructure of experiential registers, to evolve a series of tools that functioned as an active research instrument, situating the researcher more alertly within the reflexive framework.

## 7.4 Organisational utilities

By developing the form schema directive, the notational potentials for architectural design have been enhanced. My thesis has created new organisational structures that enabled, among other benefits, the development of an inference model. This has shifted architectural practice towards a more salient reflexive practice, based on distributed agent-environmental feedback systems. The perceptual inference model has evolved a phenomenological determined process that was capable of re-engineering *affect-field* propagations to cue self-structuring collective ecologies. The interoperable methodology engineered a fused mutually participatory *affect-field*, to form a hybrid mode of perceptual, cognitive and associative consciousness, thus bending cognitive and associative relationships into an induction-interaction feedback loop, creating a dipole mirage to extend architectural space into a higher dimensional reality.

My thesis has raised perception as an organisation structure for design. The inference model has enabled me to reengineer the nature, rules and conditions of how space is perceived, constituting the idea of intentional niche construction as 'intentional inscription' (Noë, 2004: 28). Case study '3' demonstrated my intent to shift architecture towards a reflexive system, which was influenced by the consciousness of the participants' whose agency was expressed through the event as a collective behaviour, that is, an emergent condition from the synergies of agent-environment interaction, thus recognising the active role of agent-environment coaction as a transient ecology. This integration of experimental and experiential theory into spatial practice reframes architecture as a correlated system of adaptive ecology. My thesis confirms this by finding

channels to interconnect and encompass the domains of perceptual-primed spaces, positioning the occupant within an 'encoded experience' (Pepperell and Punt, 2000: 154), thereby extending the morphological qualities of space and in particular, accentuating the visceral dimension of spatial perception.

To summarise case study '3', I used the organisational potentials of *felt\_space infrastructure*, to compose "Vection\_Builder" as an extreme exemplary demonstration of the inference schema planning model. I used the case study as a methodology to provide me with the performative framework to co-direct an affective, tensional and counter tensioned force field mechanisms, based upon perceptual amplification and exteriorisation. I established the *coefficient of affordance* via the *affect-field* assembly language as an operational logic to extrapolate higher amplitudes of agent, space and time interrelationships. This led me to create amplified somatosensory environments using condensed moments of perceptual disfluencies to create intensified agent-environment coupling, herding the human sensorium to viscerally incite a greater range of spatial-explicit experiences.

## 7.5 Critical reflection on thesis

Most importantly, my thesis considers reflexive architecture as a critical act, putting the perceptual, cognitive and associative response at the centre of the research, through which the architects' role has shifted from the exclusive creator of buildings to the progenitor of causal environments within an ecology of design. Through my research I have identified an integrated model dependent on the theoretical and empirical insights, generated extensively through the contextual case studies, to cite evidence for architecture not to be limited to the designed form or contextually isolated from their environments or historical situation and features, but should be considered as a correlated

system of interaction. My thesis advances the behavioural system of architecture by embedding the transient and dynamic states of circularity and feedback process to form a fluid, complex and collective model of architecture animated through the perceptual experience.

The main node of connection for my research has been the interpretation of *Raumfindung* and the attempt to synthesise a perceptual dialogue between experience and operational strategies through the site-responsive methodology. This was achieved by establishing a hyper vigilant exchange of relations between architecture, context and agent. Through the case studies, I have argued that *Raumfindung* is contingent on hyper vigilant spatial awareness and site-responsive *affect-field* feedback. By linking the relationships between these subsets, I have developed the *felt\_space infrastructure* in order to fully address and unravel the complexities of *Raumfindung*.

## **7.6 Hyper vigilant spatial awareness**

My thesis advances the understanding of hyper vigilant spatial analysis, enhancing the understanding and application of spatio-perceptual information in site analysis at pre-design stages of architecture. My thesis argues for greater environmental cogency and promotes increased awareness of the causal and synergistic relationship of site-responsive stimuli leading to somatosensory amplification of affective site readings, including latent traces and affordance triggers. I argue for these contingencies to be more phenomenologically driven and present the *cognitive-tope* taxonomy matrix, the Zones of Influence diagram, and the *cognitive-tope* mapping system, as architectural applications for enactive sensitisation. By synthesising an operant language that



facilitates these values, the ordination tools elevated the participants' spatial consciousness to a higher level of spatial acuity, pulling the participant into an immersive mode of hyper vigilant attention that oscillated between spatial sensation and episodic information to reveal the visceral dimension.

## **7.7 Visceral space**

My research has interpreted visceral space as an intense correlated moment of agent-environment interaction that triggers the percipient into an extended corporeal space by way of perceptual distortion. I identified the visceral moment as a perceptual variation of an existing space distorted by feedback dissonance. My thesis has played particular attention to how dissonances are approached and even more how they are generated and resolved. Vection-Builder considered the jarring approach to trigger adverse perceptual frictions as codified by the intense and distabilising attentional cues, which I called the sensitisation event to facilitate an intense condition of *Raumfindung*. Through the syntactic analysis I determined the behavioural characteristics of visceral space through exaggerated moments of negotiated interactions, thus revealing a new complex dimension of architectural space.

## **7.8 Site-responsive behaviours**

The site has played a pivotal role that underlies, connects, associates and conditions my thesis. Through the methodology of the case study, I have revealed and analysed the unseen, little known and barely-remembered spaces which have particular relationships with memory and heritage. Through the site-responsive investigations I have identified an extended aesthetic value

in developing the *felt\_space infrastructure*, with which I have articulated their complex, meaningful and memorable presence by means of recording their specific affect-field signatures, deepening the perceptual, contextual and cultural understanding of these semi-forgotten structures.

The structures that I have studied were not aesthetically designed, their overriding purpose was their function and aesthetics was considered misplaced in that context, but through my thesis I have identified how they are aesthetically appealing to an architect. They are devoid of ego and style, and yet they appear timeless and modern, but they are also extreme. The bunker had extreme tightness and density of memory, the airfield with its unique history and massive hangars, and the alienated Bath Vaults that were estranged from its historical context. These structures were designed for extreme use and because of the reaction to these extremes of spaces they were appropriate sites to study. It was the purpose of this thesis to map and study this combination of factors, which has, collectively, enhanced my understanding of mnemonic structures.

## 7.9 Raumfindung

I advocate the *affect-field* theory of *Raumfindung* that declares the theory of *affect-field* coupling that is both differentiated and integrated within the oscillating flows of a mutually reinforced collective behaviour. I have developed the understanding of *Raumfindung* as an *affect-field* space paradigm by advancing the neural-environment cue theory. This theory correlates conscious experience with ecological models as a unitary system expressed through perceptual feedback. My model of *Raumfindung* relates to a systemic organisation in which the affects of feedback both influence and mirror the environment's capacity to store and discharge latent responsive-like potentials.

This interpretation of *Raumfindung* is vested towards a high dimensional space called the visceral dimension, which accounts for the increased amplitude of internally and externally conflated attributes of *felt\_space* marked by the onset of an intense spatial encounter.

## 7.10 Relationality

*Raumfindung* as active in the process of absolute moment pervades two simultaneous domains, the corporeal dimension together with incorporeal extension of space, spawning virtualised and combinational permutations of causal and synergistic relationships between space and interaction. Transposed through phases of immersive moments, *Raumfindung* bridges the divide between humans and architectural space, making explicit the continuity of consciousness through time and space.

*Raumfindung* acknowledges somatosensory amplification as a result of perceptual conflation and or dissociation, triggering shifts of hyper vigilant spatial consciousness that registers the bi-directional exchange of contact between the generation and transmittal of attentional cue. Whereby the environment exerts ecological pressures on the *affect-field* propagation, precipitating in extrasensory perception that gives rise to a collective behaviour comprising of trans-subjective and trans-temporal effects.

*Raumfindung* incorporates duration, dynamics, intensities and mind extending shifts of consciousness, streamed through phases of micro-temporal instants, whereby the hybrid form of consciousness affects the feature-factor relationship between agent and environment, as a cumulative effect, giving rise to the repolarisation of the *affect-field* continuum.

*Raumfindung* recognises the emergence of agent-environment signal transduction giving rise to bi-directional feedback loops, transmitting latent content triggers, effecting the behaviour, causing an exchange, and amplifies the experiential tenebrosos or extreme intensification of response to the environment. Whereby the agent succumbs to, or merges relationally with the sensate processes of experience, thereby becoming a 'referential hostage' (Kroker, 1997: 63) to the ecological system.

*Raumfindung* was therefore considered as a force field, characterised by fluctuation polarities of shifting phases of felt engagement. My research has focused on the *affect-field* feedback as an integrated model of perception and propagation. The analysis of these niche pressures, has attempted to circumnavigate the infinitesimal variables of subjective experience by identifying high fidelity spatial encounters – that is beyond the normal levels of sensory stimulation, to synthesise the *felt\_space infrastructure* that precipitates a shared channel of response, providing validity in the study of the inner and outer realities of space-consciousness. The *felt\_space infrastructure*, then, is mobilised through the amplification and exteriorisation methodology, is a hyper-method of influencing spatial consciousness that enhances our understanding of space-negotiation.

This is the heart of the phenomenal experience, and by correlating spatial consciousness through the *felt\_space infrastructure* the theory assigns these states of causally interacting behaviours to shape a higher dimensional space. The larger the *affect-field*, the richer the conscious experience, and by developing the inference schema planning model, the theory introduces the condition-action rule, which captures the extent of spatial consciousness by quantifying the extent to which a triggered response of interacting elements are both differentiated and integrated when the system enters a feedback state.

## 7.11 Future work

The implications of this research are geared towards developing an enhanced enactive approach to reflexive theories for architects and spatial practitioners. For the author, extending the use of the research and methodology incorporates the continued development of the research group *Estranged Space*, that focuses on extracting perceptual and critical theories from estranged spaces, using multi-disciplinary methodologies and collaborations that crosses the boundaries between architecture, art and science. The scope and ambition of the group reflects my ambition as an architect and researcher to put forward a critical position towards causal environments and mnemonic structures by offering an interdisciplinary framework for architectural design and art practice. In July 2012, I ran a postgraduate international summer school in Germany, together with Perceptionlab. The aim was to develop and demonstrate perceptual theories for analysing redundant buildings to determine effects of negotiation within a correlated system of interaction. Together with the production of papers and exhibitions, it is anticipated that a publication will be produced, documenting the creative practice to develop a design community and share new methodologies.

## 7.12 Potential applications for the research

It is anticipated that spatial practitioners will benefit from these methods, practices and theories that are presented in this thesis in the analysis of site-responsive projects and in phenomenologically driven work. The potential for *felt\_space infrastructure*, supports new salient methodologies of reflexive design that develops a comprehensive understanding of *Raumfindung* as a design practice that renders issues primarily dominated by theoretical discourse as methodological examples of reflexive application. The research

has developed a hyper vigilant awareness of *Raumfindung*, where the methodology has become a tool in which others can interrogate the complex and transforming relationships of generative perception between the agent and the environment.

It is hoped that the *Raumfindung* model presented here, will constitute the roots of an enhanced reflexive practice by synthesising an extended understanding of perceptual structures. My research has addressed the mind-space duality problem and has offered the *felt\_space infrastructure* as an integrated *affect-field* model to communicate a better understanding of our relationship with the environment and presents a more immersive and spatial interdisciplinary framework for the development of adaptive models of collective orders.



# Appendices





# A1\_Field

Arthur Kroker (1993) in his book *SPASM: Virtual Reality, Android Music, and Electric Flesh* describes space as a *field of affects* capable of reconfiguring emotions through the application of vectoring forces:

“Space then as a force field through which we pass; with its vectorizing of outered emotions”.

(Kroker, 1993: 55)

Following Kroker’s ideology, the *felt\_space infrastructure* takes the position of identifying agent-environment interactions that incite high amplitudes of vectored emotions as a *field* condition corralled between ‘intervening variables’ (Butler and McManus, 1998: 5).

The *field* is considered a deep space ‘of potential’ (Massumi, 2002: 75), where critical zones of convergent contingencies are spatially configured within the ‘event-space’ (Massumi, 2002: 75). The *field* is spatially attributed to locate the determinants of *affect* as vector coordinates of counter-force agency. The *field* therefore provides a spatial context for these interrelationships to unfold, identifying the *affects* as ‘actional degrees of intensity’ (Massumi, 2002: 75) within the *field* of a ‘polar continuum’ (Massumi, 2002: 75).

Brian Massumi (1998) in *Hypersurface Architecture* argued for the *field* notion by dissolving the boundaries between agent-environment separation:

“They cease to be separate figures, becoming not entirely localizable zones in a fuzzy continuum. In other words, they cease to be objects, becoming what they always were, in the beginning and in parallel: fluctuations. Visual runs. Experiential transition zones”.

(Massumi, 1998: 16)

Brian Massumi explored the *field* as a reality of experiencing the dimensions of relations, relating the perceptual engagement of the body to the environment as energised absorption within circulating currents. Massumi develops the *field* concept as a mutual transformation theme for the body to dissolve or ‘dephase’ (Massumi, 2002: 120).

Massumi (2002) in the book *Parables for the virtual* described the Australian performer Stelarc as an artist who exploits the interface between the *field* concept and the body, evolving the notion of physiological hybrid to extend his body into space via technology, which is used as a medium of communication in context to the forces of the *field*:

“In dephasing, the body, along with its objects, dissolves into a field of mutual transformation where what in extension are separate phases enter into direct contact. That field is defined less by the already established structure of the objects and organs involved than by the potentializing relay that brings them into dynamic continuity across the intervals that normally separate them,”

(Massumi, 2002: 120)

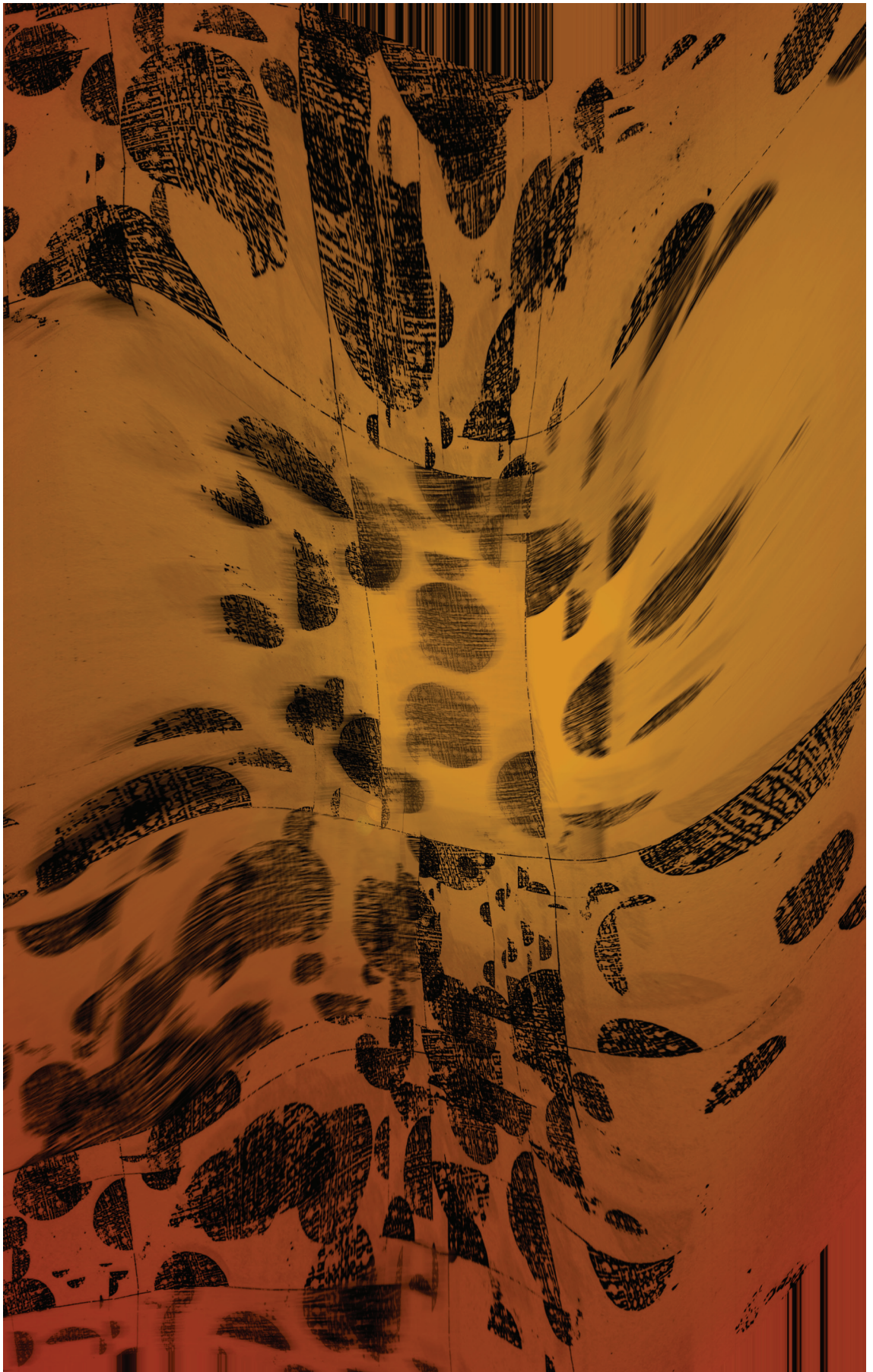


Figure 1-A1. Field # 01

Massumi defined the agent-environment interaction as a territory of relaying communication comprising of 'transformative movements of energy *between* structural segmentations' (Massumi, 2002: 120). Stelarc's body prosthetic experiments extended the notion of body 'beyond the skin into a mutual prosthesis with matter' (Massumi, 2002: 120), whilst exploring the indistinction between the individual and collective body within the domain of the *field* of networked sensation.

The electro-dynamic *field* as explored by Stelarc can be traced through Harold Saxton Burr's (1972) 'fields of life - L-fields for short' (Burr, 1972: 12) and Rupert Sheldrake's 'morphogenetic fields' (1981). These fields propagated energetic and kinetic signals that enveloped the agent-environment interconnectedness, and if attuned to, could be interpreted as a neural-environment *queue*, a term I use to describe the direct and focused action of channelling perceptual feedback between active agent and environmental stimuli.

Anthony Dunne (2005) in *Hertzian tales* explored the idea of the 'extrasensory nature of electromagnetic' (Dunne, 2005: 102) environments as a 'tuneable reality' (Dunne, 2005: 102). Dunne investigated electromagnetic radiation as an invisible force field between the matrix of charge and air. Dunne and Raby termed this electromagnetic *field* concept as *Hertzian Space* shifting the notion of architecture and agent-environment boundaries into the domain of 'radiogenic' (Dunne, 2005: 111), embodying the coaction notion between 'abstract space of electromagnetism and the material cultures of everyday' (Dunne, 2005: 111).

The field-agent interface of *radiogenic* phenomena can be considered as precedence for the agent-environment capacitance *affect*, as Dunne assumes the role of the body as a 'crude monopole aerial' (Dunne, 2005: 111). The *felt\_space infrastructure* amplifies Dunne's 'antenna theory' (Dunne, 2005: 112) by expanding the notion of agent-environment capacitance as an interactive, dipole *field* actively cued to create recursive infrastructural moments within a network of dynamic bonds. This infers a level of hyper vigilant spatial engagement on a collective level, with co-constructed participation being a product of this exchange.

### **Field: mnemonic function**

The *field* typology develops a non-linear, decentralised, interpretative model of shifting networks with reciprocal agent-environment influences. The *field* provides the framework including time, place and perceptual, cognitive and associated modes of relationality. The functional component of the *field* also includes the conveyance of historical inheritance, that in case studies '1' and '2' that deeply resonates as historical trauma within the sites. The notion of memory in the present, assigns a performative value to the *field* that becomes a catalyst for triggering non-linear behaviour.

The *field* attenuates the intervals between events, and allows for the transmission of the 'virtual immediacy' (Saltzman, 2006: 23) of a pervading time to be designated in a space that functions as a mnemonic device. This performative agency functions to encode mutually reinforcing relationships between attention and perceptual registers as a conveying medium for episodic memory that is manifested as an experience of phenomenological feedback. Without representing the subjects who once operated or sheltered within the sites, the *field* manages to transmit something of the past situation,

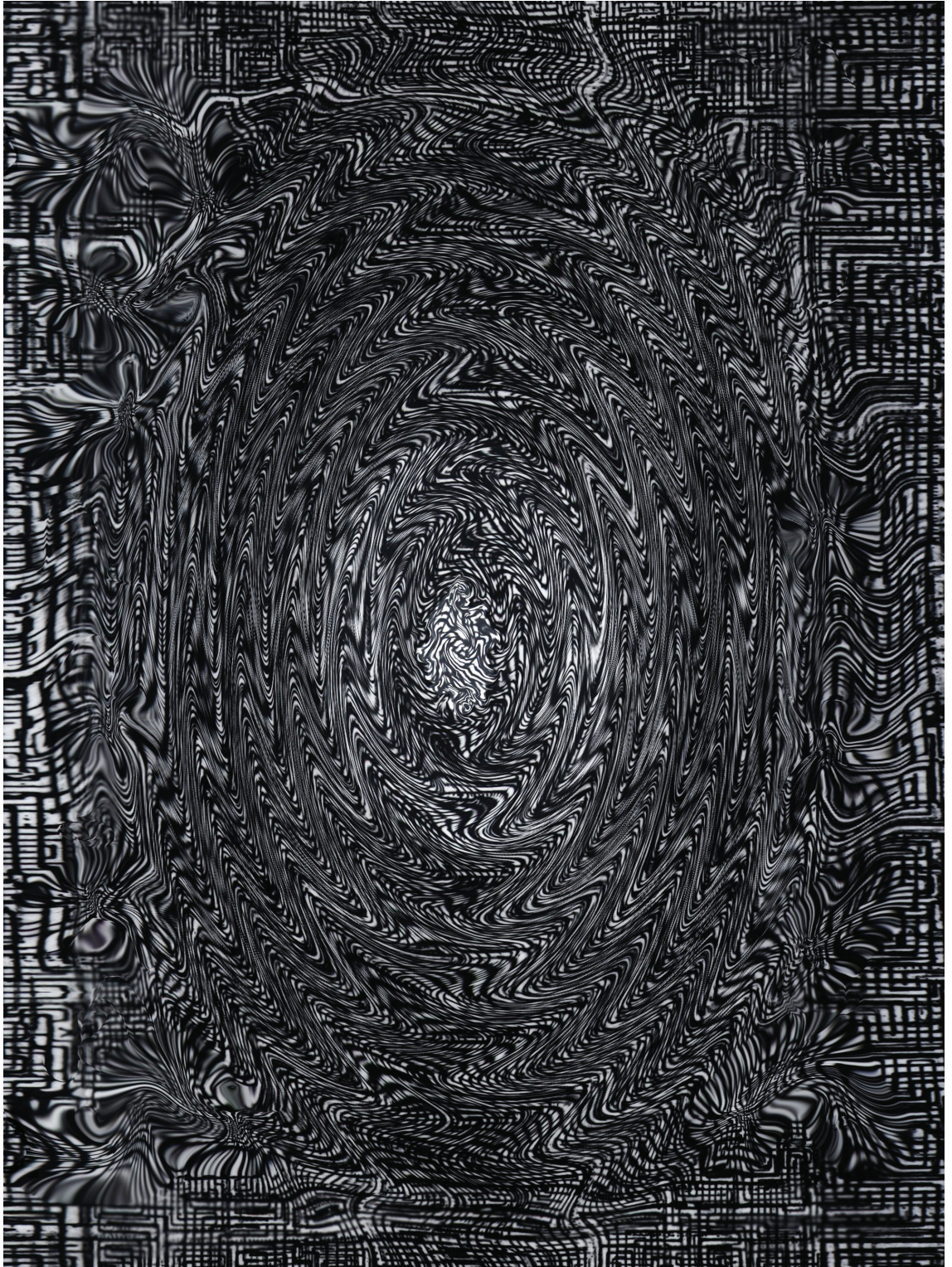
transforming space into a recurring staging of trauma encoded within, and pervades throughout, the dipole currents between past, present and future agent-environment interaction. Moreover, the *field* is active and reflexive, cueing recalled moments that transgresses linear dimensions of spatio-temporal constructs.

## **Field affordances**

The *field* condition in context to the ecological concepts of perceptual theory functions as an operative manner of thinking, or a transactional mode of ontology pursued which was pursued by the psychologist James J. Gibson (1979) whose book *The Ecological Approach to Visual Perception*, originally coined the term 'affordance' as an ecological concept to better understand the psychological and philosophical issues affecting the potentiality latent within the *field* between objects and their environment. Gibson considered the *field* condition as perceived through various levels of mediums (air), substances (water and solids) and surfaces (including their layouts):

“They can all be said to have properties or qualities: color, texture, composition, size, shape and features of shape, mass, elasticity, rigidity, and mobility...But I now suggest that we perceive when we look at objects are their affordances,”

(Gibson, 1979: 134)



**Figure 2-A1.** Field # 02



Gibson describes *affordances* as engagement capacities latent in the milieu, and pursued the phenomenal environment as a *field* cutting across 'the dichotomy of subject-objective' (Gibson, 1979: 129) problem, further, Gibson introduced the notion of agent or actor as *phenomenal ego* and positioned the environment as *phenomenal object* giving rise tensional capacities:

" Note that the "tension", the "relation," or the "vector" must arise in the "field," that is, in the field of phenomenal experiences".

(Gibson, 1979: 138).

Gibson's *field* theory of perceptual psychology, was concerned with the ecological and cognitive systems of perception through the agent's 'direct' (Gibson, 1979:147) interface with the environment, heralding the agent-environment as a collective concept, which I advanced here to include the hybridisation of space consciousness with reflexive practice as open co-dependencies. These adaptive ecologies are situated within the circulating feedback currents of adaptive interaction, that when modified leads to the emergence of visceral space, vividly sensed as the conflation of perception with moments of inertia. These concepts are further exemplified within case study '3'.

Gibson's *affordance* theory served as a useful model to evolve the *field* condition by which I interpret *Raumfindung*, not only because it can be interpreted as an architectural '*field model*' (Rhowbotham, 1999:33), where objects and their 'relational ground' (Rhowbotham, 1999:28), can be assigned as '*event-architecture*' for '*alternative paradigms for architectural space*' (Rhowbotham, 1999:24-25); but also, Gibson introduced the notion of a *field* as a conveying medium, navigating the cognitive dimension expressed through the magnitude of *field* distortion determining a position and direction in space.



**Figure 3-A1.** Field # 03

In *situated cognition* we can also draw parallels between the relative framework of cognitive spatial systems and the *field* condition to help us determine the principle nature of the agent-environment interdependencies.

John O'Keefe and Lynn Nadel (1978), who in their book *The Hippocampus As Cognitive Map* provided two distinct representational models of space linked together through a *field* framework:

“We shall postulate that in most of the brain, space is represented in the relative manner; that is, referenced to the organism and built up through experience. We shall refer to these egocentric spatial systems as taxon systems, and this type of space will be called taxon space. Included within this category are all the sensory and motor systems. In Kantian, or locale, space representation are located within a Euclidean system, yielding a space which does not depend for its existence on particular objects but serves as a framework for relating these objects to each other independent of the observer.”

(O'keefe and Nadel, 1978: 60)

O'Keefe and Nadel's model of space as a system acknowledges the primary components of the *field* condition by means of recognising the notion of a dynamic linking framework between the external '*locale*' model of space constructed among the relationship between objects with the *egocentric* agent or 'taxon system' to use O'keefe and Nadel's terminology. Thereby positioning the *field* condition as a space framework transversed with conveying currents within which our phenomenal agency can extend into, creating multiverse couplings within a three-dimensional construct.

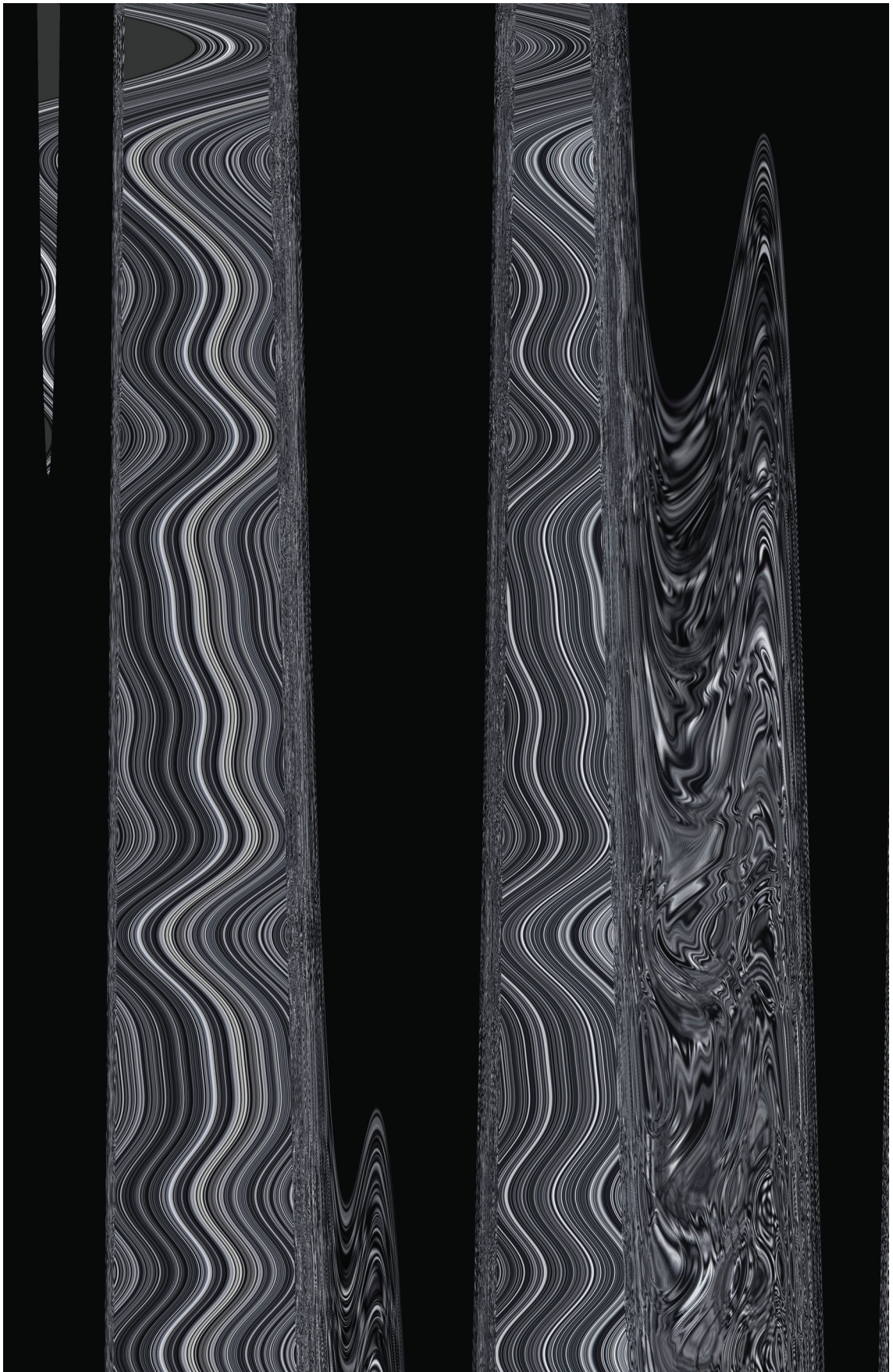


Figure 4-A1. Field # 04

## Summary

This chapter began with Kroker's hypothetical idea of promoting a closer co-evolved relationship between agent and environment, followed by the exploration of space as a dipole tensional force *field* within which affect is vectorised. This notion was explored to seek the origins of reflexive concepts, drawing parallels to the extensive work of Massumi, Stelarc, Dunne, Gibson, O'keefe and Nadel. The *field* condition supports the ecology of mutually influencing, synergistic manifold of agent-environment communications, but also proposes the performative function of the mnemonic interface, populated by local bundles of distorted amplitudes of episodic memories. By tracing the agent-environment interactions as a *field* condition, the case studies explored these concepts as attentional registers within a spatial and durational framework. Case study '1' diagrammatically recorded these values as zones of influences that oscillated between physical and psychological registers, whilst case study '2' mapped these conditions to generate a system of notations that comprised of signature vectors that carried the agency of perceptual feedback with performative amplitudes. Further, I interpreted the behavioural modification attributes of the *field* as an ambient psychoactive *field*, which I used to scaffold the potentiality of the agent-environment collective, to cue multiverse realities.

Finally, the chapter has developed the complexity and spatiality of the *field* condition by interpreting space as an 'infra-assemblage' (Deleuze and Guattari, 1980: 345) of dipole forces with *affect* signatures, helping explain space as a 'phenomenological construct' (Labelle, 2006:91) or hyper vigilant state of 'spatial intelligence' (Schaik, 2008) which I call environmental entrainment. Further, the ordination praxis explored within the case studies, demonstrates these modes of hyper vigilant relationality akin to transactional practice of 'getting in phase' (McTaggart, 2001: 31).

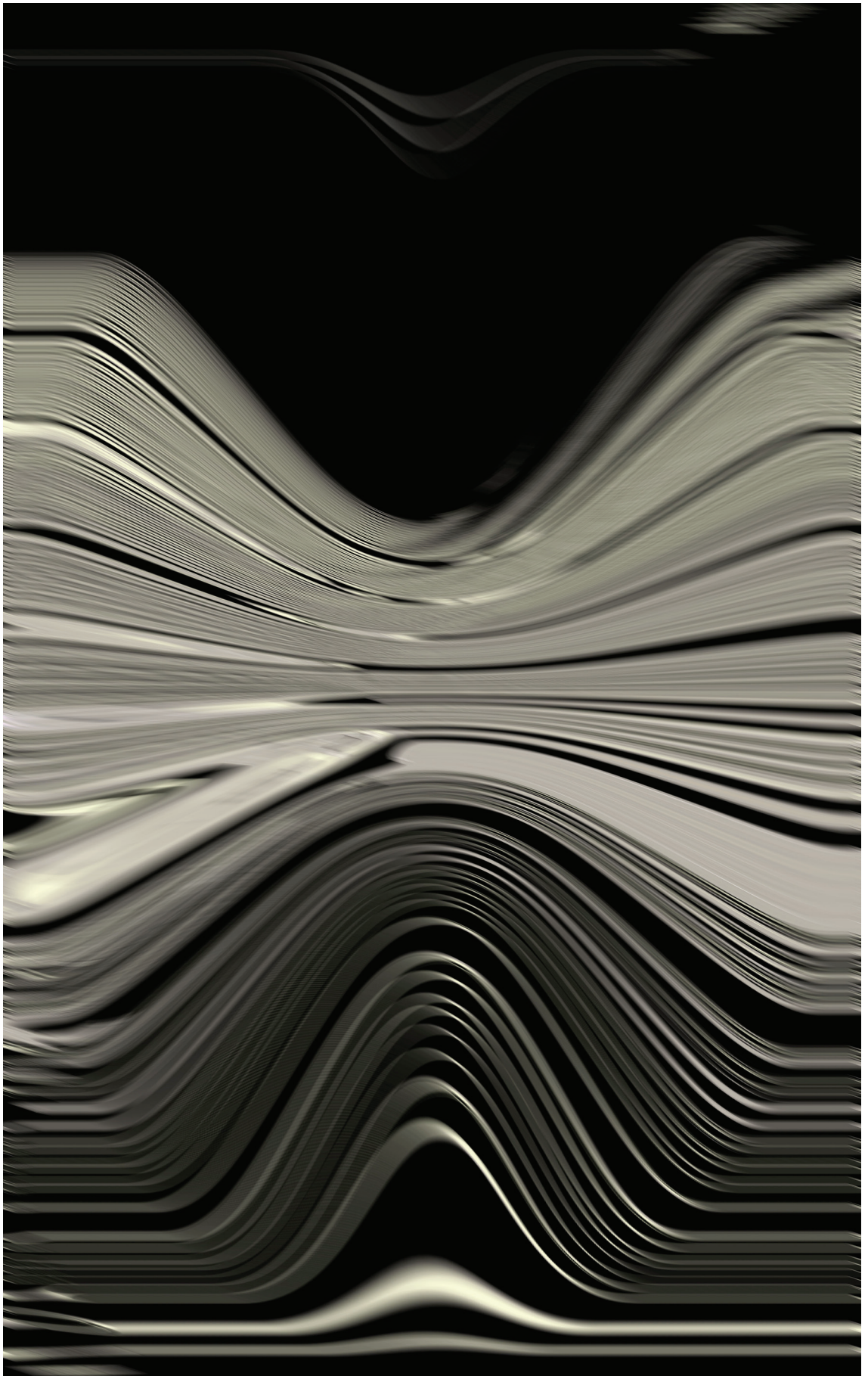


Figure 5-A1. Field # 05

The thesis now looks in detail at the psychophysical *affect* of being immersed within the *field* condition, interpreting compositional meaning from the analysis of the 'coaction field' (Terashima, 2001: 8) as a moment between agent-environment synergistic cueing.

## A2\_Affect

In the context of *Raumfindung*, *affect* refers to the 'evaluation, activity and potency' (Strongman, 1996: 205) of agent-'environmental disturbances' (Powers, 1994: 22). *Affect* is used as a term to valence the experiential differential to identify a "sentir" or 'sense experience' (Merleau-Ponty, 1961: 3) as a magnitude of perceptual phenomenon located on the performative axis. *Affect* is a transient state of input-output relationships valenced positively or negatively by perception in response to 'disturbance-resistance outcomes' (Powers, 1994: 52). The basic system architecture of *affect* is an internally defined as a state resulting from variable external affects.

*Affect* is attuned to the surround-perception of intensity. *Affect* emphasises the epidermal and subdermal dimension of the 'immediately embodied' (Massumi, 2002: 25) value of perception, where perception is considered to direct 'our attention' (Hamlyn, 2004: 81) through the sensuous feedback response within agent-environment interactions, leading to a more heightened awareness of agent-environment contingency. *Affect* denotes a deeper behaviour modification set of internal-external cognitive processes, belonging 'more to the form/content (qualification) level' (Massumi, 2002: 25) of agent-environment 'interloops' (Massumi, 2002: 25).



*Affect* establishes the intensity index value of the performative axis that corresponds to the 'strength and duration' (Massumi, 2002: 24) of spatial registering. Brian Massumi (2002) equates intensity with *affect* as an incident meter to valence 'the expression of the event' (Massumi, 2002: 24), positioning *affect* in the terms of a counter-force illuminating the event incident as a 'crossing of registers' (Stockhausen, 1989: 56). *Affect* is transmitted through 'the surface of the body, at its interface with things' (Massumi, 2002: 25) and continues to pervade the deeper levels of cognitive and associative levels of consciousness that emerges as a perceived incident, or the 'felt reality of relation' (Massumi, 2002: 16).

*Affect* is an explication of the agent's reflexivity in the context of the *field* condition. *Affect* is a 'felt experience' (McCarthy and Wright, 2004: 15) in response to stimuli, it has agency, it has influence and it causes change in the perceptual states of arousal. *Affect* is communicated through the 'intermezzo' (Deleuze and Guattari, 1980: 328) of the *field*, a connecting territory inserted between the agent-environment induction-interaction modulations.

Affective states of aesthetic experience are directly associated to the 'attentive, engrossed, intensely concentrated, and immersed' (McCarthy and Wright, 2004: 16) modes of perception, precipitating the 'breaking down of barriers between self and object' (McCarthy and Wright, 2004: 16).

Explored as a dimension of perceptual intensity, *affect* yields to durational notions of event and transmission. Brian Massumi (2004) described *affect* as a non-conscious experience in his introduction to Deleuze and Guattari's (2004) *A Thousand Plateaus*:

“Affect/affection. Neither word denotes a personal feeling (sentiment in Deleuze and Guattari). L'affet (Spinoza's affectus) is an ability to affect and be affected. It is prepersonal intensity corresponding to the passage from one experiential state of the body to another and implying an augmentation or diminution in that body's capacity to act. L'affection (Spinoza's affection) is each such state considered as an encounter between the affected body and second, affecting, body (with body taken in its broadest possible sense to include “mental” or ideal Bodies).

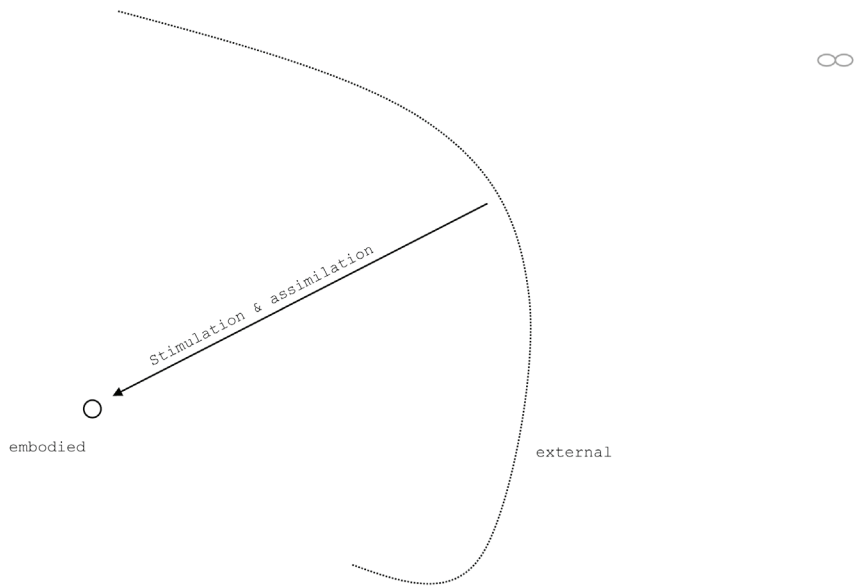
(Massumi, 2004, cited in *Plateaus*, xvii)

Deleuze and Guattari's work implicated *affect* as an ‘annexed milieu’ (Deleuze and Guattari, 1980: 345) to illuminate the ‘self’:

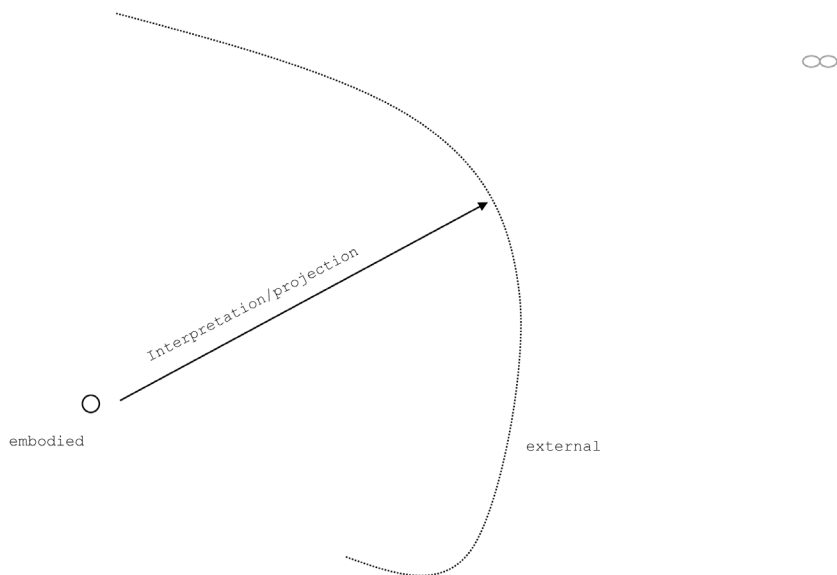
“Thus the living thing has an exterior milieu of materials, and interior milieu of composing elements and composed substances, an intermediary milieu of membranes and limits, and an annexed milieu of energy sources and action-perceptions.”

(Deleuze and Guattari, 1980: 345)

Deleuze and Guattari advanced the counter-force ‘motif-refrain’ theory of recursive couplings, by placing importance on the ‘contrapuntal’ (Ballantyne, 2007: 47) *affect* of agent-environment interaction. Deleuze and Guattari introduced the feature of ‘the Refrain (ritournelle)’ (Deleuze and Guattari, 1980: 344) to describe the constantly shifting ‘signatures’ (Deleuze and Guattari,



**Figure 1-A2.** Ego-centric space: psychological space as a set of cognitive abstractions from reflections on personal experience.



**Figure 2-A2.** Ego-centric projection: in response the ego-loci projects onto the space a psychological orientation.

1980: 349) of emergent encounters territorialised in-between the 'interior forces' (Deleuze and Guattari, 1980: 343) of percepts and the external forces 'in the heart of chaos' (Deleuze and Guattari, 1980: 343). The *refrain* is situated within the temporality and immersiveness of *affect*, and although Deleuze and Guattari related the term to musical phrasing, the *refrain* is also territorial:

"The role of the refrain has often been emphasized: it is territorial, a territorial assemblage."

(Deleuze and Guattari, 1980: 344)

The territorial aspect of the *refrain* is interpreted in this thesis as the situated location of *affect*:

"In effect, expressive qualities or matters of expression enter shifting relations with one another that "express" the relation of the territory they draw to the interior milieu of impulses and exterior milieu of circumstances."

(Deleuze and Guattari, 1980: 349-350)

This theoretical counterpoint system generated the sensation of force as intensity 'made visible' (Daryl Slack, 2005: 157) through the embodiment of perception:

"Whether visual, auditory, taste, proprioceptive and/or mental"

(Daryl Slack, 2005: 157)

The embodied situation of *refrain* is therefore spatially located as the *affect* sensation of the event, territorialised at the interface between agent-environment engagements, which I interpreted in spatial terms as psychophysical membranes passing through each other through the neural-environment *queue*. The spatial context of the *refrain* acts as the point or 'bloc of sensations' (Deleuze, 1994: 164) where interface affects are produced in response to the emergent counter-force of encountering.

The Deleuzian *refrain* was extrapolated from the case studies as the counter-force component, enabling *affect* to be felt as a deformative mode of perceptual attention. The ordination praxis recorded and visualised the mediation of the counter-force as a differential register of *spatio-taxis*, a new term of reflexive architecture I used to describe the persistence of motion that arises from the felt perception of the counter-force recovery from perceptual misalignment. The *affect* of *spatio-taxis* is the illusion of felt momentum relative to environmental influences and is used to valence space as palpable form. *Spatio-taxis* explains the felt resistance of the spatial encounter, as an isolate of the very fabric of visceral space.

The case studies tracked, visualised and demonstrated these *affects* by revealing three modes of feedback transmissions:

1. Dynamics: emphasis was placed on the movement or intonation of psychological forces that underlie the character of perceptual 'attack'.
2. Qualitative: subjective 'observations' of *affect* were distinguished by variable reflective analysis that is the grammar of articulation.
3. Attentional location: the point of articulation, that is, where *affect* is situated in context to agent-environment interaction, this signified the articulated accent of *affect*.

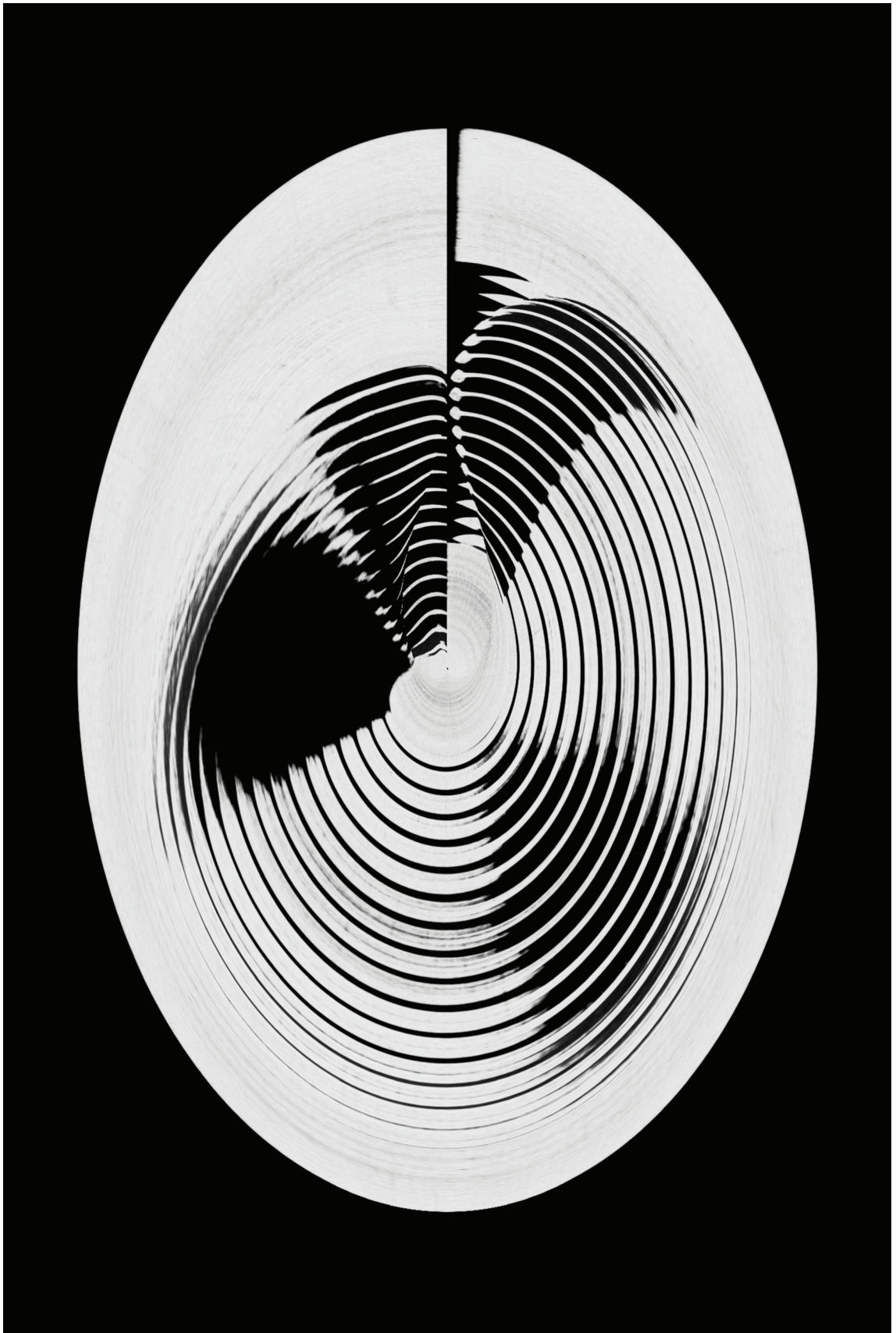


Figure 3-A3. Affect

By interpreting the intensity, direction, proportion syntax and tempo of *affect* through the modes of hyper vigilant reception, a site-responsive signature arised from the counter-force imprint, helping to demonstrate the illusive qualities of visceral space which is a corporeal extended space affected by causal-embedded reality.

This chapter has explored the agency of *affect* through the investigation of *Raumfindung*, not just as an *affect* of encountering geographic physical space; but its affective states on the embodied expression of a counter-force situated amongst the currents of the dipole agent-environment *field*. The case studies render the spatiality of *affect* as a temporal altering and psychological dynamic force, merging from transitions between architectural and the non-measurable 'presence'<sup>1</sup> of *Raumfindung*. *Affect* is force, a contrapuntal energy that drives the agent-environment capacitance condition and as such the work demonstrates the reflexive systemic variables of *affect* as salient moments within reciprocal interaction.

The ordination praxis amplified the nature of the *affect* feedback phenomenon by studying sites that triggered extreme modes of valenced perception. By applying the *felt\_space infrastructure* as a systemic reading and process-orientated analysis of the sites, the praxis frames a methodology to address the problem of space-blindness within spatial practitioners, and offers *affect* as a mode to distinguish the felt presence of an interior psychological dimension mutually informed by the exteriority of architectural space.

---

<sup>1</sup> Pres-ence: the immediate vicinity of something in a particular place.

The next chapter looks at how the site-responsive studies contributed to the research, placing the site as a crucial role to valence the visceral dimension of reflexive space. Importantly the sites were considered as instable and psychoactive, throwing up a 'dissonant architectural response' (Crinson, 2011: 92). The interruptive nature of the sites were thus interpreted as psychoactive environments that effectively influenced the neural-environment *queue*, triggering localised distortions of reality.





# A3\_Affect Field

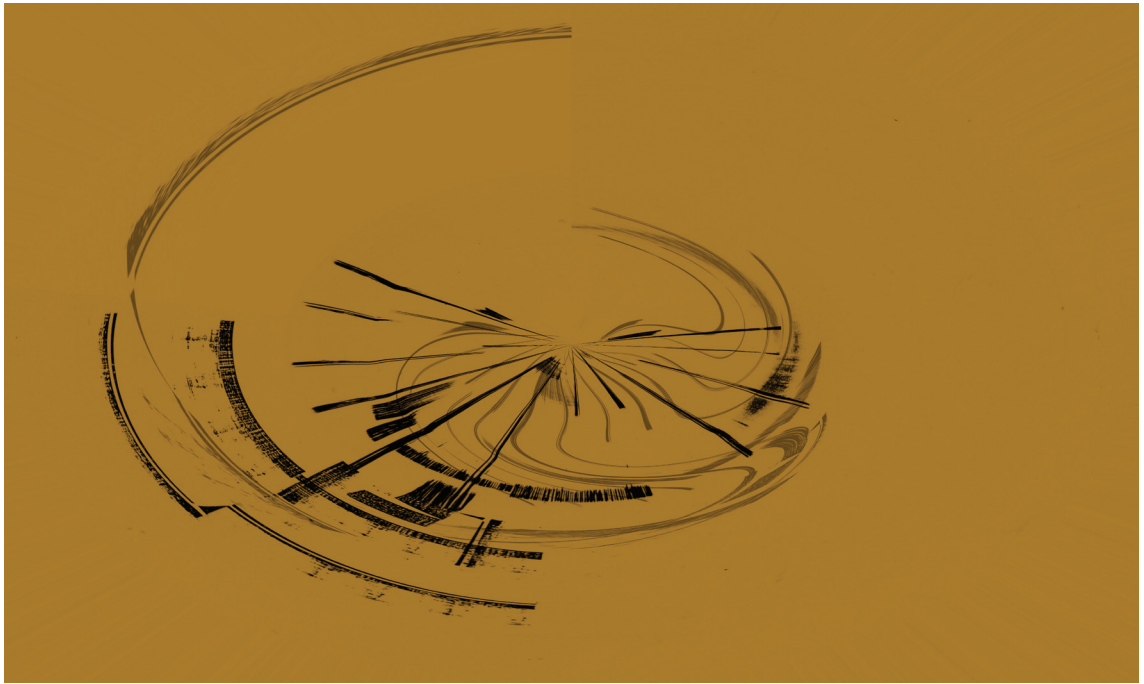
This chapter interprets the architectural setting as a device to study the *Raumfindung* hypothesis by examining the capacity a site can accentuate the transmission of perceptual phenomenon. The chapter studies the participatory role of the site as anticipatory schemata, a heightening apparatus to enhance the induction of *felt\_space* correspondences. The site is studied as a denotation force or *affect* propagator to provide the external 'characteristics of substance and cause' (Poxon and Stivale, 2005: 69). The sites function to develop the *affect-field infrastructure* by providing context to identify the conditions that trigger high amplitudes of situated agent-environment interaction expressed as increasing and decreasing fluctuations of psychophysical registers, where moment forming relates to the 'form being just an instant in a process' (Stockhausen, 1989: 37).

Particular emphasis was placed on mnemonic structures, giving a new form of signification to their typology by recognising their function as external agents that provided a catalyst to valence the perceptual, cognitive and associative dimension of spatiality. This chapter explores the hypothesis that *Raumfindung*

can be expressed through negotiation of mnemonic structures that operate as a form of external referent, triggering both an amplified physical sense of encounter as well as inciting virtual dimensions. Further, the chapter argues for mnemonic structures to be classified as psychoactive *affect-fields*.

The chapter is orientated through the lens of site-responsive situated consciousness and uses philosophical interpretation to advance the associative dimension of space. The chapter interprets the 'psychotropic' (Ballard, 1971: 187) environment as a causal atmosphere comprising of *affect-field* distortions, to provide context to evolve a new reading of mnemonic spaces.

Mnemonic structures are associated with morphological time indexes and psychophysical signatures that trigger 'ideas beyond its formal silhouette' (Watson, 2011: 99). By investigating mnemonic environments as amplified *affect-fields* and hyper vigilant space-psychological realities, the work investigated the felt sensation of the affect-field to valence the aesthetic dimension of reflexive space. These concepts were explored as distorted 'life-space' (Lewin, 1936: 42) domains [abbreviated to L-S domain] or event potentials situated within the agent-environment *field* continuum. These domains displayed morphological properties that attract or repel psychophysical affects within the *field* paradigm. The reflexive dimension was studied as a virtual potential that accumulates and coagulates as internal sensations 'that exist, converge, and fold on to one another' (Daryl Slack, 2005: 159).



**Figure 1-A3.** Affect-field # 01

## Site-responsive negotiation

Maurice Merleau-Ponty defines the processes of phenomenology as:

“A study of the appearance of being to consciousness”

(Merleau-Ponty, 2002: 61)

Merleau-Ponty combines the dual aspect of expression to the experience of consciousness within the complex system of agent-environment feedback, presenting a phenomenological model for the analysis of these influences. Merleau-Ponty highlights the percipient’s active analysis of experience advancing perception as a bridge to frame the interdependencies between experience and expression of agent-environment processes:

“I already live in the experiment being concentrated in my own body, which thus becomes, not a mass of affective sensations, but a body which is needed to perceive a given spectacle. Everything throws back onto the organic relations between subject and space, onto that gearing of subject onto his world which is the origin of space.”

(Merleau-Ponty, 1961: 293).

Merleau-Ponty has written that the 'phenomenal body' (Merleau-Ponty, 1961: 270) finds its place amid the world by engaging the referential knowledge of perception and that the sense of space is encoded in the bodily friction of environmental resistance:

"My body is the fabric into which all objects are woven, and it is, at least in relation to the perceived world, the general instrument of my 'comprehension'".

(Merleau-Ponty, 1961: 273).

Here Merleau-Ponty's term 'in relation' is interpreted as force or *affect* of friction relative to the *field* environment. This captures the dissonant function of friction as a trigger for transforming perception to reveal the associative level as a relationship between modes of force and *affect* leading to the event 'of multiple processes of becoming' (Williams, 2005: 81). The relationship between the body and its environment can therefore be equated to a coefficient, a term used to denote a constant variable giving proportional value to the dynamic interaction between force and matter. Friction expresses the body's opposing exponential force pushing to counter the environmental gravity of *affordance* (Gibson). The coaction between these opposing forces reveals the nature of interconnectedness as a transactional exchange, linking the associative level of spatial understanding to that of a superposition event.

To address the felt resistance of 'objects in the world' (Bachelard, 1942: 159), Gaston Bachelard (1942) in *Water and Dreams* termed the phrase *Coefficient of Adversity* (Bachelard, 1942: 159) to describe the resistance felt when the percipients' 'incisive force' (Bachelard, 1942: 160) engages an object. Bachelard used the term to define the constant variability of resistance between the body and the objects of the world, as a way to articulate the transactional forces entailed in mediating situations.

Jean-Paul Sartre (1943) describes 'the coefficient of adversity' (Sartre, 1943: 348) as the perception of resistance capable of revealing the body through immersive resistance:

"But we must understand that the instrumentality is primary: it is in relation to an original instrumental complex that things reveal their resistance and their adversity."

(Sartre, 1943: 348).

Sartre's positions the *coefficient of adversity* as the foundation for 'sensation and action' (Sartre, 1943: 349), and extends the notion of adversity as an instrument to subjective comprehension:

"The body is not a screen between things and our selves; it manifests only the individuality and the contingency of our original relation to instrumental-things. In this sense we defined the senses and the sense organs in general as our being-in-the-world in so far as we have to be it in the form of being-in-the-midst-of-the-world. Similarly we can define action as our being-in-the-world in so far as we have to be it in the form of being-an-instrument-in-the-midst-of-the-world".

(Sartre, 1943: 349).

Anthony Vidler (1992) extends Sartre's interpretation of the *coefficient of adversity* describing the *affect-field* coaction as a transparent body, requiring the forces of adversity to reveal consciousness:

“Sartre's body participates in a world within which it has to be immersed and to which it has to be subjected even before it recognize itself as a body.”

(Vidler, 1992: 81).

Sartre instrumentalises perceptual friction in terms of *affect* content to formulate an equation between 'in the world' and 'individual event'. This concept of environmental influences was pre-empted by the psychologist Kurt Lewin (1936), where in his book *Principles of Topological Psychology*, Lewin formulates 'the life space' (Lewin, 1936: 11) equation to describe environmental causal interrelationships:

“This relationship can be made clear by the following formulation: If one represents behaviour or any kind of mental event by 'B' and the whole situation including the person by 'S', then 'B' may be treated as a function of 'S':  $B = f(S)$ . In this equation the function 'f', or better its general form, represents what one ordinarily calls a law”.

(Lewin, 1936: 11).

Lewin's 'Life Space' equation anticipated the content and extent of psychological worlds within physical worlds and used a mathematical representation to model the causal interconnections in a dynamical sense.



Sartre like Lewin refocuses the interest of agent-environment interrelationships from 'objects to processes, from states to changes of states' (Lewin, 1936: 11). This active mutability creates the notion of a performative relationship with a 'degree of dynamic dependency' (Lewin, 1936: 168). The *felt\_space infrastructure* opens up Lewin's 'life space' equation to modify, restructure and manipulating the magnitude and dynamical conditionality of the causal interrelationships to explore the extra dimensionality of *affect-field* potentials as the visceral dimension. Further the thesis differentiates a dynamical topology in the case of *felt-space* affect form that approaches the boundary zone between the 'inner-personal' (Lewin, 1936: 172) and outer-personal strata as dynamical sets of *affect-field* tensional systems.

So that the visceral dimension can come into being, the instrumental complexes associated with Bachelard's *coefficient of adversity* were used as a tool to convey the nature and conditionality of the associative displacement, mobilising the counter activity of perceptual friction to externalise and reveal the infrastructural transference of perceptual phenomena. The territory of *Raumfindung* was therefore implicated within the agents' relationship to the adjacent environment, bringing forward the associative domain as 'a new dimension stealing through visible space' (Merleau-Ponty, 1961: 258).



Figure 2-A3. Affect-field # 02

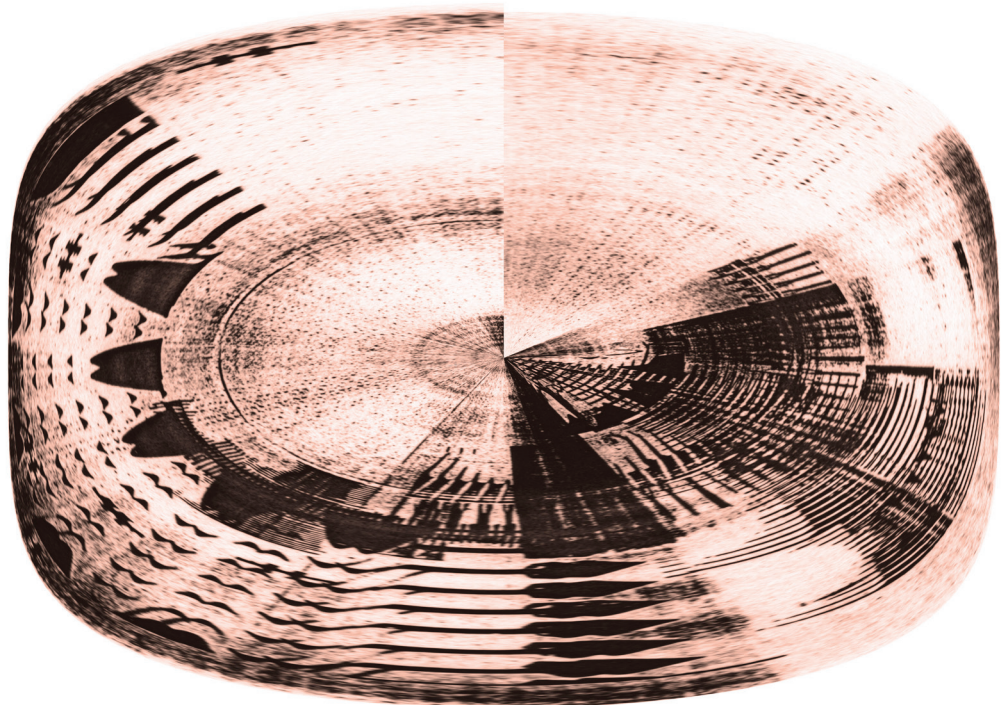


Figure 3-A3. Affect-field # 03

This theory established the theme of friction to progressively disclose the visceral dimension, offering a new method to extend the dimension of architectural space. And in doing so, highlights the morphological role the *affect-field* frictions played to externalise the conditional components. Bachelard acknowledges the role of friction as a qualitative factor used to render referential knowledge:

“From this activist point of view, the four material elements are four types of provocation,”

(Bachelard, 1942: 160)

This concept of ‘situational values’ (Merleau-Ponty, 1966: 379), formulates the nature of association as an *affect-field* visualisation, coming into being among the force field signals between the body and the world. This places instrumental emphasis on the *felt\_space infrastructure* as being an experience of mutable consequences, and renegotiates the space between percipient, environment and context to better understand architectural space and the structuring of spatial consciousness, advancing the perceptual dimension as a medium to reveal the reception and mediation of *Raumfindung* inferences.

This advanced the role of the case studies as instrumental to the idea of the *felt\_space infrastructure* being contingent to physical proximity and referential knowledge of the site. Further, the case studies provided the contextual terrain for locating the transactional framework enabling specific detailed ‘field questions’ (Robert-Holmes, G. 2005) to be addressed, whilst establishing the parameters of the research. This enactive role of the ‘experiencer-observer’ activities, underpins the transactional practice of the thesis, reinforcing the generation of experiential data as a critical method for creative investigation, analysis and reflection.

From the point of view of identifying 'effective spaces' (Foucault, original 1967, 2008: 17) that corral or funnel *Raumfindung* sensations, the thesis considers mnemonic structures as sites of temporal distortion, estranged from the everyday space. The French philosopher Michael Foucault termed these inverted, outside of place spaces as 'heterogeneous spaces' (Foucault, original 1967, 2008: 16). Foucault's essay "Of other spaces" (1967) advances Bachelard's theory of the inner intimate interchange, to that of external 'heterotopias' (Foucault, original 1967, 2008: 17). In particular Foucault's *Heterochrominism*, the fourth form of heterotopia particularly relates to the unsettling sense of *Architectural Uncanny* (Vidler, 1992), whereby the person is confronted with a discontinuity or rupture from the temporal continuum:

"First of all, there are heterotopias of time that accumulates indefinitely, for example the museums, the libraries; museums and libraries are heterotopias in which time never ceases to pile up,"

(Foucault, original 1967, 2008: 20)

Foucault's *heterochrominism* is considered as a dissonant force that intensifies the agent-environment *queue*, by distorting the psychophysical boundaries 'where the differences of level are perpetually and violently mixed' (Deleuze, 2003 original 1981: 32). By interpreting the mnemonic structure as causal atmosphere where the 'event clings to identity' (Williams, 2005: 81) of the mnemonic structure, the thesis uses the Deleuzian "event" concept as an externalisation cue to transcend 'beyond the body' (Deleuze, 2003 original 1981: 32) to extend the rubric of architectural space to include the associative dimension.

James Williams (2005) explored this conflating inside and outside affect in *Gilles Deleuze: Key Concepts*, and linked the event sensation to that of a capacitor *affect* to valence the visceral dimension:

“The event jolts itself and others into greater change and at a higher intensity”

(Williams, 2005: 81)

To amplify the *affect* sensation of the event, Williams’ interpretation of the *jolt* was used as a device to reveal and amplify the visceral *affect* of the perceptual dimension, positioning the body in a series of differential agent-environment feedback frictions that engaged space as a counter dimension of corporeal resistance.

Deleuze (1994) in *Difference and Repetition* developed the notion of *difference* as ‘essentially that of managing difference’ (McMahon, 2005: 45). In order for the *difference* of reality acquisition of corporeal resistance to be felt distinctly, the thesis analyses the impressions of space that corral a ‘omnipotence of thought’ (Freud, 1919: 147) where the relationship between the agent and environment is amplified affording an affective connection to reveal the perceptual dimension. This interstitial zone was explored as a sensitised channel of participatory engagement consisting of visceral, continuous bodily awareness of spatial sensation. The site is considered as a form of apparatus to focus the intentional contact between the perceptual feedback loop and the intensity of event. This practice amplified the spatial sensation of the coaction event, foregrounding the values of depth and potency and duration

of spatial association. Inhabiting this intentional sensitive awareness or hyper vigilant immersion, strategically positioned the site-response as a domain of concentrated entrainment, intentionally managing the situation to pervade an in-the-moment agent-environment hyper vigilance.

The surface between the agent-environment feedback loops and the intensity of the event was considered a visceral *affect*. The visceral *affect* is differentiated as a mode of identity contingent on specifying the 'contrasting attributes' (McMahon, 2005: 45) of the coaction deformation. The thesis negotiates this regime as a form of cleaving aesthetic reality as enactive diagnosis, and by instigating experiences that funnelled the "coefficient of adversity" condition, the thesis intentionally focused the attention towards the perceptual dimension by using sites of provocation to make explicit the felt sensation of spatial negotiation. This methodology therefore actively engineered the full-body immersion, maintaining a performativity of spatial resistance as a device to cue the *affect-field* coaction, which were interpreted as psychometric potentials.

Returning to the role of the site as a causal cue to shift psychometric attention the work of Robert Smithson's *Dialectical* (Smithson, 1996) landscape projects were explored to reveal contextual knowledge. Smithson's *Ruins in Reverse* (1967) project considered the relationship between contemporary

*ruin* and causal *envelopment* in his essay *A Tour of the Monuments of Passaic New Jersey*<sup>1</sup> as an environment of perceptual disorder, a ‘de-architecturing’ (Smithson, 1996: 104) where charged ‘primary of process’ (Smithson, 1996: 103) of forces affecting the perception of time and space:

“Perhaps I had slipped into a lower stage of futurity-did I leave the real future behind in order to advance into a false future? Yes, I did. Reality was behind me at that point in my suburban Odyssey.”

(Smithson, 1996: 72)

Smithson’s work explored the *non-site* as an entropic ruin creating a dialogue between the architecture of the mind and the ‘heterotopic’ (Foucault 1967) condition. For Smithson the “non-site” established the relational modes of spatial negotiation within a displaced or estranged geographical relationship. Tim Edensor’s (2005) book *Industrial Ruins* also discusses the spatialisation of affect of ruins, describing the contemporary ruin as exhibiting magnetic forces exerting an influencing power over the perceiver:

“While ruins always constitute an allegorical embodiment of a past, while they perform a physical remembering of that which has vanished, they also gesture towards the present and the future as temporal frames which can be read as both dystopian and utopian, and they help to conjure up critiques of present arrangements and potential futures.”

(Edensor, 2005: 15)

---

<sup>1</sup> Robert Smithson, *The collective Writings*, University of California Press, 1996, p 68-74

Edensor's *temporal frames* described the affective gravity of the sites presence. This presence was interpreted as a causal atmosphere capable of triggering hyper vigilant loci of immediacy whilst simultaneously influencing the emblematic conception of associative space as another time or experience. This event is without technical mediation, an experience described by Andre Nusselder (2009) in *Interface Fantasy* as a pure force of virtualisation:

“The virtualisation of real time is the condition of remembering, telling stories, imagining, simulation: ways by which we can travel to other worlds”.

(Nusselder, 2009: 40).

Nusselder investigated the attentional experience as a prehensile hook into the associative dimension or alternative reality. This emergent associative reality could also be seen as a 'retro scenario' (Baudrillard, 1994: 43). Jean Baudrillard in *Simulacra and Simulation* linked the idea of an 'invading myth' (Baudrillard, 1994: 43) to a violent history with a resurrecting force:

“it is in proportion to this distress that all content can be evoked pell-mell, that all previous history is resurrected in bulk – a controlling idea no longer selects, only nostalgia endlessly accumulates: war, fascism, the pageantry of the belle époque, or the revolutionary struggles, everything is equivalent and is mixed indiscriminately in the same morose and funereal exaltation,”

(Baudrillard. 1994: 44)



Like Baudrillard, the British sculptor Rachel Whiteread engaged in a similar set of questions in her work that addressed the psychological space in terms of relocating the inner presence of rooms and vessels onto the outside.

Whiteread's sculptures gave shape to the processes of conflation, implicating the viewers' cognition as part of the work's meaning; Whiteread describes this point of reference as:

“the mental position adjacent to that space”.<sup>2</sup>

(Whiteread, 2001)

The notion of exploring perceptual space as a transitional ‘merging of one state into another’ (Schoning, 2005: 10), links to Doreen Massey's (2005) *For Space* concept of *place* being composed of enfolded networks of associations striated through different time zones:

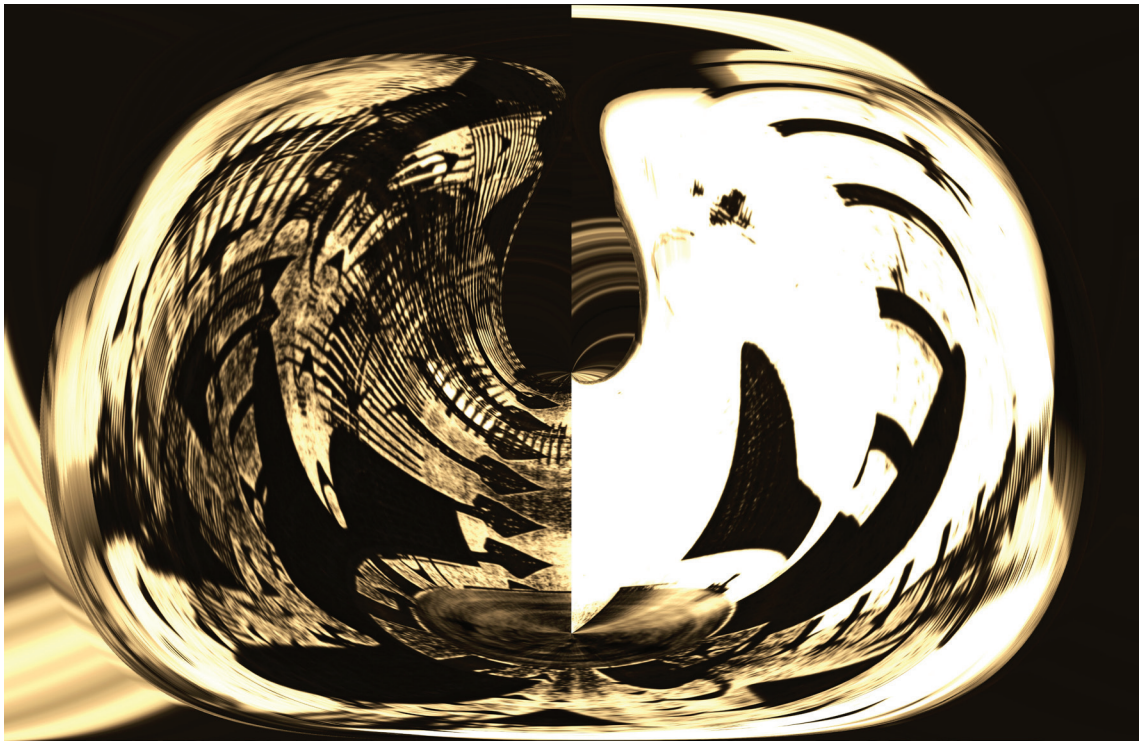
“In place of an imagination of a world bounded by places we are now presented with a world of flows. Instead of isolated identities, an understanding of the spatial as relational through connections.”

(Massey, 2005: 81)

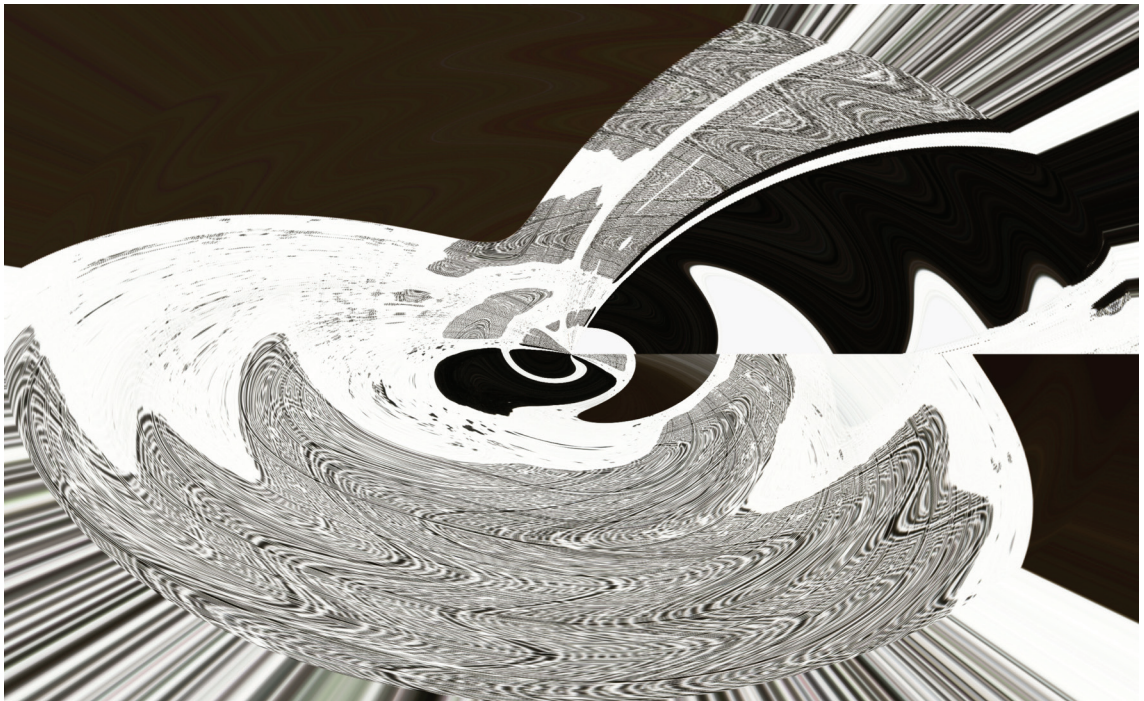
As with Foucault's *heterochrominism*, Massey's notion of ‘time-space’ (Massey, 2005: 177) was explored as an affective resistance, generating temporal dissonance between physical time and perceived time. The thesis links the amplitude of time modification to the signature typology of mnemonic sites through the dimension of the perceptual feedback.

---

<sup>2</sup> Rachel Whiteread in conversation with Lisa Dennison, *A House Is Not a Home: Transient Space*, The Solomon R. Guggenheim Foundation, New York, 2001.



**Figure 4-A3.** Affect-field # 04



**Figure 5-A3.** Affect-field # 05

The sites I chose triggered a scission occurrence, an estranged, separated sense on one side and a Para-biotic fusion, inciting an immersive, visceral ‘of-the-moment’ intensification and curiosity of sensory environment on the other. Perceptual feedback was thus explored as an *affect-field* of interconnections, through which these vectorial dimensions were negotiated:

“Each of these time-space is relational. Each is constructed out of articulation of trajectories...and each time-space, too, is continually shifting in its construction, being renegotiated.”

(Massey, 2005: 179)

By interpreting the mnemonic architectures of Massey and Foucault, together with tracing the philosophical constructs leading to the emergence of the new architectural term: psychoactive field-affects, this chapter has interpreted the felt aesthetic of Lewin’s L-S domains together with Bachelard’s “coefficient of adversity”, Sartre’s perceptual friction and Deleuzian disequilibrium. Further, the chapter has interpreted Vidler’s mode of *architectural uncanny* as a site to volumise the Deluezian state of *difference*, whilst exploring Smithson’s *non-sites*, as a method to negotiate and understand the perceptual dimension. The chapter also situated the role of the body as a sustaining counter-force to drive the feedback loops of Nusselder’s *virtualisation* and Merleau-Ponty’s *affective object*. Finally Foucault, Edensor and Massey’s time apertures were interpreted as spatiotemporal receptacles that incite affective stimuli, creating enhanced understanding mnemonic structures as triggers to incite the perceptual, cognitive and associative dimension of space.

The thesis therefore treats the site-responsive nature of the research as a mode to interpret *philosophical structures* (Hendrix 2003) and mnemonic sites as psychoactive *affect-field* precedence studies, advancing the understanding of perceptual space morphology, placing the performative role of the site to that of induction, a triggering factor to enhance the amplitudes of spatial event sensations.

By exploring the role of the mnemonic structures, this chapter has provided a method for traversing the 'inertial drag' (Kroker, 2004: 118) of time-space relationships, providing a means to study the perceptual dimension and explore how the sites are self-contained and yet invite interaction within their forced emptiness of current experience. The sites displayed a polarity of conditions, that functioned to amplify the agent-environment capacitance *affect*, whilst evoke a strong affective temporal and psychological<sup>3</sup> response, providing texture to the gravity of experience. To summarise the sites were studied as:

- Sensory environments, transmitting a visceral exchange that infiltrates both body and psyche.
- Transmitting intrapersonal communication, triggering interpersonal affects.
- A prevalence to the 'transmission of affect' (Brennan, 2004) generating an *affect-field* dissonance.
- The bi-communication feedback loop mediated through outside forces and internal resonates.
- The affects of conflation and simulation as perceived as a product of signal transduction.

---

<sup>3</sup> Mark Taylor's book "Tears" (p6) describes the work of Anne and Patrick Poirier's work as pertaining to a 'fascination' of ruined towns and buildings leading to a psychology opening via history and event phenomena.

The thesis presents the notion that mnemonic sites infer the abrupt onset of psychophysical stimulus producing multiverse experiences that captures the agents' attention and can influence their reality of perceptual, cognitive and associative dimension. Through the fieldwork site studies, the thesis evokes a sharpened sense of reality acquisition negotiated between the psychological and physical domains and considers how the mnemonic sites can 'evoke a shadow of other' (Edensor, 2005:63).

By amplifying these interface identities, the project anticipates the central participating role of the visceral dimension as an *affect-field* capacitance system. In the next chapter the thesis goes onto explore the Mobius manifold as a visceral event bringing clarity and spatial form in relation to dimensionalising the coaction *affect-field* event. The next chapter explores the Mobius manifold as a *ganzfeld* series of inseparable 'surface of intensities' (Williams, 2005: 85).

# A4\_Mobius Manifold Series

“In perceiving architectural space, one’s own space is not separate but co-exists with what is perceived”

(Morris, 1993: 118)

The Mobius manifold refers to the suggested part-whole series of perceptual, cognitive and associative processes and environmental reciprocity or ‘alternative schemata’ (Ballantyne, 2007: 46), which I interpreted to infer the *Raumfindung* condition being comprised of a series of phenomic feedback events, dependant upon mediating parallel adaptive systems through the ‘interdependent parts of the transactional process’ (Cassidy, 1997: 22).

Previously I have explored the deep space of convergent contingencies attributed to the *field* condition, together with the identification of the epi-subdermal attributes of the perceptual surround dimension, which form together under the modulation and amplification processes of mnemonic drivers or

capacitance systems to reveal the visceral dimension of *Raumfindung*. The theoretical organisation of these tripartite principles, consist of serial ratio-logical arrangements developing feedback interactions with 'dynamic, metrical and tonal forces' (Bandur, 2001: 26).

The light and space artist Douglas Wheeler described his illuminated environments as a 'Mobius manifold' (Wheeler, 1993: 125), a continuity of phenomenal instinct and external referencing creating a boundless series of an 'unending process' (Ascott, 2003: 199) of feedback loops. Wheeler, like Irwin and Turrell focused their attention on the 'Ganzfeld effect' (Bruderlin, 2009: 143), a whole-field concept that explores the physical and psychological space 'torquing' (Butterfield, 1993: 122) across 'interactional episodes' (Steier and Jorgenson, 2003: 126). The Mobius manifold describes 'the flow of the network' (Ascott, 2003: 199) as a cycle of moments with a 'range of degrees composed in terms of different band-widths' (Stockhausen, 1989: 51). Roy Ascott called this process of perceptual motion of feedback becomings "Telematic Art" conceiving the overlapping domains of audience participation and second-order cybernetics:

"In this sense, art itself becomes, not a discrete set of entities, but rather a web or relationships between ideas and images in constant flux, of which no single authorship is attributable, and whose meanings depend on the active participation of whoever enters the network. In a sense, there is one wholeness, the flow of the network in which every idea is part of every other idea, in which every participant reflects every other participant in the whole. This grand reciprocity, this symmetry of sender and receiver, is such that a mirror image is exchanged, in which sender is receiver and receiver sender. The observer of the "artwork" is a participator who, in accessing the system, transforms it"

(Ascott, 2003: 199)



**Figure 1-A4.** Mobius manifold model # 01



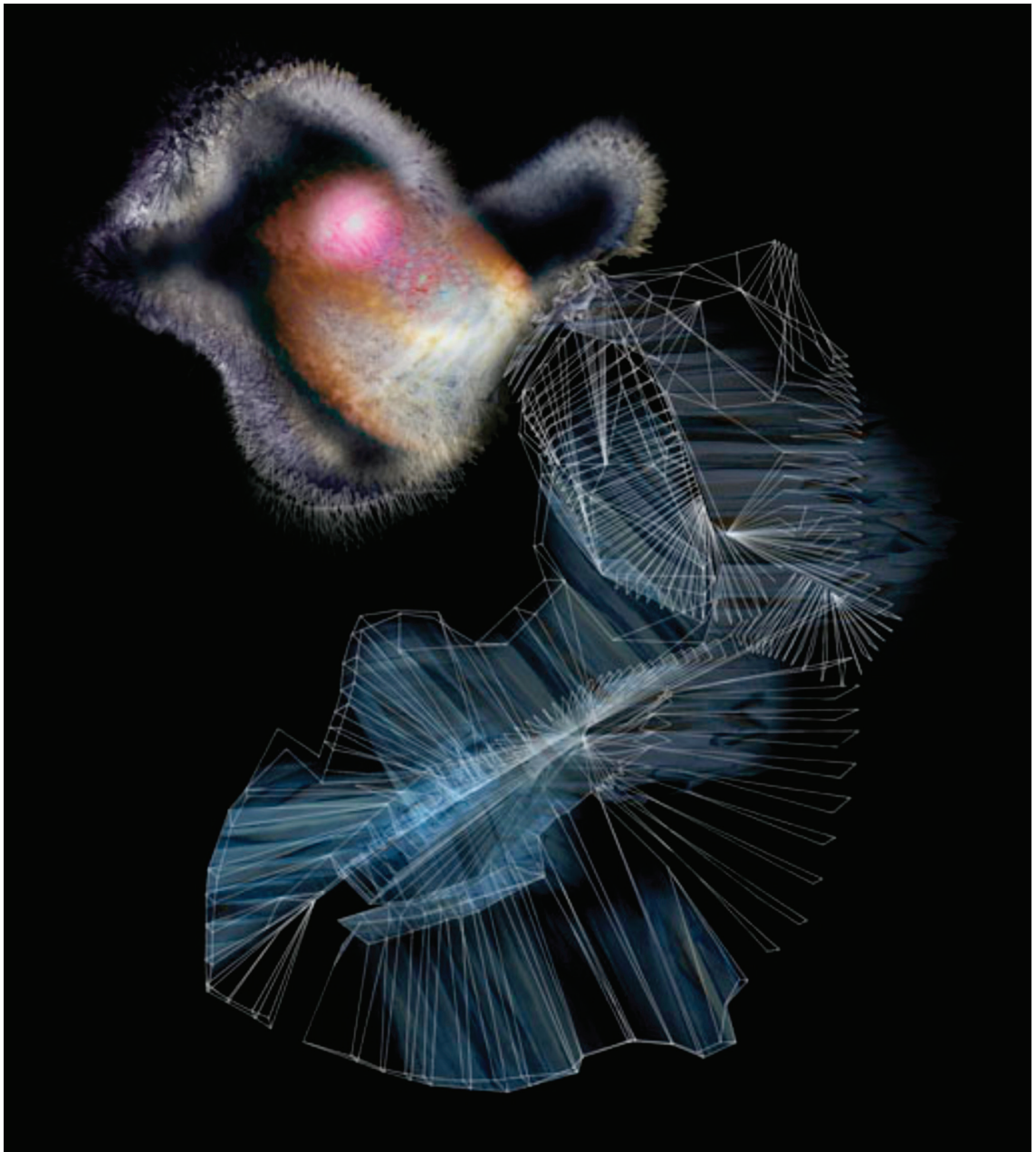
Edward A. Shanken (2009) described Ascott's participatory agents as 'interactive potentials' (Shanken, 2009: 28) who traversed 'charged environments along a variety of possible trajectories' (Shanken, 2009: 28).

Shanken's *charged environment* theory reintroduced the *Raumfindung* concept of the capacitance dipole affect-field. By emphasising the 'implicitly interactive' (Shanken, 2009: 27) role of the agent in participation, Shanken situated the agent as an active contributor or *participator* to use Ascott's terms, within the *ganzfeld* experience. The Mobius manifold spatialises this oscillating force as a niche pressure, amplifying the perceptual, cognitive and associative feedback system as a multi-dimensional spatial formula. The Mobius manifold therefore can be considered as a concentrated mode of proprioceptive-kinosphere-environment feedback loop.

This concentration of 'mode of values and intensities' (Stockhausen, 1989: 34) are brought together in the Mobius manifold as a series of 'denotation, manifestation and signification' (Poxon and Stivale, 2005: 70) dynamics. Pascal Schoning (2006) in *Manifesto for a cinematic architecture* described this schema of spatiality as the register of all:

"mental, sensual and physical faculties that are engaged in a particular space at a particular time".

(Schoning, 2006: 25)



**Figure 2-A4.** Mobius manifold model # 02

Schoning's model of 'indefinite space' (Schoning, 2006: 25), virtualises the serial experience of space as a typology of 'immersion, interaction, and information intensity' (Horrocks, 2000: 34). Here we can see Christopher Horrocks' interpretation of Marshall McLuhan's *virtuality*, described as a media *field* of sensory and psychological events situated within an active process of environmental negotiation:

"Environments are not passive wrappings, but are, rather, active processes which are invisible. The ground rules, pervasive structure, and over-all patterns of environments elude easy perception".

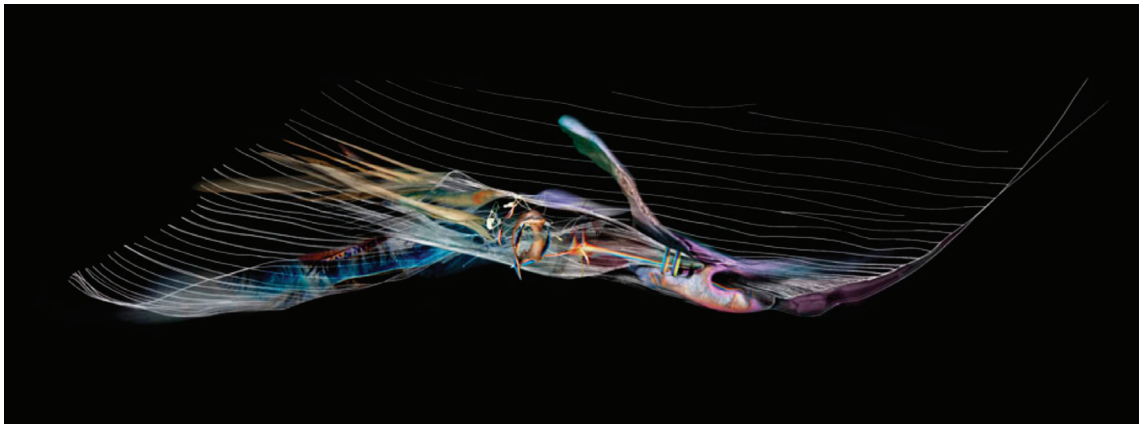
(McLuhan, 1967: 68)

McLuhan alludes here to a serialism idea of an underlying system theory that functions to virtualise the experiential fabric of agent-environment interactions. Like McLuhan, Massumi also identified the nature of morphic resonance as an attributing characteristic of the Mobius manifold:

"The organization of multiple levels that have different logics and temporal organizations, but are locked in resonance with each other and recapitulate the same event in divergent ways,"

(Massumi, 2002: 33)

Massumi's term *event* emphasis the durational quality, this notion links to the nature of serialism which is a musical concept of forming moments by aiming 'to avoid repetition on every level of construction' (Bandur, 2001: 9).



**Figure 3-A4.** Mobius manifold model # 03

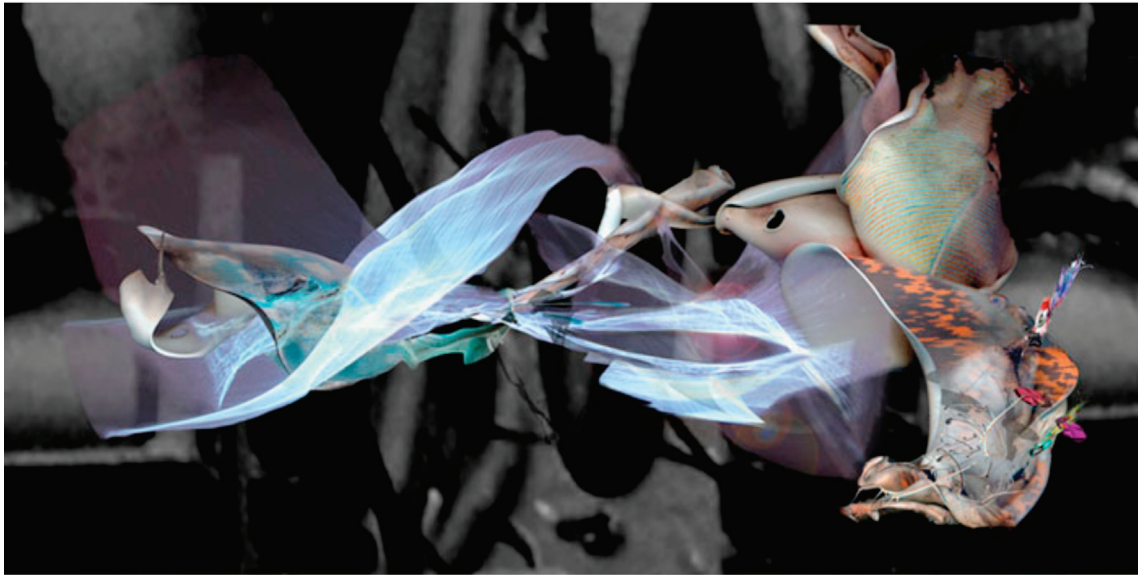
The term *serial music* was coined by the French musician and theorist Rene Leibowitz, who described Arnold Schonberg's work as 'technique serielle' (Bandur, 2001: 9). Schonberg as well as Pierre Boulez, Olivier Messiaen and Karlheinz Stockhausen all extensively explored the music territory of 'dissonance, density, difficulty, complexity' (Ross, 2007: 355) as modes for evolving a new technique in terms of attacking the 'complicity in regressive tendencies' (Ross, 2007: 355). In spatial terms Stockhausen (1928-2007) experimented most with serialism and space events:

"...and at the same time the sound would move, so I could switch every microphone off, a singer, or an instrumentalist through my mixing counsel onto any ten loud speakers and then I could make a musician, singer or instrumentalist fly through space"

(Stockhausen, 2000: Music Machine BBC Radio 3)

Serialism and architecture was explored by Le Corbusier (1887-1965), whose *Modular system* was used as a tool to scale 'series of proportional measures' (Stockhausen, 1989: 37). Further, the Philips-Pavilion (1958) by Iannis Xenakis referred to serial principles of composition and more recently Bernard Tschumi, Daniel Libeskind and Peter Eisenham have all interpreted the serialism theory in the 'avoidance of symmetry and repetition' (Bandur, 2001: 89); whilst today parametric technologies evolve the systems theory approach to generating complex organisations of geometric principles.

The felt\_space Mobius manifold however, further extends the domain of serial architecture by creating analogies to operate on the performativity of encounter, opening up a different epistemological understanding of space, a space conceptually charged by means of perceptual, cognitive and associative operating mechanisms. The Mobius manifold is considered as



**Figure 4-A4.** Mobius manifold model # 04

an ‘phenomenological composite’ (Labelle, 2006), by progressing a closer synergistic methodology to extend body-space interface and considers space as a conveying medium for the ‘attenuation and modulation’ (Labelle, 2006) of operative layers polarised through the elastic system of affect-field communication, defined here as an assembly language comprising of *field*, *affect*, coaction, and moment series. Case study ‘3’ explored this as an inference schema planning model and generated an assembly language so as to organise the performative elements of *Vection-Builder*.

The Mobius manifold is a multidimensional theory implicit on the multi dimensional sense event of participative interaction, made up of forming moments of mind space and physical space, the Mobius manifold expresses the relating framework as a moment of modality of performative affect-field series that express:

“an intense compound that vibrates and expands, that has no meaning, but makes us whirl about until we harness the maximum of possible forces in every direction, each of which receives a new meaning by entering into relation with others.’

(Deleuze, ECC 1997: 134)

The Mobius manifold serves as a ‘multi serial’ (Poxon and Stivale, 2005: 70) schema for understanding the interdependencies between the perceptual, cognitive and associative dimension of space, valenced through a hyper vigilant understanding of the relational engagement of space. Further, these concepts are explored as a multi layered dynamic spatial composition system,

interpreting Stockhausen's 'super formula' (Bandur, 2001: 50) to compose spatial events that expands the fabric of affect-field organisations so as to amplify, externalise and extend the understanding of architectural space in relation to Andy Clark's (2010) "cognitive extension" theory:

'Whereas BRAINBOUND locates all our mental machinery firmly in the head and central nervous system, EXTENDED allows at least some aspects of the human cognition to be realized by the ongoing work of the body and/or the extraoranganismic environment. The physical mechanisms of the mind, if this is correct, are not all the head.'

(Clark, 2010: 82)

The Mobius manifold therefore provides a systemic apparatus to investigate the 'extended space' (Clark & Chalmers, 1998) of the perceptual, cognitive and associative dimension. The Mobius manifold generates the operational logic for exteriorising the embodied space adjacent to the territorialised serial moments of reality acquisition.

To conclude this chapter, the investigation aimed to open up a new range of spatiality by driving the 'transmission of affect' (Brennan, 2004) of the Mobius manifold concept to begin to materialise the space of the mind, where each causal series of felt\_space affect-field deformations, applied an environmental modifying pressure to the niche or spatial explicit environment. This 'circular causal net' (Harries-Jones, 1995: 125) or 'structure-Other' (Deleuze, 1990: 348) to use a Deluezian term denotes the Mobius manifold as a cogent affect-field meta-form, contingent on the 'stimulus-response mechanism of the reflex arc' (Harries-Jones, 1995: 125).



The next chapter develops the visceral qualities of the Mobius manifold by interpreting the meta-dimensional philosophies of Gaston Bachelard and Gilles Deleuze in context to exploring the 'tastraum' (touch-room).

# A5\_Mobius Manifold Visceral Sub-sist

Visceral behaviour can be described as an experience that has to be lived through to be comprehensible. I have interpreted the principles of visceral experience as intense dynamic forces of resistance felt between corporeal and incorporeal adversity. Material elements act as initiators, which can be felt distinctly as a frictional upsurge, stimulating an impression of phenomenological resonance.

In this chapter the Mobius manifold will be explored as visceral meta-form, forming through moments of coaction between consciousness and the niche environment. The research interprets phenomenological writings to sequester dimensional attributes, beginning with Bachelard's *topoanalysis*.

The phenomenologist Gaston Bachelard (1958) recounts phenomenological resonance as 'the flare-up of being in the imagination' (Bachelard, original 1958, translated 1964: xviii). In his book *The Poetics of Space*, Bachelard used an approach called 'topoanalysis' (Bachelard, 158 (1964): 8):

“the systematic psychological study of the sites of our intimate lives”.

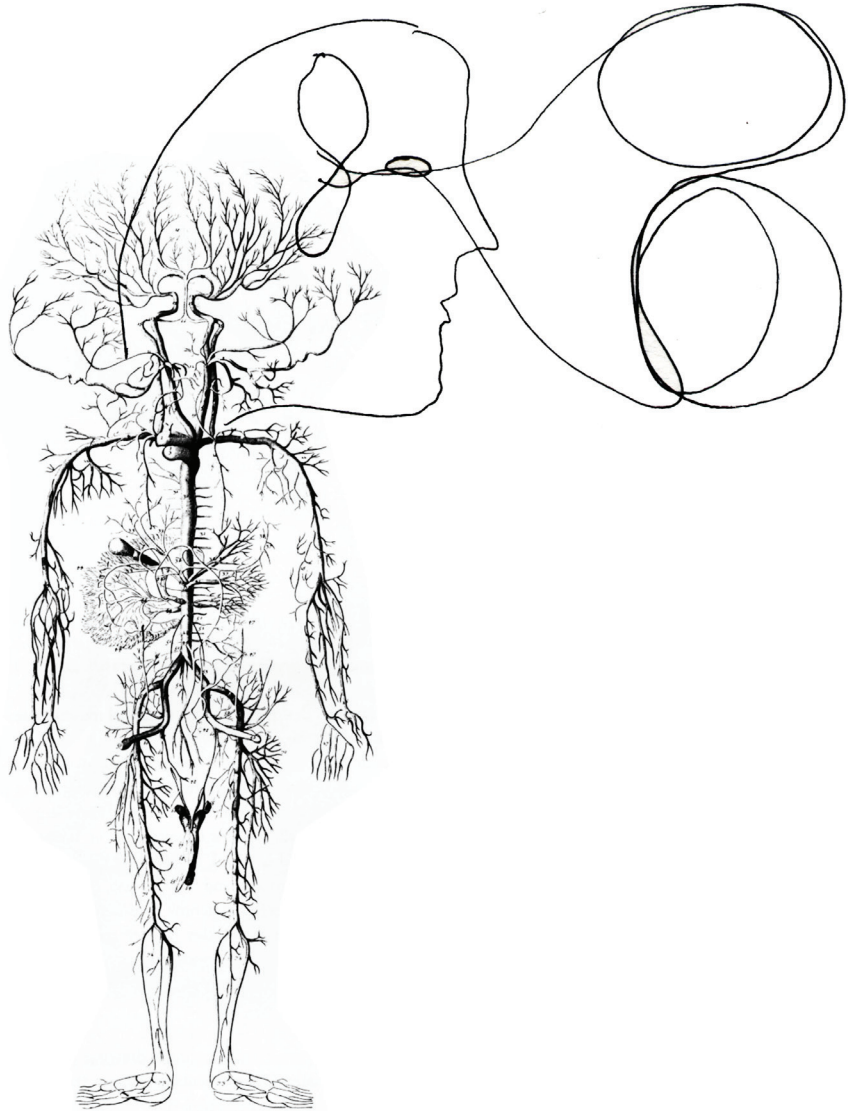
(Bachelard, original 1958, translated 1964: 8).

Bachelard considered the phenomenological implications of inhabitation, recognising a spatial reciprocity between the internal dimension and a lived external connectedness. This reciprocity was interpreted as the resonant signature of the Mobius manifold series. Bachelard questioned how space accommodated consciousness, referring to the meta-dimensional attributes of 'anthropo-cosmology' (Bachelard, 1964, original French 1957: 47) that surpass a geometrical stasis:

“A house that has been experienced is not an inert box. Inhabited space transcends geometrical space.”

(Bachelard, 1964, original French 1957: 47)

Recognising the need to expand this meta-dimensional conception of immersive reciprocity, Bachelard described the agent-environment interconnection as a force field consisting of energies and 'counter-energy' (Bachelard, 1964, original French 1957: 47), and when these inner energies and outer energies collide, Bachelard used the term 'flare-up' (Bachelard, original 1958, translated 1964: xix) to describe emergent coaction of an poetic image 'apprehended in his actuality' (Bachelard, original 1958, translated 1964: xviii). This *affect* introduced the notion of an efflorescent reaction between two elements, bringing to the surface a visceral precipitation from deep within.



**Figure 1-A5.** Visceral actuality

This precipitation *affect* I have attributed to the visceral experience, whereby an immersive, spatiotemporal latency is revealed and brought to the surface and ‘begin to bloom’. I interpret Bachelard’s ‘flare’ as a visceral affect resonating between the interface of consciousness and the external object:

“At the level of the poetic image, the duality of subject and object is iridescent, shimmering, unceasingly active in its inversions.”

(Bachelard, original 1958, translated 1964: xix)

As Bachelard accounts, the visceral *affect* is transient and mediated through the agency and conditionality of experience that simultaneously invoked an emotional sanction to reality comprising of two aspects, namely a series of attractions together with active resistance or counter-force. This double pathological concept of conflicting cognitions drives a state of dissonance, interpreted as a tension between two forces. The combinational *affect* of these two opposing forces accounts for the emergence or solvation of efflorescence. The felt\_space infrastructure interprets this notion of dissonance as the furnishing of the visceral dimension.

The efflorescent *affect* of cognitive dissonance can also be seen in Deleuze’s (1990) description of Daniel Defoe’s *Robinson Crusoe* (1719). Deleuze describes Robison’s mental disturbance as ‘the effects of the presence Other’ (Deleuze, 1990: 349). In order to differentiate the psychological state, Deleuze described the virtuality of encounter as a disturbance of visceral revelation:

“Consciousness has become not only a phosphorescence internal to things but a fire in their heads, a light over each one,”

(Deleuze, 1990: 351)

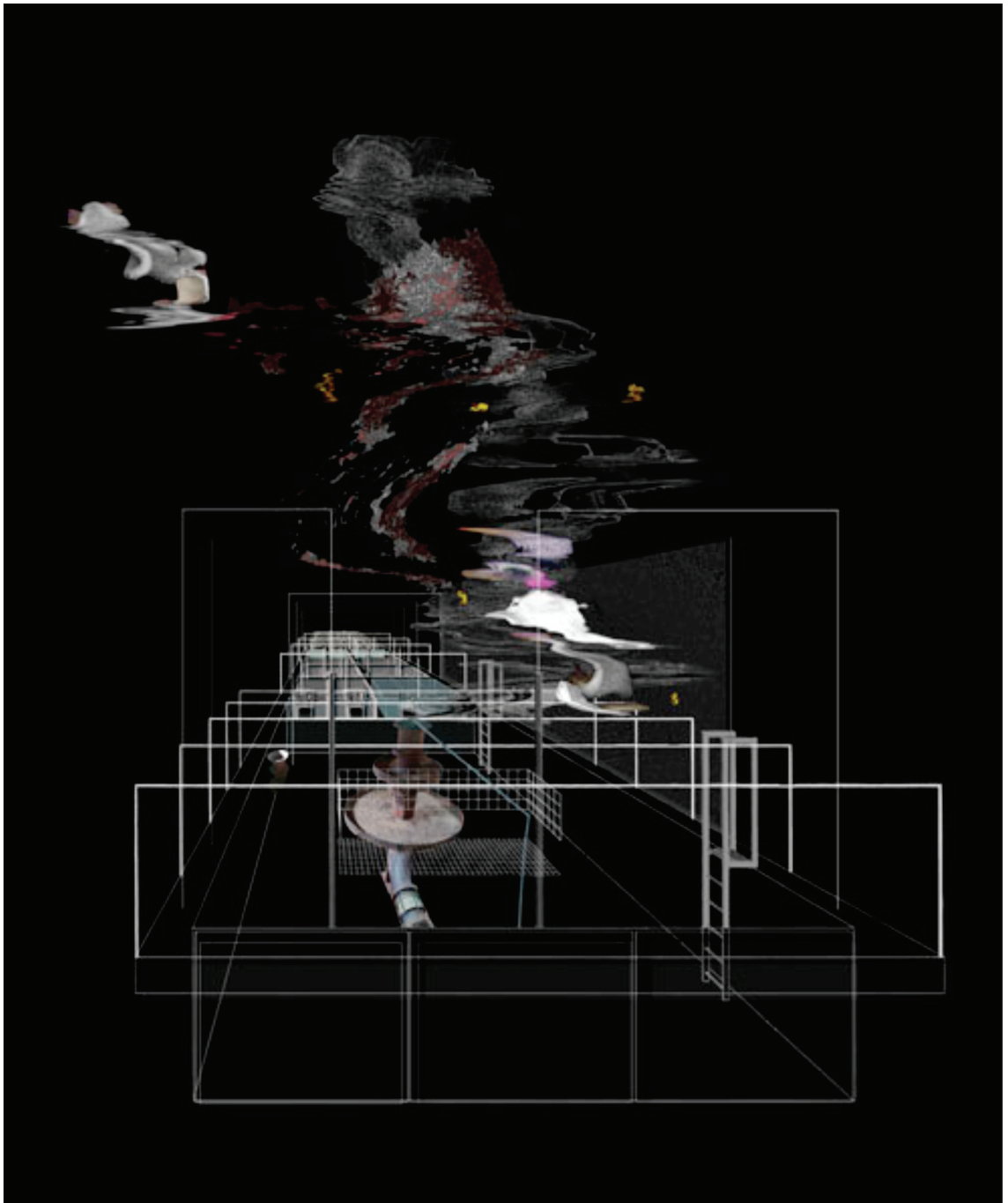


Figure 2-A5. Visceral space # 01

This fluorescent dimension can be interpreted as a qualitative *affect* of dissonance leading to the visceral dimension. This psychophysiological structure of space has also been described by John Hendrix (2003) as 'luminous and incandescent' (Hendrix, 2003: 190) in his book *Architectural forms and Philosophical structure*. Where Hendrix describes the precipitant space between corporeal and incorporeal dissonance, as activating a metaphysical dimension:

“Such a structure allows for a translation between the physical world and the unconscious in architectural construction, or the construction of an environment, corresponding to the natural environment while enacting characteristics of the unconscious.”

(Hendrix, 2003: 191)

In Hendrix's description of psychophysiological space, perceptual and cognitive construction plays a simultaneous series of abstractions and projections, a space 'duly dynamized by provocation' (Bachelard, 1942: 161).

The *felt\_space infrastructure* therefore uses the Mobius manifold as a model to structure the visceral precipitation of *affect* between the body, mind and environment. The Mobius manifold consists of a series of frictional assemblages between perceptual feedback loops, refracting meaning from the contextual continuum. By considering the Mobius manifold as a visceral interpretation of the *felt\_space infrastructure* the research provides a diagrammatic visualisation of the 'tastraum' (Hendrix, 2003: 175), translated as *touch-room*, where a co-occurrence of perceptual *affect* and 'psychophysiological' (Hendrix, 2003: 175-191) modality operate, positioning the Mobius manifold as a performative example to demonstrate how the *felt\_space infrastructure* functions to interpret complicated experiential feedback situations.

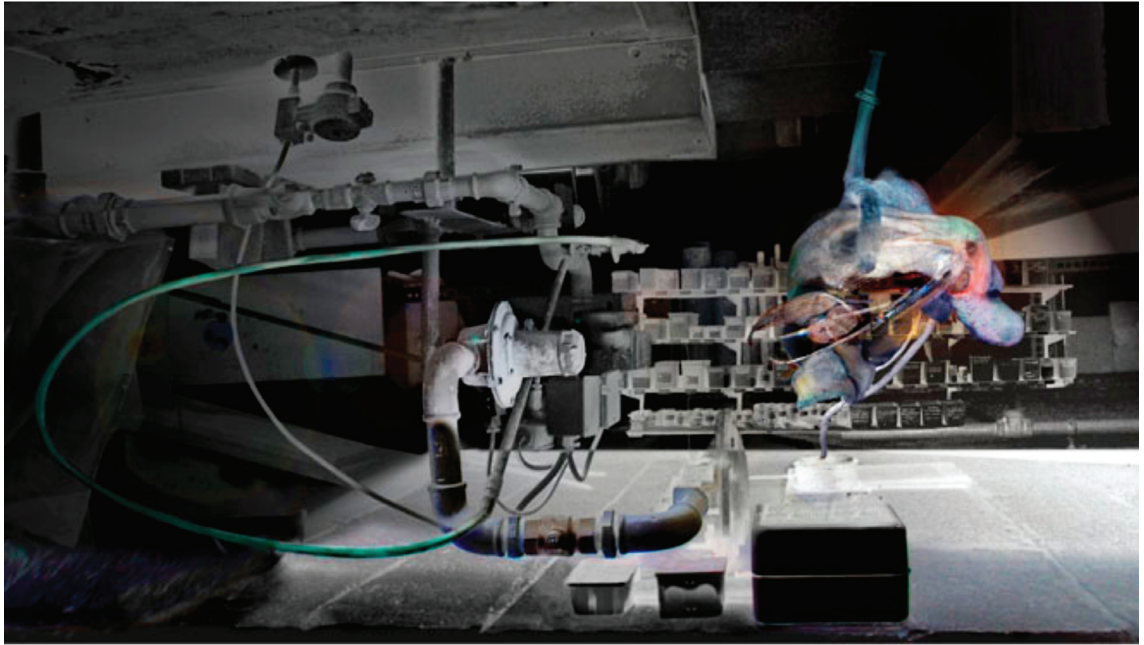


Figure 3-A5. Visceral space # 02



Visceral *affect* as architecture maintains a series of extreme transactional reflexes, or participatory encounters with adverse conditionality, creating a latent countenance from the felt dimension of distributed multi-modal affects. The Mobius manifold models this reflexive model as a high-dimensioned feedback loop with highly charged coaction between the affect-field axis. When affect-field forces change abruptly a critical state occurs precipitating a visceral deformation of the Mobius manifold, felt as intense psychological resonance, which in turn becomes a re-entrant into the agent-niche feedback loop. This amplifies the Mobius manifold as an extra dimension of architectural space. The felt-space infrastructure operationalises this extended dimension through the enactive agency of externalisation to reveal, volumise and catalogue the visceral precipitations between perception, consciousness and environmental affordance.

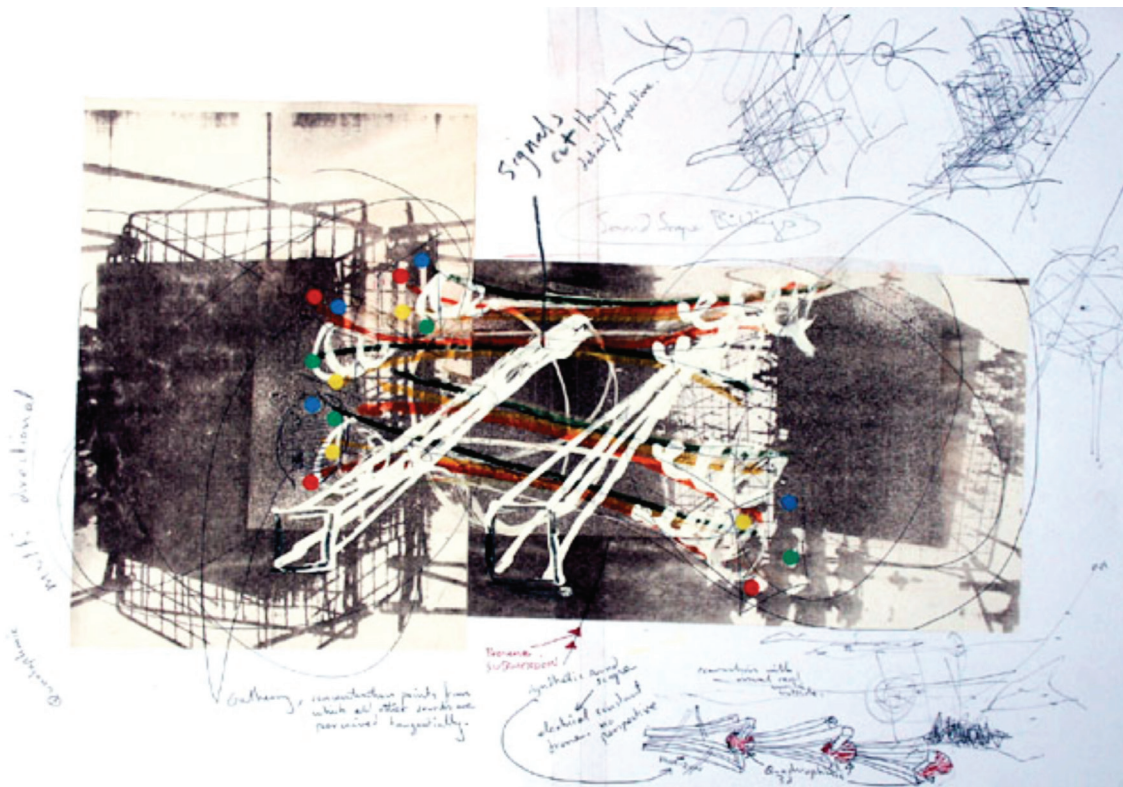


Figure 4-A5. Visceral space # 03

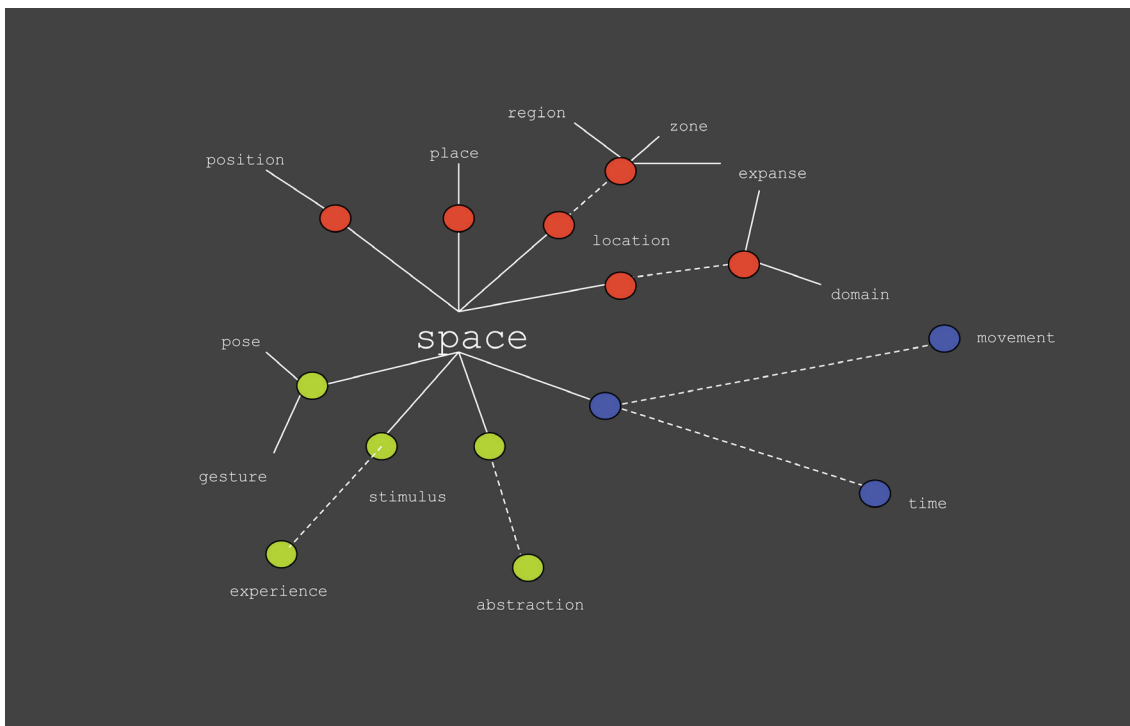
## Summary

These chapters have raised the threshold of spatial sensitivity by deepening the theoretical and philosophical understanding of the inner workings of spatiotemporal agent-environment cue. The thesis has introduced, explored, interpreted and expanded the themes of *Raumfindung* to modulate a greater acuity for the perceptual, cognitive and associative dimension of spatial experience. I have identified opportunities to create new links between environmental psychology, phenomenological theories, philosophical structures and creative practice to evolve the spatial understanding and knowledge base of *affect* and *field*, contingent on agent-environment interconnections. The thesis has also attributed to the extension of architectural practice and dimensionality, by interpreting situated cognition, psychophysical interactants and serial formations as enhanced properties of spatiality. These findings encourage an alternative root hypothesis to reframe architectural praxis to include induction-interaction platforms of design.

# A6\_Visual Catalogue



**Figure 1-A6.** Raumfindung concept sketch



**Figure 2-A6.** Felt\_space relative theory, space as a set of stimulus-response-stimulus relationships amongst affect-field inputs



**Figure 3-A6.** Overlaid Realities, Cabinet 2011. The installation blurs the defined boundaries between museum exhibit and visitors by integrating the observer within the system being observed and creating participatory architectural experience.



**Figure 4-A6.** Overlaid Realities, Cabinet 2011.

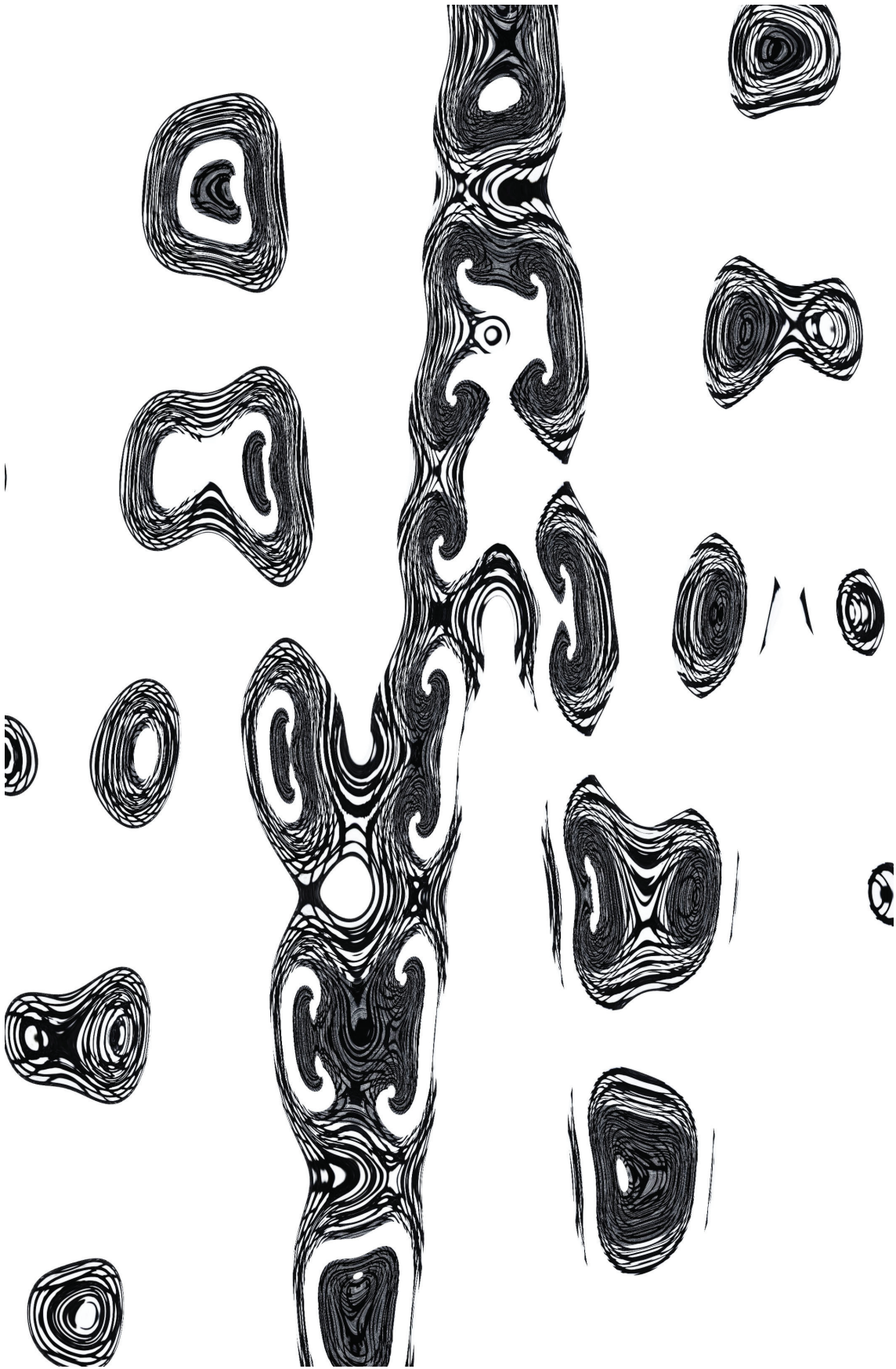


Figure 5-A6. Affect-field # 06

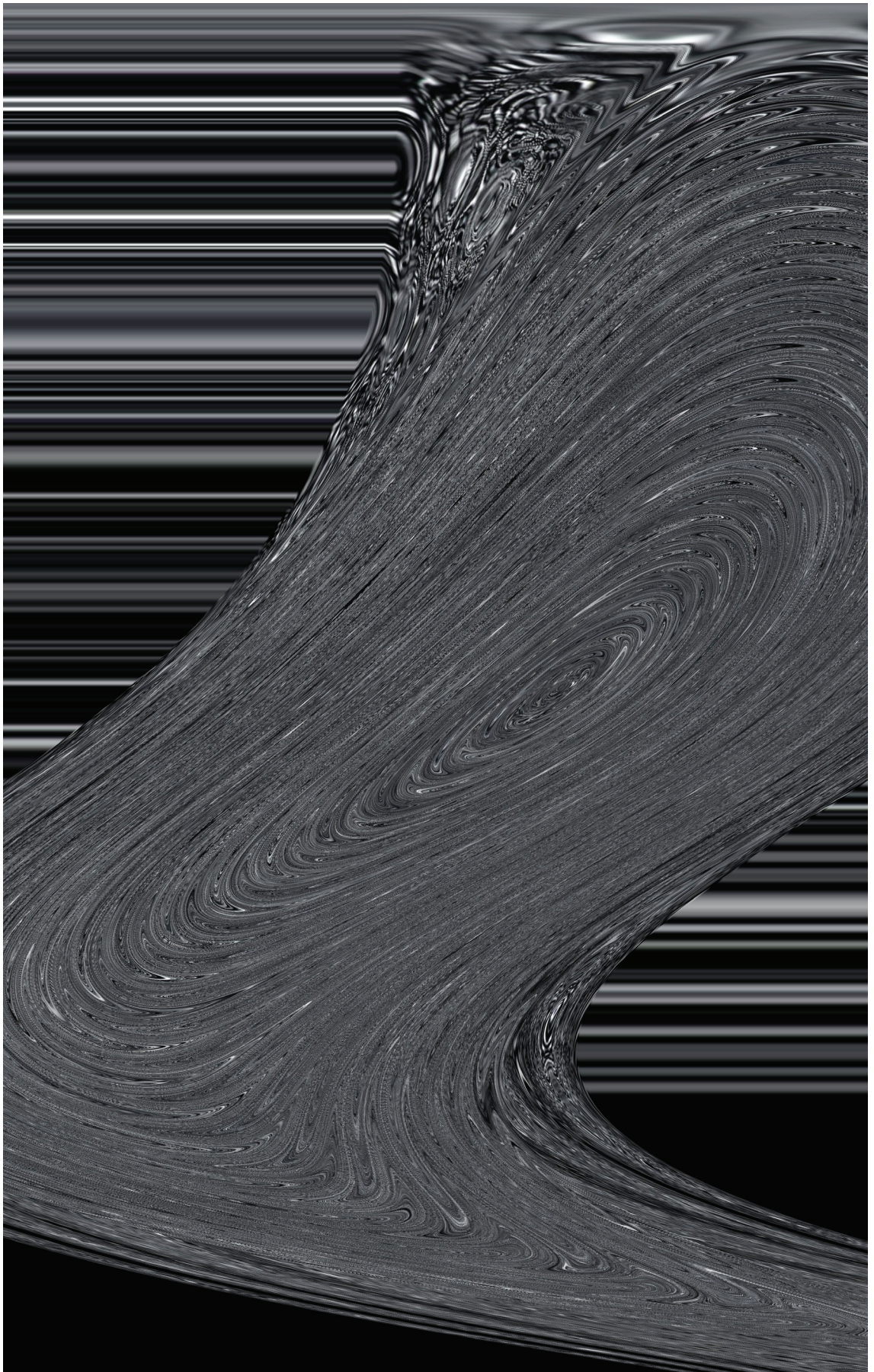
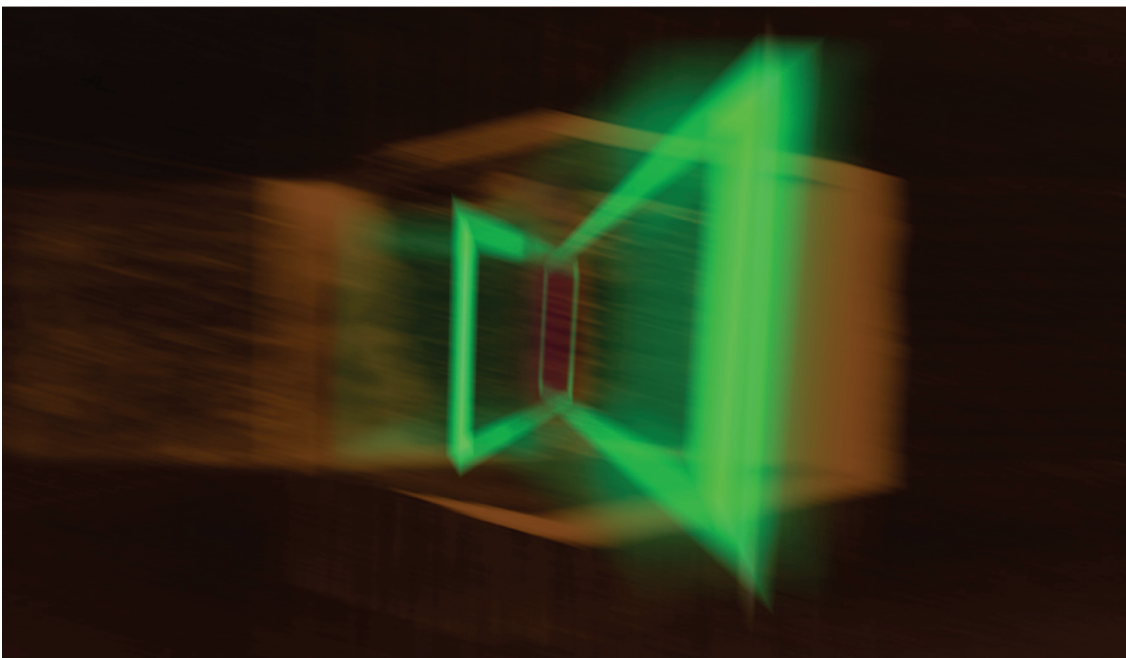


Figure 6-A6. Affect-field # 07



phenomenological relationship	'topoanalyses' (Bachelard)	composition of sense-space organisation
psychoactive environments	Merleau- Ponty	intentional niche construction
	'situational analysis' (Clarke)	phenomenological construct: cued situation
	Mussumi	re-territorializing interior/exterior connections, extension & blending: 'Body without organs' (Deleuze & Guattari).
Bachelard	Brennan	'total environment' (Viola): heightened body/space coupling/immersion
'affordance' (Gibson)		phi-phenomenon & persistence of vision
Faucault		amplified somatosensory environment
Baudrillard		abrupt trigger event (sallency): synthetic aperture.
Lewin		sonification of body/spatial interval (realisation of arrangement)
	heighten receptive faculties	cognitive-tope improvisation
	(de)-composition of space-sense	disfluency (heightens interval & discontinuity)
catalogue of contact relationships between body, perception and space.	perceptual field model of spatial attention	cognitive dissonance (amplification strategy)
feedback value	The deformation of attention.	vection: challenges spatial perception
cognitive-tope analysis	The mediation of difference.	syncopation accent (disturbance causation of conflict between attention, balance & loci)
estranged space		spatial hypersensitivity locus of interface
parasymbiotic space	'cognitive-tope mapping': locator of attention	conflation: cognitive/physical space
		'super formula': coaction dimensionality
classification system	tool set	application: assembly language

**Figure 7-A6.** PhD heuristic mapping November 2010



**Figure 8-A6.** Felt\_space dynamic aperture concept

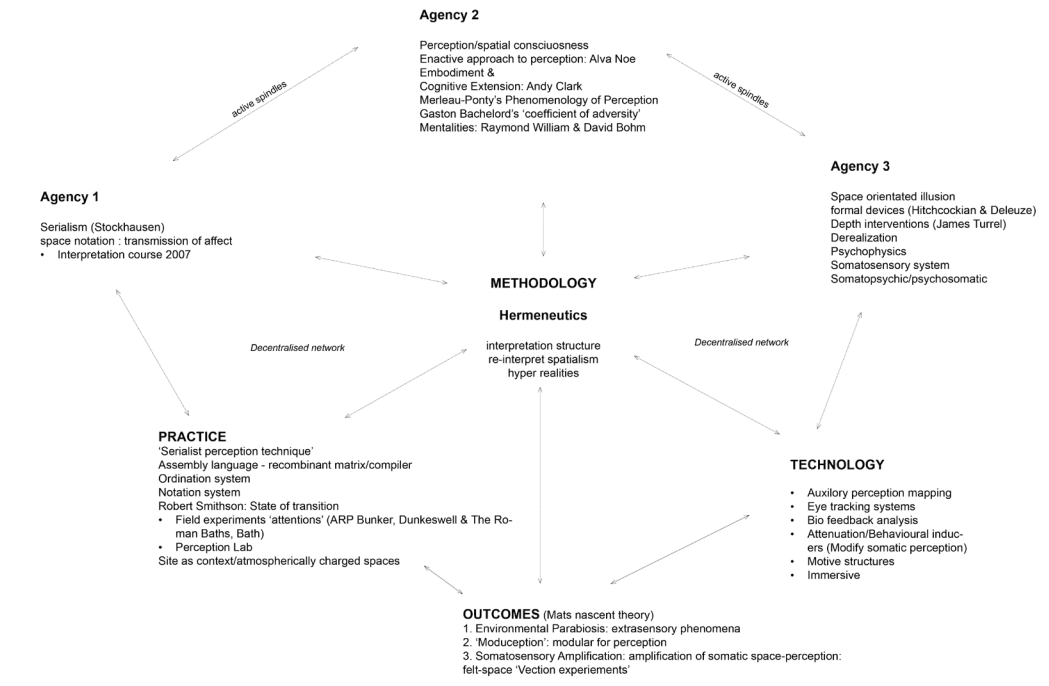


Figure 9-A6. PhD network mapping November 2010



Figure 10-A6. Felt\_space concept drawing

serialism process + phenomenology = visceral temporal architecture in which series of phenomenological interchanges determine the nature of each experience (timeless & atemporal) time manipulating spatial form in perception - time - space experimentation

Figure 11-A6. Diagram: visceral temporal architecture

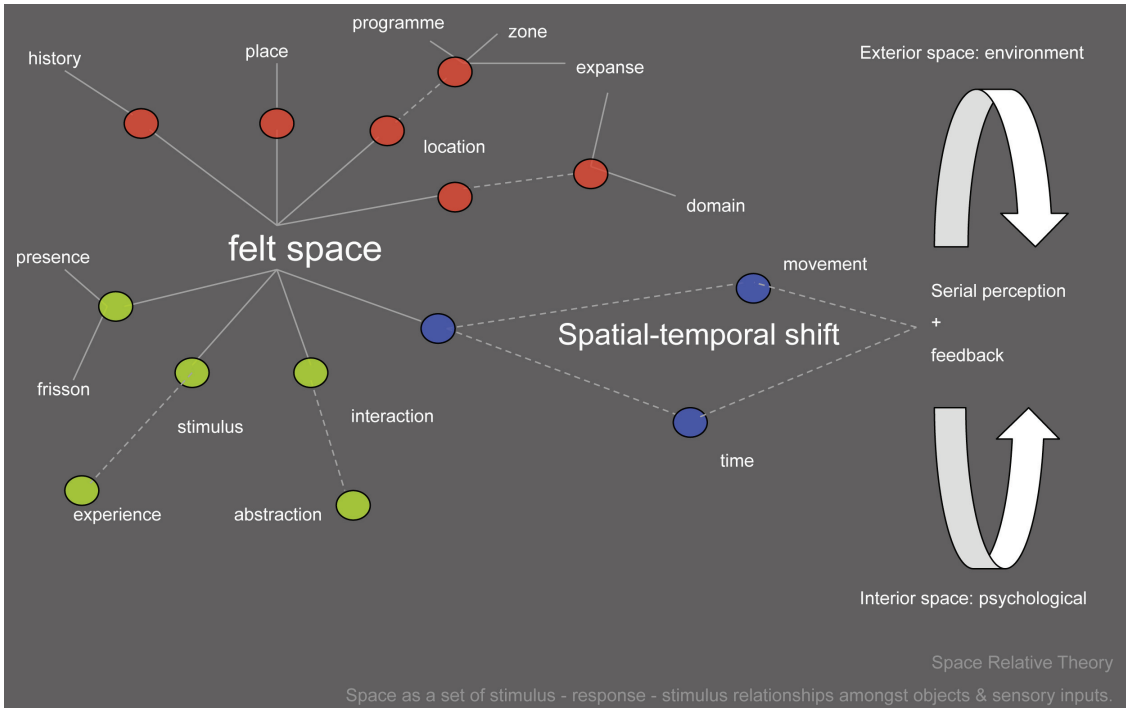


Figure 12-A6. Diagram: visceral temporal architecture

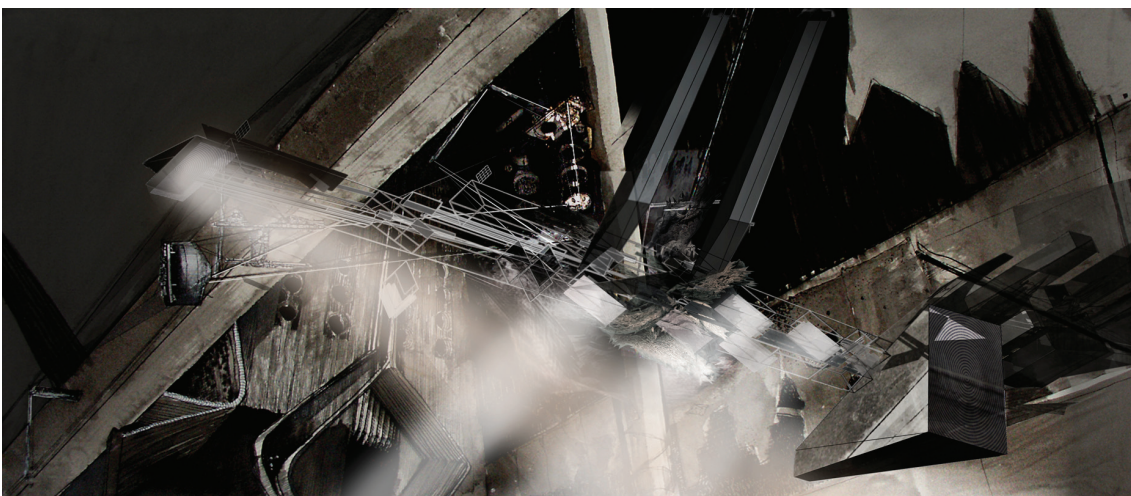
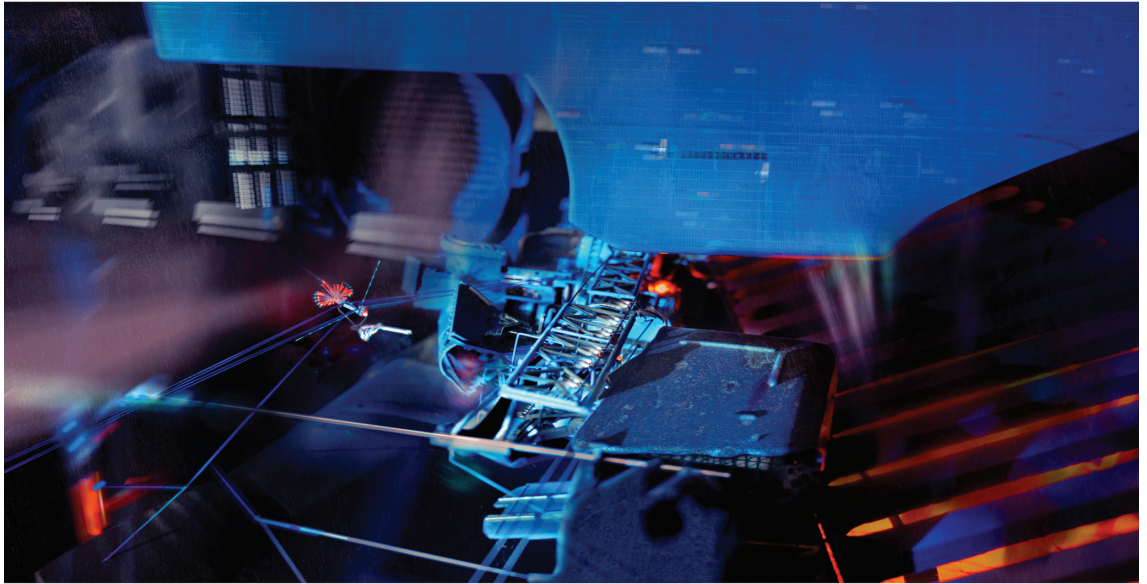


Figure 13-A6. Felt\_space ordination concept



**Figure 14-A6.** Felt\_space concept model



# 07\_Bibliography

- ABRAMS, J. & HALL, P.** *Else/Where: Mapping New Cartographies of Networks And Territories*, Minneapolis: **University of Minnesota Design Institute**
- AGEL, J. 1967.** *The Medium is the Massage* Marshall McLuhan Quentin Fiore, New York: **Bantam Books, Inc.**
- ALEXANDER, C. 1964.** *Notes on the Synthesis of Form*, Cambridge, MA: **Harvard University Press.**
- ALLEN, S. 2000.** *Practice: Architecture Technique + Representation*, London: **G+B, Arts International.**
- ARANDA, B. & LASCH, C. 2006.** *Pamphlet Architecture 27, Tooling*, New York: **Princeton Architectural Press.**
- ASCOTT, R. 2003.** *Telematic Embrace: Visionary Theories or Art, Technology and Consciousness*, Berkeley, CA: **University of California Press.**
- ASHBY, W.R. 1954.** *Design for a Brain*, London: **Chapman & Hall Ltd.**
- BACHELARD, G. 1942 (translated 1983).** *Water and Dreams*, Paris: **Librairie José Corti.**
- BACHELARD, G. 1994.** *The Poetics of Space*, Boston: **Beacon Press.**
- BALLANTYNE, A. 2007.** *Deleuze and Guattari for Architects*, Oxon: **Routledge.**
- BALLARD, J.G. 1973.** *Vermillion Sands*, London: **Jonathan Cape.**
- BANDUR, M. 2001.** *Aesthetics of Total Serialism, Contemporary Research from Music to Architecture*, Basel: **Birkhäuser – Publishers for Architecture.**
- BATESON, G. 1972.** *Steps to an Ecology of Mind*, Chicago: **The University of**

**Chicago Press**

- BAUDRILLARD, J. 1968.** *The System of Objects (Le système des objets)*, Paris: Editions Gallimard.
- BAUDRILLARD, J. 1981 (translated 1994)** *Simulacra and Simulation*, Édition Galilée.
- BATESON, G. 1998.** *Mind and Nature, A Necessary Unity*, Cresskill, New Jersey: Hampton Press, Inc.
- BIRNBAUM, D. 2008.** *The Hospitality of Presence, Problems of Otherness in Husserl's Phenomenology*, Stockholm: Almqvist & Wiksell International.
- BONNES, M & SECCHIAROLI, G. 1995.** *Environmental Psychology: A Psycho-social Introduction*, London: Sage Publications.
- BOWMAN, M.W. 1998.** *Consolidated, B-24 Liberator*, Marlborough: The Crowood Press Ltd.
- BOYER, M.C. 1994.** *The City of Collective Memory, Its Historical Imagery and Architectural Entertainments*, Cambridge, Massachusetts: The MIT Press.
- BRENNAN, T. 2004.** *The Transmission of Affect*, Ithaca: Cornell University Press.
- BROWN, B. 2002.** *Cinematography, Theory and Practice, Image Making for Cinematographers, Directors, and Videographers*, Boston: Focal Press.
- BRÜDERLIN, M. & KIRSCHNER, E.B. 2009.** *James Turrell, The Wolfsburg Project*, Ostfildern: Kunstmuseum Wolfsburg, Hatje Cantz Verlag.
- BUCHANAN, I. 2010.** *A Dictionary of Critical Theory*, Oxford: Oxford University Press.
- BUTLER, G. & McMANUS, F. 1998.** *Psychology, A Very Short Introduction*, Oxford: Oxford University Press.
- BUTTERFIELD, J. 1993.** *The Art of Light and Space*, New York: Abbeville Press.
- CASSIDY, T. 1997.** *Environmental Psychology: Behaviour and Experience in Context*, East Sussex: Psychology Press Ltd.
- CLARK, A. 1998.** *Being There, Putting Brain, Body, and World Together Again*, Cambridge, Massachusetts: The MIT Press.

- CLARKE, A.E. 2005.** *Situational Analysis, Grounded Theory After the Postmodern Turn*, Thousand Oaks, California: Sage Publications Inc.
- CLARKE, B. 2008.** *The Archaeology of Airfields*, Stroud: The History Press.
- CORRIGAN, T. & WHITE, P. 2009.** *The Film Experience, An Introduction*. Boston: Bedford/St. Martin's.
- COVERLEY, M. 2006.** *Psychogeography*, Harpenden: Pocket Essentials.
- CULLEN, G. 1996.** *The Concise Townscape*, Oxford: Architectural Press.
- DEHAENE, M. & DE CAUTER, L. 2008.** *Heterotopia and the City, Public Space in a Postcivil Society*, Oxon: Routledge.
- DELEUZE, G. 1986.** *Cinema 1, The Movement-Image*, London: Continuum.
- DELEUZE, G. 1988.** *Foucault*, Cambridge: Cambridge University Press.
- DELEUZE, G. 1990.** *The Logic of Sense*, London: The Athlone Press.
- DELEUZE, G. 2001.** *Pure Immanence, Essays on A Life*, New York: Urzone Inc.
- DELEUZE, G. 2003.** *Francis Bacon: The Logic of Sensation*, London: Continuum.
- DELEUZE, G. 2004.** *Difference and Repetition*, London: Continuum.
- DELEUZE, G. 2005.** *Key Concepts*, Durham: Acumen.
- DELEUZE, G. & GUATTARI, P.-F. 1994.** *What is Philosophy?*, New York: Columbia University Press.
- DELEUZE, G. & GUATTARI, P.-F. 2004.** *A Thousand Plateaus*, London: Continuum International Publishing Group Ltd.
- DISERENS, C., CROW, T., RUSSI KIRSHNER, J., KRAVAGNA, C. 2003.** *Gordon Matta-Clark*, London: Phaidon Press Ltd.
- DONALDSON, F. 1990.** *The Fatal Echo, A World War II Aircrash off South-West Ireland*, Ireland: The Warplane Research Group of Ireland (WRGI).
- DUNNE, A. 2005.** *Hertzian Tales, Electronic Products, Aesthetic Experience, and Critical Design*, Cambridge, Massachusetts: The MIT Press.
- EBELING, S. 1926 (translated 2010)** *Space as Membrane*, Dessau: C Duennhaupt.



- EDENSOR, T. 2005.** *Industrial Ruins, Space, Aesthetics and Materiality*, Oxford: Berg.
- EGAR-HUNT, R. & MARLAND, J. & RAWLE, S. 2010.** *The Language of Film*, Lausanne: AVA Publishing SA.
- FARLEY, P. & SYMMONS ROBERTS, M. 2011.** *Edgelands, Journeys into England's True Wilderness*, London: Jonathan Cape.
- FAWCETT-TANG, R. & OWEN, W. 2002.** *Mapping, An Illustrated Guide to Graphic Navigational Systems*, Mies: RotoVision SA.
- FLAM, J. 1996.** *Robert Smithson: The Collected Writings*, London: University of California Press, Ltd.
- FORSSELL, D. 2010.** *Perceptual Control Theory, Science & Applications*. Hayward: Living Control Systems Publishing.
- FOSTER, J.K. 2009.** *Memory, A Very Short Introduction*, Oxford: Oxford University Press.
- FOX, M. & KEMP, M. 2009.** *Interactive Architecture*, New York: Princeton Architectural Press.
- FREUD, S. 1919 (translated 2003)** *The Uncanny (Das Unheimliche)*, Vienna: Imago.
- GARCIA, M. 2010,** *The Diagrams of Architecture*, Chichester: John Wiley & Sons Ltd.
- GENDLIN, E. 1962.** *Experiencing and the Creation of Meaning*, Glencoe: Free Press of Glencoe.
- GIBSON, J.J. 1983.** *The Senses Considered as Perceptual Systems*, Prospect Heights, Illinois: Waveland Press, Inc.
- GIBSON, J.J. 1986.** *The Ecological Approach to Visual Perception*, New York: Psychology Press, Taylor & Francis Group.
- GOODMAN, N. 1976.** *Languages of Art*, Indianapolis: Hackett Publishing Company, Inc.
- GRAY, C. & MALINS, J. 2004.** *Visualizing Research, A Guide to the Research Process in Art and Design*, Farnham: Ashgate Publishing Ltd.

- GRIMSHAW, A. & RAVETZ, A. 2005.** *Visualizing Anthropology*, Bristol: Intellect Books.
- GROVE, D. & PANZER, B.I. 1989.** *Resolving Traumatic Memories, Metaphors and Symbols in Psychotherapy*, New York: Irvington Publishers, Inc.
- HAINES-COOKE, S. 2009.** *Frederick Kiesler: Lost in History, Art of this Century and the modern Art Gallery*, Newcastle upon Tyne: Cambridge Scholars Publishing.
- HARRIES-JONES, P. 1995.** *A Recursive Vision: Ecological Understanding and Gregory Bateson*, Toronto Buffalo London: University of Toronto Press.
- HENDRIX, J. 2003.** *Architectural Forms and Philosophical Structures*, New York: Peter Lang Publishing, Inc.
- HENSEL, M. & MENGES, A. & WEINSTOCK, M. Vol 74 No 3 May/June 2004.** *Emergence: Morphogenetic Design Strategies*, London: Wiley-Academy.
- HENTSCHEL, M., PAFLIK-HUBER, H., VIOLA, B. 1996.** *Bill Viola, Stations*, Stuttgart: Württembergischer Kunstverein Stuttgart, Cantz Verlag.
- HETHERINGTON, K. 1997.** *The Badlands of Modernity, Heterotopia and Social Ordering*, London: Routledge.
- HOFFMAN, D. 1994.** *Architecture Studio, Cranbrook Academy of Art 1986-1993*, New York: Rizzoli International Publications, Inc.
- HORROCKS, C. 2000.** *Marshall McLuhan and Virtuality*, Cambridge: Icon Books Ltd.
- JARRETT, M. & STEVENS, B. 2010.** *Out of Dunkeswell, US Navy Fleet Air Wing 7 and 479<sup>th</sup> Antisubmarine Group USAAF*, Honiton: Southwest Airfields Heritage Trust.
- JENCKS, C. 1997.** *The Architecture of the Jumping Universe*, London: Wiley-Academy.
- JENCKS, C. 2002.** *The New Paradigm in Architecture: The Language of Post-Modernism*, London: Yale University Press.
- JUNG, C.G. 1964.** *Man and his Symbols*, London: J.G. Ferguson Publishing Company.
- KROKER, A. 1993.** *Spasm, Virtual Reality, Android Music and Electric Flesh*, New York: St. Martin's Press.

- KROKER, A. & M. 1997.** *Digital Delirium*, Montréal: **New World Perspectives.**
- LaBELLE, B. 2006.** *Background Noise, Perspectives on Sound Art*, New York: **The Continuum International Publishing Group, Inc.**
- LAWRENCE, M. 2004.** *Like A Splinter in Your Mind, The Philosophy Behind the Matrix Trilogy*, Oxford: **Blackwell Publishing.**
- LEACH, N. 1997.** *Rethinking Architecture, A Reader in Cultural Theory*, Oxon: **Routledge.**
- LEWIN, K. 1936.** *Principles Of Topological Psychology*, New York: **McGraw-Hill Book Company, Inc.**
- LIM, CJ. 2006.** *Devices, A Manual of Architectural + Spatial Machines*, Oxford: **Architectural Press.**
- MACONIE, R. 1989.** *Stockhausen, Lectures & Interviews*, London: **Marion Boyars Publishers.**
- MASSEY, D. 2005.** *For Space*, London: **Sage Publications Ltd.**
- MASSUMI, B. 2002.** *Parables For the Virtual, Movement, Affect, Sensation*, London: **Duke University Press.**
- MAU, B. 2005.** *Life Style*, London: **Phaidon Press Ltd.**
- McCALL, A. 2005.** *The Solid Light Films and Related Works*, Evanston: **Northwestern University Press.**
- McCARTHY, J. & WRIGHT, P. 2004.** *Technology as Experience*, Cambridge, Massachusetts, **The MIT Press.**
- McLUHAN, M. 1970.** *Counterblast*, London: **Rapp & Whiting Ltd.**
- McLUHAN, M. 1994.** *Understanding Media, The Extensions of Man*, Cambridge, Massachusetts: **The MIT Press.**
- McTAGGART, L. 2001.** *Field*, London: **HarperCollinsPublishers Ltd.**
- MERLEAU-PONTY, M. 1964.** *The Primacy of Perception*, Ohio: **Northwestern University Press.**
- MERLEAU-PONTY, M. 2002.** *Phenomenology of Perception*, London: **Routledge.**

- MORRIS, N. 2007.** *The Cinema of Steven Spielberg, Empire of Light*, London: Wallflower Press.
- MORRIS, R. 1993.** *Continuous Project Altered Daily*, Cambridge, Massachusetts: The MIT Press.
- NOË, A. 2004.** *Action in Perception*. Cambridge, Massachusetts: The MIT Press.
- NOË, A. 2009.** *Out of Our Heads*. New York: Hill and Wang.
- NORBERG-SCHULZ, C. 1980.** *Genius Loci: Towards a Phenomenology of Architecture*, New York: Rizzoli.
- NORBERG-SCHULZ, C. 2000.** *Architecture: Presence, Language and Place*, Milan: Skira Editore.
- NUSSELDER, A. 2009.** *Interface Fantasy, A Lacanian Cyborg Ontology*, Cambridge, Massachusetts: The MIT Press.
- ODLING-SMEE, F.J. & LALAND, K.N. & FELDMAN, M.W. 2003.** *Niche Construction, The Neglected Process in Evolution*, Princeton: Princeton University Press.
- O'KEEFE, J. & NADEL, L. 1978.** *The Hippocampus as A Cognitive Map*, Oxford: Oxford University Press.
- PALLASMAA, J. 1996.** *The Geometry of Feeling: A Look at the Phenomenology of Architecture*. In: **NESBIT, K (ed.)** *Theorizing a New Agenda For Architecture: An Anthology for Architectural Theory 1965-1995*. NY: Princeton Architectural Press.
- PALLASMAA, J. (ed.) 2005a.** *Encounters: Architectural Essays*, Helsinki: Rakennustieto Publishing.
- PALLASMAA, J. 2005b.** *The Eyes of the Skin: Architecture and the Senses*, London: John Wiley & Sons Ltd.
- PELTOMÄKI, K. 2010.** *Situation Aesthetics, The Work of Michael Asher*, Cambridge, Massachusetts: The MIT Press.
- PEPPERELL, R. & PUNT, M. 2000.** *The Postdigital Membrane, Imagination, Technology and Desire*, Portland, Oregon, USA: Intellect Books.
- PIAGET, J. 1969.** *The Mechanism of Perception*, London: Routledge and Kegan Paul Ltd.

- PRESTON-DUNLOP, V. 1984.** *Point Of Departure, The Dancer's Space*, London: Valerie Preston-Dunlop.
- REVONSUO, A. 2006.** *Inner Presence, Consciousness as a Biological Phenomenon*, Cambridge, Massachusetts: The MIT Press.
- RHOWBOTHAM, K. 1999.** *Field Event / Field Space, Serial Books Architecture & Urbanism 2*, London: Black Dog Publishing Ltd.
- ROBBINS, P. & AYDEDE, M. 2009.** *The Cambridge Handbook of Situated Cognition*, New York: Cambridge University Press.
- ROBERTS-HOLMES, G. 2005.** *Doing your Early Years Research Project, A Step-by-Step Guide*, London: Paul Chapman Publishing.
- SALTZMAN, L. 2006.** *Making Memory Matter, Strategies of Remembrance in Contemporary Art*, Chicago: The University of Chicago Press.
- SARTRE, J.-P. 1943 (edition 2003)** *Being and Nothingness (L'Être et le Néant)*, Paris: Éditions Gallimard.
- SAXTON BURR, H. 1972.** *Blueprint for Immortality, The Electric Patterns of Life*, Sudbury: Neville Spearman Ltd.
- SCHLEMMER, O. 1969 (translated 1971)** *Man*, Mainz: Florian Kupferberg Verlag.
- SCHÖNING, P. 2005.** *Manifesto for A Cinematic Architecture*, London: Architectural Association AASchool Publications.
- SCHWARTZ, R. 2004.** *Perception*, Oxford: Blackwell Publishing.
- SCHWALBACH, G. 2009.** *Basics, Urban Analysis*, Basel: Birkhäuser Verlag AG.
- SHELDRAKE, R. 1985.** *Morphic Resonance, The Nature of Formative Causation*, UK: Anthony Blond.
- SHUSTERMAN, R. 2008.** *Body Consciousness, A Philosophy of Mindfulness and Somaesthetics*, New York: Cambridge University Press.
- SPILLER, N. 1998.** *Digitaldreams, Architecture and the New Alchemic Technologies*, London: Ellipsis London Ltd.
- SPILLER, N. 2002.** *Reflexive Architecture*, Chichester: John Wiley & Sons Ltd.

- SPUYBROEK, L. 2008.** *The Architecture of Continuity*, Rotterdam: V2\_Publishing.
- STRONGMAN, K.T. 1996.** *The Psychology of Emotion, Fourth Edition, Theories of Emotion in Perspective*, Chichester: John Wiley & Sons Ltd.
- SULLIVAN, G. 2010.** *Art Practice as Research, Inquiry in Visual Arts, 2<sup>nd</sup> ed.*, Thousand Oaks, California: Sage Publications, Inc.
- TAYLOR, E. 1989.** *The AB Guide to Music Theory*, London: The Associated Board of the Royal Schools of Music (Publishing) Ltd.
- TIFFIN, J. & TERASHIMA, N. 2001.** *HyperReality, Paradigm for the Third Millennium*, London: Routledge.
- VAN SCHAİK, L. 2008.** *Spatial Intelligence, New Futures for Architecture*, Chichester: John Wiley & Sons Ltd.
- VAN SIJLL, 2005.** *Cinematic Storytelling, The 100 Most Powerful Film Conventions Every Filmmaker Must Know*, Studio City, USA: Michael Wiese Productions.
- VIDLER, A. 1992.** *The Architectural Uncanny*, Cambridge, Massachusetts: The MIT Press.
- VIRILIO, P. 1994.** *Archeology*, New York: Princeton Architectural Press.
- VON FOERSTER, H. 2002.** *Understanding Understanding: Essays on Cybernetics and Cognition*, Wien: Springer.
- WALSCH, B, Craik, K & Price, R. 2000.** *Person-Environment Psychology*, Mahwah: Lawrence Erlbaum Associates, Inc.
- WASLEY, G. 1991.** *Blitz, An Account of Hitler's Aerial War Over Plymouth in March 1941, And the Events that Followed*, Exeter: Devon Books.
- WASLEY, G. 1991.** *Plymouth A Shattered City, The Story of Hitler's Attack on Plymouth And its People*, Wellington: Halsgrove.
- WHITE, C. 2009.** *The Film Experience, An Introduction*, Bedford/St. Martins, Boston.
- WHITE, H. 1973.** *Metahistory, The Historical Imagination in Nineteenth-Century, Europe*, Baltimore: The Johns Hopkins University Press.
- WILLIAMS, R. 1968.** *Drama from Ibsen to Brecht*, London: Chatto & Windus.

