Dagmar Reinhardt
Faculty of Architecture, Design and Planning
The University of Sydney
dagmar.reinhardt@sydney.edu.au

Abstract: This paper deploys Elizabeth Grosz's chapter "The Future of Space" (2001) as a means to engage latent formations associated with fashion and architecture. Grosz describes a durational, non-determined potential of architecture that resonates with relationships between space, matter, body, movement and time. The paper reviews Grosz's *Theory of Spatial Latency* and durational characters of space ('loci of intensity, compression and elasticity') in a context of contemporary fashion design. Here, an (im)materiality of time arises as multiple process: in the flow of texture and layers; in the development of design methodologies; in the transfer between structure and body; in processes of fabrication; and in the interaction with a user or wearer. In contrast to the architecture design realm (in which the final result of a design process commonly remains static), the paper traces fashion works that reveal durational qualities, latent organisations, and phenomenal effects thus interpolating between matter and time. In a unidirectional appropriation, the paper examines generative design principles which enable a departure from the blueprint, and resonate with a temporalisation and an intensification of architecture through the way they are (im)materializing time. The contribution aims to open a discourse that allows the latent durational qualities of fashion to be engaged in architectural theory and architectural design methodology.

Key words: time, latency, fashion, architecture, design

Folds of Time

Introduction

Time is an abstract entity – it may be considered a cultural construct; a medium or instrument that both expresses and generates context and performance it operates in or by. Depending on a respective realm, time is subjected to different systems of organisation, of representation, or of purpose. And, while the registering of time has been developed through science, time itself experiences constant shifts and changes.[i] That is to say, the criteria and arguments by which time is reflected ultimately affect and generate its concepts, modes and methods of application. Furthermore time also affects relationships of that which it describes; of matter, space and process. This paper discusses matter-processing capacities of time (and time-processing capacities of matter), as shared in the creative practices of the design domains of fashion and architecture. Instead of fixed or static relationships, a different understanding of architectural space may be produced via design methodologies, which amplify the latent potentials of space.

Time is multifaceted. A colloquial use of time may contain diverse meanings, such as continuity, temporality, duration, and latency. In order to review the (im) materialisation of time, or rather time's linkages with matter, three aspects (understandings) of time will be reviewed in the following section of the paper.

Physical science generally refers to time as a divisional entity. It deploys descriptions of a variable length of time, in which processes (material or

invisible) develop or occur. This *duration* frames 'long' or 'short' periods of time by quantifiable, divisible and calculable aspects, set against a numerical, metrical and quantitative background (seconds per meter, bar, Kelvin/Celsius). In that sense, *duration* reflects a series of independent and isolated momentary events that follow each other in causal linear sequences. When time and process are separated from the development of matter they describe, such duration is limited to being a descriptive instrument, a mechanism for the observation of if-then scenarios or deterministic processes.

In contrast, biological and mathematical science developed a different protocol by associating conditions of matter to time (Weinstock & Hensel, 2004).[ii] Formations of matter evolve or emerge in time in 'ranges' or 'phases' or 'gradients', depending on characteristics and conditions of contextual forces. This second aspect of time describes then sequences of moments, singular processes or emergences that reflect conditions of matter. Hence, instead of deploying time in a numerical manner, time became intricately linked to process descriptions; parameter-based systems that were used to display complex changes as they developed in a non-predictable manner (Folina, 1992). By reviewing the *duration* of matter forming, a conceptual shift was undertaken that included different conditions of matter, but also potential formations, which are not yet actualised. Through this, a *latency* of matter, the potential of forming, entered the process descriptions. Furthermore, when time is considered as continuity *expressed through process*, rather than an instrument by which processes are judged, it becomes an integral part of that which becomes *in* time. Consequently, consideration of a multiplicity of times – of past and future, potential and actualisation – becomes important in a review of the (im)materialisation of time.

Henri Bergson discussed time as a continuous indivisible entity of different moments that are interrelated, and stimulative to each other.[iii] This approach opens a conversation of moods, rhythms, velocities, intervals, flows and folds of time itself. In fact, time may be understood as a complexity of different times, a *multiplicity of times* as Gilles Deleuze and Felix Guattari argue (Deleuze, 1993). Their concept of time is not one but many, different time planes folded upon and onto each other. And this 'time is *intensive*; always taking the form of different and divergent durations. [...] it is not a world that contains time; there is a flow of time which produces worlds of durations (Colebrook, in Deleuze, 2002). Differentiated and divergent time(s) then could relate and organise relationships between duration and matter, different states between being and becoming.

These different aspects of time – a shift from numerical data towards process and formations towards characteristics of times – may be deployed to open up towards conceptual considerations: if latent matter *contains time* –when it has not yet come into being, is not processed, organized or experienced- it could also be argued to *release time*; by giving up latency in the process of becoming. In such a reciprocal relationship, time informs and is informed by matter in process. Expressions of a latent potential could then shift relationships between matter and time, releasing both different times and different formations of matter in unforeseen ways. The paper reviews this thought as a conceptual strategy for surface formations that impact on space, body, and perception in the design realms of fashion and architecture.

A Theory of Spatial Latency

The understanding of relationships between matter and time, and in which way these can be thought and generated, is of a particular interest in and for architecture. Grosz's essay "The Future of Space" (2001) suggests a way of thinking a continuity of time that informs a continuity of space.[iv] Moreover, time and space share attributes and capacities of duration and latency:

If time is neither linear and successive nor cyclical and recurrent but indeterminate, unfolding, serial, multiplying, complex, heterogeneous, then space too must be reconfigured not as neutral, nor as singular, and homogeneous but as opening up to other spaces, not regulating processes and events so much as accompanying them (Grosz, 2001, p.119-120).

Time and space are thus not only interdependent and inseparable, but furthermore influencing and informing each other. Grosz formulates this as the *Theory of Spatial Latency*, based on a latency of matter and materiality folded in time. The matter of space is informed by the continuity of time it expresses, and also able to release that time or times by and through matter. Thus, if time can be considered from an angle of occurrence, diversity, process and performance, then space equally inherits a capacity of transition and becoming. The design processes that shape that matter could thus arguably inscribe a latency of space, in the sense of becoming other, of generating and affecting experiences and behaviour.

Space can be considered durational, sequential, or procedural, because from a perceptual point, we unfold the architectural object while moving through. In that sense, space can be considered as process, a 'lived space', enacted and inhabited in continued processes of occupation. Space develops by movement through different times. Through present perception-action (the movement arc) and past recollection (the memory), which both become engines for an actualisation. An unfolding of space extends into two directions of time, the past and the future. It does so by individual perception, which becomes a measure of future actions to be carried out. In that sense, space exists as an entity between the perception of a present (actual) and memories of the past (virtual). As Grosz suggests, "in opening up space to time, space becomes amenable to transformation and refiguring; it becomes particular, individualised" (2001, p.117). Architecture in this regard can be considered a formation of space that continues to become through the inhabitant (body/movement/mind). Furthermore, Grosz's *Theory of Spatial Latency* may then be considered as a strategic discourse for duration, for a materiality of latency, applied as design methodology.

Different Folds: Intensity, Compression, Elasticity: Concepts

Grosz's *Theory of Spatial Latency*, referenced to a design realm (as opposed to biological or mathematical), may not act through mere physical formations, but in a framework between poles: of data, organisation, structure, matter, individual, body and movement. Depending on how relationships are balanced, the frame provides rules or concepts for latencies a 'timed' architectural environment. The approach towards design methodology then becomes quite important. In which way may these different and differentiated times be orchestrated? Grosz suggests that relationships between time and space are characterised by zones or 'loci' that amplify spatial materiality:

> If duration exists in states of contraction and expansion, in degrees of uneven intensity, ... then perhaps space too need not be construed as even, homogeneous, continuous, infinitely the same. Perhaps space also has *loci of intensity, of compression or elasticity*, perhaps it need no longer be considered a medium...The very configuration of space may be heterogeneous, just as movements and configurations of duration vary. Perhaps, in other words, there is a materiality to space itself, rather than a materiality residing only with its contents (2011, p.127-128).

Different formations of matter in space privilege different organisations of time, thus enabling different spaces of interaction that are operated by the individual

appropriation. Grosz refers to these as *loci of intensity, of compression or elasticity*. Each of these *loci* is characterised by material configurations that deploy a capacity of transition, or transformation, so that space proceeds in intermediate conditions between states, phases, or ranges (Grosz, 2001, p.119). This may lead a path to a different architectural paradigm of time: when deployed as descriptions of material formations or behaviour; as techniques for structural or organisational specifications; as initiatives for experiential effects and sensations – when deployed for concepts of a materiality of latency. Architecture's 'ethics of statics' privileged time-space relationships that promoted timelessness, or sub ordinance of time to space (Lynn, 1999, p.9-43). Yet strategies of *intensity, compression and elasticity* could – in contrast to such 'ethic of statics' (in which matter is solidified) – be orchestrated as formations in time; through specificity and particularity; and through heterogeneity and indeterminacy, so that matter and time remain in a fluid relationship.

Folds in Time: Fashion

The paper introduces a conceptual leap here, between the two design domains of fashion and architecture. Both design realms deal with body, movement and matter, through different *times and spaces*. Fashion is rapid, ephemeral and experimental, thus a predestined medium of cultural phenomena (while architecture moves much slower). As Claire Wilcox notes, "fashion is composed of change" (Wilcox, 2001, p.6). Grosz's *loci* are thus explored in the context of sartorial fashion, where shapes have increasingly emerged that show an alteration, variation or transformation in form and matter (fig 1).
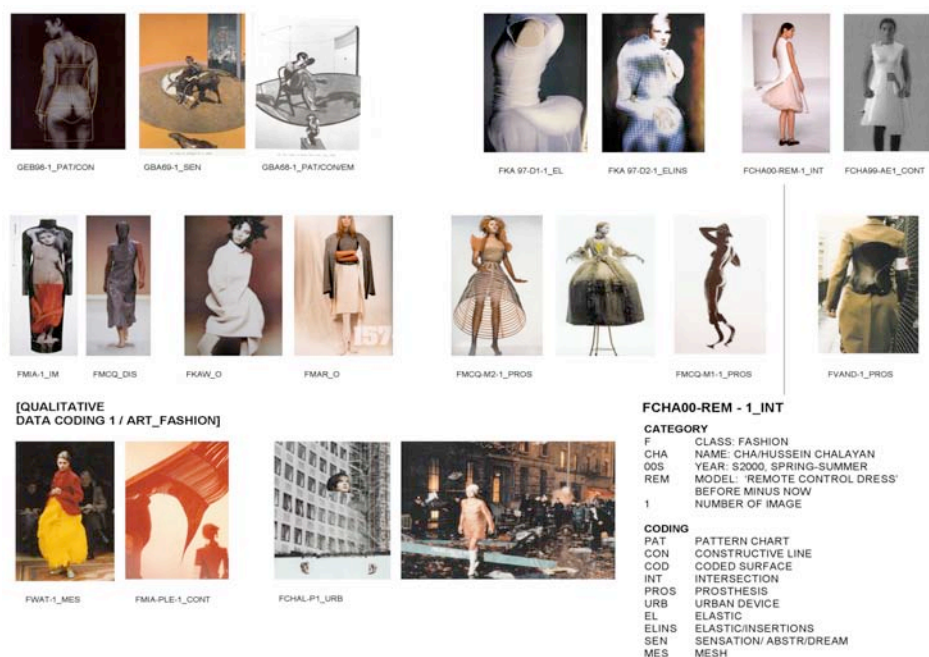

Figure 1: Sartorial fashion as a field of design explorations that formulates latent formations of relationships between time, body, surface, space and movement through materiality.

Hussein Chalayan's *Aeroplane Dress*, Issey Miyake's *Pleats Please* and *A-Poc*, and Rei Kawakubo's *Dress becomes Body* deploy strategic concepts and design techniques that address unstable conditions, unfinished forms, unusual appropriation of texture, deformations that alter the body, or the implementation of electronic and digital media (Chalayan, 2005). These works seem to indicate a latent materiality, a departure from the blueprint because they depart from generic (functional) tailoring, and can be considered heralds of a territory in which the permanence of shape, form and programme are challenged. In the following, these works are related to Grosz's *loci of intensity, of compression or*

elasticity, and traced as *design models*, as packages of design principles or design systems, which could potentially amplify latency in architectural design and theory (Reinhardt, 2008).[v]

1 Anexactitude and Overabundance

Pleats Please, as the title infers, is based on a generic shape that undergoes a process of shrinking, folding, and pleating. Through this garment series, Miyake researches strategies of a structural coding for a texture that resonates with alterations in mass of material, transparency and colour (Miyake, 1999). The garment's fabric receives the three-dimensional structure of folds, an inscribed overabundance of textural mass that accepts a range of body contours through its physical expansion, and thus assimilation (Fig 2).

Figure 2: Miyake's 'Pleats Please' versions (dating from 1990, 1990, 1996).

Textile surfaces in Issey Miyake's *Pleats Please* consists of a generic, enlarged shape with a singular seam and multiple folds, into which an overabundance of fabric is 'locked' and 'released' when the fabric comes into contact with body shape or body movement. Miyake's work resonates with *loci of compression*, in which a mass is capable of deforming subtly, yet unexpectedly. The fold can thus be said to register force 'flows' in a surface field, but it is also able to regulate tension, thus able to adapt to a specific (here: body) topography. The fold is a design methodology or design model that exists in contemporary architectural discourse, derived from criteria that organise the surface capacity on a generative level. Systems of fold are based on grid organisations that pre-condition material traits. This fragmentation of materiality inscribes a specific capacity for response or resistance to forces applied.

Figure 3: In the *A-Poc* series, Miyake situates sartorial fashion between space and body, interpolating between both ('Making Things: King and Queen', exhibition and dress versions).

A-Poc (an anagram for *A Piece of Cloth*) is the conceptual continuation of *Pleats Please* that shares its most important characteristics. Yet in contrast to the structural folds of *Pleats Please*, *A-Poc* generally uses a coded mesh produced through industrialised weaving techniques. *King And Queen* (Spring-Summer, 1999) is one variation in the *A-Poc* series that uses a textured fabric, with

expansive properties and zones of compression. Its mesh is programmed through digital weaving techniques to follow the body shape, and displays diverse zones of compression and intensity on the body (Fig 3). From an endless roll of fabric, pieces of clothing can be cut without the destruction of the woven structure.

In Miyake's *A-Poc*, the fold is replaced by a digital code that weaves an interval into the material texture, programmed to response to contingencies of context, and outlines a range of potential behaviour. The mesh is a material property of the surface formation, encoded by production techniques. It enables a literal expansion of the shape, when the fabric unfolds, and thus ensures a performative potential by different areas with varying density and mass. This coded, superimposed abstract pattern 'forecasts' performance, expansion, surface deformations, or the transitions of shapes (that is when the deformed surface becomes a volume). Where folds are ultimately bound by a determinacy of relationships within its structure (planes are given, or relative proximities between points cannot be changed), meshes remain fluid matter by their open flexibility. Both fold and mesh principles share characteristics of an interval movement: within the material structure (when the surface adjusts to the form of a body); and within the overall shape (when the shape adjusts to a body in motion). In contemporary approaches, folds, meshes and other triangulation or tessellation systems are commonly deployed as design methods for non-symmetrical, complex forms.

A materiality of duration may thus be derived from systems that are the result of (or hold the capacity for) transformation through impact of contextual conditions (the posture of a wearer in fashion), to which matter responds in interval behaviour. It is thus an analytical device, but it is also an instrument that orchestrates self-forming processes (that is surface deformations as a result of the force), and thus can be used as a design model to organise shape in the design process, or to continue in the process of material construction. Depending on material interval and surface coding, design methodologies that deploy material overabundance and strategies of *anexactitude* engage performative, durational qualities of surfaces, thus (un)folding space in time.

2 Elastic Behaviour and Transformations in Morphology

Rei Kawakubo's *Dress becomes Body* can be considered as a series of body-dress constellations in which both dress and body are altered by formative impacts of a contour line. The original shape, type or *scheme* (such as a clothing cutting scheme, but equally a type of building or species) is inflected by distortion, by permanent transformation of structure or through temporal reversible insertions (Fig 4). In that sense, Kawakubo's work resonates with *loci of elasticity*.
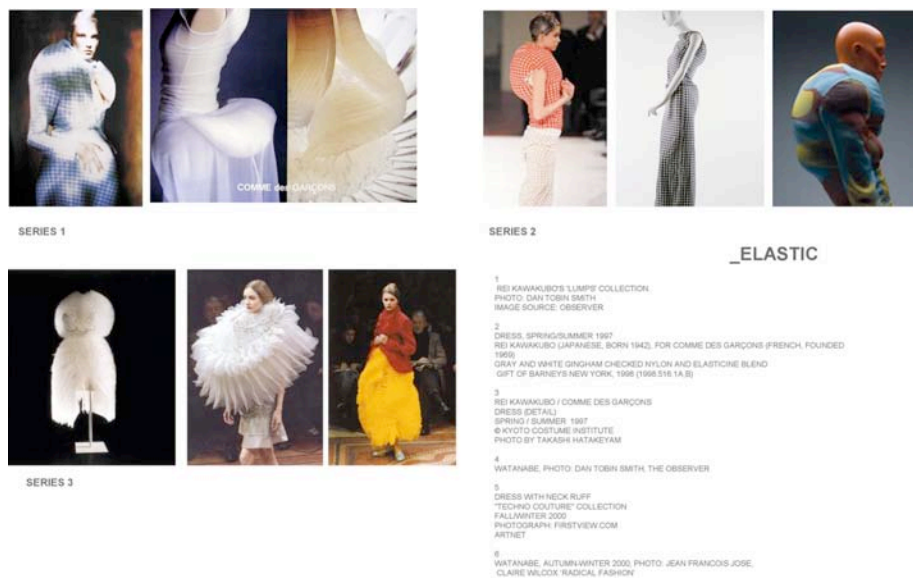
Figure 4: Versions of 'Dress becomes Body', and related works of Comme des Garçons (Kawakubo, Watanabe).

Kawakubo initiates transformations by infills of insertions to fabric or structure, which recode the dress at different stages. Depending on the material characteristics and techniques of structural and formal elasticity, temporary interruptions are inserted within an elastic field, or enter permanent structural solutions (that is they enter a prepared zone massing that is left unprogrammed). *Dress Becomes Body Becomes Dress* establishes a conjunction of figure and dress that affects the previously known perceptual and habitual body. The dress restricts the pattern of bodily movement, it disturbs procedural paths and habits. Following Grosz, the dress opens a departure from a bodily blueprint, because the body that is derived from these spatial interactions is unforeseen. Through this, the dress also interrupts a former continuity of self, an identity that arises through both the perception of body image but more importantly an altering of affect (that is identity as perceived by oneself through the body).

This design model is operated through manipulations of a contour line, and it introduces phases and ranges. Some dresses deploy aspects of performance, in the sense that the (elastic) surface readjusts when the temporal insertions are dislodged. In others, the dress frames an absence, an inbuilt structural reservoir that defines a range for spatial and programmatic infills without interfering with the exterior shape after construction. This elasticity changes body, space and time through matter, by differentiated perimeter of surfaces between body and space through fashioned points of contact, in reciprocal transactions.

While these dresses refer to a literal (physical) expandability, elasticity may also be deployed for phenomenal changes of matter in time, through morphological shifts. In morphology, these are the results of forces and resistances other than generic types; they define the duration of a form through alternatives.[vi] Gradient conditions of a context shape the individual form of which each is a result of duration, that is, a process version informed by specific tuning of parameters or criteria. Kawakubo's explorations deploy a coordinate system that registers distances and proximities that occur within fields, and thus reveal the way in which the figure or shape of the animal differs from its mathematical prototype (or relatives). Differences can be traced through the deformation of a flexible grid pattern that follows the contour line of the body, and the number and situation of lumps on the dress become the corresponding part between the individual models' bodies. These deviations seem to simulate a 'species' adaptation to changing contexts; a change of material form effected by the movement of matter.

Phenomenal elasticity may be considered to facilitate a shift in coding and alterations; of the individual identity and subjectivity; of the body; or of the act of inhabitation. When character properties and programmatic protocols are shifted, then body or space may be reconfigured, recombined, and reinterpreted. Individual perception relates to the self, to what is consciously perceived by experience. Yet results of such phenomenal elasticity may proceed as unforeseen because its memory of origin or evolution is not individually accessible. Hence, transitions of matter in time may evoke changed identities that border on the uncanny (as does the *other*, or monster). (Un)folding time through elastic behaviour and a capacity of insertions may thus challenge a cultural consent on body and spatial geometry. This opens a discourse that allows departures from predetermined expectancies and contingencies, because it interpolates between the interiority and exteriority of the self, between form and content, between the appearance and identity of an object or species.

3 Immaterial Data and Contextual Forces

Hussein Chalayan's *Remote Control Dress* deploys an idealised form that anticipates force streams while in motion (relocating in territory). The dress consists of a rigid shell divided into partitioned segments, which can be shifted into formation by machinery that is concealed with an underlying layer of tulle. The scheme in which these segments or modules are cut is also the scheme of moves that incorporates hierarchical arrangements, through which the segments perform along engineered contour lines. Their movement reveals the secondary layers or zones of textile that adapt to the context through a different and more negotiable (expandable) materiality. Specifically *Remote Control Dress* reconnects to invisible data streams that extend the inhabitable environment of a physical world: it resonates with *loci of intensity*. It dress produces an informational (invisible) territory that plays itself out in intensity, an electronic or digital realm accessed by remote control signal, or radio waves.

Remote Control Dress extends the space and time of the body, from an actual environment experienced by whoever wears the dress, to an abstract informational territory that plays itself out in intensity. The remote control signal of the boy (Fig 5) constructs an electronic field or digital realm in which the factual body is no longer relevant, or rather, lines up with the context. The dress could reconnect to the invisible data streams that shaped its idealised form and which are its conceptual base; weather zones; temperature fields; or data networks. In a sense, the material field becomes outdated by the physical characteristics and ephemeral conditions of this constellation. In 'Remote Control Dress', body, surface, mechanics and data establish an operative durational field that formulates connections along lines of intensities — not as internalised sensations of an individual, but as a response to the contextual changes of the contemporary digital environments we have come to inhabit.
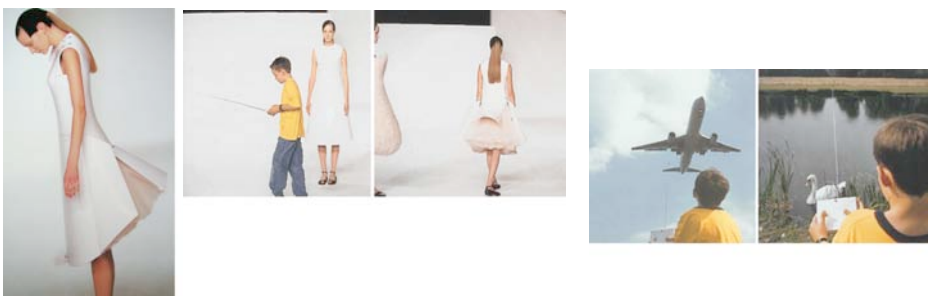

Figure 5: 'Remote Control Dress' is controlled and operated by an invisible data network that connects the shape and layers of the dress to a remote control device operated by external input.

Form is here performativity; a capacity to develop formations in material. Form matters, but not so much in the shape of the whole, but the form between segments and body articulate duration through a materiality with a capacity of interval and interaction. Such a component system is neither ideal nor finite, but undisclosed, defined by intricate stable connections of previously disparate components (Lynn, 1998).[vii] The dress acts as a component group based on material and virtual (electronic, or digital) components, and is thus able to perform in duration, and in a network. Components behave both on an individual level and in mass response. Their character attributes follow a logistics of context that respects the identity of each while controlling the whole, thus enabling latency of formation (Allen, 1997).[viii]

Chalayan's dress groups function similar to a swarm that interacts as one unit, for which local information feeds complex response and thus produces a cohesive identity (Johnson, 2001).[ix] As a heterogeneous system of different materials, the composite group responds via mechanical elements to a remote control order, in response to shifts in data streams stored externally. When the signal changes, behaviour changes. Interaction in this system is not only informed by material effects but equally by a feedback loop that occurs directly through reciprocated action, or indirectly passes through the overall effect of system actions. Within component group and context, interactions unfold matter in time through immediate response to data networks (news and communication lines), ephemeral or invisible environments (electricity, radiation, temperature zones) and virtual worlds by anticipation of contextual forces. This allows a performance or interactive potential between components of different kinds, that is, between architecture components, human interactions, and virtual data. These interactions (un)fold time specifically in continuous actualisation of components, data and network.

Conclusion: Folding Matter, Time, Space.

Architecture and fashion are the result of design processes, and yet remain performative - in the incorporation/inhabitation of dress/building. Architecture entertains a habit of 'timing' space, or conceptualising space in time, through a permanence of physical space constructed by planes, verticality and depth. Rules of Cartesian space defined variable typologies that in turn proposed an expectable, recognisable architectural environment, to be filled with the programmatic protocols of habituation, unfolded through movement and encountered through temporality. Yet contemporary architecture may have more dramatically changed former implicit habits, and with that concepts of 'timing' space towards processes and open formations, towards the shifting spatial parameters of a 'transitional supermodern environment' (Auge, 1995, p.35). In what is currently discussed as a 'space of flows' (Ballantyne & Smith, 2011), lifestyles, programs and profiles of contemporary culture change with increasing rapidity, causing spatial considerations to become transitional, and in turn calling for different structural, organisational, material, and time affordances.

The paper has thus reviewed design approaches (in fashion, for architecture) that open Cartesian systems, and may be able to support an architectural theory and architectural design methodology for an (im)materialisation of architecture by investigating design systems for Grosz's *Theory of Spatial Latency*. The fashion works produce folds of time through their respective ways of shaping a materiality that can be unfolded, thus releasing time in occupation. Such spatial latency may develop through a number of cross-sections between time and space; as latency of an exactitude and overabundance; as latency of shapes alternating in attributes and character; as a latency that connects to invisible contexts and data streams; and as latency of spatial experiences different to an anticipated and designed programmatic protocol. This latency, one might argue, is as much part of the material potential of space as it is part of its original

building plan or blueprint. A departure from blueprint enables a retrieving of different contextual and experiential planes of time, thus acting as prerequisite that affects future transitional capacities of organised matter. In that sense, time and space are differentiated in the process of design, in the process of forming matter, in the process of experiencing time through formed space – as intense, compressed, elastic or intense.[x]

The (un)folding of time through latent matter allows an architectural discourse to shift from static building in which multiple layers of movements, occupations, protocols and times are enfolded in each other. When time and architectural matter as conceptualized as interdependent, continuous, and intersected, then architecture may equally be rethought through time: re-conceptualised, re-organised, and re-materialised, so as to amplify and support the challenge of cultural discourse.

Endnotes

[i] One might argue that domains such as mathematical or biological science reorganized the phenomenon of time and processes as duration from controlled observation and classification only with the research by motion studies (as laid down by Étienne-Jules Marey and Eadweard Muybridge). Phenomenological science (as defined by Maurice Merleau-Ponty), and artistic approaches (such as the work of Marcel Duchamp, or Myron Krueger) may in contrast be said to embrace performative, procedural, qualitative aspects of time, through which time becomes an integrated part of the system, product or event it organises. Yet a different conceptual understanding of time crucial to the paper refers to philosophical considerations (of Henri Bergson, Gilles Deleuze and Felix Guattari, and Elizabeth Grosz) that conceive of time as an indivisible, continuous entity interrelated with space and individual experience.

[ii] Emergence has been introduced to architecture as the self-organisation of forms. Emergent formations follow an embedded logic, a latency of matter becoming that can be considered a time delay between the moment a process is initiated, and the moment its effects begin or become detectable. See *Emergence-Morphogenetic Design Strategies*, Michael Weinstock and Michael Hensel (Chichester : Wiley-Academy, 2004).

[iii] 'This indivisible continuity of change is precisely what constitutes true duration […] [r]eal duration is what we have always called time, but time perceived as indivisible.' Henri Bergson, *Time and Free Will: An Essay on the Immediate Data of Consciousness*, trans. F. L. Pogson (London: Allen and Unwin, 1910), 149.

[iv] Elizabeth Grosz, 'The Future of Space: Toward an Architecture of Invention', in Elizabeth Grosz, *Architecture from the Outside: Essays on Virtual and Real Space* (Cambridge, Massachusetts: MIT, Writing Architecture Series, 2001), 109-130. *'The Future of Space'* was first published by the editor Cynthia C. Davidson as part of the ANY annual conference series, in *ANYhow* (Cambridge: MIT Press, 1998). The essay was then published in *Architecture from the Outside, Essays on Virtual and Real Space* (Cambridge: MIT Press, Writing Architecture Series, 2001).

[v] In the architectural design process, design models are three-dimensional explorations that partially reveal consequences of the principles upon which they are based, in delivering a forecast of a projected architecture (and that is either in a virtual or actual realm). They are instruments of both analysis and exploration, scaleless, adaptable, systematic. The design model is based on universal and specific principles that organise and channel material, structural, geometrical and programmatic aspects of object and space. Dagmar Reinhardt, 'Representation as Research: Design Model and Media Rotation', RIBA Journal of Architecture, ed. Hilde Heynen (Vol.13, April 2008): 185-201.

[vi] Thompson notes that in morphology, an essential part 'lies in the comparison of related forms rather than in the precise definition of each; and the deformation of a complicated figure may be a phenomenon easy of comprehension, though the figure itself have to be left unanalysed and undefined. This process of comparison, of recognising in one form a definite permutation or deformation of another…lies within the immediate province of the mathematics.' 'On the Theory of Transformations, or the Comparison of Related Forms', Chapter XVII, in: D' Arcy Wentworth Thompson, *On Growth and Form* (Cambridge: Cambridge University Press, 1917), 723.

[vii] Composite bodies that form organisational entities are discussed by Greg Lynn in "Body Matters", published in: Greg Lynn, *Bodies, Folds, and Blobs: Collected Essays* (Bruxelles: Books-by-Architects, 1998), 139.

[viii] Stan Allen refers to a '[l]ogistics of context … [that is within] a network of relations capable of accommodating difference, yet robust enough to incorporate change without destroying its internal coherence. Permeable boundaries, flexible internal relationships, multiple pathways and fluid hierarchies are the formal properties of such a system.' Stan Allen, "From Object To Field", in: Peter

Davidson and Donald Bates (eds.), *Architecture After Geometry* (London: Wiley Academy, AD Architectural Design Vol 127, 1997), 24-31.

[ix] Johnson describes emergence a complex system of interaction, behaviour and dynamic of masses of animated entities. Main characteristics of a complex system to function are: a language (such as 1-0 binary code) that is simple and available to all members of the system: decentralisation of order; the ability of pattern detection in order to process meta-information; and the interaction between the closest members. Steven Johnson, *Emergence: The Connected Lives of Ants, Brains, Cities And Software* (London: Penguin, 2001), 82.

[x] Loci of compression, elasticity and intensity transferred to architectural design:

Loci of compression resonate with a plane of mechanical or physical developments, the emergence of process formation, or organisation of architecture. Physical compression is the result of the subjection of a material to compressive stress (or force), resulting in a reduction of volume (or in reverse an expansion through tension). Yet on an abstract level, this compression may also be considered as 'compressed' dormant programmes, which unfold into adjacent ambiguous areas, thus refer also to a condition of unfolding activity, an immaterial, temporal expansion of event or performance.

Loci of elasticity similarly resonate initially with a plane of material performance and may refer to specific behaviours of a texture. Elasticity in general refers to a physical property of a material that, when deformed, returns to its original shape when the force is removed (such as a rubber band and its linear deformation). Yet the term specifically relates inherent material properties to behaviour in time, that is the materials capacity of duration, in which different stages emerge in a non-linear, unforeseen manner.

Loci of intensity resonate with a plane of force impact or effect. Intensity describes the degree of a force, as the measure of the time-averaged energy flux that passes through a medium. In a sense, loci of intensity may also refer to ephemeral, temporal phenomena or atmospheres that are perceived as individual movements and experiences registered by a spectator or inhabitant.

References

Allen, S. (1997). "From Object To Field". Davidson, P., Bates, D. (eds.). *Architecture After Geometry*. London: Wiley Academy, AD Architectural Design Vol 127, 24-31.

Auge, M. (1995). *Non-Places: Introduction to an Anthropology of Supermodernity*. London: Verso, 35.

Ballantyne, A., Smith, C. (2011). Architecture in the Space of Flows. New York, NY: Routledge.

Bergson, H. (1910). *Time and Free Will: An Essay on the Immediate Data of Consciousness*, trans. F. L. Pogson. London: Allen and Unwin, 149.

Chalayan, H. (2005). Chalayan. Rotterdam: NAI Publishers.

Colebrook, C. (2002). Movement – Image and Time. *Understanding Deleuze*. Sydney: Allen and Unwin, 40-55.

Deleuze, G. (1993). *The Fold: Leibniz and the Baroque*, transl. Tom Conley. Minneapolis, MN: University of Minnesota Press.

Evans, C. (2003). Fashion at the Edge. New Haven, NY: Yale University Press.

Folina, J. (1992). *Poincare and the Philosophy of Mathematics*. New York: Macmillan.

Grosz, E. (2001). 'The Future of Space: Toward an Architecture of Invention'. *Architecture from the Outside, Essays on Virtual and Real Space*. Cambridge, MA: MIT, Writing Architecture Series.

Johnson, S. (2001). *Emergence: The Connected Lives of Ants, Brains, Cities And Software*. London: Penguin, 82.

Lynn, G. (1999). *Animate Form*. New York: Princeton Architectural Press.

Lynn, G. (1998). "Body Matters". *Bodies, Folds, and Blobs: Collected Essays*. Bruxelles: Books-by-Architects.

Miyake, I. (1999). *Irvin Penn regards the work of Issey Miyake*. Boston: Bulfinch Press.

Reinhardt, D. (2008). 'Representation as Research: Design Model and Media Rotation'. Heynen, H. RIBA Journal of Architecture, 185-201.

Thompson, D'A T. (1971). 'On the Theory of Transformations, or the Comparison of Related Forms'. *On Growth and Form*. Cambridge: Cambridge University Press.

Weinstock, M., Hensel, M. (2004) *Emergence-Morphogenetic Design Strategies*. Chichester, England: Wiley-Academy.

Wilcox, C. (2001). *Radical Fashion*. London: V & A Publications.

Dagmar Reinhardt
Faculty of Architecture, Design and Planning
The University of Sydney
dagmar.reinhardt@sydney.edu.au

Dagmar Reinhardt is a Lecturer of Digital Architecture at the University of Sydney where she currently coordinates Architectural Communications and leads the Master of Digital Architecture Research. Reinhardt shares *reinhardtjung | architecture and design in theory and practice** with partner Alexander Jung; a registered architectural office based in Frankfurt and Sydney. *reinhardtjung*, a research-led practice that develops architecture through buildings, installations and curatorial work, publications, academic education and research, has been widely published and received a number of awards. Reinhardt's research engages the technological and affective potentials of a latent, performative, phenomenal architectural design. Such unfolding performance is addressed as a latent potential embedded in design, through an organisational, structural, material expression of 'unfigured', non-finite form(ation), able to develop as change in operation, stimulating sensation and experience.
(*www.reinhardtjung.de)

Folds of Time