

# Visual Perception, Spatiality, and Imagery: Investigating a Paradigm for Choreographic Realisation and Appreciation

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The inter-relationships between spatiality, imagery and human visual perception are fundamental to the realization and appreciation of choreography. This paper discusses two phases of research into the role of these concepts in the generation of complex choreographic form and how such form may be perceived.

*...with the numbers 1-6 being placed equidistant around the circle... the lines through the space would take on a global feeling, wouldn't they?*

(Cunningham, 1969)

Merce Cunningham's question, which refers to a diagram for a section of his dance *Summerspace*, suggests that the spatial arrangement of numbers in relation to the lines as sketched in the choreographic diagram may evoke a particular expressive outcome. This neatly encapsulates the central idea upon which my research is based; that the primary determining factor affecting a dance's comprehensibility is the nature of its spatiality. Cunningham's question also implies two further questions that are also fundamental to the research. Firstly, in what manner was the concept illustrated in the diagram realised choreographically? This question lies at the heart of the *Incarna* project, which is the studio-based component of my research, of which some central processes and outcomes will be discussed in the second half of the paper.

Secondly, how did an audience perceive the choreographic realisation of the concept in the diagram? Cunningham's musings are an example of a prefigurative moment in

his generative process. The term *feeling* is used to characterise his choreographic premonition. I assert the audience's perceptual and experiential relationship with the *feeling* to which Cunningham refers is established most effectively through the function of certain aspects of our visual perception of space.

Consideration of this second question required research into the function of visual perception through readings in the area of psychological research. This in turn informed an examination of choreographic spatiality in my own work undertaken in order to better understand how the particular spatial characteristics of individual works might have rendered them more or less comprehensible. Comprehensibility is important when considering the ongoing existence of contemporary dance practice. Contemporary choreographers continue to evolve ever more subtle and sophisticated dance languages. A high degree of abstraction, and modification and transformation of familiar forms may effectively render a dance incomprehensible to many audience members. The problem is akin to expecting someone to understand a foreign language. The syntax is unrecognisable and the component parts of the language are unfamiliar. The aim of the research into visual perception and spatiality has been to attempt to understand and identify how the structural components of complex and sophisticated choreographic languages may engender a certain level of familiarity, which in turn may assist the apprehension of the work.

The outcomes of the investigation into the link between choreographic spatiality and comprehensibility generated the studio-based project *Incarna*. This project aimed to examine the ways in which generative imagery and formative ideas initiate choreographic process, are transformed in the process, and to what degree and in what manner continue to exist in the choreographic realization.

In this paper I will firstly discuss the findings regarding human visual perception of space and analyse the possible relevance of these to choreographic realization and perception. Following this I will report on the process and outcomes of the *Incarna* project in order to examine the relationship between the imagistic aspects of the

process and the defining spatial characteristics of the emergent movement materials and overarching spatial form.

### **Visual Perception and Choreographic Spatiality**

This phase of the research was based on the notion that dance is primarily apprehended by visual perception. This does not deny the profound importance of the kinaesthetic and associative realm to the making and appreciation of dance. Rather, it was an attempt to examine the specific and primary function of visual perception of space, and in particular, spatial depth, and how this facilitates the apprehension of complex choreographic form.

Psychologist Bruce Goldstein outlines two current propositions regarding how we perceive the three dimensionality of a spatial scene. One is that “our perception of depth is caused by various depth cues – two dimensional information on the retina that signifies the three dimensionality of the scene.”(Goldstein, 1984) Goldstein points out that this proposition assumes that the viewer is stationary in relationship to the scene, which seems analogous to the usual relationship of the seated audience member to the live performance. The second proposition is that “the best way to understand depth perception is not to focus on the two-dimensional picture formed on the retina of a stationary observer’ but rather to “look at the information available to an observer as he or she moves through the environment.” (Goldstein, 1984) Although the terms of this discussion are based on the assumption of the stationary viewer, there are some interesting perspectives to be gained when considering the second proposition of the moving observer in relation to perception of moving choreography.

Three depth cues appear to be especially important to the way we perceive the choreographic spatial field. The following discussion examines each cue’s particular operation in the perception of choreographic spatial scene and also considers their combined effect and the potential for manipulation of compositional elements based on the awareness of the depth cues operations.

The first cue is **overlap**. This cue falls within the terms of the Goldstein's first proposition where the observer is assumed to be stationary. Overlap refers to the overlapping of images in the depth of a space. Images that are partially hidden are perceived to be behind, deeper in the space than images that are fully seen. Overlap enables the eye to reference a number of images almost simultaneously in the depth of the choreographic spatial field. A change of focal point and depth of field is required to establish a crisp focus as the eye moves from one image to another. The facilitation of relationships between two or more images in the depth of the space may promote choreographic complexity and integration rather than the dissipation which might occur if the images were separated broadly across the space. This is however dependant on the choreographer's intention. Also, a partially hidden image that is subsequently fully revealed might achieve greater prominence. This may serve the choreographer's intention of creating a sense of organic development or the emergence of expressive imagery. Overlap and revelation encourage the shift of focal point therefore possibly enhancing the observer's appreciation of the three dimensionality of the work and providing a characteristic spatial structure within which is embedded the choreographer's expressive intention. Furthermore, the manner in which activity in the spatial field is structured can reflect our way of perceiving the world in general, thus providing a recognisable, and therefore familiar element in the sophisticated and potentially baffling choreographic language of a work.

The second depth cue is **movement parallax**. Movement parallax falls within Goldstein's second proposition in which the observer is in motion through the space. To demonstrate the effect of movement parallax Goldstein uses the example of viewing the passing scene through a train window. 'Nearby objects appear to speed by, while objects on the horizon appear to move very slowly'. (Goldstein, 1984) Extrapolating from this it is possible to see that in a reasonably deep stage space, the audience relatively close to the stage, an inverted, subtle and choreographic form of movement parallax might occur. For example, a fast, complex group element that occurs in the downstage area, that is, close to the audience, may present as transitory,

immediate, startling, or chaotic due to the close proximity of the action rendering the observer incapable of comprehending its totality. A simultaneously occurring slower element sited in a more distant upstage area may appear by contrast coherent, organised, reflective or removed due to the observer's ability to comprehend more of the totality of the element. The parallax effect is inverted because it is the scene that is in motion rather than the observer, as in the example of the train traveller. It is subtle because the effect of parallax in perceiving the dance space will be lessened due to the distant images in the stage space possibly being closer than those in Goldstein's train example. It is choreographic because the subtlety of the parallax effect in this instance may be very desirable if we allow that less obvious manipulation of compositional elements leads to more intriguing and interesting choreography.

A choreographer often works in an intimate studio setting where he or she may be in relatively close proximity to the emerging work. In terms of the parallax effect this will result in the downstage action appearing very close and upstage action appearing relatively more distant than would be the case if the work is staged in a theatre setting, particularly a conventional setting with a generous distance between stage and audience. In translating a dance from an intimate studio to a larger performance space with greater distance between the viewer and the dance than that between the choreographer and the dancers some spatial aspects will be altered because the different proximity will affect the perspective angles and therefore the degree of overlap and the intensity of the movement parallax. Some spatial relationships may become clearer or emerge as significant because of the increase in distance. These changes may also result in a change to the expressive nature of the work if this is reliant on the specificity of the spatial relationships. This raises the important question of audience viewpoint, as compared to singular choreographer's viewpoint. The audience viewpoint is multiple and spread through the depth and width of the seating arrangement. This is true for both large and small and distant and close seating arrangements. How the choreographer considers, accommodates or manipulates the work in terms of the multiple angles and depth of field changes which

occur in the translation of the work for studio to theatre, is important and can be a crucial factor in the performance outcome.

**Binocular disparity**, which Goldstein describes “as the most important cue for depth” is ‘based on the fact that our eyes see the world from slightly different positions determined by the distance between them’.(Goldstein, 1984) Our eyes converge or diverge to fixate on a common point of focus in order to form a clear image. The image at the point of fixation falls on corresponding points on the retina, and is therefore in crisp focus. Choreographically, when numerous events are happen onstage simultaneously or in overlapped sequence, the viewer’s point of fixation changes as their visual attention is drawn through the space by a combination of their decision-making and the location and spatial sequencing of the movement events. There is also an associated field of focus due to binocular disparity which is called the horoptor arc. The horoptor arc extends either side of the point of fixation with the distal ends of the arc curving towards the viewer. Images falling on this arc also fall on corresponding points on the retina and like the point of fixation are in crisp focus. Images in front of or behind the horoptor arc fall on non-corresponding points on the retina and are therefore out of focus. I believe the horoptor arc enables a spatially complex dance scene to be effectively perceived from multiple viewpoint angles and at various distances because of the possibility of several components or images in the spatial patterning falling into crisp focus. Certain aspects of complex group pattern may be rendered more comprehensible if the spatial patterning is such that it allows for a range of viewpoint angles and distances. When manipulating a group spatial pattern I have often found myself making fine adjustments in order to achieve what I thought would be a more organic arrangement. I may also have been subconsciously using the horoptor arc in order to make the totality of the material more available to the eye from multiple viewpoints.

Action across the width of space can be perceived via the horoptor, and in the depth of space by overlap. Combining the horoptor arc with overlap results in the emergence of a complex three-dimensional matrix of spatial perception. Carefully handled spatial layering can successfully shift the point of fixation through the depth of the

space and effective placement of images across the width of the space may provide greater clarity via the horoptor. Convergence and divergence due to binocular disparity will integrate the overall visual perception of the choreographic form.

The significance of this lies in the viewer's recognition of the depth cues as familiar structures within the spatial language of a work. This may in turn lead to a more effective reading of the work. I suggest therefore that carefully handled spatial complexity, rather than being a hindrance to comprehension, may actually provide the audience with a way into the choreographic language of a dance.

Subsequent to researching aspects of visual perception of space I undertook an analysis of three of my past works based on my understanding of the functions and relevance of the depth cues. The retrospective analysis entailed the recall of generative process intentions, reassessment of the outcome of final choreographic form with the benefit of hindsight, and consideration of the mediating influence of my current aesthetic and theoretical standpoints on my appreciation of the retrospective work.

This analysis produced a raft of observations regarding the specific details of the spatial designs of the pieces under analysis, and also revealed detailed and specific relationships between the expressive heart of the work, the choreographic process, and the spatial language of the final choreographic form. It also became apparent that the specifics of a work's spatial language are its defining characteristics, and that spatial realisation was intrinsically linked to the expressive core of each work.

This leaning towards the primacy of the spatial elements may appear at first to be contentious or limiting, as it is widely held that dance is a space/time art form. Whilst acknowledging the elegant nature of the space/time construct the research is based on the idea that the space/time equation is not so evenly proportioned as is generally accepted. Cunningham suggests that 'one can think of the structure as a space of time in which anything can happen'(Anderson, 1992). This suggests that time may be defined in terms of space. For Cunningham this may have been a play on the words

and concepts and an example of his ability to treat each as inter-related and elastic. For me it precisely states the weighting of the two concepts in the research. In his book *Mettapatterns*, scientist Tyler Volk states that

To communicate about patterns in time we commonly down-dimension time into space...Time is represented by a clock whose motion we can read against a background of numbers. Time is implied by a linear series of photographs of a horse galloping in fragmented moments crystallized from a continuum. Time gets mapped into space.

Such mapping of time transforms the mysterious substance of time into more familiar objects in space...Psychologists call this the spatialization of time. (Volk, 1995. p 155)

Temporal structures and components in dance can only be perceived by the way the movement is accented in the space. I am not referring to music here. If one were to close one's eyes during a dance performance the musical or sound elements (assuming they existed) could be heard but the dancing would disappear. Even in dance works that closely embody the rhythmicity of musical compositions, it is not till the movement is realized in the spatial dimension that the role of music in the equation can be fully appreciated. Tyler Volk states that patterns in times are spatialized. I assert that in dance time is spatialized.

In order to further examine the outcomes of the research into the spatial characteristics I designed a studio research project, *Incarna*.

### ***Incarna*: Imagery, Generation, and Spatial Realization**

The *INCARNA* process was aimed at producing greater understanding of how generative images survived or were transformed through choreographic realization, and in particular how the particular spatial characteristics of the choreographic language reflected the expressive core of the work. The project was designed to examine the relationships between evocative beginnings, choreographic process and emergent form. This included exploring the notion of *the fabric of space*: that space is an actual and dynamic medium rather than a void that is only defined by the objects



or structural entities that exist within it. This idea has become a personal mythos in the last few years and has been a central driver in the creative process of several recent choreographic works.

The working methodology of the *INCARNA* process incorporated three aspects which were expected to act as change agents on my established choreographic practice. Firstly, only three dancers were involved rather than the larger ensembles upon which the retrospective works were made. This would enable the testing of the observations that had emerged through the retrospective analysis regarding choreographic dimension and scale, internal spatial relationships, overall patterning and the spatial characteristics of a specific choreographic language. Secondly, from the outset the work would proceed with each dancer independently for a significant length of time, holding in abeyance the more usual early sharing and integration of movement materials. Thirdly, the work would proceed without direct reference to any musical component.

This section of the paper will detail the main aspects of the project and analyse some central processes and choreographic outcomes including the developmental structure of the process, and observations regarding the relationship between the generative images and the spatial characteristics of the work.

Preparatory research into the universal notion of space as an actual medium led into the more specific area of the paranormal, of reports of apparitions, hauntings and ghostly presences. Several fragments of text from various reports were selected as starting points for choreographic development. Each fragment evoked in a different way the idea that space was inhabited or energised in a tangible way. Each text fragment contained a significant spatial component or invoked a sense of spatial realization. These fragments evoked in me a response that I have come to recognise as the precursor to choreographic investigation, in which a feeling of movement and a sense of structure is held lightly on the edge of perception as a kind of choreographic premonition. Using the fragments as generative imagery seemed like a viable way of beginning the choreographic process, regardless of their plausibility.

One fragment, “the restless energy in the old house”, suggested an edgy disembodied energy inhabiting an architectural structure.

Another fragment was “the fire was caused by a young girl being careless with a candle”. The photograph accompanying this fragment of the apparition of a young girl amidst the smoke, shadows and striated light within the burning building suggested a complex interplay between the small, private activity of the girl and large-scale destruction. A third; “but I turn around and nobody is there”, suggested an unseen or sensed presence, the potency of the space behind the dancer, and an ongoing loop of repetition.

The initial exploration phase involved using a different fragment as the starting point for the development of solo material for each dancer. The process with dancer Brett Daffy explored the imagery suggested by the fragment “the restless energy in the old house”. Movement phrases were also developed by exploring the more general concept of the space being inhabited by invisible presences. The intention was to move as if sensing and feeling rather than seeing the space. The process was not as improvisational as this may suggest. Rather, it was a choreographic dialogue in which the material emerged from the ongoing interplay between the choreographer’s suggestions and the dancer’s responses.

The work based on “the restless energy in the old house’ rendered a frenetic and highly detailed lengthy phrase which covered the entire working space in a series of tight and convoluted spatial pathways. The idea of the restless energy created constantly changing close range articulations, which were then carried through the space along the twisting and turning pathway. This is an example of integrated multi-dimensional generation. The movement extrapolations inherent in the small articulations and the larger movements suggested by the spatial concept of the old house combined to operate as interdependent structural drivers to create the fully realized sequence.

The material that developed from the general idea of sensing the invisible presences and form in the space produced a sensuous slow phrase that is characterized by its weaving design and the tactile use of the arms and hands. There seemed to be an extra dimension to the movement, one of thoughtfulness and ongoing exploration during the materialization of the movement. The generative impulses appear to be centred in body and simultaneously to emanate from an awareness of something else in the space.

Imagery suggested by the text fragment “the fire was caused by a girl being careless with a candle” was explored with Delia Silvan. The solo that emerged is characterised by delicate wavering movements stemming from the candle image combined with more extended balancing and writhing actions inspired by idea of the shafts of light and shadowy smoke of the fire. A second development took place when I asked Delia to work through the solo as if she were inside its enveloping form, and to attempt to distil the kernel or essential heart of each movement. This rendered a very minimal but highly evocative phrase that seems to embody the essence of the imagery and also to place it in a time-past framework. The minimal spatial range of the movement suggests at once an absorption in a present place and a remembering of an event long past. The spatiality is characterised by a significant reduction of magnitude and of the delicately initiated actions evaporating before being fulfilled, even in the reduced range. This lack of spatial resolution invests the material with an ethereal quality. Another of the primary characteristics of this material is of arrested form, of movement implied through stasis. The process of distillation resulted in a significant reduction of the apparent spatial range, an intensification of the expressive dimension and a transformation of the metaphoric space of the material.

The process with Phoebe Robinson has been complex in that she replaced Shona Erskine who had to leave the project due to the pressure of other professional and academic commitments. Phoebe’s work involved learning and substantially transforming Shona’s movement material. Rather than drawing on any one specific text fragment Shona’s material had developed in response to Delia and Brett’s material and a range of associated imagery. During Phoebe’s process of investigating

and personalising Shona's material a connection was made with the as yet unused text fragment: "but I turn around and nobody is there". This connection has informed the subsequent development of Phoebe's material. The implied focus of much of the material became the space immediately behind the dancer, creating a high level of distortion, particularly of the torso and the arms. The movement is also characterised by surprising rapid changes of direction. The directional intention of the movement is often opposite from that which might usually be, given where Phoebe is facing at any one moment. While aspects of her material still reference Brett's work in terms of movement design and Delia's in terms of spatial scale and delicate nuance, Phoebe's work is individuated by the creation of completely new movement motifs and is characterised by a combination of physical distortion and subtly delicate articulation.

Having developed these solo materials independently the next logical progression was to examine the potential for blending and integrating of the materials, which I would normally expect to do reasonably easily. However, when this was attempted a surprising disjunction between the sets of material was discovered. It was like trying to mix oil and water. After some time analysing the materials it emerged that although the movement appeared to be relatively similar, the fine details in the micro-spatial range were quite different. Each is characterised by specific minutiae of patterning and shapely definition within the micro spatial range of the material. They were like different languages. Integration and development did eventually take place, but only after the materials were more thoroughly understood through a more exhaustive process of analysis and assimilation than I have previously undertaken. This involved close analysis of the definition of the movement details in the micro-scale spatial range, which in turn led to a re-examination of the generative heart of the material. What began as formal editing exercise became an intrinsically important step in the distillation of the work.

Some important characteristics of the larger or macro-scale spatial organization also became apparent. Most of the material for all three dancers had been developed in a very large studio space and the dancers had made the most of this by extending the material to fill the available space. The patterns were widely dispersed and seemed to

require re-spacing to gain greater definition and clarity. This type of exercise usually falls into place quite well with the modifications of directions and usually benefiting the outcome. However, in this instance the material seemed instead to lose definition and clarity. The phrases were multi-faceted and contained many detailed and fine changes of angle and the attempts at changing the directions in order to manipulate the material in the space confounded many of the prime angles for viewing particular moments, hence the loss of clarity. This assumes the notion of the material being viewed from the 'front' for optimal viewing in live performance. Bearing in mind that the expressive nature of any movement image can be altered by the angle at which it is viewed it follows then that to reorientate a section of a phrase in space changes its expressive nature. As the phrases were densely constructed with few transitional steps it also was very difficult to reorientate isolated moments without disrupting the overall developmental spatial logic the phrase. Re-spacing the material by adding new changes of direction also created an unnecessarily labyrinthine effect due to overlaying another level of spatial complexity on phrases that are already multi-faceted. Working through these problems, as in the above instance, required a far more detailed process than expected and again necessitated the examination of the relationship between the material and the generative heart of the process.

The choreographic materials that developed through the *Incarna* process demonstrate the evolutionary distance between starting points and outcomes. The questions at the heart of the research continue to revolve around the relationship between the generative processes and appreciable outcomes of the choreography and the ongoing act of the incarnation that is at the heart of the dancer's practice. Is the evolutionary history only apparent to the creative participants, or can it exist as an intrinsic layer in the appreciable outcomes? Can the beginnings of the work be perceived as imbedded in the fabric of the work itself and if so, by what means does one engender the integration of choreographic form and performance embodiment so that fundamental creative elements of the generative process are live within the immediacy of the performance?

It is my belief, founded on much anecdotal evidence, that, it is possible to create complex and sophisticated dance in a way that fosters recognition and familiarity with the choreographic language of the dance as it unfolds, thus rendering the dance readable to audience members to whom it may not have been so at the outset. As stated earlier I have long held the belief that the spatial realisation of a dance work is fundamental to its comprehensibility and the ability for the audience members to find meaning in the form. When using terms such as meaning and comprehensibility in relation to contemporary dance it is salient to remember that they do not imply a literal or singular interpretation, but rather a possible multiplicity of responses and interpretations that emerge in the act of the audience members' engagement with the performance. However, what is interesting is to attempt to find out how close these responses and interpretations are to the choreographer's original or emergent expressive intention. In order to investigate this *Incarna*, along with two retrospective works will be presented in a programme in which testing of both lay and expert audiences be carried out. The three pieces represent examples of contrasting spatio/choreographic languages. The audience testing will be designed to elicit responses that shed light on how the audience members perceive the spatiality of the works and in what manner the spatial language of each of the three works is memorable and integral to their engagement and appreciation. The testing will be based on a combination of ideas incorporating notions of the spatial realization of choreographic content, the particular spatial characteristics of specific of the three contrasting works, and relevant aspects of human visual perception of space. My interest in testing both lay and expert audiences lies in the belief that there are fundamental ways in which we are engaged and respond to dance regardless of cultural background, training and experience and familiarity with the art form. To elicit responses that show the similarities and differences between the two will provide insights into the fundamental nature of the dance experience and the ways in which complex and sophisticated contemporary dance may become accessible and meaningful to a wide range of audience members. This last point, is, I believe, intrinsically important to the ongoing survival, development and cultural relevance of contemporary dance practice.

## **Bibliography**

Anderson, J. (1992) *Merce Cunningham. Dancing in Space and Time* (London, Dance Books).

Cunningham, M. (1969) *Changes : notes on choreography* (New York, Something Else Press).

Goldstein, E.B. (1984) *Sensation and Perception* (Belmont, Wadsworth Publishing).

Volk, T. (1995) *Mettapatterns: Across Space, Time, and Mind* (New York, Columbia University).