

Bonemap's *Sweet Spot*: an intermedial creative work

The idea of 'the sweet spot' derived as a term from the science of physics. It referenced a desirable situation in which the opportune solution occurs. It was not necessarily a tangible or physical 'spot', it was a numerical, indicative state. Sport and musical instruments, referred to the 'sweet spot' as having an affinity with the center of percussion, oscillation and other equations, presenting the ultimate highly desirable set of circumstance or 'sweet' state. The language of the term was synaesthetic, transferring the sense perception of a pleasurable and satisfying taste as 'sweet' to an optimal condition within the machinations of science and other phenomenon.¹

Sweet Spot was an immersive experience of art that rearranged the conventions of how dance and media are staged, encountered and inhabited. Two large (floor to ceiling) cylinders of diaphanous material reflected projection mapped digital content and defined the production space. One of the cylinders was open for an audience participant to enter. Audience members for *Sweet Spot* arrived one at a time at 15 minute intervals. The experience was for one audience member, one performer and the interactive spatial translation of audio-visual media. The mesh cylinder, from the audience viewpoint, was a physical border beyond which the dancer inhabited a world of structural light and sound. The transparency of the border became visually permeable at times. At these times, the interaction between the audience and the performer was an improvised duet, elicited from the closeness and confrontation of the sudden gesture of bodily communication.²

The metaphor of *Sweet Spot* was a sensory feedback loop. The audience moved to effect changes in the digital audio-visual scenography; the performer reciprocated the audience member's movements. The work was a machine or system that was inhabited by the movement vocabulary of the audience member. Its optimal state was a free interaction between the audience member and the performer. A dance made between strangers, mapped to the imaginary territory of a mixed-reality (virtual/real) space.

Sweet Spot projected a world of sound, light and colour generating the impression of a dynamic simulated atmosphere. Representations of 'Backscatter' luminosity, the molecular scattering of light in the atmosphere, mathematical expressions of the physical laws that govern the motion of material³ and fluid dynamics were generated in response to the presence of the audience member.⁴ A component of the simulation was the passing of variables generated by the audience member as they traversed the space within the mesh cylinder.⁵ A thermal camera motion-tracking system tracked transverse movement and a wearable technology system produced variables through movement and rotation of the audience member's wrist and arm. Consequently, these dynamic variables effected incremental change to the simulated state. The system represented the 'sweet spot' of interactivity through the measured 'performance' of the audience member.

The dynamic state of the system was structured around the empathetic, emotional and transformative experience provided by the co-presence of the audience member's communication with the performer. The state of the system and the interaction of variables oscillated through states of the audio-visual machine and moments of person-to-person communication within the co-presence of lived experience. The information generated by the audience member was a stream of iterated variation that was not fully predictable within either the virtual or real communicative modalities.

The systems dynamic simulation intended to abstract an improvisational quality from the machine that matched the free human movement prevalent in the work. This intention to find the commensurate improvisational quality was reliant on the variables presented to the systems simulation. The qualities of human movement were tracked, captured, filtered and their parameterical qualities were then mapped in real time as visual representations of "solid light"⁶ upon the two mesh cylinders and spatialised as interactive audio samples. The atmosphere generated by the system was responsive to the informational

resonances of the audience member's individual movement quality. Therefore, the machinic 'sweet spot' was not only improvisational; it was also unique for each audience member who was an actant that participated within the work.

The "fascinatingly prevalent tendency"⁷ of mathematical models, such as the Fibonacci number system published in 1202, to be approximately mapped to observable instances in nature, showed a 'sweet spot' identified by "geometry and pattern formation mechanisms". These models, found in shells, fruit, plants and organic forms are diverse yet had deeper implication and meaning beyond human perception. The prevalence and cosmology of pattern and matter translated to the *Sweet Spot* project as a compositional system that incorporated both aesthetic control and chance encounter. It encompassed cartographic principles, spatial design and structural development of an aesthetic media and communication environment in reference to the way interactivity may be mapped around certain generative patterns and improvisatory actions.

In this situation the work *Sweet Spot*, augmented the improvisatory communication elicited between the actant and the performer. It was directly intermedial to the computational mapping and tracking of temporal variables in the parameterized space—a space made improvisatory by the free movement of the actant. The *Sweet Spot* machine drew out the transverse motion of a seemingly autonomous agent—the actant—within its scope. A coordinate system, developed in the software linked the transcoding of an actants movement to the variables of a visual particle system projected as a graphical representation on a cylindrical gauze screen that surrounded them.⁸

The *Sweet Spot* machine achieved an ephemeral mapping of time and space along with the simultaneous translation and abstraction of the process of mapping as a cartographic representation. There was a parasitic relationship between the improvisatory movement patterns of the machine and the free movement patterns of the actant. The circularity of the feedback loop within the software system—its recursion—was modulated beyond the infinite loop by a disruption of parameters. The body of the actant became a part of the machinic

process through its disruption of computational space but was not interpreted in the system as a machine itself. It was, in contrast and compliment, an expression of the embodiment of territorial space.

The cylindrical diaphanous screen constructed for the *Sweet Spot* presentation was symbolic in its influence, deriving from the cartographic geometry of the 'Mercator Projection' of a globe into a plane.⁹ Mercator's cartographic system mapped the features of earth's territorial geography onto a planar cylinder that was then unfurled to a representation as a flat rectangular plane. Using this principle, with the intention of a perceptual reversal, light projection imagery was mapped onto each of the gauze cylinders in *Sweet Spot* using eight projector sources that allowed image segments to be blended into a cohesive single image field around the cylindrical shape. The intention was not to represent the terrestrial globe of the earth, however pattern and particle systems originating in programmed software simulated fantastic atmospheres as an ambient element of the immersive mixed-reality presentation. The work blended real dimensional space and action with an aesthetic fiction produced by projected computational simulation therefore, in this blended perceptual space, it was regarded as *real-fiction*—demonstrated as a paradoxical heterotopic space.

The map and territory paradox was a phenomenological metaphor where images created by the mind were considered as representations of the world rather than the world as it was. The metaphor suggested that the sensations we experienced were impressions of our world. Our impressions were analogous to a map. We interpreted (map) our surrounding environment (territory) through our senses and this interpretation, through perception, was said to separate us from knowing the territory as the thing that it was. As interpretation, we could only experience the world through the impressions produced by our senses.

Batson's map and territory theorem held that our perception of the world was transcoded through human sense organs to create a 'map' in our mind that was continuously reinterpreted as we receive additional information from our senses. The infinite regress of representation was constructed through the Cartesian

separation of the immaterial mind and the corporeal body as a boundary of the immaterial and material universe.¹⁰ It effectively establishes a widening distance between the abstract informational mind and the world of energetic matter. However, the embodiment of the territory is a technique that attempts to extend the cartography of the mind to experiences that are multi-sensory, thus affecting an energetic immersion of the senses. *Energetic multi-sensing* was an intermedial inhabitation of the aesthetic world that allowed the threshold of distanced (disembodied) viewing to be crossed.

The aesthetic conventions that segregated the sensing body through a reduction to the purely informational single sense artifact such as: visual (including audio images) or musical sound were essentially sensory deprecating.¹¹ The separation of the senses, their isolation through deprivation, was analogous to the 'disinterested' separation that was said to allow critical distance and aesthetic judgment.¹² The prevalence for a mind and body split had precedence in Descartes 17th century proposition, known as Cartesian Dualism.¹³ The articulation patterns of a philosophical embodiment typically engaged endosymbiotically with the sensory relationship integral to mind and body. The *Sweet Spot* work developed from a compositional intention to embody intermedial perception through synaesthetic awareness.¹⁴

Sweet Spot was a liminal journey between the embodiment of an aesthetic reality and the magic of multi-sensory representation. As a prototype it sought a sublime combination of optimal structure, material, experience and form. In terms of Bateson's map and territory paradox, *Sweet Spot* returned to the audience the experience of the synaesthetic body. Machine mapping of human movement became the sensory feedback in an arc of a *spatial aesthetics* where intimate proximal human interaction was simultaneously communicated as the visceral and the virtual. *Sweet Spot's* collaborative research theory and experimentation integrated immersive media experiences, sonic and corporeal performance with generative audience participation to reveal modalities that elucidated an intermedial creative communication in practice. Grounded in interdisciplinary processes that provided curious tacit logic, the work was

developed to conceptualise the visual and linguistic formation between the cartography of the map and the embodiment of the territory. The works imaginary geography was charted as a magical world of mysterious territories, intriguing expressions of mimetic pattern and immersive structure that linked perceptions of cultural tenure, identity and place.

¹ The 20th Century German dramatist Brecht suggested that the fusion of science into art, “In its transmuted form... gives

² Helen Paris reflecting on her own intimate performances observed, “each time this border is made... permeable to allow performer and audience to meet... the relationship between audience member and performer is challenged... Negotiating the boundaries of how close is too close is a constantly shifting journey.” (Hill & Paris 2006: 190)

³ (Adam 2011)

⁴ *Sweet Spot* has some analogy to French artist Jacques Polieri’s conception of scenographic space as “the mobility and three-dimensional virtuality of the emission and reception of acoustic and visual data” into spatial forms. Polieri’s scenographic craft of the 1960’s and 70’s proposed “performance environments that oscillated between reality and imagination, science and fiction, theory and concrete space” (cited in Salter 2010: 53)

⁵ The *Sweet Spot* computational system follows the structure of a “simulation that has three parts: variables, a system and a state”. (Reas et al. 2010: 149)

⁶ (Eamon 2005)

⁷ (Adam 2011)

⁸ The intention of an improvisational machine is antithetical to the designation of the machine as a device of repetition, as Reas explains, “Computers are designed to accurately perform the same calculation over and over. People who write programs to control these machines often utilize this inherent talent. In fact, it is more difficult to work against the computers electronic precision in order to produce idiosyncratic images.” (Reas et al. 2010: 53)

⁹ The Mercator map originated with the European cartographer Gerardus Mercator in 1596 (Daners 2012: 1). The map of the world formulated by Mercator is “probably the most commonly used map of the world. It was originally designed for navigation, and is still used for that purpose. The map is also useful for plotting meteorological or oceanographic data” (Daners 2012: 1).

¹⁰ Gregory Bateson (cited in Cashman 2008: 47-48) has posed the question, “But what is the territory? Operationally, somebody went out with a retina or a measuring stick and made representations which were then put upon paper. What is on the paper map is a representation of what was in the retinal representation of the man who made the map; and as you push the question back, what you find is an infinite regress, an infinite series of maps. The territory never gets in at all... Always the process of representation will filter it out so that the mental world is only maps of maps of maps, *ad infinitum*.”

¹¹ The question of theatrical closeness posed by Paris (Hill & Paris 2006: 191) is about the threshold of a perceptual map created in scenographic space and the drama of its crossing, “Ultimately the screens are revealed as permeable membranes that reveal the performer to audience member...in the live encounter there is no way out... The screens allow both a closeness and a distancing... The distancing device ...made the connection between performer and audience member seem closer... Too close for comfort is when the gap between the performer and audience is closed to such an extent that there is no longer any space left for possibility, for communication, for silence, for the unknown.”

¹² (Carlson 2009)

¹³ and is a “way of distinguishing mind and matter [that] has lasted up to our time” (Cashman 2008: 46).

¹⁴ The scaling back or ramping-up of aesthetic and phenomenological sense perception is filtered through the human sensorium (McLuhan 1964) where *synaesthetic* compensation maps the gaps, frequencies and resonances required for aesthetic and perceptual experience. The theorem implicates the *synaesthetic* sensorium, as the seat of the senses, and what is considered ‘crossmodal binding’ and ‘plasticity’ in cognitive psychology (Röder in Bremner, Lewkowicz & Spence 2012: §13.1), as a moderator of the senses and sensory cognitive limits. Sensory deprivation is generally considered to lead to heightened compensation through brain plasticity. This has alluded to a normal state or level of crossmodal activity (*synesthesia*) in the sensory cortex of the adult human brain (Röder in Bremner, Lewkowicz & Spence 2012: §13.2). *Synesthetic* perception is the intermedial transcoding operating at the level of the visceral synapse.

Reference List

Adam, JA 2011, *Mathematics in Nature: Modeling Patterns in the Natural World*, Princeton University Press, Princeton.

Bial, H & Martin, C 1999, *Brecht Sourcebook*, Routledge, Hoboken.

Bremner, AJ, Lewkowicz, DJ & Spence, C 2012, *Multisensory development*, Oxford University Press, Oxford, U.K.

Carlson, A 2009, *Nature and Landscape : An Introduction to Environmental Aesthetics*, Columbia University Press, New York, NY, USA.

Cashman, T 2008, 'What Connects the Map to the Territory?', in Springer Netherlands, Dordrecht, vol. 2, pp. 45-58, DOI 10.1007/978-1-4020-6706-8_4.

Daners, D 2012, 'The Mercator and stereographic projections, and many in between', *The American Mathematical Monthly*, vol. 119, no. 3, pp. 199-210.

Eamon, C 2005, *Anthony McCall The Solid Light Films and Related Works*, Northwestern University Press, New Art Trust, San Francisco, CA, USA.

Hill, L & Paris, H 2006, *Performance and Place*, Performance Interventions, Palgrave Macmillan, Hampshire, England.

McLuhan, M 1964, *Understanding Media: The Extensions of Man*, McGraw-Hill.

Reas, C, McWilliams, C, Lust & Lust 2010, *Form+code in design, art, and architecture*, Princeton Architectural Press, New York.

Salter, C 2010, *Entangled: technology and the transformation of performance*, Massachusetts Institute of Technology.