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**The Science of Our Own Fiction:
Affective Experiments Enacted Through Creative Research**

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Abstract: This paper will explore the ways in which art may be understood as an ongoing experiment that interacts with the plasticity of the body to prompt change and affect the body-environment relationship. The arts offer an approach to research that recognizes the importance of the affect in studies of perception and action, self-organization and selection. An affective approach to experimentation would connect cognitive activity to the material processes of the environment in a science of our own fiction. This connection becomes the basis of affective experiments, which aim to yield new insights by merging the creative researcher with self-affecting-experimenter. To this end, I will discuss the scientific objectives of the 'rubber hand' and the 'mirror-box' experiments are contrasted with work by artists-turned-architects Arakawa and Gins and three of my creative projects to suggest how creative research might enact embodied change. Throughout the paper I will argue that cognitive processes such as attention, selection, decision and judgment are ripe for re-entry and experimentation through an embodied approach to acquiring knowledge that is particular to the arts.

Keywords: Creative research, experimentation, affect, fictive, enaction

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Introduction

This paper will explore the ways in which creative practices prompt change and propose that focusing on the embodied impact generated by fictive sets of relationships will produce new understandings of materiality and material thinking. Further, I suggest that the new materiality¹ to be included in our reconsiderations of technology, materiality and relationality, is cognition. Specifically, it is the significance of the plasticity of relationships within and across the body environment that may provide the basis for the development of particular practices and creative research projects. The inherent re-configurability of sensing, sensation and sense-making (embodied cognition) enables but does not limit the way value is assigned to constitute world, supplying a great potential for experimentation.

The role of experimentation in the arts and embodied cognition as a material and adaptive engagement is crucial to our evaluation of what constitutes knowledge and the role of the creative research across the arts and sciences. The following discussions attempt to answer the question as to whether embodied cognition is a particular case of material thinking or may change what we mean by material thinking. To facilitate these discussions, I have selected three creative projects in which reconfigurations of material and conceptual relationships are presented at different scales of action, allowing the affects of these experiments to be studied first-hand. The constantly changing parameters that link art and science and art and life are unified in the experience and capacities of the individual (body-environment, artist-scientist, researcher-practitioner, etc). As a result, affective experiments enacted through creative research aim to bring together perceptual acuity and intellectual acumen for the production of everyday life.

Experimentation, within creative practices, is a mode of encounter that reacts to the desire for hard data in the life sciences with a healthy allergy. The symptoms of this embodied reflex (watery eyes and melancholy) can be quelled by the cross-pollination of transdisciplinarity and practice-led research with uncertainty, indeterminacy and emergence. Experimental art therefore, might be characterised as a site where one makes distinctions and, by re-contextualizing the relations among those distinctions, initiates change. Change results from a correlation at the level of embodied cognition that flows from the body-environment through loops of perception and action. As one of the aims of embodied experimentation, change is the mobilization of conditions (information context or environment) undertaken in a rigorous and reiterative process that may be called the science of our own fiction. This seemingly paradoxical proposition highlights the speculative, anticipatory and interpretative (evaluative) measures that inflect selection and self-organisation (the biology of cognition) and will enable researchers to address the cognitive interactions between bottom-up perceptual processing and top-down conceptual processing, which weld the body to the environment.

The influential work of Maturana and Varela's *Autopoiesis and Cognition* (1980) can be posited as the prompt for developing an affective approach to experimentation on the biology of cognition. Their discussion of abstract thinking and pure relations in terms introduces a role for affect to play in self-organisation. The first hint appears in the opening essay of the book where Maturana makes a curious observation: "There are organisms that include as a subset of their possible interactions, interactions with their own internal states (as states resulting from external and internal interactions) as if these states were independent entities" (1980, p. 13). The "as if" evokes a fictive moment, a pretense, a propositional or speculative fiction that plays a crucial role in selection, decision and ultimately, embodied change. In other words, if I project my perceptions (attentions, emotions, motivations) onto the external world will affect



me and prompt changes in a significantly different way compared to suggestions based on internalized thoughts and feelings. The possibility of interacting with an internal state “as if an independent entity” changes the event. It also indicates that reconfiguring the value of relationships (literally repositioning internal states as independent) is an integral aspect of the role of embodied cognition in the persistence and change of the body-environment.

Since Maturana emphasizes that there must be an anatomical basis for all conduct and behaviors (1980, p. 20), the slippage between internal states and independent entities begs the question—for what cognitive activity was the “as if” substituting? Since cognition entails a re-entrant mapping through time, then from what point of view, or from which position in the body-environment relation is it possible to interact “as if” one thing were another? What is the mechanism of selection in this instance?

I have interpreted Maturana and Varela’s description of this strange “as if” moment in the autopoietic process as a particular mode of selection that produces fictive certainty² when interacting with cognitive states that allows speculation to affect viability. Does this fictive movement constitute the loophole that generates creative evolution? Bergson notes that the intellect tends to instrumentalize matter. He says the intellect “cannot, without reversing its natural direction and twisting about on itself, think true continuity, real mobility, reciprocal penetration—in a word, that creative evolution which is life” (Bergson 1998:71). When we become more and more attuned to the difference that arises in the process of making distinctions and surveying their affects, a “science” ensues. In the context of creative practice focused upon embodied cognition, science means a rigorous, ongoing and thorough fine-tuning of measures and the affects of measure through the exacting capacity of perceptual learning. A focus on embodied cognition avoids the problems that Bergson ascribes to the intellect because it allow us to think two things at once, body-environment, and thereby opens the door to experimentation on the processes that creatively afford reciprocity and mobility.

The first example of an affective experiment (the attempt to demonstrate links between affects, perception and imagination) has been selected from my own creative research. This ongoing project sets up an experimental, recursive structure that allow the observation of thought at the scale of attention, perception and action and an opportunity to study the small shifts affecting selection, decision and judgment.

An Ongoing Experiment At The Scale Of Attention

For several years I have been conducting an affective experiment: 2thts@1nce. In trying to have two thoughts at once, that is, attending to the process of having two thoughts simultaneously, the experiment has been devised to see the how I might track embodied thinking as an indicator of the elusive issue of distributed cognition. The purpose of the exercise was to find a process by which I could observe the links between ongoing, concurrent sets of activities: attention, selection, decision and judgment as well as the relationship between thinking, making (drawing), remembering and imagining. A key assumption in deciding upon this task and the tracking process is the notion that perception is action³ and that both rely upon thoroughly embodied cognition. The cognitive activities listed above each participate in the relation of movement to thought and the uncertain links⁴ between attention and perception or, at the other end of the spectrum, conceptualization and imagination. Tracking the constellation of cognitive activities and observing their coordinated modalities, allows a researcher / self-experimenter to become particularly aware of the relation of vision and visual thinking to touch.

Drawing proves a immediate way to pursue this task because it allow me to produce a palpable, feedback loop (able to be experienced) that one can analyze and evaluate differences and correlate and assess remembered perception with documented actions. What makes James notion that experiences are themselves experientiable useful for affective experimentation, is that it erases the divide between the objective world, the world of relations and their meaningful consequences, placing the body-environment at the heart of a constantly forming world. Creative research optimizes this recursive loop by providing surfaces on which experiences play out. This process is begun in actions that are located internally (thought that initiates drawing action) and cross into the environment (chalk lines on the blackboard) which then become observable in relation to myself. The thought-perception-drawing loop allows



sensory-motor feedback of movement to interact with non-objective thought spaces such as imagined or remembered sensations, objects and relations. These three benefits of the immediacy of the drawing process produce finely textured differences that loom large in the process of tracking the distribution of oneself as an ongoing experiment.

What underpins my decision to use drawing for this affective experiment is my ambidextrous and cross-dominant handedness (sidedness)? The difference being that I can perform some actions equally well with both hands while others tend to a dominant side (for example, I can draw with both hands but I eat left handed, write better right handed, kick left footed, throw right handed, bat a baseball either side, saw wood left handed, shave left handed and so on). Approaching the task of drawing a circle and a square required learning how to set up the task as well as how to perform the simultaneous thought-perception-actions. I was very conscious not to let this exercise fall into a training exercise for coordination that would result in a party trick rather, I tried to keep the exploration aimed the feeling of what was happening. In this way I hoped the process would yield new observations, distinctions and insights with each reiteration. Because I am already able to draw from objects using both hands simultaneously from observation, (for example, a self-portrait, a pair of scissors, a chair, the corner of a room) it became important to interrupt this hand-eye skill by focusing on shapes rather than observed forms. I decided after much trial and error regarding the best structure for the exercise to draw a circle and a square at the same time.

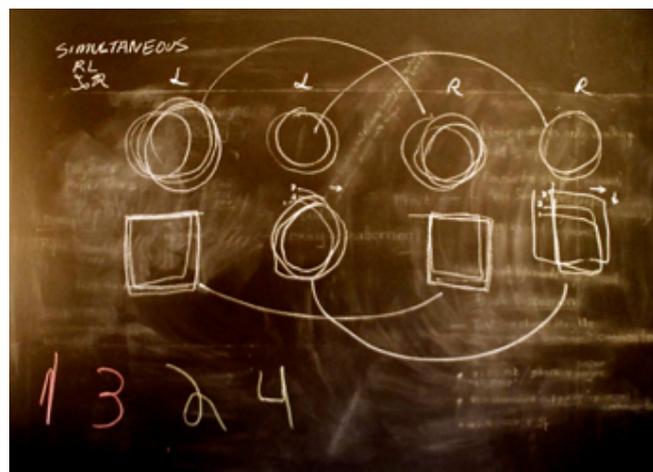


Fig. 1. Jondi Keane Blackboard drawings for “2thhts@1nce”

For the tasks in the experiment called “2thhts@1nce” the first trials involved writing with both hands at once—simultaneously left to right, right to left, starting in the middle writing outward symmetrically, starting from the outside writing the word on the left forwards and the word on the right backwards, etc. These trials delivered insight regarding coordination but I also became acutely aware of the differences that drawing objects from the symbolic domain produced in comparison with drawing object from observation. When drawing symbols or ideas of shape, I began to focus on the difference between the letter and the line and the drawing movement as a separate activity from the thing drawn. In other words I was representing an image not enacting a form. The next trial was to write with one hand and draw a form/shape with the other hand. This seemed to foreground a left-brain and right-brain attributes and produce interference which, rather than embracing the task of having two thoughts at once, set the activities into conflict and competition whereby one inhibited the other.

The conclusion from these trials was to use the premise of drawing two shapes as the best way to pursue the “2thhts@1nce” project. In this way I positioned the notion of a “thought” to include all the ways in which one might interact with a shape/form (a circle and a square). After additional trials concerning which shape-forms to draw, the circle and



the square proved to be the most challenging, because of their similar boundary areas but exactly opposite constituents (a continuous unbroken curve versus segmented straight lines). These traits are the ones that, when attempting to draw them, present the greatest effort to keep distinct and separate (squaring the circle and rounding the square).

The types of observations and insights derived from these meditative experiments include an immediate confrontation with underlying tendencies of cognitive processing such as the unifying “I” that delegates or collapses cognitive activity. The unifying “I” breaks down into two overlapping tendencies: the person who attends and the organism that subtends knowing, perceiving and acting. From the slow meditative actions of drawing, problems also emerge as a result of the habitual and ritualized ways in which the I “holds” a thought. The simplicity of interacting with two shapes allows the researcher to observe the tendency to fall back into automatic patterns of activity or dispositions. Repeating the task of 2thhts@1once yields a few insights, which I will frame in the first-person: I tend to sequence activities rather than actually multitask; I tend, whenever possible, to subsume or unite two actions into one. This is especially evident when drawing involves right and left hand symmetry or when the two hands unite through the body into a single two-handed movement in the same direction. When drawing shapes simultaneously, I not only shift attention between the physical activities by sequencing, uniting or coordinating actions, but I also shift between remembering, imagining, producing and reproducing the shapes. Tensions arise between the persistence of muscle memory and the unique occasion of drawing “this” circle and square. These tensions are revealed through a sensation or texture of thought that nuance the tracking and reflective process with each iteration of the task. As a result, the space produced by each distinction opens new research possibilities for subsequent thinking/drawing attempts—the ongoing experiment is never the same. This constitutes an experiment in the micro-spaces of activity in which the possibility for change may emerge from interacting with one’s own our plasticity.

Affective experiments are living diagrams⁵ of the anatomical basis⁶ of change in relation to attention and selection in the processes of learning and unlearning. In this way the distribution of embodied cognition may become the practice by which to extract meaningful consequences from our structured engagements with the world. The diagram is a way of thinking about the values used to track the movements across the body-environment, across scales of action or tempos of discourse. The important point here is the act of perceiving (under all its guises as attention, selection, distinction and designation) affects and is affected by interaction with the constantly forming world. The ability to experiment with values is what constitutes affective experiments that can mount a challenge to the history of the body and its relation to the environment.

Enactive Theories As The Basis Of Affective Experiments

Enaction, as implied above, is the theory of cognition as a collective event that operates across the body-environment, each system embedded within the other, co-selecting the structural and organization features of the surroundings.⁷ What is crucial to the present discussions is how the enactive model of cognition describes a dynamic that depends upon qualitative measures and evaluations. Enactive theories suggest a way of extracting experimentation from experimental structures in science because an organism uses precisely this mode of engagement to interact with the environment.

A form of measure used in the study of perception and action in ecological psychology determines how potentials in the environment [affordances] match with possibilities for action [effectivities] (Shaw & Mace 2003, p. 202). While ecological psychology foregrounds the importance of the body-environment relations it does not utilize the phenomenological dimension of cognition. However, the slippage from directly perceiving potential in the environment to extrapolating potentials is something that creative research and affective experimentation can readily develop. And for the creative practitioner, environmental potentials begs the question: By what means or through which techniques can other potentials be selected? In other words how does plasticity acquire a trajectory?

The way to an answer is through the mobility afforded by the fictive “as if.” When made operational, self-affecting activities actively shift and change what “counts as a match of



affordances and effectivities, thereby producing new qualities and intensity to be discerned and acted upon. If we recognize the fictive (that is to say virtual) of selection, the door opens to a host of experiments that purposefully mis-align or mis-match a potential to a possibilities. This idea of purposeful mismatching is supported in research on enaction, and the notion of precariousness where it can be observed that “only a sense making organism is capable of making mistakes by virtue of the mediacy of urge and satisfaction” (Di Paolo, E.A., Rhode M., and De Jaegher, H. 2010, p 51).⁸ Experiments in mismatching therefore open onto continuity and lead to a range of unanticipated events.⁹ Affective experiments focus on the link between perception and imagination in action rather than perception understood as sensory systems. Creative practices supply the context to pursue extreme play generated by affective experimentation for the purposes of heuristic benefit and increased capacity.

Precariousness (Di Paolo 2010), tentativeness (Gins and Arakawa 2002) and fictive certainty (Duncan 1985) are different ways of acknowledging the role of affect and experimentation in the dynamics of change (embodied change and change that enacts the body-environment). This purposeful interaction with selection gives experimentation its affective register, breaking its servitude to repeatability, verifiability and invariance—research values held in high regard in the sciences. In contrast, Duchamp’s readymade is an early instance of inserting precariousness into a system upsetting the system’s relationality and materiality to derive an affective force. The readymade distributes a series of affect opposite to that of an object like the soccer ball, which for example re-organises the living room according to the rules and spatial relationships of the game.¹⁰

The urinal is not like the soccer ball. It does not merely redistribute a set of relationships, produces a set of relations that have no prior rule of relationality, changing the landscape of possible relations between objects, subjects and contexts. The readymade is a loophole in the contract between body-object and environment. Paradoxically, the urinal does not change the gallery it is the gallery that makes the significant gesture, standing on its head just as the urinal-fountain does.¹¹ The gallery and urinal are made to match or align, leaving viewers upright in an upside down world. Duchamp’s complex gesture recasts an object as a readymade. This means the object’s use-value has been expanded to such an extent that it enters into an adjacent set of unanticipated and unprecedented object-subject, object-environment relationships. The readymade in turn activates the gallery making it operational, recasting the conditions by which one determines how potentials in the environment match with possibilities for action. Duchamp’s play uses the affective register of contexts to interfere with the structural effects of the environment and the result is destabilization followed by an expanded perceptual capacity.

When considered from the point of view of enactive theories of cognition and studies of perception and action, the gambit of the readymade exposes the mangle of practices¹² that exist across experimental science and affective experimentation. The combination of approaches consistent across experimentation in the arts and sciences¹³ allow both methods of inquiry to be re-evaluated in order to renew our understanding of cognitive processes such as attention, selection, decision and judgment. This is what affective experimentation promises: the embodied acquisition of knowledge through a transdisciplinary inquiry.¹⁴

Examples From Art And Science

Before returning to example from my own practice, it would be beneficial to examine a few projects from art and science that expand notions of perception, object and environment through affective means.

The first project is from the art and two artists-turned-architects, Arakawa and Gins, whose work fits an experimental ethos and a transdisciplinary mandate. Over their forty-year collaboration, they have actively engaged research across a range of inquiries, refusing to separate the body from the environment, language from perception, and thinking from feeling. Protégés and friends of Duchamp, they began their collaboration on a project called *The Mechanism of Meaning* (1963-1973). The work consists of eighty-two panel puzzles broken into sixteen sections that explore a different embodied focus, for example, “Neutralization of Subjectivity,” “Localisations and Transference” and the “Meaning of Scale.” Their research



took many forms including writings, architectural models, installations, residencies, communities and small cities, which has led to the conception of a reconfigurable organism-person-surround they call the architectural body (2002).

The panels that constitute *The Mechanism of Meaning* are life-sized material questions poised at the juncture of language, action, perception and imagination. Arakawa and Gins' inquiry led them to consider how the body-environment could be made tactical and used as a hypothesis about architecture, in which a built environment "presents itself as intentionally provisional, replacing definite form with tentative form, the notion of a lasting structure with that of an adaptive one" (2002, p. 29). Through this adaptive and tentative approach Arakawa and Gins found it crucial to distinguish between "functional" and "procedural" which is useful when thinking about the value of experimentation in this context. Arakawa and Gins propose:

An architectural surround that is functional, such as a space capsule, ... facilitates an organism that persons in its actions, extending the senses no questions asked, whereas an architectural surround that is procedural, a tactically posed surround, fills an organism that persons with questions by enabling it to move within and between its own modes of sensing. (Gins and Arakawa 2002, p. 58) [Emphasis added]

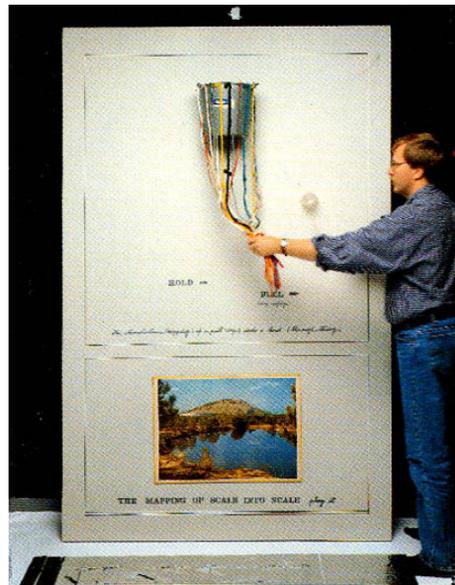


Fig. 2. Panel #2 from Section 11 "Mapping of Meaning" in *The Mechanism of Meaning* by Arakawa and Gins

The key to Arakawa and Gins' inclusive research project is the expressed purpose of asking questions through material means, in particular, by activating the environment or surroundings in every sense to generate new understanding of life by including all that happens as cognition within the purview of daily research. In contrast to Arakawa and Gins' approach, which is affectively charged, contemporary experiments in the sciences also explore plasticity in ways informed by notions of extended mind, prosthetic perception and sensory substitution in the rubber hand experiment, the mirror-box device and sensing apparatus. These projects will be briefly described and the salient points summarized.

Many contemporary researchers have conducted the rubber hand experiment.¹⁵ A research subject sits at a table with a partition. He or she places one arm on the other side of the partition unable to see that arm. Where the subject's arm would normally rest on the table inside the partition, a rubber arm is placed to suggest continuity with the subject's body. The subject's hidden hand is stroked with a brush at the same time as the visible rubber hand. The subject sees the researcher stroking the rubber hand and feels the stroking of the hidden hand. The subject attributes the feeling to be coming from the rubber hand. The ways in which a person "locates" his or her hand is altered through spatial substitution and the sensory connections between vision and touch. The rubber hand seems to join with the body of the subject or, the subject extends his or her notion of body image to include the rubber hand. The experiment demonstrates how we are able to incorporate an external object into our body image (or map that the body has of itself) by substituting the rubber hand into the perceptual system through the body schema (or that which is perceived but of which I am not conscious). I have been the subject of this experiment and can attest to the strength of the substitution and the ability to locate the sensation outside the sensory realm of the body.



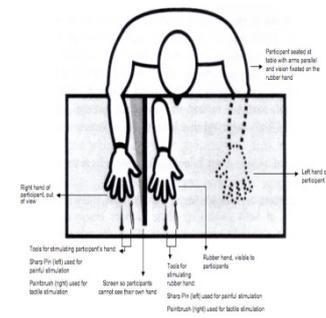


Fig. 3. Rubber hand experiment

The Mirror box was devised by Dr. Ramachandran to assist with the chronic pain of phantom limb sufferers. The mirror box works by placing one arm into each of the holes provided at the front of the box. A mirror divides the box into two sides with holes for each arm. The dividing mirror hides the arm that suffers from phantom limb pain, due to amputation or nerve damage. The person moves his or her head to view the mirror image of the non-affected arm situated spatially in the location occupied by the phantom limb via the mirror. The visual feedback produced by seeing the pain free arm in place of the phantom limb allows the person to release nerve and muscular tension to free the phantom limb of pain. , Used for rehabilitation, the mirror box taps into the multimodality that exists in the connection between perception and proprioception.¹⁶ Both the rubber hand and the mirror box inhibit or constrain the habitual functioning of one sense in order to allow reconnections to realign or reconfigure through other sensory modalities.

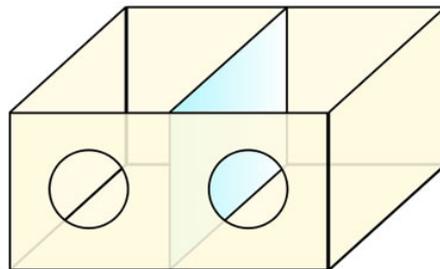


Fig. 4. Mirror box

Sensory substitution devices operate in a slightly different way. Perhaps most well known researcher in this area is Paul Bach-y-Rita, whose inventive devices for sensory substitution utilize the connections between the senses to rehabilitate the brain by, for example, activating existing sensory systems—such as the skin and the tongue—to substitute for lost vision, lost sense of balance or as the tactile feedback that assists blind people to navigate. A tongue feedback device (Fig. 5 & 6) helped Cheryl Schiltz, who lost her sense of balance after taking an antibiotic. The accelerometer in her hat transmits movement data to a device fitting on her tongue. The tongue tingles at specific places on the surface of the transmitter to correspond with position and physical orientation (uprightness). Schiltz learned from the feedback on her tongue (keeping the tingling centered) to regain her ability to stand and walk.





Figs. 5 & 6. Paul Bach-y-Rita's Sensory substitution device for lost balance

These inventive body-environment devices are the result of many years of experimental science and, in the case of Bach-y-Rita,¹⁷ share an exploration of materials not unlike the processes found in the arts. The scientific application for these innovative deployments of affect and plasticity tends towards uses in rehabilitation from illness and injury. However, as Arakawa and Gins' distinction between function and procedure makes clear, these devices remain *functional* because they amplify sensing and offer connections that are found to exist within multimodality of sensing. In other words, sensory substitution devices teach a person what he or she did not know their body was capable of doing. The devices hold the promise that an engagement with plasticity offers new prospects for multimodal sensing and for expanded interaction with the environment. A transformational and experimental project would seek to produce new capacities the body-environment was yet to learn. Alongside the scientific uses of experimentation, I would offer counter examples from my own practice that make affective experimentation work for the benefit of the self-experimenter.

Examples From My Creative Research

To suggest how experimental structures may utilize experimental structures *and* affective fields, I will discuss additional projects from my creative practice that aim to make perception perceptible. A characteristic particular to these works is a deliberate focus on change in scales of action within an experiment (for example, from the small micro-activity of sensation to a large scale collective attention at public events).

For *READING ROOM: Experiments in posture, movement and comprehension*, I invited Alan Prohm a theorist and practitioner of experimental poetics and Prof. Shaun Gallagher, a prominent philosopher of cognitive science who collaborated with the artist and gallery curator Theo Lotz to produce three installation works as part of the proceedings of the international conference "Arakawa and Gins- Philosophy and Architecture" (2008) held at University of Pennsylvania and the Slought Foundation gallery in Philadelphia. The exhibition investigated the role of embodiment plays in the development of various aspects of cognition (Gallagher 2005 p.4). The exhibition consisted of a series of posture- and movement-specific reading situations, which were staged to help visitors sense for themselves how their activity as bodies and persons reading relates to the enigmatic action of understanding the purposefully selected Arakawa and Gins' texts. The space of the text and of thinking, so often dissociated from the space of the person doing these things, gets produced through bodily interaction with environment. By highlighting certain connections between readerly action and perceptual phenomena the texts of Arakawa and Gins where installed in the same spirit of body-wide exploration to which the entirety of their project testifies. In these experimental situations the reader was simultaneously the subject of the study and beneficiary of the findings.

I produced three installations for the *READING ROOM* based upon reading postures: sitting, reclining and standing. To read the texts, specific control of movement and orientation were required. Participants had to read texts backwards, from the bottom-up, vertically, and doubled. The subjects' movements were constrained by the positions of each installation



and the apparatus provided: a seat, a seesaw and gravel on the floor (see figure 7 below). Responses to the installations ranged from amusement to frustration to intensified states of concentration and playfulness, prompting one person on the seesaw to say, “I remember reading the text but I have no idea what it said.” This seemed to be the response for the reclining work, which required persons to control the seesaw bed at an incline that allowed the text behind to be read in the mirror. The standing work constrained movement to a lesser degree but required readers to bend sideways, move closer and further away on the gravel and read texts that spiraled and ran vertically. This combination of exaggerated positions and unconstrained movement produced the strongest recognition of the embodied content of the text, connecting more easily with the physical demands made of the reader.

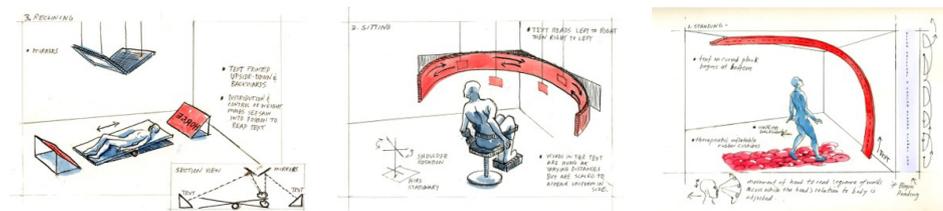


Fig. 7. Jondi Keane—drawings for three *READING ROOM* installations

The second work is a collaborative installation, *Tuning Fork*, which is part of a series of site-specific interventions with dancer James Cunningham. There have been three iterations to date: in a studio, a vacated shop front space and a converted drill hall turned choreographic lab. Each investigation activates existing person-object-environment relationships in an attempt to draw out, measure and track the events and established relationship of the world we know. The aim is to continue to push the familiar and, by rehearsing the habitual, allow the “adjacent possible” to emerge—the set of possibilities that may come to pass if slightly different conditions were present and if slightly different feedback loops were enacted (Kauffman 2000, p. 22). By simply changing the emphasis of the ways things become connected, we tried to reverse the figure-ground relationship to allow audiences to perceive the site itself through the materials and material processes. As the site becomes visible, the perceived events take on new meaning. As performers we deliberately tried to pull back to become part of the site, becoming attendants, operators, mechanics or acupuncturists of the architectural and social space.



Fig. 8. Jondi Keane and James Cunningham in *Tuning Fork*: Shopfront



Conclusion

To address the complexity of the affective field requires a reconsideration of the way experimentation operates. Research that isolates phenomena in experiments produces excellent results and applications that populate our world—from new drugs to new distribution systems. Research that includes the turbulence of ongoing events and multiple levels of meaning may also provide a different set of useful findings—tendencies, trajectories, potentials and transformative opportunities. Creative research focuses on the nuance across the relationships and deploys affective experiments to reveal and compare changes across iterations. The readymade is a good example of a simple action that perturbs systems of effects and fields of affect to expose their logic and extend their resonance.

Arakawa and Gins' work extends the resonance initiated by the readymade from object-contexts to body-environment by optimizing the perceptual awareness through tactically posed built surroundings. Rather than initiate change through a gesture or object, Arakawa and Gins reverse the source of the initiating factor by putting the environment in a position to prompt gestures and object relations. If the surroundings are used to ask questions, the notion of experimentation can be expanded to daily life as daily research. It is from this perspective—of continuity—that creative practices are concerned with tracking events within complexity and recognizing that materiality and material thinking must always consider the affective field. These concerns account for the reiterative nature of creative practices because it is the shifting results that hold value if life is to be approached as continuity inseparable from art and science. Hence *the science of our own fiction* acknowledges the embedded aspect of experimental science that resonates in an affective field and takes on meaning through myriad experimental lives.

If one takes the implications of enactive and embodied theories seriously, then creative practitioners would have much offer through attention to specificity of materials, meaningful contexts and quality of movement. When experimentation can be extracted from the imperative to participate in repeatability, verifiability and the production of invariance, it can become a heuristic tool for the production of difference. To advocate affective experiments means to value interaction of material processes with the materiality of cognition. Further the materiality of cognition both loops in on itself as well as co-mingling with the environment in selective actions. This extending towards (or linking and coupling with) the environment means that must we consider the activities of cognition to be a material process that impact upon the body-environment relation constructing the shared world in both pragmatically (situated) and speculatively (virtual).

Creative research presupposes that fictive certainty (Duncan 1985) is an embodied tactic, which among other things, searches for opportunities to interact with one's own cognitive processes and optimize perceived potentials in the world. It is in the slippage between anatomy and selectivity that can be inflected as a matter of experimentation. The slippage begins in perception of and the 'apportioning out' of undifferentiated experience, which leaves much of our interaction with the world open to suggestion. It is at this point cognitive processes—attention, selection, decision and judgment—are ripe for re-entry through an embodied approach to experimentation. Affective experiments emphasize the assertion that "relations between the knower and the known are also part of that immediate experience" (Heft 2001: 36-37). Ultimately, an experimental ethos is useful only to the extent that it allows perception and action to develop a heuristic potential and becomes beneficial to the self-experimenter. Plasticity—the capacity a self-experimenter wants to promote—acquires a trajectory from the actions and selections built up across the body-environment. This circuit is also the basis of creative practices, which when activated to think materially, explores the processes by which observation and learning lead to transformation and change.

The fictive power of selection repositions experimentation as a mode by which the body-environment explores possibility and potential. The affective experiment, at its best, offers a way through the cultural cold war over who assigns value and loosens experimentation from its commitment to *profound facts*—of what bodies do—and turns towards the *pro-finding of capacity*—particularly in the constantly forming space between selection and self-organization.



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Endnotes

- ¹ See Keane 2009 "Embodied Cognition is a special kind of movement" and (forthcoming 2012) "Effect: towards heuristic life" in which I argue that cognition, embodied, situated and distributed cognition is both the material substrate for and the interaction with information and context that shapes the body-environment and the entities we name as separate identities such as person, objects, forces, conditions, surroundings.
- ² See Robert Duncan (1985) for a discussion of fictive certainty and "as if" as a performative utterance that acknowledges the power of fictive action (both perception in action and the saying that makes it so) upon which poetry is founded.
- ³ Although the paraphrase is a reference to Alva Noe's (2004) *Action in Perception*, the source of this approach stems from William James' (1976) notion of radical empiricism emphasizing, among other things, that experiences are themselves experiential. This assertion changes the way lived experience, the philosophy of perception and research on cognition have developed. For an excellent history of James influence on contemporary ecological psychology see Heft (2001).
- ⁴ Studies such as Arien Mack and Irvin Rock (1998) have questioned the sequence and interdependence of attention and perception. Which activity is required first—e.g. must I know what a cup is as a precept in order to have my attention land upon a cup or can my attention wash across something on a table which I then come to perceive as a cup? Subsequently this research has been pursued under the rubric known as change blindness. While studying perception under conditions of inattention, Mack and Rock coined the term Inattention Blindness, or IB. Their assumption was that something had to be perceived without attention (1998, p. 55). The findings from their experiments show that "subjects may tacitly learn to inhibit attention from particular spatial locations which then leads to a significant increase in IB" (1998, p.64). This implies that, when measuring for effect, you cannot separate out affect, especially attention to content and context. Mack and Rock conclude that attention provides the key that unlocks the gate dividing unconscious perception from conscious perception and that without this attentional key there is simply no awareness of the stimulus (1998, p. 71). This has developed into research now conducted under the description of change blindness.
- ⁵ See Massumi (2002) and Manning (2009) for discussion of the biograms that inform current discussion of the diagram to which Massumi returns in "The Diagram as Technique of Existence: Ovum of the Universe Segmented" the third chapter in his latest book (2011, pp. 87-104). While the biogram is a "virtual node out of which a bodyness can be felt, this feltness is an affective experience. It is the tendency of a body to become that the biogram makes palpable" (Manning 2009, p 124) which is contrasted with yet closely related to the diagram. "From diagram to biogram is a passage through a different abstract machine, once connected to techniques of appearance and disappearance of a becoming body (Manning 2009, p 124). Arakawa and Madeline Gins' discussion of the living diagram or diagrammatic living offers a way of tracking perceptual learning and the multitudes of configurations that can be produced from the segments of awareness that constitute our biosphere (that is, a constantly forming world) They suggest that their working terms function diagrammatically, supplying "instant referent delivery", where by if "used diagrammatically, a term intermixes now lightly, now abundantly with its referent, which occurring on demand, suffuses the would-be diagram with itself" (Gins and Arakawa 2006, pp. 101,102). The diagram becomes an activity with biotopological implications (2006, pp 54-73) tied to co-constructing the world as opposed to biogramatically pertaining to the intensities of bodies.
- ⁶ As mentioned above, Maturana emphasizes that there must be an anatomical basis for all conduct and behaviors (1980, p. 20).
- ⁷ See Stewart J., Gapenne, O., Di Paolo, E.A. (2010) *Enaction: toward a new paradigm for cognitive science*, which surveys current thinking that stems from Varela, Thompson and Roach (1992) *The Embodied Mind* and Thompson's (2010) *Mind in Life*, which develops subsequent work with Varela (until his death) into the theory of enaction.
- ⁸ See Di Paolo, Rhode and De Jaegher's essay "Horizons for the Enactive Mind: Values social interaction and play" (2010) in which they posit a gradient of autonomy and mediacy, which "connects increasing degrees of mediation between an urge and its satisfaction to higher degrees of precariousness and to the consequent liberation of ways to generate value.
- ⁹ Biologist Stuart Kauffman calls the ecological niches that may arise, the "adjacent possible" (2000, p. 22, pp. 142-144).
- ¹⁰ Brian Massumi correlates the way in which Michel Serres, Bruno Latour and Pierre Levy all use the soccer ball to discuss the relation of subject to object and an individual to the collective (2002: 71). In this instance objects that fit into a pre-figured system of objects, or actions that fit in to a prefigured system of objects can be imported into a space effectively reorganizing the body-environment and subsequent actions of selection. While unanti-



pated relationships arise, the conditions for perception and action and not extended or expanded.

¹¹ This is not so dissimilar to the way Marx illustrates of the commodity fetish by describing the wooden table standing on its head and sprouting grotesque ideas from its wooden brain (1992, p. 163).

¹² In what Andrew Pickering has called the 'mangle of practice,' he locates the performativity of practice within a conception of scientific culture (1995, p. 5). Through the physicist Giacomo Morpurgo experimental work, he notes that in order to produce facts, the physicist had to make resistances fit particular material-conceptual alignments. Pickering concludes that practice is a type of modelling which has "an important real-time structure with the contours of cultural extension being determined by the emergence of resistances and by the success or failure of accommodations to resistance," (1995, p. xi).

¹³ This approach aligns with Deleuze's affective approach to experimentation in which "Affect [from Spinoza] is the sensation of what favours or prevents, augments or diminishes, the powers of life of which we are capable each with one another;" and Rajchman notes, "it is in something of this same "ethical" sense that Deleuze proposes to extract clinical categories (like "hysteria" or "perversion" or "schizophrenia") from their legal and psychiatric contexts and make them a matter of experimentation in modes of life in art and philosophy, or as categories of a philosophical-aesthetic 'clinic'" (Rajchman 2000, p. 132).

¹⁴ Transdisciplinarity is characterized by an effort to deal with disciplinary fractures by deploying the logic of one theory/practice (approach) to work in the elaboration of another without reducing one to the other (see Nicolescu 1997, 2008).

¹⁵ See <<http://forum.davidson.edu/psy379/2010/10/18/is-that-my-hand-because-it-certainly-feels-like-it/>> for a discussion of the experiment done by Botvinick and Cohen and the replicated experiment conducted by Capelari, Uribe, and Brasil-Neto. I experienced this experiment first had at the University of Tokyo where the students of physicist Takashi Ikegami were conducting it in 2008.

¹⁶ Dr. Vilayanur Subramian Ramachandran studies the relationship of what one sees as influenced by the reporting or, by what one tells oneself. This supports the notion of a fictive or discretionary aspect to self-organization. See <<http://www.residency-match.com/node/vilayanur-s-ramachandran>>

¹⁷ For an extended discussion of Cheryl Schiltz condition and Bach-y-Rita's research, see the first essay in Norman Doidge's book *The Brain that Changes Itself* (2007, pp 1-26).

Figure Notes

Fig. 1. Jondi Keane—Blackboard drawing for "2thts@1nce."

Fig. 2. Panel #2 from Section 11, "Mapping of Meaning" in *The Mechanism of Meaning* by Arakawa and Gins (1997, p. 92). Permission: Madeline Gins.

Fig. 3. Rubber hand experiment image. Retrieved from <http://forum.davidson.edu/psy379/2010/10/18/is-that-my-hand-because-it-certainly-feels-like-it/> (accessed August 15, 2011).

Fig. 4. Mirror box. Retrieved from <http://www.residency-match.com/node/vilayanur-s-ramachandran> (accessed August 15, 2011).

Fig. 5 & 6. Bach-y-Rita's Sensory substitution device lost balance. http://discovermagazine.com/2003/jun/feattongue/article_view?b_start:int=2&-C= (accessed August 15, 2011) and <http://www.news.wisc.edu/5837> (accessed August 15, 2011).

Fig. 7. Jondi Keane—drawings for three READING ROOM installations.

Fig. 8. Jondi Keane and James Cunningham in *Tuning Fork: Shopfront* (2009). Photo by Suzon Fuks.



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