

Relational Design

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While the idea of consilience stretches back as far as the Ancient Greeks, it reached its apogee during the Enlightenment, when the West strove to create an ordered system of human knowledge. This ordered system sought to integrate knowledge gained from all scales: from the cosmological down to the quantum with the cultural somewhere in the middle, and connections from one level to the next.

With the aim of unification between the humanities and the sciences, consilience was an unpopular word in the latter half of the 20TH century. Starting off with CP Snow's infamous lecture *The Two Cultures*, the idea of a unity of knowledge has become troublesome, as academic fragmentation and specialisation resulted in a widening rift between the two.¹ The identity of the intellectual shifted towards the domain of the humanities, leaving the sciences to work in resentful obscurity. Design academia has been no different, seeking inspiration from the humanities and literary criticism while ignoring the ramifications of breakthroughs in the sciences.

In recent years the idea of the third culture has arisen, with thinkers and scholars seeking to create a synthesis of the two sides into something far more relevant and powerful than a divided body of knowledge.² This essay will seek to remedy this problem by exploring the implications of scientific breakthroughs on design theory, while respecting advances in the humanities as well. I see design, in all its facets, as able to fit into this new category: ignoring the divide in search of something greater.

1. Snow, Charles Percy. *The Two Cultures*, (Cambridge, Cambridge University Press, 1959)

2. Brockman, John. Edge, 'The Third Culture', http://www.edge.org/3rd_culture/ accessed 16/4/10

Throughout history Western society has viewed the cosmos in different ways, each epoch marked by its own technological and theoretical understanding of the machinations of the heavens. The theoretical physicist Lee Smolin sees three distinct stages evident in history when there has been an interesting correlation between how the universe has been understood and the political, cultural and societal structure of the day. Our current understanding of the universe, for example, is well suited to contemporary democracy.³ Smolin’s ideas echo a work by the pragmatist philosophers Dewey and Bentley in dealing with modes of action and agency.⁴



The first cosmological model is that of the Aristotelian Universe. This is a hierarchical understanding of the universe: the earth in the centre with the moon, planets, the sun and the stars nested on crystal spheres circling the earth. Everything has a place, and this notion was applied to Aristotle’s society and the medieval society that embraced his works.⁵ Each member of society had a clear position, defined by an intrinsic logic: “some men are by nature free and others are by nature slaves, and that for these latter, slavery is both expedient and right.”⁶

Not only was it believed that everything belongs in its appropriate place, with respect to both the societal structure and the heavenly bodies, but also that each of these bodies was deemed to possess being, propelled by its own power. This belief applied not just to heavenly bodies but to all substances, each containing their own essence. Dewey and Bentley describe this understanding of the world as Self-Action: “where things are viewed as acting under their own powers.”⁷ The Christian notion of the ‘soul’ exemplifies this mode of thinking especially in the works of Thomas of Aquinas.⁸

A The planisphere of Ptolemy, or the mechanism of the heavenly orbits following the hypothesis of Ptolemy laid out in a planar view

3. Smolin, Lee. TED Talks ‘Why Science is Like Democracy’ http://www.ted.com/talks/lee_smolin_on_science_and_democracy.html Accessed 19/3/09

4. Bentley, Arthur & Dewey, John. *Knowing and the Known*, (Boston, Beacon Press, 1949)

5. Smolin *op. cit.*,

6. Aristotle and Botton, Alain de. *Status Anxiety* (Camberwell, Penguin, 2004) p. 48

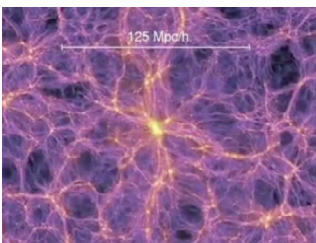
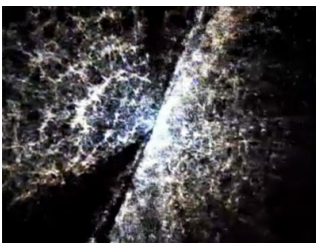
7. Bentley and Dewey *op. cit.*, 132

8. Emirbayer, Mustafa. ‘Manifesto for a Relational Sociology’ *The American Journal of Sociology*, Vol. 103, No. 2. (Sep., 1997), <http://links.jstor.org/sici?sici=0002-9602%28199709%29103%3A2%3C281%3AMFARS%3E2.0.CO%3B2-A>, accessed 12/03/2010

There exist no occult forces in stones or plants, no amazing and marvelous sympathies and antipathies, in fact there exist nothing in the whole of nature which cannot be explained in terms of purely corporeal causes, totally devoid of mind and thought.⁹

The second model begins with Galileo's experiments in motion and continues with Descartes prime law of nature and Newtons Laws of Motion. Objects are not propelled by their own essence but through Inter-Action: "where thing is balanced against thing in causal interconnection."¹⁰ Space and time are not included in this description but are merely the fixed framework for action to take place in. This Rationalist notion results in a closed and eternal system, with particles positioned not in relation to other objects but to an absolute concept of space. The discourse of liberal political theory mirrors the scientific understanding of the time; the individual is acted upon by the absolute and universal laws, rights, and notions of justice.¹¹

The third revolution in physics is a result of Einstein's Theory of Relativity. Time and space are no longer mere backgrounds for action to take place in, "a static abstract grid waiting to be filled," but factor into the description as a changing and growing aspect of our universe.¹² Through this logic it is meaningless to say where something is based on universal co-ordinates; the only meaningful way to describe the position of something is its relative position in a network of relations.¹³ This expanding model of the universe differs from the closed and static Newtonian understanding: all places of observation will influence and limit what can be understood. As there is no space external to the universe, nothing can exist outside of it, thus every occurrence must be governed by properties inside it.¹⁴ One of these properties, gravity, causes planets, stars and galaxies to form and at an even larger scale, and causes the clustering of galaxies to form into even larger networks. These ideas of self organisation and emergence go further than just the forming of networks but can possibly explain



B Sloan Digital Sky Survey showing the location of a million galaxies, taken from our known place of observation.

C Simulation of possible structure of galaxy clusters caused by gravitation

9. Slife, Brent D. *Taking Practice Seriously: Toward a Relational Sociology*. (Journal of Theoretical and Philosophical Psychology, 24) p65

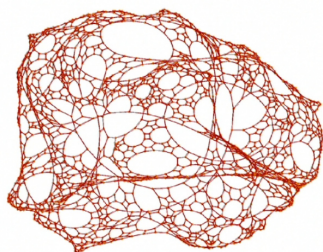
10. Bentley and Dewey *op. cit.*,

11. Smolin *op. cit.*,

12. Brown, Colleen. 'The Relational Meme' *Fillip Vol 1* (Summer 1996)<http://fillip.ca/content/the-relational-meme>, accessed 13/03/2010

13. Smolin *op. cit.*,

14. *Ibid*



the structure and shape of our universe based on the original properties of the big bang through algorithmic software.¹⁵ Through this understanding of a network of relations we can now return to the work of Bentley and Dewey with their third categorisation, Trans-Action:

where systems of description and naming are employed to deal with aspects and phases of action, without final attributes to ‘elements’ or other presumptively detachable or independent ‘entities,’ ‘essences,’ or ‘realities,’ and without presumptively detachable ‘relations’ from such detachable ‘elements.’¹⁶

This inability to detach an ‘element’ from its ‘relation’ leads to a dynamic system — one where the relational process becomes more important than the constituent units and the qualities of these units stemming from their relations.¹⁷ The difference then, between interactional and transactional ways of thinking, is whether or not to view the world, “in substances or in processes, in static ‘things’ or in dynamic unfolding relations.”¹⁸ This change could only have come about through breakthroughs in science like the one I have just described. Only through viewing the transaction between time and space, instead of viewing them as separate entities, was science able to move on from previous Newtonian and Cartesian epistemology. This Relational ontology posits that the relations between entities are fundamentally more important than the entities themselves; one must look at the dynamic relationship as a whole. One cannot look at entities first and then the interaction; the transaction must be held at the same time. Unfortunately, there are shortcomings in Western languages in easily rendering this in casual language. Verb and noun cannot be used at the same time, as one must take importance over the other.¹⁹ Viewing things under prior rigid naming systems and through unchangeable essences one needs to form a ‘conceptual blankness’ around each subject in order to understand it in its own right.²⁰ “The subjective mind is considered to contain its own properties, without a defining reference to its surrounding context”.²¹

D An attempt by Stephen Wolfram to simulate the structure of our universe using generative and emergent software

15. Wolfram, Stephen. TED Talks ‘Computing a theory of everything’, http://www.ted.com/talks/stephen_wolfram_computing_a_theory_of_everything.html accessed 4/5/10

16. Bentley and Dewey *op. cit.*, 133

17. Smolin *op. cit.*,

18. Emirbayer *op. cit.*, 281

19. *ibid*, 283

20. Brown, *ibid*

This capability to remove oneself from context is one of the most important ideas of Western thought. The mind/body split allowed the conceptual framework of the mind to think of abstract ideas, separated from the body and the external objective world.²² This ‘punctual self’ does not need others to confirm its identity, seeing oneself as an isolated point of consciousness, surrounded by a “conceptual blankness.”²³ By contrast, the relational self relies on its connections with others to define itself. This still allows for a distinct identity, but “through a distinct nexus of relationships rather than a distinct set of beliefs.”²⁴ Hence the role of community in a relational identity becomes paramount.

Smolin sees the ultimate problem with reductionist thinking is its own undoing.²⁵ As technology and ideas advanced, the sciences were able to peer deeper and deeper into the fundamental elements. Yet the quest for even greater reductionism leads to a problem for, “if the particles are truly fundamental than their properties cannot be explained by a further appeal to reductionism.”²⁶ Thus this search for eternal and absolute truths about the universe can only go so far. Furthermore, Rationalist modes of thought view things, entities and objects in static terms, ignoring the true dynamic nature of the universe. The search for eternal laws of physics is made redundant by the actuality that our universe is, and has been, constantly changing (albeit at varying speeds) through its existence. This makes the idea of a sealed and knowable universe impossible. Thus the conflict in science brought on by the end of old essentialist and Newtonian ways of thinking about the world and new revolutions in science leads us not just to issues of scientific truths, but to language as well. The Postmodern response to these problems is to reject notions of truth altogether and view it as a social construction. Seeing fault in teleological notions of progress, deconstructionism sought to dismantle Western hegemony through the use of cultural relativism.

21. Slife, *op. cit.*, 69

22. *ibid*

23. Brown, *ibid*

24. Slife, *ibid*

25. Smolin, Lee. ed. Brockman, John. Edge ‘The New Humanists’, http://www.edge.org/3rd_culture/brockman/brockman_print.html#smolin Accessed 7/5/09

26. *ibid*

But this attempted solution leaves us in an even worse position than before, leaving us “suspended in an impotent haze from within which we cannot even remember how useful rational thought has been for improving our world.”²⁷ It is at this point where the search for knowledge must move beyond the old reductionist manner and accept that Postmodernism is an interesting experiment whose time has come.

Smolin sees the processes and our understanding of evolution as emblematic of this new way of thinking. That it accepts the positive attributes of reductionism yet seeks to understand how the parts work as a whole in relation to each other.²⁸ It is through this logic that evolution does not begin at the very large, and work its way down, but begins at the very small. As Darwin states in the closing lines of *The Origin of the Species*: “from so simple a beginning endless forms most beautiful and most wonderful have been, and are being, evolved.”²⁹

In a relational universe with no space for order to be imposed externally, the only possible way is through self organisation. In a relational universe, with no space for order to be imposed externally, the only possible way is through self organisation. Evolution wouldn't make sense contingent on the logic of the two previous universes; only a universe with relational properties does evolution answer the problem of existence and order.³⁰ Looking at ecology through the lens of evolution, stasis and equilibrium makes little sense. There is a constant jostling for resources for all parties over time as each species, whether flora or fauna, must adapt to survive: “a given gene does not control a specific trait, but a specific reaction to a specific environment”.³¹ Thus the organism doesn't evolve unto itself, but in the context of its ecological network, through the interplay and creation of that very network.

27. *ibid*

28. *ibid*

29. Darwin, Charles *On Natural Selection* (Camberwell, Penguin Books, 2004) p117

30. Smolin *op. cit.*,

31. Sinnott, Edmund, *The Problem of Organic Form*, (Yale University Press, New Haven, 1963)

21st century science is going to be driven by the integration of these two ideas: the triumph of relational ways of thinking about the world, on the one hand, and self-organisation or Darwinian ways of thinking about the world, on the other hand.³²

So far we have looked at the broader backdrop of key scientific ideas – evolution and a relational universe – that will inform the nature of the case studies that I will look at later on in the thesis. These breakthroughs in science are also informing the way in which we view ourselves in the early 21st century. While the notion of a grand narrative to define our era is one that seems odd when viewed in the light of our fractured society, there have been a few such attempts to define the underlying thread of our times. In looking at two examples I hope to correlate them to the themes of relational networks and emergent dynamics as previously discussed.

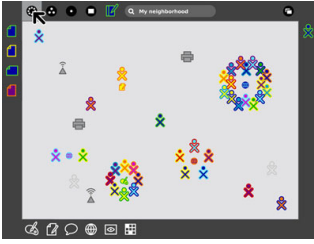
If the machine acted as the dominant paradigm for both the industrial and modern era (in different guises) then the network needs to be viewed as our equivalent. Network theorist Manuel Castells paraphrases Marshall McLuhan to make his point: “the network is the message.”³³ For Castells, flexible networks are taking the place of older formal hierarchies. This is not replacing previous structures wholesale, nor is the network all pervasive; the industrial era did not replace old agrarian cultures worldwide nor did the machine define all systems of cultural logic. Nor is this to say that networks did not exist previously, but that the advances in communication and our digital and informational based society allows for networks to become more capable of organisation than before.

As an extension of the conclusion to his latest book, *Networked Publics*, architectural theorist and lecturer Kazys Varnelis has been exploring the notion of Network Culture, leading on from and extending the work of Castells.³⁴ Leading on from Jameson’s view that Postmodernism was the result of late capitalism, today’s logic can be

32. Smolin *op. cit.*,

33. Stalder, Felix. *Manuel Castells: The Theory of the Network Society*, (Cambridge, Polity Press, 2006)

34. Varnelis, Kazys. ‘The Rise of Network Culture’ *Networked Publics*. http://varnelis.net/the_rise_of_network_culture, accessed 27/03/2010



E Screenshot of the GUI of the XO operating system from the One Laptop Per Child that places emphasis on people and relations not files or folders

F Photosynth collects geotagged photos and positions them inside a 3D space using multiple view-points to create a comprehensive recording of an event or space

defined as a result of networked capital.³⁵ The use of the digital or electronic in Post Fordist capitalism sought to transform the commodity into an abstract entity. Positioned within the contemporary networked society, its value becomes less about what has become abstracted, but its location within the network.³⁶ Leading on from the brief discussion earlier regarding identity and the subject, theories of the network seem much more adept at exploring this shift. The subject, once deemed so central and important to enlightenment ideals, can no longer be considered as autonomous as before. Instead, the singular identity has become subsumed into the network; the fragmented Postmodern individual shatters completely.³⁷ An identity is no longer individual, instead relying on its relation to other people, ideas and causes to form: “affirming one’s identity today means affirming the identity of others”.³⁸ Thus, as with the change in capitalism, one sees one’s identity as situated and constructed in many networks.

Another intriguing aspect of Network Culture is the changing mode, or understanding, of history. But with Network Culture, the transition has been made to atemporality. This atemporality is a product of the transition away from the book towards the network. A book is a linear piece of text. It has a beginning, an end, and an author with intent. But the internet has brought a great leveling of authoritative knowledge: “a single historical narrative is a paper narrative.”³⁹ The contrast between moving through a history book understanding the narrative as a linear process as opposed to the result of searching online for a historical narrative is an important one.

Having defined the concept of a relational universe, working as a system of relationships, how this idea or structure travels through nature, and the way in which it is now altering our engagement with the world through our current mode of globalisation and its links to

35. Varnelis, Kazys. On Methods Varnelis.net http://varnelis.net/blog/on_methods accessed 20/4/10

36. *ibid*

37. *ibid*

38. *ibid*

39. Sterling, Bruce. Beyond the Beyond ‘Atemporality for the Creative Artist’ http://www.wired.com/beyond_the_beyond/2010/02/atemporality-for-the-creative-artist/, accessed 26/02/2010

network culture, it is now important to discuss the most important element of this essay, Relational design. It is the most important aspect of this essay, and is where the majority of insights will come from. It neatly ties up all of the arguments and examples I have made so far, into one cohesive whole. More importantly, it places the scientific advancements in the context of design, in its broadest sense, but also through the examples that I will look at in the thesis.

The idea of Relational design was brought to the fore by Andrew Blauvelt, Design Director of the Walker Art Museum. Through a series of lectures, he crystallised the idea, and then published an argument for the case on the influential design blog, Design Observer.⁴⁰ Blauvelt argues that we are entering a third phase of design, one that is just as important as the previous two, one that is relationally based and contextually specific to design.

Some confusion has been made over comparisons to Bourriaud's idea of Relational aesthetics.⁴¹ This is a valid complaint considering the title that Blauvelt uses. Similarities can be found between the two ideas, especially when transposed into the world of design. Blauvelt's use of the term here is a broader vision of Bourriaud's, whereby the social aspect of Relational Design can be seen as standing in for Bourriaud's use of the term.

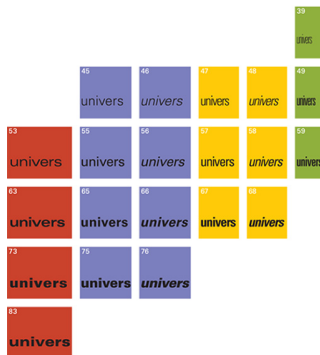
We might chart the movement of these three phases of design, in linguistic terms, as moving from form to content to context; or, in the parlance of semiotics, from syntax to semantics to pragmatics. This outward expansion of ideas moves, like ripples on a pond, from the formal logic of the designed object, to the symbolic or cultural logic of the meanings such forms evoke, and finally to the programmatic logic of both design's production and the sites of its consumption.⁴²

Once again, we need to compare this current mode of design to its 20th century counterparts. It is interesting to note that at no point does Blauvelt make any mention of Modernism or Postmodernism in his essay, but only alludes to them, referring to them as waves, phases or periods. Perhaps this allusion is to hide the nature of his attempt at meta-narrative.

40. Blauvelt, Andrew. Design Observer 'Towards Relational Design', <http://www.designobserver.com/observatory/entry.html?entry=7557> accessed 9/10/09

41. Poynor, Rick. Print 'Strained Relations' http://www.printmag.com/Article/Observer_Strained_Relations accessed 23/8/09

42. Blauvelt, *ibid*



The first wave of design highlighted the importance of reductionism and simplification to achieve a universal visual language that could be exported throughout the world.⁴³ This desire for a rational and reductionist vocabulary can be seen in the work of the Bauhaus school through to the logos and identities aligned with the New International Style. Designers such as Josef Muller Brockman sought to achieve clarity and perfection through the use of typefaces such as Helvetica, Univers and Futura and, with an extreme attention paid to the logic of the grid, were able to organise information in clear and concise ways.

The second wave of design was focused on its underlying content: its semantic, symbolic, and meaning making potential. This culminated in the world of design, to see the Designer as Author; if the meaning of the text could be interpreted on many levels, the designers hand could also be seen as a text to be read.⁴⁴ The designer, through the control of form, became the author of the text. Perhaps the most visible example of this is the inclusion of the designer Bruce Mau on the front cover of the architect and theorist Rem Koolhaas' book *S,M,L,XL*.⁴⁵

Blauvelt then sees the third wave of design beginning in the mid nineties, being closely connected to, and informed by, the rise of digital media. This third period emphasizes design's context but also includes its "performative, pragmatic, programmatic, process-oriented, open ended, experiential and participatory elements."⁴⁶

Open ended-solutions rather than closed systems; real world constraints and contexts over idealized utopias; relational connections instead of reflexive imbrication; in lieu of the forlorn designer, the possibility of many designers; the loss of designs that are highly controlled and prescribed and the ascendancy of enabling or generative systems; the end of discrete objects, hermetic meanings, and the beginning of connected ecologies.⁴⁷

6 The hierarchy of the Univers typeface

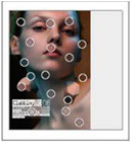
43. *ibid*

44. *ibid*

45. Koolhaas, Rem, Bruce Mau, Jennifer Sigler and Hans Werlemann. *S, M, L, XL*, Monacelli Press, 1998

46. Blauvelt, *ibid*

47. *ibid*



The Casa de Musica identity system derives its colour from the context of its immediate surroundings. Through code the identity system is always in flux, a gene responding to its ‘specific environment.’⁴⁸ The typographic system Twin Cities extends the notion of context even further, literally responding to environmental factors such as wind speed or temperature to change its form.⁴⁹ Starting off with generic prefabricating structures, the Manufactured Sites Project by Teddy Cruz uses local building materials to situate housing within its social and cultural context.⁵⁰ These examples serve to briefly illustrate their focus on context.

And so Relational Design is positioned within all that I have discussed. The designer and the artifact are situated in these dynamic networks of relationships. Design ceases to be a static process, instead becoming contingent on its changing real world context. If the universe is dynamic, emergent and governed by rules of self organisation, design practice would benefit from reflecting this broader understanding.

H Casa de Musica identity system
I Twin Cities typographic system
J Manufactured Sites

48. *ibid*

49. *ibid*

50. *ibid*

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