Richard Cohen, a New York Times columnist wrote on Dec 16:

“Everyone now realizes that the takeover of racism, irrationality, fear and violence can happen anywhere if the factors are aligned. And today for many Americans, we begin to understand see how it has come incredibly in a place we thought more impregnable.(Cohen 2016)

“Mr. Trump’s rhetoric, however, veers into outright alarmism, unqualified by a reasonable view of the facts. His words, in short, seem more likely to foster desperation than determination, and radicalism rather than hope. History shows that when populaces succumb to such moods they are more likely to follow “strong” leaders, and the simplistic, forceful solutions they offer to complicated problems.” (Board 2017)

“…. the Internet is a complex adaptive system. Therefore, when we upload museum collections and allow people to interact with them in new ways, we are trying to reinsert our previously isolated objects back into a highly complex system. This is a critical reversal in the way we think about our objects and collections. For possibly the first time, the objects in our collection are not being sequestered away from the world and hidden within the safe space of the museum. Instead, we must now try to reposition those objects and collections within the broad context of the Internet, and indeed, the whole world. No wonder the sector is struggling with how best to cope with this change. Not only are we inviting the public to interact with our collections in ways that have previously been impossible, we are asking the objects in our collection to take their place in a complex environment from which they have previously been quarantined.” (Anderson 2011)

# THE IMPORTANCE OF “AND”[[1]](#endnote-1)[[2]](#endnote-2)

15 February 2017

### THANK YOU:

Wominjeka. (wom a jeeka) Let me begin by acknowledging the original inhabitants of this land. I have worked for 45 years in the museum profession, advocating for small and large changes that might facilitate broader inclusion for an increasingly diverse audience. I am now standing in the part of the world – Australia and New Zealand -- that, along with Canada, pioneered the ways in which museums and governments should deal fairly and equitably with the evidence of its original inhabitants. The rest of the world has learned from you. Thank you. I am happy to be back.

### THESIS:

In a politically traumatized world, what I am going to talk about – the museums opportunity to promote nuance, complication, and approximation in our presentations, using complexity theory as a lens – might seem tangential and will not, by itself, change things appreciably because much more than this is needed. What I am looking for is a lever that might allow museums to become intentional, subtle resisters -- rather than collaborators – in a world becoming more autocratic.

I will be referencing the current state of academic inquiry where theories of empathy, complexity and personalization are widespread and currently serve as structures in explaining heretofore unexplainable phenomenon with non-predictable outcomes. I want to explore how we, in the museum world, can use complexity theory in our exhibition conventions by providing multiple avenues of exploration, adding continuously cumulative input, surveying a non-hierarchical multi-disciplinary intellectual landscape, enfranchising the individual visitor in self-exploration, and supporting non-conclusory outcomes. In simpler terms, I want to change exhibitions from institutionally controlled narratives to ones where the displayed object is decoupled from explicit explanations, but linked laterally to multi-varied avenues of exploration.

### HABITS OF MIND:

I begin with remarks about the political tilt to the right in most of our countries. I feel impelled to talk about the disquiet that the election of Donald Trump has caused me personally and many others in my birth country. I am an American Progressive which makes me, when measured against other countries political spectra, mildly center-left but further left than that in my own land.

I ask myself, along with so many others, how did we get to this worrisome place? An explanation must center on voters, who when faced with uncertainty in what feels like an overly complex and ambiguous world, chose simple explanations with a willingness to cede personal responsibility to a controlling figure even at the expense of their democracy, their personal knowledge of right and wrong, their expectations of civility, and their belief in facts as bedrocks of civil society.

I hope that learning to accept complication will enhance our ability to empathize with the opposition’s point of view and lead to a willingness to accommodate for it. It is the walking back from extreme posturing and simple, quick outcomes that allows for a pathway to messy compromise. I am arguing for ending “winners and losers” as the only acceptable outcome to all issues.

I believe that headline-writing journalism, texting conventions and social media platforms, especially Twitter, have allowed us, the public, to practice and then accept simple messages and “the slogan” as truth. More importantly, insidiously, is the rise of intentionally false news and our increasing acceptance of a flexible relationship to facts, in part, because “simple” impedes investigation.

I am, perhaps, stating the obvious when I assert that most societal questions are complicated, that each contrarian position has some, but not all, answers and that to overhaul society’s ills requires multiple small, and often seemingly unrelated, actions. To move peacefully ahead, we will need to tolerate unreconciled messy situations. And, at the moment, no public presentations of issues, in any of our multiple delivery systems, overtly welcomes mess of any kind. Arthur L. Costa has written, in an article entitled “Learning and Leading with Habits of Mind”:

“A great mystery about humans is that many times we confront learning opportunities with fear rather than mystery and wonder. We seem to feel better when we know rather than when we learn. We defend our biases, beliefs, and storehouses of knowledge rather than invite the unknown, the creative, and the inspirational. Being certain and closed gives us comfort, whereas being doubtful and open gives us fear.”(Costa 2008)

In a recent New York Times Op-ed, Trevor Noah, the TV personality, recently wrote:

“America, I’ve found, doesn’t like nuance. Either black people are criminals, or cops are racist — pick one. It’s us versus them. You’re with us, or you’re against us. This national mentality is fueled by the hysteria of a 24-hour news cycle, by the ideological silos of social media and by the structure of the country’s politics.” (Noah 2016)

### MUSEUMS:

To assist people in appreciating nuance and complexity, institutions in the public sphere should, I am advocating, move away from assertive simplicity and lead the way in changing information-processing expectations, demonstrating that problems are complicated, their solutions intertwined, estimated, and cumulative. Simplified presentations may have helped get us into this political fix, and the presentation of complexity may help to get us out.

This is a paper about museums and since I am, by nature, an action person, I am suggesting that we have a role, nay an obligation, to aid in reestablishing a more complex and nuanced dialogue, by revamping our conventions of language and content presentation so that audiences, while still trusting in our veracity, will learn to expect density in public dialogue. Nick Poole, a wonderful thinker about museums, has written:

“For centuries, the role of museums has been to digest complexity and express it as pattern. Whether it is a linear hang in an art museum, giving the impression of a coherent progression of art-historical movements or a social-historical display giving the impression of a singular ‘community’ with identifiably-shared beliefs and values — we are temples to the illusion of order and predictability in a complex and chaotic world. (Poole 2014)

We need to prepare for resistance while, at the same time, understanding that welcoming all means welcoming those we really don’t politically agree with as well. The stories we tell and the materials we show are, and should be, theirs as well as ours. Museum history is a continuous unsettled landscape with honorable actors on all sides. Collectively the more boisterous right and left actors now need to uneasily join with each other because the current world needs new pathways.

“For our museums, our galleries, libraries and archives to be relevant to this world, we have to be part of the solution. We must help people understand their collective responsibility for each other, to see that the answers to some of mankind’s most urgent questions lie in a better understanding of our shared past.” (Poole 2012)

Research shows that going from simple to complex is not automatic and requires training and experience. Researchers have found that:

“…the university students tended to solve problems using statements that were reductive, assumed central control, described a single source of causality, were predictable, and focused on objects, while the complex systems experts tended to solve the problems with statements that considered the overall system, described de-centralized control and multiple causal factors, noted probabilistic nature of solutions, and were process oriented.” (Jacobsen 2017)

More problematically, Susan Greenfield, a noted but controversial neurologist thinks that the outcomes of the current social media technology practices are reinforcing expectations toward simplicity in brain development:

"As a neuroscientist I am very aware that the brain adapts to its environment - if you're placed in an environment that encourages, say, a short attention span, which doesn't encourage empathy or interpersonal communication, which is partially addictive or compulsive ... all these things will inevitably shape who you are," she said” (Rivett 2014)

Under my proposed museum displays, visitors will find evidence, thoughtfulness, and attention to facts, where they exist, but will no longer come to expect easy answers. Hopefully, our audience will grow to expect cogency, complexity, creativity, non-conformity and overt dialogue. Following personal curiosity, each visitor will leave with their interest pathways at least partially fulfilled. The personalized quest is likely an essential part of the solution we seek because the technological world has emphasized the role of individual control which some have called “agency”. Nick Poole writes:

“Agency is the real factor underlying social media – the paradigm of technological platforms which do nothing other than allow you to exercise self-Expression” (Poole 2012)

### COMPLEXITY THEORY:

What is the philosophical underpinning for this approach? Academics looking at large data sets, and the ubiquitous way society has used technology in the last half century, and building on previous work have created a theory explaining the unpredictable nature of large interrelated events. There are overlapping explanatory systems variously called Complexity, Chaos, Network Theory and others. Whatever the title, each of these systems can be described as non-linear, non-hierarchical, fluid, porous and ever-changing. Causality seems to be unconnected but is not, small events cumulate, and patterns arise but the pattern is not necessarily predictable nor repeatable. These theories, looking at small actions are contrary to the single massive “big bang” model.

The current application of complexity theory shows up in many heretofore unrelated fields both in the science and humanities. Gratefully, I find that researchers have been exploring the need for integration of complexity theory in educational curriculum development and the organizational structure of not-for-profit organizations. In this paper, I am linking the underlying assumptions of complexity theory to the delivery of content.

Think tanks like the New England Complexity Institute and the Santa Fe Institute have sprung up to investigate the integration of sociological phenomena with scientific data. What researchers are doing is combining multiple measurements found in different and seemingly unrelated academic siloes. For example, Sam Bowles, the noted economist uses weighted algorithms that include human emotions such as empathy combined with empirical data.[[3]](#endnote-3)

It turns out, not surprisingly, that complexity theory is complex and potentially overused for all manner of applications in a multiplicity of fields. It is the current darling of the academic world. I have had a difficult time understanding it, but am convinced that grasping and then using parts of complexity theory will prove beneficial for museums.

### WHAT IS COMPLEXITY THEORY AND HOW IS IT DIFFERENT FROM COMPLICATION?

Let me read a string of definitional quotes describing complexity theory (so that much more knowledgeable people than I will help define the relevant bits):

The Business Dictionary writes:

Complexity theory is a: “Set of concepts that attempts to explain complex phenomenon not explainable by traditional (mechanistic) theories. It integrates ideas derived from chaos theory, cognitive psychology, computer science, evolutionary biology, general systems theory, fuzzy logic, information theory, and other related fields to deal with the natural and artificial systems as they are, and not by simplifying them (breaking them down into their constituent parts).” (BusinessDictionary 2017)

“It suggests that simple deterministic functions can give rise to highly complex and often unpredictable behavior, and yet this complexity can still exhibit surprising order and patterns. It may offer a synthesis of two competing perspectives on how organizations adapt to their environments, organizational adaptation and population ecology. Most tantalizing, perhaps, is the promise that complexity theory will lead us to understand how systems can learn more effectively and spontaneously self-organize into more structured and sophisticated forms that are better adapted to their environments.” (Levy 2000)

Helpfully there are those that think that small things could have big impacts:

“… it is now commonly understood that in complex and dynamical systems, a small action may have interactions in the system that contribute to a significant and large-scale influence—the so-called "butterfly effect." (Jacobsen 2017)

To make understanding tougher, the word “complicated” whose synonym in the past would have been “complex” is now differentiated from complexity. As a Valerie Straus, Washington Post “Answer Sheet” blog writer has written: “A complicated system assumes expert and rational leaders, top-down planning, smooth implementation of policies, and a clock-like organization that runs smoothly. Work is specified and delegated to particular units.” (Strauss 2014)

The same author has defined complexity as: “Complex systems like criminal justice, health care, and schools, however, are filled with hundreds of moving parts, scores of players of varied expertise and independence yet missing a “mission control” that runs all these different parts within an ever-changing political, economic, and societal environment. The result: constant adaptations in design and action.” (Mounk 2014)

The words to remember in complexity theory are: non-linear, non-hierarchical, produced by small events, creating unexpected patterns, and often unpredictable as to outcome.

### OTHER PHILOSOPHICAL ASSUMPTIONS:

Part of the difficulty in applying complexity theory is that, although we understand that the soundbite is bad for us, complexity theory entails many many variables. While we understand that academic siloes need collapsing and cross-cutting influences, science is always looking for the “elegance” in data to make complexity simple and large chaotic systems more understandable.

Prior to the interest in complexity theory, Western thought most often relied on the following:

“…the universe was rationalistic, deterministic and of clockwork order; effects were functions of causes, small causes (minimal initial conditions) produced small effects (minimal and predictable) and large causes (multiple initial conditions) produced large (multiple) effects. Predictability, causality, patterning, universality and ‘grand’ overarching theories, linearity, continuity, stability, objectivity, all contributed to the view of the universe as an ordered and internally harmonistic mechanism in an albeit complex equilibrium, a rational, closed and deterministic system susceptible to comparatively straightforward scientific discovery and laws. (Morrison 2008)

We have all learned the scientific method which has at its heart repeatability and provability. That methodology continues to be useful. We, who have privileged rationality and the scientific method over faith and religion, have continued to understood that rationality and faith exist as unreconcilable methods of understanding the world. Complexity theory is not a replacement theory for either of these. Rather it is additive to both. It begins to explain those elements of real life that don’t fit into either the scientific method or in the faith-based view.

### WHAT DOES A COMPLEX MUSEUM EXHIBITION LOOK LIKE?

So, what might a complex museum exhibition look like? The exhibition content, responding to complexity theory, will be multivariate, non-linear, and while a curator-led contingent narrative may still be in view, it will be defined as only one way to understand the exhibition.

Like libraries, the system will be non-judgmental and filled with material that may seem tangential to some, while not to others. Browsing will be, at baseline, a respected and supported activity. A visitor will be able to wander through a multiplicity of sources that are visual, tactile, verbal, etc. They can personalize interests through surfing, combining and recombining -- understanding that his/her idea trail will be unlike others. There will be ways the visitor can affect the exhibition and the effect will add to the cumulative ways the exhibition can be used by others.

Importantly, the exhibition creators will have intended it to be that way. Their training in exhibition work will, of necessity, be enlarged to include complexity theory and its practical outcomes.

There are obvious problems in this approach. By keeping unrationalized, conflicting viewpoints simultaneously in mind, we might be creating intellectual overload that leads to viewer stasis rather than internal choice. However, such a frozen phase might come about, it is not a useful outcome in a public education space. Practical experimentation is needed to see how to overcome this problem. It is imperative that in our experimentation, we use evaluation tools and mockup of ideas to figure out what modalities works in complex exhibitions.

Because of the changed approach to exhibitions, I am hopeful visitors will take away, not just specific content of interest, but will appreciate that all large ideas are complicated. In summary, I hope, the exhibition methodology has helped museum audiences become more empathic and patient as citizens willing to see incremental change as useful, and trial and error as essential.

### EXAMPLES OF THE WAY FORWARD:

Is anyone in the museum community experimenting with exhibitions that fit within this model? I am happy to note there are some exhibitions moving in this direction and some writers who are thinking about this model. I am hopeful that combining experimental exhibition technique with a coherent complexity theory makes this direction less random; suggests new ways forward; and continues the previous tradition of creating exhibition modalities based on theory.

### MUSEUM LEARNING THEORY BACKGROUND:

Over the past hundred years, museum educators have used selected learning theories, or portions thereof, as the rationale for embedding various new approaches into previously static exhibitions. The new techniques were justified as satisfying the needs of formerly underserved publics. For example: the use of interactive elements has been justified by accepting Howard Gardner’s theory of multiple intelligences(Gardner 1983), and the use of tactility have been linked to Piaget (Hein 1991

) and Jerome Bruner (Semper 1996). Additionally:

“Behaviorism, cognitivism, and constructivism are the three broad learning theories most often utilized in the creation of instructional environments. These theories, however, were developed in a time when learning was not impacted through technology.” (Siemens 2005)

Similarly, the faith-based world has affected exhibition practice. A major influence has been the recognition of the spiritual nature of some of the objects created by indigenous peoples. Explanation of this has given rise to, for example, first person and multiple-voiced labels and the embedding of ceremony and protocols in the museum when objects were placed on view.

I am not suggesting that all learning theories and their exhibition cognates have been employed, however, many exhibition conventions have theoretical underpinnings.

### WHO IS THINKING THIS WAY?

The museum world has practitioners who have begun this complexity theory museum journey before me, and on whom I have relied in writing this paper. I commend Nick Poole, Tony Bennett (Bennett 2004) and Fiona Cameron (Cameron and Mengler 2009 ) as relevant theorists. Nick Poole, for example writes:

“… there is a need for us to focus on what it would mean to provide a platform for contemporary audiences to reflect on the full chaos and complexity of our lived experience. Not just as a project or an exhibition, but for that to become what the word ‘museum’ means in the collective psyche.” (Poole 2014)

I wish to thank the experimenters in the museum world. Most of these folks come from the collections and technology side of museum work. There are those who have worked with large data-bases of objects like Europeana, and Google Art, and have worked with multiple ways to allow for public curation like Seb Chan and Piotr Adamczyk.

But, in a “shout out” to museum folk I am mindful that my personal examples are unfortunately limited to Anglophone practitioners and mostly those who write papers. I urge you, in the audience, to help me expand my meager list and enlarge my own understanding, especially where it is culturally and linguistically deficient.

Historically, there are on-site exhibition precursors that linked objects and a deeper access to information. “Study storage” originating with Michael Ames at the Museum of Anthropology in Vancouver Canada, to advancing to current, increasingly sophisticated incarnations is one of my favorites. Suze Anderson has written:

“For possibly the first time, the objects in our collection are not being sequestered away from the world and hidden within the safe space of the museum.… Not only are we inviting the public to interact with our collections in ways that have previously been impossible, we are asking the objects in our collection to take their place in a complex environment from which they have previously been quarantined.” (Anderson 2011)

There are examples of audience involvement, like the “talk-back” boards of the 1970’s Boston Children’s Museum, now expanded through co-creation and participatory exhibition theories promulgated by Nina Simon (Simon 2010). There are some current physical, interactive, technical exhibition examples known as “media walls”: such as “The Wall” supported by Jette Sandahl, first in Te Papa and then an out-of-doors version that is part of the Museum of Copenhagen. These emerging technical bulletin boards in an increasing number of places combine big data bases and audience input in real time.

Outside of museum practice, there are internet platforms that should inspire us. My current favorite is the on-line system – Pinterest – which allows for personal visual learning of a very complex and self-originated order. The web itself is, therefore, not only the progenitor of the simplistic soundbite but also of the large, non-judgmental accumulated data sets like Wikipedia and Flickr, created by the generosity of many. Museum practitioners can use big on-line free databases operate and their complex and multiple uses as a way to understand complexity in action. Let me reiterate the important elements of Complexity theory in this case, as applied by Joan Gallos for altering organizational structures, and reapply it to exhibition creation.

“First it is that multiple viewpoints from multiple academic pursuits using different criteria are all at play. Second the outcome cannot be predicted until one is immersed and that multiple outcomes are good. Third that the tension built into the uncertain outcome and the competition surrounding the process can be good. Fourth, in using it within organizations, rather than using top down organizational administration to solve and quiet problems, multiple outcomes are accepted and even hoped for. Organizational theory is to try not to clean this up but allow for tension and individual decision making within a set of competing ideas and data” Reframing Complexity: (Gallos 2006)

### EXPECTATIONS MUST BE CHANGED.

To create exhibitions with such complexity, museum studies, exhibition design programs and individual museums themselves must change practice. Respect for strategies that provide multiple intellectual outcomes will need to be included in their training regimens. The programs that continue to teach the creation of the “main message” and multi-level label writing formulas will need to broaden their offerings.

But while celebrating these experimentations, we should remind ourselves that most exhibitions remain curatorially controlled and intended to reach a single thematic conclusion. Museums, where we all work, are not easy to change. Perhaps, in part, because many may be organically stuck in the organizational structures which align with the top-down business model. Making museums amenable to open-ended complex ideas probably requires a change in leadership style and structure. Difficult but not impossible. This is being taught in some business and public administration graduate schools already, and some organizations are experimenting with altering their structure

### SUMMARY:

I am hoping that from now on, we produce many exhibitions that do not resolve into some pre-determined message, are proactively multidisciplinary, and share multiple world views simultaneously without judgement. I am interested in leaving the outcome of visiting an exhibition unsettled, and in need of further reflection by the visitor. And I am suggesting that the opportunities for understanding embedded in such an exhibition are too many for any participant to absorb during a single visit, leaving them to pick and choose their own trajectory of discovery without guidance. I am not writing about designing multiple modalities toward one predetermined intellectual end, but rather suggesting that lack of resolution is a wholly acceptable outcome.

Museums, I am urging, need to help our citizens understand public problems are complex, solutions are always approximate and unintended consequences can and do arise when least expected. We all need admiration for patience. We need new methods of discourse that include respect for people who see other parts of the problem in starker terms than we do, because what they are seeing is also partially valid. If most of our exhibitions remain the syntheses of complicated subject matter formed into a single narrative, then what will be omitted is a presentation of conflicting partial truths and our audiences will not be challenged to reach their own shaded understandings.

I am advocating for museums to add an important approach – complexity -- to the previous standard ones we have relied on in presenting material to our publics: rationality, faith, emotion, aesthetics. In a world where dialogue is moving toward the shouting of slogans, let us use complexity theory to place our museums in the mix of institutions that provide civil dialogue. Thank you.

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1. Written for MuseumNext conference, Feb 2017, Melbourne Australia [↑](#endnote-ref-1)
2. With thanks to my editors Dean Anderson and Douglas Reese. [↑](#endnote-ref-2)
3. <http://tuvalu.santafe.edu/~bowles/> [↑](#endnote-ref-3)