Connectivism: Adopting Quantum Holism in International Relations

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ABSTRACT

CONNECTIVISM: ADOPTING QUANTUM HOLISM IN INTERNATIONAL RELATIONS

Grant Randal Highland
Old Dominion University, 2021
Director: Dr. Regina Karp

The current scientific context of both quantum science and an ever-increasingly connected global citizenry has set the conditions for a new perspective whereby the social sciences are on the cusp of adopting a quantum approach of probability and potentiality versus the clockwork mechanistic determinism of cause-and-effect Newtonian mechanics. While a scientific realist approach toward the application of quantum science to the social sciences is germane, there is a valid reason international relations should also consider and adopt the philosophical worldviews outside the genealogical canon of our early western forbears, as well as the philosophical explorations of consciousness and humanism which have evolved over the years. Marrying the quantum physics of consciousness and reality with the philosophy of phenomenology and humanism will lead toward a deeper, more holistic understanding of our connection to each other as human beings, and our connection to the world of our creation through this conscious experience of each other and our surroundings.

This unifying reorientation away from classical science toward a more holistic quantum application of science and philosophy is what I term Connectivism. Rather than privileging a Hobbesian view of nature as a war of all against all Connectivism will privilege the unifying principles which connect us all to each other. This relational social ontology will highlight the more cooperative and interconnected aspects of the human experience versus the Newtonian
dynamics which separates humans from their environments and turns them into simply another material variable upon which external forces exert their impact on the human dimension. A quantum holist ontology, on the other hand, will destroy the dichotomy between agents and structures, individuals and societal collectivities. This unified ‘whole’ which is instantiated through conscious individual, interrelational, and interactional processes of potentiality (i.e., wave functions) and realization (wave function collapse, or decoherence) privileges and situates human agency and its creative impact on the environment in a more comprehensive and cooperative way.
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This dissertation is dedicated to Shannon without whose patience, forbearance, love and understanding this project would not have been possible. While it is said writing a dissertation is a lonely endeavor, it is no less so for the families and loved ones who also bear the brunt of the long hours PhD candidates expend in their efforts, whether it is in front of the computer or simply pondering the topic. In either case, this absence represents a tangible hardship on those drawn into the orbit of loved ones engaged in this effort. To you I give my most profound thanks, love, and gratitude.

To my parents, Thomas and Gloria Highland, thank you for your unwavering support and confidence over the years. For my father, you taught me the meaning of hard work and perseverance. Without that, none of this would have been possible. For my mother, you taught me the meaning of patience and kindness. And mom, though you are no longer with us on this earth but are rather now a part of Heaven, the Akasha, Indra’s Web, Being, or the quantum realm, you will always live on in me. Thanks to you both for your love and constancy throughout my life.
ACKNOWLEDGEMENTS

This dissertation has developed in fits and starts over the course of my time in ODU and even before that. It quite honestly began as some youthful and muddle-headed ponderings on the nature of reality and the cosmos and was later sharpened into this work through the tireless and patient efforts of many faculty in the GPIS program. It is to those educational and scholarly saints I would like to devote my thanks.

First, I would like to thank Dr. Yetiv and Dr. Karp for introducing me to the many debates within international relations which grounded me in the different theoretical disciplines while similarly leaving me questioning if there wasn’t a new way to approach our scholarship. Next, none of this would have been even fathomable if Dr. Wendt had not written his book *Quantum Mind and Social Science: Unifying Physical and Social Ontology* while I was going through the GPIS coursework, and then devoting two hours of his time during my dissertation to provide his insights and guidance. His quantum gambit was a brave and wildly unorthodox contribution to our field, and I can only hope this contribution is worthy of moving his ideas forward. Next, I have to thank Dr. Earnest for his many hours of conversation and willingness to let me “explore the space” of quantum mechanics, quantum theory, and social science. Those sessions were extraordinarily fruitful, and his thoughtful and comprehensive feedback on my many draft outlines was the motive force behind narrowing the scope of this expansive argument as much as was possible. I also have to thank Dr. Schulman for his willingness on short notice to serve on the committee, and for his excellent probing which has helped refine the project. I also have to thank LTG (ret.) McMaster for also agreeing to serve on the committee on short notice. As one can imagine, his schedule is impossibly complex and all-consuming, but he nevertheless
graciously agreed to give his time and serve as an external reader for this project, so I will forever remain in his debt. Finally, none of this would have materialized without Dr. Karp’s patient and gentle nudges as I moved from one dissertation track to another, and then back again. From individual guidance sessions, to a one-on-one session at my work to discuss a white board diagram I had built, she never became prescriptive or frustrated (at least so far as I could tell!) and instead allowed me the time and space to develop my own voice and my own scholarship. I know it was not easy for her watching me flail, but for that restraint and her many subtle clues and tips along the way I will be forever grateful. I cannot express how humbled and oh-so-glad I am she stuck with me to the end.

To my many colleagues and fellow cohort students, I wish to express my thanks to you also for your constant encouragement, guidance, assistance, and dissertation “hacks” to get us all through the process. While writing a dissertation might be a lonely endeavor, it is most definitely not a solo endeavor, and so this would not have come to fruition without your support as well.
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<tr>
<td>AIIB</td>
<td>Asian Infrastructure and Investment Bank</td>
</tr>
<tr>
<td>ASEAN</td>
<td>Association of Southeast Asian Nations</td>
</tr>
<tr>
<td>BLM</td>
<td>Black Lives Matter</td>
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<tr>
<td>BLMGNF</td>
<td>Black Lives Matter Global Network Foundation</td>
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<tr>
<td>BLM PAC</td>
<td>Black Lives Matter Political Action Committee</td>
</tr>
<tr>
<td>BRI</td>
<td>Belt and Road Initiative</td>
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<tr>
<td>CCIR</td>
<td>Commander’s Critical Information Requirements</td>
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<tr>
<td>CCP</td>
<td>Chinese Communist Party</td>
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<tr>
<td>CCP</td>
<td>Combatant Command Campaign Plan</td>
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<tr>
<td>COA</td>
<td>Course of Action</td>
</tr>
<tr>
<td>CONPLAN</td>
<td>Concept Plan</td>
</tr>
<tr>
<td>ECU</td>
<td>Eurasian Customs Union</td>
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<tr>
<td>EEZ</td>
<td>Economic Exclusion Zone</td>
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<td>EU</td>
<td>European Union</td>
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<tr>
<td>FAO</td>
<td>Food and Agriculture Organization</td>
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<tr>
<td>ICAO</td>
<td>International Civil Aviation Organization</td>
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<tr>
<td>IMF</td>
<td>International Monetary Fund</td>
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<tr>
<td>ITU</td>
<td>International Telecommunications Union</td>
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<td>JPP</td>
<td>Joint Planning Process</td>
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<tr>
<td>MLB</td>
<td>Major League Baseball</td>
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<tr>
<td>NASCAR</td>
<td>National Association for Stock Car Auto Racing</td>
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<td>NBA</td>
<td>National Basketball Association</td>
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<tr>
<td>NFL</td>
<td>National Football League</td>
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<tr>
<td>NATO</td>
<td>North Atlantic Treaty Organization</td>
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<tr>
<td>OE</td>
<td>Operational Environment</td>
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<tr>
<td>OPLAN</td>
<td>Operation Plan</td>
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<tr>
<td>PLA</td>
<td>People’s Liberation Army</td>
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<td>PRC</td>
<td>People’s Republic of China</td>
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<td>QCT</td>
<td>Quantum Consciousness Theory</td>
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<td>Quantum Decision Theory</td>
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<td>Quantum Field Theory</td>
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<td>QGT</td>
<td>Quantum Game Theory</td>
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<tr>
<td>SCO</td>
<td>Shanghai Cooperation Organization</td>
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<td>SCS</td>
<td>South China Sea</td>
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<tr>
<td>UAE</td>
<td>United Arab Emirates</td>
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<td>UFWD</td>
<td>United Front Work Department</td>
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<td>UN</td>
<td>United Nations</td>
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<td>UNIDO</td>
<td>United Nations Industrial Development Organization</td>
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<tr>
<td>Acronym</td>
<td>Description</td>
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<tr>
<td>WHO</td>
<td>World Health Organization</td>
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<td>WMD</td>
<td>Weapons of Mass Destruction</td>
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CHAPTER I

INTRODUCTION

Science is based in the main on statistical truths and abstract knowledge and therefore imparts an unrealistic, rational picture of the world. This leads to a levelling down of not only the psyche but the individual man and, indeed, all individual events whatsoever. The statistical world-picture thus thrusts aside the individual in favour of anonymous units that pile up into mass formations, organizations, the abstract idea of the State, in which the goal and meaning of individual life (which is the only real life) are submerged.

-- C.G. Jung, The Undiscovered Self: Present and Future

The social sciences, and international relations in particular, are in stasis. There are a number of reasons for why this might be, but there are two distinct rationales which are embedded within the term ‘social science’ itself. First, on the social side of the equation are the philosophical underpinnings of the broad swath of disciplines which fall under this category. In the dizzying and multi-variate realm of human interaction – economics, political science, psychology, sociology, etc. – the philosophical foundations laid over the millennia in the quest to understand humanity and our place in the cosmos has served to inform these later fields and the assumptions under which they operate. Likewise, the ‘science’ of these various disciplines has been predicated on the dominant Newtonian paradigm of classical materialism and have thus pursued epistemologies according to that classical ontological worldview. For both, the subject has become the object of scientific observation and philosophical inquiry, thus placing humans in the bifurcated and dichotomous role of both subject and object in a circular and tautological system of understanding.

The problem stems from these foundational assumptions and ontological priorities which have informed both the philosophy and the science of the various fields, and for international relations as well. Trapped in these assumptions, humans have become
schizophrenic arbiters of knowledge, diffusing Truth through the prism of an all-encompassing and pervasive dualism. If the social sciences are indeed science, and if the social sciences do in fact find their predicates in previous philosophical thought – what many believe to be the original science – and if, as asserted above, it is accepted the social sciences and international relations are in stasis, then it is my belief it is because the many disciplines have been operating off faulty assumptions which have created the dualism mentioned above. This dualism has a long pedigree and, from our western perspective, finds its beginnings in the Greek conceptualization of essential reality arising from measurement, proportion, and ratio. From Democritus, Aristotle and others, measurement represented the window into reality and in fact illuminated and enumerated that reality. From that Greek heritage our western philosophies sprung, producing during the Renaissance and Enlightenment the names to which we have become so accustomed: Thomas Hobbes; René Descartes; Francis Bacon; Baruch Spinoza; Gottfried Leibniz; John Locke; David Hume; and Immanuel Kant. These thinkers’ focus on rationality, empirical observation, and mind-body dualism – coupled with the successes of Isaac Newton’s scientific advancements – all served to create an ontology within western thinking and the academy which reified measurement and empirical observation as the means toward understanding our environment and reality.

This is important to understand in the context of this work because our western heritage has emphasized a focus on the external world of things and matter – those things which can be observed by the senses – while bracketing, or otherwise offsetting, the mind and consciousness as something which exists, but is essentially irrelevant to our observations of nature and reality. This splitting of the subjects from the objects of their inquiry has created a
dualism in our conceptualization of reality whereby humans are separated from the nature and reality they seek to understand. This has created within international relations a situation where the agents – the humans which make up the social collectivities of states, institutions and other forms studied in the field – and the structures described in international relations – anarchy, states, institutions, and power – are caught in an ongoing debate between the empiricist/positivist/scientific realist adherents within the field and the interpretivist/idealist/post-modern, structural, etc., thinkers within international relations. This agent-structure debate has been waged for some time, now, and mirrors the dualism captured above. In either case, our field is the product of that philosophical and scientific genealogy and so, too, suffers from the subject-object dualism mentioned above. As Alexander Wendt puts it:

On the positivist side, the ambition is to make social science as much like physical science as possible, generalizable and objective . . . while most positivists routinely attribute intentional states to human beings, the fact that these states are conscious is rarely considered, except perhaps as a methodological barrier to objectivity. Interpretivists mostly focus on what is public and shared, like language and norms, not on what is experienced by individuals.¹

Consciousness, then, the very thing that makes us human and alive, has essentially found no home in the ‘social’ or the ‘science’ of international relations, leaving the humans of our social enterprise as essentially lifeless automatons subject to mechanistically deterministic fates as captured through our empirical scientific methodologies. It is a scientific and organizational view predicated on the cultural DNA of our past philosophical and scientific achievements which have been instantiated through the model of the industrial era.

¹ Wendt, Alexander, Quantum Mind and Social Science: Unifying Physical and Social Ontology, Cambridge, UK: Cambridge University Press, 2015, pp. 18-19
But what if that model no longer suffices in the realm of human organization and international politics? In this second decade of the twenty-first century where rapid advancements in technology, communications, computing, and transportation have accelerated the pace of globalization, and where international organizations and transnational actors have leveraged these advancements in order to exert greater influence beyond the traditional bounds of states and institutions, does our traditional focus on the external, measurable aspects of global politics provide adequate theoretical frameworks through which to understand these phenomena? While it might be true researchers can measure specific variables for a multitude of these factors and have in fact done so in compelling ways, do we nevertheless miss the nature of the forces driving these behaviors? In effect, do we miss the forest for the trees of our observational pursuits? It is my contention that this regressive theorizing whereby hypotheses are proposed, variables selected, then models created to test those hypotheses in the quest for parsimonious explanatory power has stripped us away from the very reality we seek to explore and explain and replaced it with exogenous variables which exist in the world without explaining why they exist. As a result, we tend to squabble over the types of trees that are best for examination while neglecting the forest which animates and gives those trees life.

So, how then do the social sciences and international relations move forward if we are trapped within this ontological perspective? As Thomas Kuhn asks in *The Structure of Scientific Revolutions*, “Why is progress a perquisite reserved almost exclusively for the activities we call
His answer is progress: “To a very great extent the term ‘science’ is reserved for fields that do progress in obvious ways. Nowhere does this show more clearly than in the recurrent debates about whether one or another of the contemporary social sciences is really a science.”

Within the field of social science, he posits, those practitioners are asking, “Why does my field fail to move ahead in the way that, say, physics does?” This, then, forms one of the core rationales for this exploration; an attempt to move international relations beyond stagnation and entrenched debates and into a new ontological perspective which will eradicate the dualisms implicit in our current ontological assumptions.

But while progress is important in the sciences, so too is reflection and a revisiting of past foundational work to assess whether that which came before and has long been abandoned is worthy of reassessment. In this sense, the ‘social’ of the social sciences may be enhanced through a reinterpretation of past philosophical ideas through the lens of current scientific progress. In a way, I am proposing that for the social sciences and international relations to progress beyond the ‘Great Debates’ and subsequently regressive theorizing under the broader theoretical approaches of Realism, Liberalism, and Constructivism, then we must take two steps forward, and one step back.

The basis for my thoughts on the social sciences stems from two sources. The first, which stimulated this exploration of the social sciences and international relations, comes from the debate between Hedley Bull and Morton Kaplan. In the debate, Bull argues for a more

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3 Ibid.
4 Ibid.
traditional, humanist approach toward understanding international relations, while Kaplan argues for a more systematic and scientific approach. As Bull asserts:

The first proposition is that by confining themselves to what can be logically or mathematically proved or verified according to strict procedures, the practitioners of the scientific approach are denying themselves the only instruments that are at present available for coming to grips with the substance of the subject. In abstaining from what Morton Kaplan calls "intuitive guesses" or what William Riker calls "wisdom literature" they are committing themselves to a course of intellectual puritanism that keeps them (or would keep them if they really adhered to it) as remote from the substance of international politics as the inmates of a Victorian nunnery were from the study of sex.5

Despite Bull’s acerbic tone, he argues the use of scientific methodologies – specifically the building of models to test hypotheses of macro-systems – has replaced deep study and understanding of the philosophy and history of humanity which has been operationalized through human action versus systemic or statistical imperatives. Kaplan, on the other hand, rejects this and instead counters that:

The traditionalists talk as if the newer methods have excluded philosophy as a tool for the analysis of international politics. Unfortunately, few of them – again Raymond Aron is a conspicuous exception – have demonstrated any disciplined knowledge of philosophy; and many of them use the word as if it were a synonym for undisciplined speculation.6

To Kaplan, it is the traditionalists who fail to articulate fully specified theoretical models against which to test their intuition and reading of history. As such, he argues it is the traditionalists who operate off implicit rather than explicit assumptions, and whose statements are usually made without reference to context, who are more likely to mistake their models for reality. In my mind, it is this debate which most succinctly and trenchantly captures the schism between

the philosophical underpinnings of the ‘social,’ and the focus on scientific methodology of the ‘science’ in international relations. Bridges have been attempted to span the chasm but, to date, no unifying approach has closed the gap.

The second source which initiated this journey is Alexander Wendt’s 2015 book, *Quantum Mind and Social Science: Unifying Physical and Social Ontology* where he makes the argument the social sciences, and international relations in particular, are in a state of stagnation necessitating a re-evaluation of the assumptions underlying the field in order to advance beyond the current debates which have thus far failed to address or enhance our understanding of state interaction in this second decade of the twenty-first century where globalization, social movements and nationalist/populist movements are growing at a seemingly increasing rate. In this pursuit, Wendt seeks to rectify physical and social ontology by making a bold claim that the social sciences need to abandon the physical, materialist ontology which has dominated within the field since its inception, and instead adopt a quantum, social ontology as the preferred referent through which to better understand the human dimension of the social sciences. As he asserts:

> In this book I explore the possibility that this foundational assumption of social science is a mistake . . . More specifically, I argue that human beings and therefore social life exhibit quantum coherence – in effect, that we are walking wave functions. I intend the argument not as an analogy or metaphor, but as a realist claim about what people really are. Scholars have long pointed to a number of strong analogies between human and quantum processes: between free will and wave function collapse, the holism of meaning and non-locality, observer effects in psychological experiments and quantum measurement, and even double-entry accounting and quantum information. These and other analogies are sufficiently suggestive that one might apply quantum thinking to social life simply on that basis.\(^7\)

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\(^7\) Wendt, pp.3
He stakes a realist claim that our preoccupation with and grounding in Newtonian mechanics has privileged the external world of observable matter and things over the subjective, internal experience of the world through our conscious awareness of the environment. While the book is largely a philosophical exploration of the possible reorientation of the field quantum mechanics might help facilitate, it is nevertheless a scientific realist take on the application of quantum science as an attempt to re-center humanity and agency within international relations to move the field forward. In other words, Wendt’s quantum turn is an attempt to adopt quantum science as the path toward unifying the split between the ‘social’ and ‘science’ of our field; a scientific realist claim which would subsume the philosophical aspect of human understanding and knowledge and place it squarely in the realm of quantum consciousness whereby the dualisms already mentioned would be eradicated through the quantum perspective.

To be perfectly opaque, I agree with all the above. For too long the divide between the social and the science of international relations has been predicated on the faulty assumptions mentioned above which have created a self-imposed barrier between the subjects and objects of our inquiry. As such, I share Wendt’s perspective, but I also seek to expand upon his work by trying to understand the nature of reality and humanity’s role within it. To that end, it is important to focus on the science behind quantum mechanics, but also to maintain a focus on the philosophy undergirding not only what constitutes reality, but humanity itself. What does it mean to be human? What does it mean to be a conscious, subjective person within the connective tissue between other humans and the reality we all inhabit? Are there philosophical insights from the past which have already predisposed humanity toward perceiving and
understanding quantum mechanics/reality in this era of rapidly advancing technological and scientific discovery?

I will argue the current scientific context of both quantum science and an ever-increasingly connected global citizenry has set the conditions for a new perspective – a new paradigm if you will – whereby the social sciences are on the cusp of adopting a quantum approach of probability and potentiality versus the clockwork mechanistic determinism of cause-and-effect Newtonian mechanics. I will argue further that while, like Wendt, I maintain a scientific realist approach toward the application of quantum science to the social sciences – a progressive move forward as has occurred in many of the natural sciences as they adopt quantum perspectives – there is a valid reason international relations should also consider and adopt the philosophical worldviews outside the genealogical canon of our early western forbears, as well as the philosophical explorations of consciousness and humanism – a unified holism – which have evolved over the years. Marrying the quantum physics of consciousness and reality with the philosophy of phenomenology and humanism will lead toward a deeper, more holistic understanding of our connection to each other as human beings, and our connection to the world of our creation through this conscious experience of each other and our surroundings. This is an attempt, then, to move the science of international relations forward, to progress from a Newtonian world of externality and things to a quantum world – fused with the historical foundations of eastern, tribal, and phenomenological philosophical inquiry – where subjects and objects, structures and agents, and even the social and science are unified in a holistic and comprehensive manner. In a sense, I argue we need to back into the
future of scientific inquiry and application while keeping our eyes on the historical thought of the past which has helped define our humanity.

**Connectivism**

This unifying reorientation away from classical science toward a more holistic quantum application of science and philosophy is what I term Connectivism. Rather than privileging a Hobbesian view of nature as a war of all against all – conflictual, violent, power oriented and driven by external forces – it is my belief Connectivism will privilege the unifying principles which connect us all to each other, and all to all. This relational social ontology will highlight the more cooperative and interconnected aspects of the human experience versus the Newtonian dynamics which separates humans from their environments and turns them into simply another material variable upon which external forces exert their impact on – and determine the behavior of – the human dimension. As mentioned above, this separation of the human subjects from the objects of their observational scientific pursuits has created a host of dualisms which have permeated both philosophy and science. From the dual monism of Descartes’ provenance – or the mind-body problem in philosophy – to the agent-structure debates within international relations, an epistemological focus on the external world of things in the ontological world of Newtonian mechanics has created a false dichotomy between subject and object – observer and observed – and has created a wedge between humanity and the environments they seek to understand. A quantum holist ontology, on the other hand, will destroy the dichotomy between agents and structures, individuals and societal collectivities, as well as the mind-body/dual monism problem of philosophy. This unified ‘whole’ which is instantiated through conscious individual, interrelational, and interactional processes of
potentiality (i.e., wave functions) and realization (wave function collapse, or decoherence) privileges and situates human agency and its creative impact on the environment in a more comprehensive and cooperative way. In this manner, not only will Connectivism eradicate the dualisms noted above, it will also eradicate the dualism between philosophy and science in a quest to better understand international relations.

**The Structure of the Argument**

In the second chapter I wish to attune the reader to the human intuition regarding connectedness and unity through an examination of past and current philosophical traditions and the blending of science with those philosophical traditions in the search for greater understanding. For this chapter I will investigate the ancient Hindu and Buddhist cosmologies and the philosophical traditions of humanism and phenomenology as exemplified by Martin Heidegger. After assessing the ancient eastern philosophies which are so different from our own western etymological origins, as well as the philosophy of phenomenology which situates humans more comprehensively within the world they seek to understand, I will move on to explore how scientists have accessed proponents and thinkers within these different philosophical traditions in a quest to better understand reality in a search for hypotheses which could extend their scientific pursuits. I will focus here primarily on Nikola Tesla, Carl Gustav Jung and physicist Wolfgang Pauli, physicist David Bohm, and physicist/mathematician

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Wolfgang Smith and their communion with the ancient and the modern in the course of their work.⁹

In the third chapter I will describe the progress of quantum science from its origins to where it resides today. In this manner I seek to not only discuss the scientific advancements in quantum mechanics as a foundational argument for the realist claim both Wendt and I are making for its application to the social sciences, I will also be linking those quantum advancements with the insights offered by the philosophical traditions described in chapter two to capture the human intuition regarding the singularity, the oneness, of all things to all things. The merging of the philosophical and the quantum is important for my exploration of Connectivism and helps build upon Wendt’s initial foray into the topic. Additionally, I will go in-depth into Wendt’s discussion of quantum social science and how quantum mechanics and some of the cutting-edge developments in quantum science can be applied to the social sphere. To that end, this portion of the chapter will explore Quantum Consciousness Theory (QCT) which forms the foundational argument for Wendt’s book and describes how advancements in this field may finally lay to rest the “hard problem” of consciousness – or the mind-body dualism of philosophy – while simultaneously offering a unifying answer to the agent-structure debates within the field of international relations.¹⁰ Next, I will explore the developing


discipline of Quantum Field Theory (QFT) and how quantum science is in the beginning stages of unifying our understanding of reality through scientific means with the intuitive understanding of reality offered by the more philosophical traditions of past centuries.\(^{11}\) From these macro-level theoretical perspectives I will then describe the growing fields of Quantum Decision Theory (QDT) and Quantum Game Theory (QGT) as possible quantum approaches for better understanding human decision-making on both a personal level, and in social settings.\(^{12}\) From this exploration I will attempt to demonstrate how the current paradigm within international relations is no longer sufficient in explaining human and interstate interaction, and that a new quantum perspective and a theory of Connectivism is needed to advance the field beyond the stagnation within which it is currently mired.

In the fourth chapter, I will briefly discuss the so-called ‘Great Debates’ within international relations to better situate the reader in the current state of play within the discipline, then I will interrogate the three major theoretical approaches of realism, liberalism, and constructivism through a Connectivist lens.\(^{13}\) In a Kuhnian sense, then, I hope to make the

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case that theory development in international relations has been conducted under the Newtonian paradigm of physicalism and materialism, and that what began as a more humanistic and philosophical approach to the field later gave way to the scientific method in search of explanatory and predictive value. Wendt’s quantum turn, and my own contribution of Connectivism, seeks to challenge this Newtonian paradigm by suggesting the current focus on a materialist ontology and Newtonian paradigm is coming under crisis and that a new social ontology under a quantum paradigm is needed to better explain international relations in an era of hyper-connectivity, instantaneity, and globalization.

After tracing the philosophical and scientific developments leading to the state of quantum science today, and then tracing the evolution of international relations from its beginnings to Wendt’s quantum proposal, the next chapter will be my attempt to lay out a case for a quantum social science and Connectivism through an analysis of globalization, social movements, and military thinking and planning which do not fit neatly into international relations theoretical approaches, but which do lend themselves to a humanist, holistic perspective offered by a quantum approach and appreciation for Connectivism in our current and forecast technological milieus. I will begin with a discussion of globalization and previous attempts at framing and understanding the phenomenon. Next, I will analyze the Arab Spring movement, which began in 2010, as an intermediate historical example where some outcomes have been relatively clear — say, in Egypt, Morocco, Tunisia, etc. — but where outcomes remain uncertain in other locales, namely Libya and the Levant. After that, I will study the Black Lives Matter movement currently underway in the US and in Europe as a means to analyze a social movement whose outcome is as yet undetermined and unknown. Finally, I will discuss the
military as an exemplar of industrial era, Newtonian thinking and how a Connectivist versus a positivist, linear approach toward military strategy and planning can open new avenues for military approaches, and a possible reconceptualization of power in the twenty-first century. How might a quantum social science and Connectivism help us in determining or explaining the outcome of these movements, or the logic of hierarchical organizations, and how might this new ontological lens help the field of international relations in developing epistemological approaches for developing this understanding?

This, then, will be the question my final chapter will seek to answer. After applying the various quantum theoretical advancements and historical philosophical insights noted above to the three cases, I will offer my findings and detail how this new paradigmatic approach offers greater insight into the human dimension of interstate interaction than those theoretical perspectives currently available to us in international relations. I should note here, though, that this study will be an attempt at perspective setting versus theory making or testing. Because of the relative newness of these quantum theories the statistical evidence remains admittedly scant. That said, the concepts behind QCT, QFT, QDT, and QGT are easy enough to explain in the abstract without delving into the sophisticated mathematics behind them. I will leave that to a more in-depth study later. The most important aspect, in my mind, will be to offer a different lens through which to evaluate international relations and hopefully, should practitioners find value in this new perspective, new epistemological and methodological approaches will be developed as quantum social science matures.

For now, though, the logic of our ancient philosophical traditions coupled with the emerging science of the quantum realm provide a surprisingly accessible “story” through which
we can gain an understanding of how a quantum social ontology will benefit the field and bring us past the atomistic and reductive ontology of Newtonian mechanics. And while I present this as a possible paradigm change for how international relations views and approaches the field, I do not necessarily seek to “subvert the dominant paradigm” of structural, materialist analysis. Much like Newtonian and quantum mechanics co-exist in an uneasy symbiosis between micro and macro worlds (although that is beginning to change as well!), so too can a quantum social science provide more explanatory and predictive heft with regard to agency and the structures of our creation. In this manner, perhaps, I do hope to shift the field away from a conflictual, Hobbseian billiard ball view of the world toward a more cooperative, relational, and entangled oneness with the world. This alone would shift the lens of international relations and help to frame a more relational and social ontology versus our current focus on external things and matter. This, then, forms the basis for this exploration. I undertake this project with some humility and with a soupçon of trepidation, but it is a question worth exploring, and an approach worth proposing, so let us begin.
CHAPTER II

PHILOSOPHICAL INTUITION AND CONNECTION: PHILOSOPHY AND EMERGING SCIENCE

“‘Being and time determine each other reciprocally, but in such a manner that neither can the former - Being - be addressed as something temporal nor can the latter - time - be addressed as a being.’

— Martin Heidegger, Being and Time

“If one considers this question carefully, one can see that in a certain sense the East was right to see the immeasurable as the primary reality. For, as has already been indicated, measure is an insight created by man. A reality that is beyond man and prior to him cannot depend on such insight. Indeed, the attempt to suppose that measure exists prior to man and independently of him leads, as has been seen, to the ‘objectification’ of man’s insight, so that it becomes rigidified and unable to change, eventually bringing about fragmentation and general confusion”

— David Bohm, Wholeness and the Implicate Order

Eastern and Western philosophy might seem an odd place to begin a treatise on the application of quantum science to the social sciences, but for the social sciences in general, and international relations specifically, to progress it is sometimes necessary to take a step back to move forward. In addition, while the theory of Connectivism is grounded in a scientific realist claim based on quantum physics, it is important to acknowledge the human intuition regarding connectedness and holism as an intrinsic human quality captured in the traditions to be discussed below. While this look back may seem counter-intuitive, the fact is philosophy is the first science, and it is from Aristotle, Descartes, and Kant the scientific method as understood today has sprung. What is interesting about this as well is that the original science of philosophy, and specifically quantum science, is in the beginning stages of merging by capturing through experiment what was once the province of philosophers and mystics. As such, this human a priori sense of oneness with the universe and of all with all is in the process of finding
scientific rationalization for what was once based on thinking, belief, or faith. This is important with respect to the idea of Connectivism since the marriage of this inherent sense of connection with the growing science of quantum physics will form a bridge between the social and science of our field and help situate humanity more comprehensively and integrally in the universe and realities of their creation. Finally, while science is moving toward frontiers whereby some of the tenets proposed in these philosophical traditions are now on the cusp of scientific rationalization, it is also true that scientists from the recent past have looked back as well to gain insights into their understanding of the universe and to assist in the formulation of hypotheses based upon these journeys into the “spiritual” realm to advance scientific understanding. This connection between the scientific and the philosophical/spiritual is one which receives scant attention, but which is critical for our understanding of humanity, Connectivism and its role in international relations.

**Ancient Traditions, Philosophy, and Knowledge**

Bringing Hindu and Buddhist traditions into a discussion of adopting a quantum approach to international relations is not only counterintuitive, but also dangerous in terms of being branded a metaphysical exploration rather than a logical and scientifically based argument. Fair enough. But as the Heidegger epigraph above hints, the nature of the universe, world, and humanity’s role within it is something of a paradox. Likewise, as celebrated theoretical physicist David Bohm indicates in the second epigraph, Eastern traditions of an existent and primary reality beyond the scope of human measurement versus the Western preoccupation with measurement as reality has created a fragmentation between humanity
and the reality we seek to understand.\textsuperscript{14} This echoes Martin Heidegger’s conceptualization of Dasein (literally \textit{There-Being/Existence}) as articulated in his work, \textit{Being and Time}, which will be explored as both a Western adjunct to the Eastern philosophies, but also one which echoes quantum perspectives as well. Going back to Bohm, he is not alone in this backward glance toward these early philosophies, so a discussion of Nicola Tesla and Carl Gustav Jung/Wolfgang Pauli along with physicist and mathematician Wolfgang Smith and their various interpretations of Hindu and Buddhist philosophy which helped inform their scientific pursuits is important. This, then, is Connectivism’s look back in order to move our field forward.

\textbf{Hindu and Buddhist Philosophy}

In Hindu philosophy, the Akasha, or Akashic Field, is a concept of an element which proscribes and creates the material elements of earth, air, fire and water, but which is unseen. As Irvin Laszlo describes it:

\begin{quote}
The Akasha is not merely one element among others; it is the fundamental element: the ultimately real dimension of the cosmos. It is what in its subtle aspect underlies all things and in its gross aspect becomes all things. In its subtle aspect it cannot be perceived. But it can be observed in its gross aspect, in which it has become the things that arise and evolve in space and time. The same concept is present in the Upanishads. “All beings arise from space, and into space they return: space is indeed their beginning, and space is their final end.” (Chandogya Upanishad I.9.1) \textsuperscript{15}
\end{quote}

In a classic Hindu text, \textit{Raja Yoga}, Swami Vivikenanda describes the Akasha as “the omnipresent, all-penetrating existence.”\textsuperscript{16} He goes on:

\begin{quote}
Everything that has form, everything that is the result of combination, is evolved out of the Akasha. It is the Akasha that becomes the air, that becomes the liquids, that becomes the solids; it is the Akasha that becomes the sun, the earth, the moon, the
\end{quote}

\textsuperscript{16} Vivikenanda, Swami, \textit{Raja Yoga}, Calcutta, IN: Advaita Ashrama, 1982, pp. 33
stars, the comets; it is the Akasha that becomes the human body, the animal body, the plants, every form that we see, everything that can be sensed, everything that exists. It cannot be perceived; it is so subtle that it is beyond all ordinary perception; it can only be seen when it has become gross, has taken form. At the beginning of creation there is only this Akasha. At the end of the cycle the solid, the liquids, and the gases all melt into the Akasha again, and the next creation similarly proceeds out of this Akasha.17

David Bohm describes this deep reality beyond spacetime as a plenum, “What we experience through the senses as empty space is the ground for the existence of everything, including ourselves. The things that appear to our senses are derivative forms and their true meaning can be seen only when we consider the plenum, in which they are generated and sustained, and into which they must ultimately vanish.”18 As the introduction mentions, and as the Bohm epigraph above articulates, for the past 350 years or so, Western science has been dominated by the materialistic Newtonian paradigm born from the philosophical roots of Greek and Enlightenment origins. In cosmological terms, this means the universe was viewed as a giant clockwork mechanism running off the energy produced at its inception, but inescapably trending toward chaos as the diminishing stocks of energy slide toward entropy. However, due to the massive energies generated through quantum processes, another cosmological paradigm is being explored: the unobservable A-dimension of the Akasha, and the observable M-dimension of the manifest, or material realm.

Interestingly, the A-dimension and the M-dimension do not exist separately as Western materialism might suggest but are rather coevolutionary in their symbiosis; they are recursive and co-constitutive in their relation. Events within the observable M-dimension act upon the A-dimension by altering its potential to in-form the M-dimension. Likewise, the A-dimension in-

\[\text{\textsuperscript{17} Ibid.}\]
\[\text{\textsuperscript{18} Bohm, David, quoted in Laszlo, pp. 26}\]
forms the M-dimension which then creates the structures which alter and influence the A-dimension. As László describes it:

As all things in the M-dimension, human beings have both a physical pole and a mental pole. We “prehend” the world in two modes. We prehend the M-dimension through the fields and forces that govern existence in the manifest material world, and we prehend the A-dimension as the spontaneous intuitions Plato ascribed to the realm of Forms and Ideas, [Alfred North] Whitehead to eternal objects, and Bohm to the implicate order. The former are the known effects of the external world on our organism, and the latter the more subtle insights and intuitions that appear for most of us but are mostly ignored in the modern world.19

This “prehension” of the implicate order, or the reality of the unseen, is not only captured in Hindu cosmology, but also in the philosophy of Martin Heidegger which will be discussed in detail below. In international relations terms it echoes the constructivist perspective whereby agents and structures are co-constitutive in their interrelation, though the theory fails to take into account the connection – the entanglement – of humans with the world and the structures of their creation in which they live.

Why the Akasha is so fascinating in this context is that this classical Indian philosophy which has existed for centuries is finally finding scientific rationalization on the cutting edge of physics today. Geometric dimensions proposed within quantum fields beyond spacetime are now being explored, suggesting that a domain beyond spacetime, familiar in the history of ancient traditions and philosophy, has resurfaced at the edge of science as the unchanging matrix of the things and events which populate space and time.20 What this means is that classic quantum fields – known variously as the quantum vacuum, the “neither,” zero-point field, grand-unified field, cosmic plenum, or string-net liquids – may not be the underlying

19 László, pp. 34
20 László, pp. 24
reality which governs matter. In a 2013 discovery, physicists developed a geometrical object called the *amplituhedron* which is a reality not “in” spacetime; it “governs” spacetime.\(^\text{21}\) This follows on the work of Ruth Britto, Freddy Cachazo, Bo Feng and Edward Witten in the mid-2000s where they attempted to calculate scattering amplitudes of particle interactions and found patterns from those interactions which suggested the presence of a coherent geometrical structure.\(^\text{22}\) The amplituhedron suggested by researchers Nima Arkani-Hamed and Jaroslav Trnka in 2013, implies that “spacetime, if not entirely illusory, is not fundamental: it is the result of geometrical relationships at a deeper level.”\(^\text{23}\)

Similarly, the Hindu and Buddhist conceptualization of Indra’s Net is another cosmological philosophy which is beginning to attract cutting edge science as well. As Rajiv Malhotra describes it, “Indra’s Net originates from the *Atharva Veda* which likens the world to a net woven by the great deity Shakra or Indra. The net is said to be infinite, and to spread in all directions with no beginning or end. At each node of the net is a jewel, so arranged that every jewel reflects all the other jewels. No jewel exists by itself independently of the rest. Everything is related to everything else; nothing is isolated.”\(^\text{24}\) In the Buddhist tradition, the net is a web with dew drops instead of jewels, each drop containing the image of all the other drops within itself, each individual drop containing the entirety of the web and all of the other drops; an infinity captured in a specific point. This image, of course, conjures the notion of holographic science and technology where each part of a holographic image contains the

\(^{21}\) Ibid., pp. 23  
\(^{22}\) Ibid., pp. 23  
\(^{23}\) Ibid., pp. 24  
information required to project the entirety of that image. As Danah Zohar and Ian Marshall describe it, the exciting thing about a holographic model is the way in which each part of a holographic image contains information spread across the whole pattern. In other words, each individual part of the picture contains the whole picture in condensed form. The part is in the whole and the whole in each part – a type of unity-in-diversity and diversity-in-unity. For international relations, this conceptual approach could be applied to the many different sub-units of human organization – whether ethnic, cultural, political, etc. – and how even though those identity groupings are important within their separate contexts, they nevertheless all belong to the overarching category of humanity. From a scientific rationalization perspective, Ervin Laszlo takes the holographic notion even further and describes the Akasha, or Indra’s Net as a connecting holofield with the following properties:

**Universality:** The field is active and present at all points in space and time.

**Nonvectorial Effectiveness:** The field produces effect through nonvectorial information.

**Holographic Information Storage:** Information in the field is carried in a distributed form, with the totality of the information present at all points.

**Supraluminal Effect Propagation:** The field produces effects quasi-instantly at all finite distances.

**Effect-Production through Phase-Conjugate Resonance:** The non-local effect is due to the conjugation of the waves of the field with those of the systems with which they interact.

The notion of fields is not new within science, and recent work on quantum field theory (QFT) has proven promising. But Laszlo suggests a deeper field – the Akasha – within which quanta interact; a sort of operating system which governs the programs – quanta, atoms, molecules, 

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27 Laszlo, pp. 15
cells, organisms, ecologies, and cosmological systems – of reality. Could it be that the
geometric hypothesis of the amplituhedron is science’s explanation behind the geometry
suggested by Indra’s Web, or that the Akasha is the implicate order as described by Bohm
which exists beyond measurement and beyond spacetime? And could the concept of Indra’s
Web provide an intuitive basis for entanglement and non-local causation found in quantum
science? I will explore these questions later, but for now it is important to cover the interesting
convergence of philosophical inquiry and scientific exploration during the late 19th and early
20th Centuries.

Heidegger: Being and Dasein

Interestingly, Western philosophy, as derived from the early Greek philosophers, took a
different path from their Eastern counterparts. Determining that measurement, ratio, and
proportion were the key insights into reality and order, the Western focus on measurement
became instantiated through teaching, repetition, and objectification until the word ‘measure’
has come to denote a process of comparison of something with an external standard. For
the Eastern philosophies, measurement represents a secondary understanding of primary
reality which is immeasurable. (ie, that which cannot be named, described, or understood
through any form of reason) Bohm goes on to describe this differentiation:

Whereas to Western society, as it derives from the Greeks, measure, with all that this
word implies, is the very essence of reality, or at least the key to this essence, in the East
measure has now come to be regarded commonly as being in some way false and
deceitful. In this view the entire structure and order of forms, proportions, and ratios
that present themselves to ordinary perception and reason are regarded as a sort of

28 Ibid., pp. 15
29 Bohm, pp. 29
30 Ibid.
veil, covering the true reality, which cannot be perceived by the senses and of which nothing can be said or thought.31

As a result of this differentiation between Western and Eastern thought, the West has emphasized the development of science and technology and has, through this focus on measurement, defined reality through the process of thinking and mind, externalizing the world of the observed from the subject – or thinker – of observation. This separation between subject and object has permeated Western philosophy and science and has cleaved humanity from the reality they seek to understand. Not coincidentally, this split between the scientific approach and a more holistic, humanist approach has also contributed to many of the great debates within international relations as well, which will be explored in more depth later. That said, a noticeable shift in this paradigmatic approach seems to have begun sometime during the late 19th and early 20th Centuries when both philosophers and scientists began to approach and internalize the teachings of Eastern philosophy – most notably with Hegel and Nietzsche giving rise to existentialism, and with Tesla and Carl Gustav Jung with Wolfgang Pauli providing insights into psychoanalysis and quantum science. I will discuss this merging of science with Eastern philosophical traditions later in this chapter, but I first wish to explore Western philosophical development during this period as a means of providing a foundation for Western thinkers’ desire for reconnection with holism and humanity’s connection to each other and the world.

From a philosophical perspective, perhaps the best exemplar for bridging the gap between Eastern and Western philosophical evolution while simultaneously creating the space
for an appreciation for reality beyond our explanation as described by Bohm above is Martin
Heidegger. Now, before I delve into Heidegger’s work in *Being and Time*, I will confess his ideas
are somewhat inscrutable and difficult to parse. Even scholars of Heidegger confess the
opaque nature of his work and the difficulty in divining his reasoning and thought. That said,
his concept of Dasein nevertheless provokes his mention here as a foundational merging of
Eastern and Western thinking regarding an unseeable and unknowable reality.

Heidegger studied under Edmund Husserl, the founder of phenomenology, at the
University of Freiburg in 1916. Husserl’s phenomenology heavily influenced Heidegger’s
approach, though he differentiated himself from his professor in important ways. Whereas for
Husserl phenomenology was concerned with the systematic reflection on and study of the
structures of consciousness and the phenomena which appear in acts of consciousness,
Heidegger differentiated himself by asserting that being – i.e., the entities which inhabit space –
is separate from Being, which is associated with an overarching reality that is “thrown” into
existence through our everyday experiences.32 Rather than differentiating acts of
consciousness and the objects which “reveal” themselves through those acts, which Heidegger
found too similar to Descartes’ dualism, or the separation of mind and body, Heidegger instead
focused his phenomenology on authentic and inauthentic ways of Being as revealed by Dasein.

As Heidegger scholar, Dr. Paul Gorner, describes it, “what matters to Heidegger is our everyday
experience of the world. Unfortunately, what is closest to us is also what is hardest to see
precisely because of what we have learnt at school and university, whether consciously or not,

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which acts as a screen between the world and ourselves and distorts our experience.” In other words, Heidegger’s main problem with Husserl’s phenomenology was it failed to ask the proper question. Rather than assuming Being as a given which then allows for the acts of consciousness and perception of objects, Heidegger rather asks what Being is. This question, in is what connects Heidegger’s *Being in Time* with humanism, holism and, ultimately, quantum holism while at the same time throwing into question international relations’ focus on the variables – the beings/things – of global politics rather than on *why* those variables exist, and *how*. It also echoes the Hindu and Buddhist concepts of Akasha and Indra’s Web discussed above, so it is important to delve into his ideation of Being and Dasein to both understand his insights into what David Bohm calls the implicate order, and to understand the confluence of his thinking with those of the scientific community at about the same period in history.

The difficulty behind Heidegger’s approach is the dual meaning of being. There are things in the world which exist, such as trees, humans, rocks, mathematical formulas, etc. – in other words, the nouns of our existence – but there is Being such that a tree exists in some way, rocks exist in some way, and humans exist in some way. This is to say that the beings – the things – which exist in the world all exist in different ways. From Heidegger’s point of view, our attempts to describe reality through our conscious perception of the things – the beings in his terminology – in our midst fails to answer the ontological question of what the Being of those things is. As he puts it, “It is exactly within our ordinary understanding of our relation to the world where we will find the clues for reawakening the question of Being. The

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34 Ibid, pp. 21
very fact that we already live in an understanding of Being and that the meaning of Being is still veiled in darkness proves that it is necessary in principle to raise this question again.” Of course, the question of Being needs to follow a structured process of inquiry, namely:

1. What is asked about?
2. What is interrogated?
3. What is discovered by asking this question?36

For Heidegger, the main importance of the question is not merely the question itself, but rather the questioner. By virtue of asking the question, human beings have an ontic priority over the other beings in existence. For example, my keyboard is a being in Heidegger’s terminology, a thing which exists. So are the other beings on my desk, for example my computer, my monitors, the light shining through the window, etc. I, too, am a being, for that matter because I exist. In Heidegger’s terminology, all these beings, or things, become ontical (as distinguished from ontological) questions when I seek to describe them. To these ontic beings, questions surrounding what a keyboard is, or what a monitor is, or light, are best left to scientific inquiry. But when it comes to a question of Being versus being/thing, science has nothing to say.37 (though as we will see later, that may be beginning to change)

To differentiate the ontological primacy of Being over being, Heidegger describes all the sciences as “regional ontologies.”38 What he means by this is that a physicist describes physical objects, mathematicians investigate mathematical objects, and historians investigate historical

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36Ibid., pp. 24
37 Gorner, pp. 25
38 Heidegger, pp. 10
objects. As such, the sciences have specialized ontologies within each of their fields, but none concern themselves with whether the universe exists or not, only whether the interpretation of the facts within each field correspond with what is taken to be true. This is why he considers the sciences as possessing regional, or specified, ontologies. The foundational ontological question for Heidegger, however, concerns Being, and the foundational ontic being is the one asking the question, i.e., humans. For example, my keyboard does not ask what it means to be a keyboard; it just is. Likewise, my keyboard has nothing to say about what it means to be a monitor, or a computer, or any of the other beings with which it interacts or are within close proximity spatially. The only beings/things which can exist not only as a what, but can also concern itself with the fact that it is are humans. Heidegger describes this not-just-a-being/thing when he writes, “Dasein (there-being, or there-existing) is ontically distinctive in that it is ontological.” This distinction privileges the human being over all other beings and makes a strong argument for a new form of humanism which differs from the general conception of that term. Whereas most modern humanism concerns itself with human agency and humans in relation to the world, Heidegger goes one step further by elevating humans from mere observers of, or objects within, an external world to that of ontological beings as Being. Through existence and the ability to interrogate that existence, human beings are capable of transcending mere being-ness to become part of the greater reality that is Being. For the social sciences and international relations this is important because agents and agency through human interaction with the world is ontological; reality is created and perpetuated

39 Gorner, pp. 25
40 Ibid., pp. 26
41 Heidegger, pp. 32
through human interaction with the ontical beings/things in the world. This is an inversion of the structural analysis of neoclassical realism and situates humanity squarely in the driver’s seat of what it means to be and, through that aliveness, the realities we all create.

Because Heidegger viewed language as another being/thing which could obfuscate meaning due to the indoctrination into the symbols and meaning provided through education and then later reified through everyday use, he chose to develop new terms for his exploration of Being to differentiate his thoughts from the everyday use and meaning of the extant lexicon of his era. In a way, he attempts to “liberate us from a dead ontology preventing us from experiencing our world as it appears rather than as we think it should.”42 In that manner Dasein, or there-being/existing, becomes an expression of the ontological character of humans. So, what does that mean? Gorner explains:

For Heidegger, existence has a very precise and unique meaning. It applies to the kind of being we are. Not in terms of our reality, if we mean by reality that we exist like everything else in the universe. Rather we exist because we have an understanding of our being as the very basis of our Being. This Being rises from our everyday experience of ourselves and our world. Being matters to me as a question because my own Being is important to me. . . . When I say my life matters to me, I do not mean life in general, but my life. Only I can live my life. The choices I make in my life, which are mine even if I disavow them, Heidegger describes through the neologism ‘existentiell’ . . . Just as I can only understand Being through beings [things], then I can only understand the existential, the particular Being of Dasein, through the existentiell.43

The meaning of existentiell, then, refers to the categorical world, which is identifiable and knowable, while, ironically, the more recognizable term existential refers to Being, which permeates all things and cannot be categorized or otherwise understood through classical logic

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42 Gorner, pp. 26
43 Ibid., pp. 28
or science. In other words, our everyday “existentiell” refers to our ontic orientation toward beings/things, while “existential” refers to our ontological Being.

What this means is that in everyday existence, where humans are interacting with the other beings/things in the world, it is only humans, which Heidegger describes as the foundational ontic beings, that in their being, this being itself is an issue of interrogation in which only humans engage. This is what Heidegger calls Dasein. “Dasein is concerned with its being in the sense that it must choose the way it is. Its being is such that it must choose the way it is, not that it is but how it is. In its being it has a relationship of being to this Being. This means that Dasein understands itself in its being. With and through its being this Being is disclosed to it.”

Despite the Monty Python-esque construction of his argument, what Heidegger suggests is Dasein and humanity’s ontic priority is the result of thinking, or of asking the question of what it means to be. But beyond the simple causal relation of Descartes’s *cogito ergo sum*, Heidegger considers thinking in terms of a gift that is given from Being to being, or Dasein, in the form of what he terms “es gibt.” As Princeton professor Paul Nadal describes it, “Being ‘is’ as such only insofar as it gives itself. In giving itself, Being is thrown in its ‘there.’ This ‘there’ of Being is the ‘Da’ of Da-sein. Being’s thrownness is thus its opening up as the giving of itself. And if Being ‘gives itself,’ thinking is the mode in which we apprehend this self-giving of Being.” In hopefully less esoteric or confusing terms, what Dasein means is that humans, through the act of thinking and relating to themselves as beings amongst other beings/things, open themselves up to a higher reality which exists beyond categorical reality.

44 Gorner, pp. 24
This invisible reality “shows” itself to Dasein, “gifts” Dasein with the awareness of this reality, through the act of questioning. As already mentioned, though, this is not a causal relationship, but rather an opening up to what is already there. This is what Heidegger means by Being as the foundational ontological reality, and why Dasein, through a co-constitutive relationship with and through Being, is both ontic and ontological. This co-constitutive relationship between being and Being echoes the relationship between the A-dimension and M-dimension referenced above, where the material world interacts with and alters the unseen world of the Akasha, but similarly the A-dimension of the Akasha also in-forms the matter and material of the observable world.

Another interesting aspect of Dasein is the concept of possibility. As Gorner describes, “To think of existence as mine is to understand it in terms of possibilities. (emphasis added) Stones do not have possibilities. The stone does not choose to be a stone. Animals do not have possibilities. My dog cannot wake up one day and decide not to be the dog it is. It acts through instinctual behaviour. I, however, can decide to be a student of philosophy, a doctor or a teacher or many other things.”46 This, as Heidegger explains, is what separates Dasein from other beings/things, and ultimately what separates science from the reality of Being. Gorner goes on to describe this ontological split:

It is because the acorn exists indifferently towards its possibilities that it can be investigated scientifically. Human beings, as Heidegger points out in the following section, can also be objects of scientific study as in anthropology, psychology and biology, but then they are treated as though they were just complicated things, no different from any thing else which exists. Moreover, the scientific viewpoint does not even take its own [regional] ontology seriously. It takes for granted that things exist and that we can speak about existence in the same way about everything, but it does not

46 Gorner, pp. 36
presume that this ontology is worthy of serious study. What is lost in this ontology is
the way of Being of human beings. I am like an acorn in that if do not eat or
have water I will die, but I am not like an acorn, in that I can be a student, a teacher or
even a reader of Being and Time.47

The interesting aspect of this possibility of Dasein is that it offers not only a philosophical
explanation of Being, but possibly a quantum explanation as well. As Wendt describes it, “If
quantum consciousness theory is true then the physics constraint to which human beings and
society are subject is quantum rather than classical. This matters because in a quantum world
lots of things are possible that aren’t in a classical one, and so a quantum perspective presents
an opportunity not only to overcome dualism in social science, but to expand our conception of
social reality altogether.”48 This concept of individual possibility and social interaction from a
quantum perspective echoes Heidegger’s own intuition regarding Dasein and Being and will be
expanded upon below and in a later chapter. It also puts to the test international relations’
own interpretation of humankind as simple rational actors who will always seek utility
maximization versus the realm of possibilities, or potentialities, available to us in a quantum
world. In this sense, the realm of human potential is operative rather than reduced to a model
of homo economicus that is responsive only to external stimuli and base aggrandizement. In
other words, it allows for free will and the vast array of potentiality and creative sovereignty
our current materialist modeling has foreclosed.

This long exegesis on Heidegger’s discussion of Being and Dasein is important because it
resonates with and echoes the description of the Hindu concept of Akasha described above, as
well as the amplituhedron proposed by current quantum physics experiments. Is Being, like the

47 Ibid., pp. 38
48 Wendt, pp. 32
Akasha and amplituhedron, an overarching reality which exists beyond spacetime; the operating system which governs all matter in existence, from the quantum to the cosmological? Is quantum science beginning to scratch at the edges of what Eastern and Western philosophers have intuited through thinking about the nature of reality? These questions will be explored later. For now, though, a continued examination of Heidegger is warranted because phenomenology is not just an ‘I’ perspective, but also a ‘we/they’ perspective as well. This situates the individual within a social milieu amongst other beings and highlights two important aspects of Heidegger’s thinking: First, because of this individual and social aspect of Being and Dasein, the implications of Heidegger’s philosophy are obvious for international relations. Second, because Heidegger situates individuality within the context of other beings, the parallels between that and later discussions on quantum entanglement become important for the overarching thesis of this paper.

It is impossible to know whether Heidegger was influenced by the nascent beginnings of quantum science when he wrote *Being and Time* in 1927, but his intuition about ontology, Dasein and Being exhibits a sort of intuitive or latent understanding of what quantum science would later begin to illuminate. This intuition is what I would describe as quantum thinking; an expansive, holist view of humanism which springs from the questioning of reality and Being rather than through the scientific methodologies or empirical standards born from the Scientific Revolution and the Enlightenment. This aspect of Heidegger’s thinking will come into play when I discuss the great debates within international relations in a later chapter.
**Heidegger: The They**

While Heidegger elevates Dasein as the priority ontic entity amongst other beings/things and how Dasein relates to those beings-in-the-world, what does he have to say about Dasein’s interaction with and relation to others in the world; the They? As he would describe it, Dasein’s Being is essential to its being with others in the world.\(^49\) It is this essentiality of relation which provides the answer to the question of who Dasein is. In this regard, because each individual’s life is their own to live, rather than simply existing as other beings/things do (like my keyboard, or computer), living and possibility drive individuals into action, the drama of life. To make life their own, then, there is something against which individuals must interact in order to do so. This is the meaning of the They.

Interestingly, like the entirety of Heidegger’s approach which “flips” the script on philosophy through a quest for a higher ontology of Being, each individual struggle in life is not like the self-help phenomenon of which many are familiar – individuals striving through reflection and self-consciousness to achieve their possibility – but rather is a modification of our relation to others around us, what Heidegger terms the They-self.\(^50\) As Gorner explains:

So strangely enough the answer to the question, ‘Who am I?’ is not first of all an ‘I’ or a ‘self’, because I do not live as an isolated subject which somehow has to find its way back into the world. There is no fundamental ontological opposition between self and others. On the contrary, others already belong to the very Being of Dasein. Being with others is not a secondary characteristic added onto my existence. I am already with others from the very beginning. The traditional philosophical problem of other minds is absurd because it presupposes that Dasein is a closed entity like a thing which is present-to-hand. Existentially speaking, the existence of others is not a problem at all, because by the very fact that I am in the world I am already involved with others. I do

\(^49\) Gorner, pp. 52
\(^50\) Ibid., pp. 54
not have to prove they exist to make sense of them, because I cannot make sense of myself without them.51

This is what Heidegger terms Being-with. To be clear, this does not connote a spatial relationship one might normally associate with the word ‘with,’ but rather an understanding of the others-in-the-world as with me in some manner through Being. Similar to Donne’s poem, “For Whom the Bell Tolls” where he writes, “No man is an island . . . Each man’s death diminishes me, For I am involved in mankind, Therefore, send not to know for whom the bell tolls, It tolls for thee,” Heidegger also acknowledges the connection to others – the They – through Being and Dasein. This is true even if others are absent. As Heidegger puts it, “Even when I walk alongside a field in the countryside, and nobody is there, others are still present as Being-with, because the boundaries of this field mattered to someone at sometime, and my walk itself traces the contours of their concern.”52

Heidegger goes further, though, when he describes how even if we are present with others, say, walking down the street, we can be indifferent to their presence. This indifferent relation to others, though, is still a relation since Dasein can only ignore others in this way because they are a part of everyday existence. Conversely, Heidegger goes on to explain how a positive versus indifferent relation to others can take place where they are present. This presence has two forms: one, where Dasein stands in or replaces the other’s possibilities; or two, where Dasein frees others for their own possibilities.53 What he means, for example, is that by writing this section of the paper I am standing in or releasing you from having to go

51 Ibid.
52 Heidegger, pp. 153
53 Ibid., pp. 159
through the trouble of reading Heidegger at all. If, on the other hand, my original intention was to enable you to better understand *Being and Time* for yourself, it could be argued I am freeing you to be yourself rather than substituting your understanding for mine. Because both of these realities – absence and presence of others – nevertheless influences Dasein, it can be said the They are a They-self versus My-self because there can be no ‘I’ without the influence of the They.

This holistic, interrelational connection of Dasein with the They and other beings/things through a recursive relationship with the ontological Being elevates humans and humanism from simply *how* they relate to the world and each other as currently understood within an international relations perspective through a Newtonian lens, and instead elevates them to ontological beings immersed in and a part of Being. This is important to the main argument of this paper for, as Wendt argues:

> Understanding how the indeterminate quantum world results in the determinate classical world – a process known as “decoherence” – is one of the deep mysteries of quantum theory. Above [the sub-atomic] level, it has long been assumed that quantum effects wash out statistically, leaving the decohered world described by classical physics as an adequate approximation of macroscopic reality. That includes social life, the contemporary study of which is all based at least implicitly on the worldview of classical physics. I explore the possibility that this foundational assumption of social science is a mistake, by re-reading social science “through the quantum.” More specifically, I argue that human beings and therefore social life exhibit quantum coherence – in effect, that we are walking wave functions.54

This quantum holism echoes Heidegger’s unseen Being and Dasein’s They-self as a means for reinterpreting the social sphere. But as the title suggests, *Being and Time* is only half of

\[54\] Wendt, pp. 3
Heidegger’s thesis. And it is Heidegger’s discussion of time which further connects his thinking with that of Eastern philosophy and quantum mechanics.

**Heidegger: Time**

As the title *Being and Time* suggests, Heidegger argues Being cannot be properly understood without understanding time. Heidegger, however, does not mean time in the ordinary sense whereby it is beginningless and endless punctuated by a uniform sequence of *nows*. Rather, Dasein’s temporality is neither being *in* time, nor aware of time, (both of which exist in our everyday experience of time) but rather what Heidegger calls ecstatic temporality.55

As Heidegger describes it, the three principal structures of Dasein’s being come through projection, thrownness, and concern:

In projecting itself onto possibilities of being-in-the-world Dasein is ‘ahead of itself’. As thrown, Dasein is already in-the-world. As already in-the-world it is entities within-the-world, in the sense that it is involved with them, dwells with them, is absorbed by them. Underlying each of the three essential components of care is what Heidegger calls a temporal ecstasis. The three temporal ecstases in their essential unity are what constitutes the ecstatic temporality (or original time) in terms of which Dasein’s being is to be understood.56

What this means is that time, like Heidegger’s foundational ontological Being, *is*. It exists as a unity between Dasein moving towards itself through projection of possibility (ie, the reality of our being moves toward the ontological Being), it comes back to itself via Being “thrown” toward Dasein by virtue of Dasein already being-in-the-world, and enpresents itself through Dasein’s concern for other beings/things, or in-the-worldness.57 Put another way, Heidegger’s formulation of time is not a vectoral entity which passes through an endless succession of

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55 Gorner, pp. 156
56 Ibid.
57 Ibid.
pasts, presents, and futures, but is rather a unity which encompasses all of those temporal coordinates at once.

This temporal wholeness or unity of Heidegger’s depiction is fascinating in that quantum science is in the beginning stages of determining non-local causality through particle entanglement not only in space, but in time as well. Wendt describes it this way, “…locality in time assumes that events at different times are separable points in a temporal sequence and as such have no intrinsic connection; yesterday was yesterday, today is today. Temporal non-locality refers to a loss of such separability, to an entanglement or ‘superposition of states at different times.’”\textsuperscript{58} He goes on to add, “Moreover, just as non-locality in space makes quantum theory holistic spatially, non-locality in time makes it holistic temporally.”\textsuperscript{59} In international relations terms we could intuitively understand this in how history in-forms the present with regard to nations’ actions which can then be extrapolated out to future possibilities – i.e., the explanatory value we place on our current international relations theories. But it might also shed light on how future events, whether the Marxist approach to historical materialism, or the Arab Spring, or the Black Lives Matter movement, are all concerned about “changing” the past through various means which will ultimately change the future in unknowable ways. I will explain Wendt’s rationale and temporal non-locality in more depth later in the paper, but I wish to focus on a relatively recent experiment which has the promise of actualizing temporal non-locality in quantum terms.

\textsuperscript{59} Ibid., pp. 199
First, since quantum science can be just as opaque to the layperson as Heidegger, some definition of temporal non-locality may prove helpful. As researcher Emily Adlam describes the project:

The central idea of this definition is that in a temporally local world there would be “no action at a temporal distance”, i.e., all influences on a measurement outcome would be mediated by the state of the world immediately prior to the measurement. Of course, the definition does not lead to any specific theoretical constraints without some specification of what is included in “the state of the world at time t”.60

She goes on to describe how temporal locality has become entrenched within the physics community through the acceptance of Newton’s process whereby the distinction between laws and initial conditions is a formulation which has become “almost mandatory to introduce a new physical theory by setting out a space of physical states and a set of evolutionary laws.”61 That, coupled with humans’ psychological predisposition toward presentism, as well as the epistemological difficulties associated with introducing variables across space and time, have all conspired to situate the scientific community largely within the constraints of linear time as understood through the coordinates of past, present, and future. As Crull summarizes, “Perhaps the measurement of photon 1’s polarisation at step II somehow steers the future polarisation of 4, or the measurement of photon 4’s polarisation at step V somehow rewrites the past polarisation state of photon 1. In both forward and backward directions, quantum correlations span the causal void between the death of one photon and the birth of the other.”62

60 Adlam, Emily, “Spooky Action at a Temporal Distance,” Entropy, 20(41): 1-20, pp. 5, 2018
61 Ibid., pp. 4
62 Ibid.
What this seems to indicate is what Adlam characterizes as a “global theory,” where quantum theory is simply the local limit of this possibly much larger theory; not just a reinterpretation of quantum theory per se, but a possible insight into an altogether new theory which may be coming into sharper focus. As such, Heidegger’s conceptualization of reality in *Being and Time* may very well be an intuitive appreciation – based off a reinterpretation of Western and Eastern philosophies – for a quantum holism which is beginning to find rationalization in modern science.

This is important since Heidegger’s intuition situates humans as ontological beings who are not only a part of reality but *are* reality through their recursive experience with both the potential future possibilities of their existence, but also through their everyday experience of the “existentiell,” or beings/things within the world. Additionally, this experience is instantiated not through a singular conscious experience of a *my-self*, as is found throughout Western philosophical and scientific traditions where the object – or observer – is separated from the subject of that observation, but rather through a *They-self* as a product of our relation with not only beings/things, but also other human beings in our lives which help to inform the “drama” of our relation with each other, or our negation of the other. Regardless of what is chosen in this respect, we nevertheless conduct our choices – our possibilities into the future – in relation to those from our past and our present. In this respect, much like the “global theory” hinted at by Adlam, Being – like the Akasha of Hindu provenance – simply *is*; an overarching reality beyond spacetime which governs the operations of those beings that exist within spacetime. Similarly, time, in Heidegger’s conceptualization, *is*; a portion of Being
outside of spacetime which governs the perception and existence of those beings existing within spacetime.

So why does this matter to this argument? First, as noted in the introduction and in several instances in this chapter, the traditional formulation of Western philosophy and science is one of disaggregation and measurement, a means to discern reality through the constituent parts which comprise that reality. As Bohm, Heidegger, and others already introduced argue, this separation between humankind and the environments they seek to understand has created a false dichotomy and reliance upon statistical variables which has ultimately veiled the true reality governing our role in the world. Rather than applying this Newtonian materialist approach to the social sciences as our means for better understanding state interaction – disaggregating humanity, social collectivities, and states into variables against which to apply statistical analysis in order to determine probabilities of behavior – a quantum holism along the lines of Heidegger’s intuitive philosophy of phenomenology would resituate humanity as the priority ontic and ontological players in international relations; replacing the normal statistical probabilities currently in use with quantum potentiality instead. Second, because humans exist within a relational architecture of being-with other humans, whether consciously or sub-consciously, this connection entangles us all as ontic beings capable of projecting our possibilities, our potential, onto our collective reality while simultaneously experiencing this reality in its “thrown-ness” as the ontologically recursive relationship between Dasein and Being. Likewise, the ontological relationship between the quantum reality of wave function potentiality through quantum coherence and the existence of beings/things in our world through wave function decoherence, or collapse, provides a scientific realist perspective for the
social sciences which may provide more explanatory heft for international relations and
advance our field beyond Newtonian materialism into a fusion between Heideggerian
phenomenology and quantum mechanics.

But before we move on from the connection between philosophies and emerging
science into a more explicit description of quantum science’s application to international
relations, it is important to examine the connection between scientists and the philosophy
which helped inform their own pursuits in developing hypotheses with which to better specify
the theories of their scientific pursuits. This examination will lend some light into how the ideas
of the past are not only helping to inform the science of the future, but how the science of the
“present” reached back into the past to develop a more explanatory future. Much like
Heidegger’s concepts of Being and time as a whole beyond spacetime, and the Hindu concepts
of the Akasha and Indra’s Web as similar wholes which describe an implicate order beyond
explanation or measurement, so too do these recursive explorations back to inform forward,
and the intuition regarding an implicate order which informs science, is important to the
concept of Connectivism and how this broader reality is bridging not only the gap between
philosophy and science, but the gap between the social and the science of our field.

Science Turns to Philosophy

“The day science begins to study non-physical phenomena, it will make more progress in
one decade than in all the previous centuries of its existence.”
— Nikola Tesla

“It would be most satisfactory if physics and psyche could be seen as complementary aspects of
the same reality”
— Wolfgang Pauli, Writings on Physics and Philosophy
Nikola Tesla

The melding of ancient philosophical traditions with science is nothing new. Even scientists firmly wedded to the scientific method and the Newtonian paradigm felt the lure of ancient wisdom as something worth investigating; a muse to assist with the deeper insights they sought to explore through the methodologies of scientific theory-making. This blending of philosophy with the physics of science was evident in Nikola Tesla’s work. His relationship and correspondence with Swami Vivekananda in the late nineteenth and early twentieth century captured his imagination through the Sanskrit terms of Prana and Akasha, or vital energy and luminous ether, respectively.63 Tesla biographer John O’Neal captured Tesla’s interest in the Vedic traditions this way:

There manifests itself in the fully developed being, Man, a desire mysterious, inscrutable and irresistible: to imitate nature, to create, to work himself the wonders he perceives.... Long ago [Tesla] recognized that all perceptible matter comes from a primary substance, or tenuity beyond conception, filling all space, the Akasha or luminiferous ether, which is acted upon by the life giving Prana or creative force, calling into existence, in never ending cycles all things and phenomena. The primary substance, thrown into infinitesimal whirls of prodigious velocity, becomes gross matter; the force subsiding, the motion ceases and matter disappears, reverting to the primary substance.64

While Tesla was never able to mathematically prove that the universe was energy creating matter and vice versa, his reading of the Vedic traditions expanded his scope and was later partially proven with Einstein’s simple theory of E=MC². His thinking also harkens back to the description of the Akasha supplied above, as well as Heidegger’s conceptualization of Being and time as the ontological reality beyond spacetime.

Carl Gustav Jung and Wolfgang Pauli

Another extraordinary collaboration occurred between psychoanalyst Carl Gustav Jung, and physicist Wolfgang Pauli. C. G. Jung is widely known due to his work under Freud, and then his later split from Freud to pioneer analytical depth psychology. Perhaps lesser known, Wolfgang Pauli was nevertheless one of the architects of modern quantum theory and notable in that field for receiving the Nobel Prize in Physics for his work on spin theory and the exclusion principle. Pauli, suffering from a debilitating psychological condition of unknown provenance sought treatment from the famed Jung, and the two struck up a relationship and correspondence which would last nearly thirty years.65

In his struggle with mental and dream states versus the reality of life, Pauli became interested in exploring the “psychophysical problem,” or the interface between the physical and the mental, and upon which idea of reality it could be grounded. This accorded with some of Jung’s work on archetypes and the collective unconscious, as well as his thesis on synchronicity which linked non-local events in an acausal fashion. Their collaboration produced what is known as the Pauli-Jung Conjecture whereby a “psychophysically neutral whole, an all-embracing one world, or unus mundus, the mental and the physical emerge by decomposing this whole into parts.”66 As Jung describes it, “Undoubtedly the idea of the unus mundus is founded on the assumption that the multiplicity of the empirical world rests on an underlying unity, and that not two or more fundamentally different worlds exist side by side or are mingled with one another. Rather, everything divided and different belongs to one and the same world,

66 Ibid., pp. 3
which is not the world of sense, but a postulate.” Jung and Pauli’s thinking has its etymological origins in Descartes’ substance dualism, where the mental and the physical are separate, to Spinoza’s “dual-aspect monism,” where the physical and the mental are considered epistemic aspects of one underlying reality versus two separate ontological realities, to the neutral monism captured in their conjecture. It has, at its base, a holism which is primary to this thesis.

This idea of an underlying unity, or unus mundus, has obvious parallels with the Vedic notion of Akasha discussed above. In fact, much like Tesla, Jung sought a deeper philosophical insight into the nature of the conscious and unconscious realms to better understand the balance or imbalance between psychic states as possible rationales for psychological and emotional health. As he notes in Psychological Types, “Brahman is the union and dissolution of all opposites, and at the same time stands outside them as an irrational factor. It is therefore wholly beyond cognition and comprehension.” But just as Jung’s theories echoed the notions of an Akashic Field guided by Brahman, so too do his ideas capture through philosophy what the emerging field of quantum physics was beginning to postulate – namely non-local causality, entanglement, and the possibility of an underlying quantum reality, the neutral unity of Jung’s conception, or the Being of Heidegger’s phenomenology, which exists outside of measurement, but from which reality is realized. This is why his relationship and correspondence with Pauli is so important. As Atmanspacher and Fuchs describe it, “The possibility of incompatible descriptions of parts emerging from wholes clearly derives from Pauli’s knowledge of this key

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67 Ibid.
insight of quantum theory. It suggests that structural elements of quantum theory may elucidate our understanding of the psychophysical problem.”69 In other words, solving the hard problem of philosophy between the nature of consciousness and reality, or the mind-body problem.

**David Bohm**

Bohm was a classically trained quantum physicist whose work contributed to the Manhattan Project and whose name is associated with the study of plasma and electron movement through the famous two-slit experiment, known as the Bohm Diffusion. Nevertheless, he grew dissatisfied with his own work attempting to make determinate the indeterminate potentialities of quantum calculation and developed the De Broglie – Bohm, or pilot wave, theory which he later re-named the Ontological Theory.70 It was this step which led Bohm to search for the origin of the particle pilot wave and ultimately to his concepts of explicate and implicate order. During this phase, much like Jung and Pauli’s connection to Hindu philosophical concepts, Bohm developed and maintained a nearly twenty-five year correspondence and relationship with an Indian man named Jidda Krishnamurti who was a mystic, speaker and teacher. It was through this relationship that Bohm began to consider consciousness as part and parcel of reality. As he described his relationship with Krishnamurti in a 1990 interview in Amsterdam, “Well, it seemed to me, he sort of perceived directly some sort of Wholeness... this wholeness of the Universe and the observer and the observed, and so on. So, I didn’t know quite what it meant, but it sort of looked as if it would be important. If

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69 Atmanspacher, et. al., pp. 4
you’ll remember, I always felt I would like to get beyond all limits. I mean, I didn’t want to stay within the limits of Physics as physicists had defined it.”71 This echoes Heidegger’s Being and Dasein and provides further instantiation for the human intuition of connection and holism described above, and the connection between philosophy and science as well. It also highlights the limits of science and quantification and the frustration it seems to have engendered in some of its most storied practitioners. As Bohm (DB) states in the interview with his friend, William Angelos (WA):

DB: Well, Bohr’s approach is to say: Nothing can be said about it at all… but just to calculate, right? This attempts to give a concept of it. Another appearance, let’s call it. (Smiling)
WA: Another appearance, but it’s heavily leaning towards meaning, as I understand it.
DB: Yes. Well, it gives more meaning, in the sense that if we have the Implicate Order and so on, with Consciousness in a similar order, we have a creative order which has more meaning, you see, in this mechanical order it would be very hard to get much meaning. Or in the order of just calculating things. As Stephen Weinberg has said, [he’s] one of the leading theoretical physicists of the time, that: The more they look into the Cosmos the less they see meaning. That’s inevitable, if you say, anyway, you are just calculating.
WA: And do you think that perception is permeating our society?
DB: Well, it has an effect, because ultimately, Society is highly affected by Science as it once was by Religion, which now is no longer the source of our world view. Science is the source of the world view that Religion used to give. Now, the view of Totality has great power because the view of Totality, in principle, has Supreme Value. God… what would He be? He made everything, so He has the highest possible value. Now, if the Universe, which has the highest possible value, is meaningless… (Smiling) …then what else can have value? (DB laughs)72

This is important for two reasons. First, this separation of humankind from the reality it seeks to understand necessarily involves disaggregation, or simplification, in our theorizing to understand our reality; second, in this quest for parsimonious and explanatory theoretical

72 Ibid.
abstraction, without meaning and a description of the essence of things we seek to describe, then true understanding remains elusive. As Bohm describes it in *Wholeness and the Implicate Order*:

What prevents theoretical insights from going beyond existing limitations and changing to meet new facts is just the belief that theories give true knowledge of reality (which implies, of course, that they need never change). Although our modern way of thinking has, of course, changed a great deal relative to the ancient one, the two have had one key feature in common: i.e. they are both generally ‘blinkered’ by the notion that theories give true knowledge about ‘reality as it is’. Thus, both are led to confuse the forms and shapes induced in our perceptions by theoretical insight with a reality independent of our thought and our way of looking. This confusion is of crucial significance since it leads us to approach nature, society, and the individual in terms of more or less fixed and limited forms of thought, and thus, apparently, to keep on confirming the limitations of these forms of thought in experience.73

He goes on to describe this fragmentation through theorizing as a means of co-constitutive reality-making which is flawed:

On the other hand, if we regard our theories as ‘direct descriptions of reality as it is’, then we will inevitably treat these differences and distinctions as divisions, implying separate existence of the various elementary terms appearing in the theory. We will thus be led to the illusion that the world is actually constituted of separate fragments and, as has already been indicated, this will cause us to act in such a way that we do in fact produce the very fragmentation implied in our attitude to the theory.74

How this applies to the social sciences and international relations can be ascertained through our own theoretical schools as well. For example, the various forms of Realism all subscribe to the notion of the nation-state as the primary actor in world politics, and that power, and the acquisition thereof, under the condition of absolute anarchy is the rational choice states make in order to survive. Similarly, in the various strains of Constructivism and identitarian theories whereby habit and practice determine the nature of relationships and

73 Bohm, pp. 9
74 Ibid.
their impacts upon the various levels of analysis, or images in Waltzian terms, then a similar “reality” portends.

For example, if one approaches another person with a fixed theory about that person as an enemy against whom one must defend, that person will respond similarly, and thus one’s theory will apparently be confirmed by that experience.\(^75\) This is an important insight Bohm brings forth insofar as without meaning – or understanding the true essence or qualities of those things with which we interact in the world – then the reality of that interaction and ‘understanding’ are mere forms or abstractions from what it is we truly seek to understand. This insight also echoes Heidegger’s understanding of being – or things-in-the-world – as opposed to Being as the reality that is “thrown” toward Dasein through the act of inquiry and questioning. It is not the things in and of themselves which constitute reality, but rather the things through their interaction with Dasein through the “existentiell” which ultimately describes the existential. I will discuss this relationship with the international relations theories and the debates they have spawned in greater detail in chapter four. Ultimately, though, it is this wholeness and the implied order enfolded within it which Bohm seeks to understand through his work through both physics and the philosophy of consciousness. Interestingly, he is not alone in this attempt to bridge quantum science and philosophy. Another celebrated scholar, Wolfgang Smith, joins Pauli and Bohm in this quest as well.

**Wolfgang Smith**

Born in Vienna in 1930, Wolfgang Smith graduated from Cornell University with degrees in physics, mathematics, and philosophy at the age of eighteen. At age twenty he received his

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\(^75\) Bohm, pp. 8
master’s degree in theoretical physics from Purdue University and went on to work at Bell Labs where, as an aerodynamicist, his contribution of a theoretical solution to the re-entry problem assisted in the U.S. space program.\textsuperscript{76} After obtaining his PhD in mathematics from Columbia University, he embarked upon a 30-year career in academia at MIT, UCLA and Oregon State University.\textsuperscript{77} Despite his successful mastery of these technical fields, however, much like Bohm he became disenchanted with the stringent limitations imposed by modern science on the pursuit of knowledge and became something of an outsider due to his iconoclastic critiques of Cartesian duality and Einstein’s theory of relativity. It is this focus on quantum physics grounded in his expertise in philosophy and mathematics where Smith grounds his critique and marks his syncretic synthesis of the philosophical with the scientific.

In his book, \textit{Physics and Vertical Causation}, Smith briefly describes the history of quantum science and the many perplexities it posed/poses to the dominant Newtonian \textit{“Weltanschauung”} which has ruled science for the last 320 years. In essence – from Planck’s constant, to Heisenberg’s Uncertainty Principle, to the Bohr-Einstein debates, to John von Neumann, to John Stewart Bell, on up to the confounding many world and multiverse theories – Smith found the explosion of intellectual and creative energy that went into developing this new physics in just under twenty-five years both a stellar feat of scientific advancement, and an utterly incomplete picture of the world. Physicists, he decries, while able to describe objects within the world to staggering degrees of mathematical precision, are nevertheless unable to

\textsuperscript{77} Ibid.
answer the basic questions of why an apple is red, or the grass green. While the fundamental particles – from atoms, to electrons, neutrons, neutrinos, quarks, etc. – have been discovered through successive experimentation, physicists have yet to discover how it is those particles come to form an apple, or the grass, or human beings. The problem, Smith avers, is that:

Whereas, as a rule, assumptions of even the most seemingly innocuous kind were sought out meticulously and subjected to exacting scrutiny by one or another of the quantum-reality theorists, I was amazed to find that the Cartesian premises, which entered the scientific mainstream by way of Newton’s *Principia*, had apparently remained undetected, and in any case unchallenged by the investigators. What stands at issue in this philosophic Ansatz is a splitting of the real into two mutually exclusive compartments: an external world comprised of so-called *res extensae* or “extended entities,” and an internal and subjective domain consisting of *res cogitantes* or “thinking entities.”

As such, Smith surmised that, at bottom, it was the Cartesian partition of reality into this *res extensae* and *res cogitantes* which accounted for the fact that, as Richard Feynman is famous for stating, “No one understands quantum theory.” To interrogate this pervasive bifurcated Newtonian paradigm, Smith examined the two planes – what he describes as the corporeal, or what we perceive with our senses, and the physical, or what we perceive through measurement – from an ontological perspective.

In essence, he asks, if the physical realm is real by virtue of our scientific inquiry and measurement, and if the corporeal realm of perception is real by virtue of our subjective experience, then what is it that binds them together? If the physical reality of a human being, composed of material and atoms in a complex array which allows for life, and subjective reality

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78 Ibid., pp. 12
79 Ibid., pp. 13
80 Ibid., pp. 14
81 Ibid., pp. 16
of a human being where our subjective experience of the world is what it means to be alive,
then what is the bridge between these two realities? As Wendt describes it, this bifurcation of
human beings into a classical model results in a counter-intuitive understanding of what it
means to be human, “for what we get is a very complex but essentially lifeless object,” akin to
zombies which operate mindlessly, but which are not truly alive.\(^82\) His answer to this
dichotomy rests on a quantum interpretation of consciousness and will, which I will discuss
more in chapter three. Smith’s answer, on the other hand, echoes the philosophies described
above as a vertical causality between the two ontological planes.

As he describes it, corporeal being entails two fundamental principles. In Aristotelian
terms, *hyle*, or *materia*, plus *morphe* or *form*.\(^83\) This corresponds to the corporeal versus
physical described above and, as Smith states, has been pictorially conceived since time
immemorial as a vertical distinction whereby *morphe* exists above *materia* in a vertical manner
which describes a cosmic “up” and “down.”\(^84\) He goes on to situate the corporeal world as one
which exists on a horizontal plane in a ternary hierarchy of *corpus*, *anima*, and *spiritus*.\(^85\) Not
coincidentally, he goes on to describe the human condition in similar terms where the
corporeal is situated above the constituent physical elements of human existence, the *materia
prima* as purely receptive elements which receive their programming from the higher plane.
This vertical vice horizontal orientation is what Smith believes will resituate humanity in the
cosmos versus living the schizophrenic existence of detached observers from a world which

\(^{82}\) Wendt, pp. 153
\(^{83}\) Smith, pp. 18
\(^{84}\) Ibid.
\(^{85}\) Smith, pp. 19
they inhabit. But more than that, he also believes the planes above the corporeal present not only entities into the world, but also values, “that it speaks to us not only of ‘things,’ but of beauty and goodness.”

But beyond mere metaphysics, what Smith proposes is grounded in the quantum discoveries which have accumulated over time. As he puts it:

As the ontological distinction between the physical and the corporeal might lead one to surmise, it is precisely in the act of measurement that vertical causation comes perforce into play. For it stands to reason that horizontal causation cannot act from one ontological plane to another – given that such an effect must be instantaneous. The fact is that, at the instant of measurement, the evolution of the physical system, as described say by the Schrödinger wave equation, is interrupted – the Schrödinger equation is “re-initialized,” as physicists say – an event for which there is no physical explanation. In fact, there cannot be: what confronts us here proves incontrovertibly to constitute an effect of vertical causation, an act which affects both the measuring instrument and the physical system instantaneously.

What he is describing is the famous wave-particle duality of quantum mechanics whereby a quantum state of coherence exists as a wave state, whereas the process of decoherence as a result of measurement collapses the wave into particle form thus creating the world of things physics seeks to explain. What Smith is arguing is that because the bridge between the two ontological realities is impossible to understand through classical or quantum science, something else is effecting that transition. This mechanism he describes as vertical causality. Additionally, the instantaneity of this impact on the physical system from the apex of the cosmic hierarchy suggests vertical causality transcends both space and time thus possibly accounting for non-local and non-temporal causality in the experimental results of measurement in the physical domain currently taking place as discussed above.
Smith’s insights, of course, echo the Hindu concepts of the Akasha or Indra’s Web as well as Heidegger’s conceptualization of Being versus beings/things-in-the-world. In fact, much like Bohm, Smith actively sought Hindu cosmology as a means for better understanding the quantum enigma. He found that, “One of the most explicit and profound references to the cosmic trichotomy is to be found in the Mandukya Upanishad. The Upanishad conceives of the three loci or “worlds” – the so-called tribhuvana – as answering to three distinct modes of knowing, which correspond (in ascending order) to the waking state, the dream state, and the state of dreamless sleep,” or the corporeal, the intermediary, and the spiritual worlds.  As an uncited Tesla quote attests, “My brain is only a receiver, in the Universe there is a core from which we obtain knowledge, strength and inspiration. I have not penetrated into the secrets of this core, but I know that it exists.”

The scientists I have noted above represent a small sample of those who seek to create a bridge between philosophy and science in their quest for gaining knowledge and understanding. Others, such as: Oxford professor of Mathematics, Roger Penrose, who wrote The Emperor’s New Mind, among other books exploring consciousness; Tulane physicist and mathematician, Frank Tipler, who wrote The Physics of Immortality; and Danah Zohar mentioned previously, have also contributed their thoughts and efforts in this vein. There are many other examples, and, for the most serious inquiries, many come from the field of theoretical or mathematical physics. The names of most, if not all, of these scientists may be unfamiliar to the general population, but I would contend that is only because they have broken from the orthodoxy and – dare I say it? – dogma of the mainstream science.

88 Ibid., pp. 105
establishment. The hold the Newtonian paradigm has on our conception of reality and the means to understand that reality is strong and has been instantiated and absorbed into our scholarly DNA for centuries. I suspect this will continue given the success Newtonian physics has had to this point, but the introduction of quantum physics followed by some of its inconsistencies as noted above may portend a crisis within the Newtonian paradigm and a possible shift toward a heretofore unknown new paradigm for the sciences. This will prove important for the field of international relations and the social sciences in general in helping us to expand our scholarly aperture and cast a wider net in seeking to understand and explain international politics.

Conclusion

What I hope to have exemplified in this chapter is that through the quest for understanding, asking the right question as Heidegger would claim, humanity situates itself not in any specific coordinate of time, space, or being, but rather becomes the exemplar of the philosophical and scientific concepts captured above. Through the act of questioning, human beings become walking, talking examples of the Akasha, or Indra’s Web, or Dasein and Being, or the synchronistic unus mundus, the implicate order, or of vertical causality. We are also, in Wendt’s terms, walking, talking wave functions in a quantum world where spatial and temporal non-local causation are the scientific side of that same coin. In short, humans have intuited for millennia through questioning, and are now in the process of rationalizing through experimentation, the nature of reality and their role within it. We have looked to the past while casting our aspirations toward the future; we have experienced the luminal as we traverse the liminal between philosophy and science, the physical and the spiritual, the classical
and the quantum. This intuition of holism, of connectedness, through the act of questioning and interrogating reality resituates humanity at the center of that reality rather than as sidelined observers in the world of our creation. This agential, creative, and connected nature of humanity with each other and the world of our creation across time, disciplines, cultures, and worldviews animates my theory of Connectivism and propels this investigation forward into the next phase.

But before I can delve into how Connectivism directly relates to international relations, it is important to trace the development of quantum science from its earliest beginnings with Max Planck up to Wendt’s quantum proposal for the social sciences. From there I will interrogate Wendt’s ideas in the context of the three main schools of international relations, and then will provide a case study analysis of separate events and how a reorientation away from disaggregated statistical analysis of world politics toward a more comprehensive and holistic view of our connectedness will help reorient our field toward a much more productive and meaningful understanding.
CHAPTER III

THE DEVELOPMENT OF QUANTUM SCIENCE: FROM THE SUB-ATOMIC TO THE SOCIOLOGICAL

“I do not like it, and I am sorry I ever had anything to do with it.”

-- Erwin Schrödinger

“I think I can safely say that nobody understands quantum mechanics.”

-- Richard Feynman

As the two epigraphs above attest, even scientific practitioners deeply engaged in the mathematics and philosophy of quantum theory have experienced the unsettling results of quantum experiments and have felt dissatisfied with the accuracy of their predictions without understanding why those predictions come to pass. At heart, the conundrum is akin to the mind-body problem of philosophy described in the previous chapter in that the reality quantum theory depicts is nothing like the macroscopic material reality described by classical physics and our own senses.89 The mystery, then, is how to describe the transition from the quantum to the classical world. Of course, chapter two dealt with this question from a philosophical and indeed metaphysical perspective, but what of the quantum scientific perspective? Interestingly, while quantum mechanics has had extraordinarily successful epistemological success, it nevertheless remains ontologically agnostic. As Steven French puts it, we face an “underdetermination of metaphysics by physics.”90 So while quantum predictions remain probabilistic, their experimental outcomes are always definite, classical events without an

89 Wendt, pp. 40
ontologically sound mechanism bridging the two. This, then, is why quantum science and social science are not the strange bedfellows one might imagine at first glance. For if quantum theory is probabilistic just as social theory is probabilistic, yet both theoretical approaches nevertheless result in macroscopic effects in the physical world, then there is some room for interpretation between the two fields of study.

That said, no attempt to unify philosophical and scientific claims (or quantum and social scientific claims, for that matter) regarding the nature of reality would be complete without a section which seeks to explain the evolution of quantum mechanics in a manner that is both accessible to the social science practitioner, yet sufficiently detailed enough to stake a scientific realist claim behind the proposition of Connectivism. This is no small feat for a social scientist with a meager background in mathematics, but this will be an historical look at the development of quantum theory, the many physicists and thinkers who debated, tested, and advanced the theory since its inception in the early twentieth century, the state of quantum advances today, and Wendt’s defense of quantum consciousness as the unifying bridge across the philosophical and scientific claims.

**Beginnings**

In the Kuhnian fashion mentioned in the introduction, physics too has been involved in the normal science of explaining observations in nature under the Newtonian materialist ontology which had gained prominence as the dominant paradigm around the late seventeenth or early eighteenth century. One such experiment was crafted by Thomas Young in 1801 to determine whether Newton’s “corpuscular,” or particle, theory of light was correct.91 Long

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91 Wendt, pp. 44
before quantum mechanics and theory came into being, Young developed what is now considered one of the seminal experiments for understanding quantum wave-particle duality. In the experiment, Young set up a light source behind an opaque screen with one small slit cut into it. Behind that screen was another opaque screen with two small slits cut side by side into it, and then a final opaque screen behind that to detect the patterns created by the light passing through the first two screens.92 Interestingly, if, as Newton had theorized, light was made up of particles, then the resultant pattern on the final screen should have shown two roughly equal and parallel patterns of light as the particles passed through one or the other slits on the second screen. Instead, what Young found was an interference pattern on the third screen which indicated a wave pattern whereby the crests created by waves emanating from the two slits amplified each other, while the troughs of the waves passing through the two slits cancelled each other out.93 This seemed to contravene Newton’s corpuscular theory, but there still remained discrepancies with the wave theory of light which had to be resolved.

This discrepancy began in 1900 with the so-called black-body problem when a young physicist named Max Planck pursued the question of why iron glowed red when heated when the calculations of light frequency at that time indicated the iron should glow blue. To study this, Planck had to relate the kinetic energy ‘E’ of a vibrating particle to the light frequency ‘f’ it emits. As Wolfgang Smith describes, “what Planck discovered – serendipitously as it turns out – is that this emission can take place only in ‘packets’ of energy given by ‘hf’, where ‘h’ is a constant subsequently referred to as ‘the quantum of action’ or Planck’s constant.”94 His work,
later replicated by Einstein in 1905, created the realization that when frequencies both low and high were added up, there was an infinite amount of radiation emitted, which in the Newtonian paradigm simply made no sense. Both Planck and Einstein’s experiments and calculations seemed to verify Newton’s corpuscular theory of light, but Young’s two-slit experiment still held as well, indicating the curious possibility that light was both wave and particle. As such, subsequent researchers began experimenting to decipher this duality and so “Planck’s Constant” became the fundamental building block of quantum mechanics and marks the beginning of the quantum revolution. What occurred after that can only be described as an explosion of intellectual and creative genius in the development of a “new” physics which could explain this wave-particle duality. Over the span of roughly twenty-five years “three radically dissimilar mathematical structures” were developed which nevertheless proved to be “isomorphic.”

The first two of these occurred in 1925 when both Erwin Schrödinger and Werner Heisenberg set out to reconcile the quantum and physical realities born of Planck’s constant. For his part, Schrödinger sought to determine mathematically when the wave function collapsed into particle form, or when the quantum realm gave way to the physical realm:

“Since waves vary, the content of wave functions will vary as well, but their definition is always the same; a wave function represents the potential for all outcomes – the location of particle hits – that might be observed when we perform a measurement. Importantly, therefore, a wave function consists only of possibilities, and as such the wave it describes is not in any actual or definite state like a classical wave. Instead, in quantum mechanics all of the wave’s possible states are said to have potential to exist,

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95 Wendt, pp. 44
96 Smith, pp. 2
in a mathematical sense, simultaneously in ‘superposition.’ We might think of a wave
function as a ‘field of potentialities.’\textsuperscript{97}

For those familiar, Schrödinger’s equation became the catalyst behind a later correspondence
between himself and Einstein and the famous thought experiment known colloquially today as
Schrödinger’s Cat. More on that in a moment.

Heisenberg, on the other hand, was concerned with the fact that while physicists
“evinced boundless respect for the so-called ‘hard facts of observation,’ they seemed rarely to
ask themselves what these facts might actually be.”\textsuperscript{98} As he describes it:

“We can no longer speak of the behaviour of the particle independently of the process
of observation. As a final consequence, the natural laws formulated mathematically in
quantum theory no longer deal with the elementary particles themselves but with our
knowledge of them. Nor is it any longer possible to ask whether or not these particles
exist in space and time objectively ... When we speak of the picture of nature in the
exact science of our age, we do not mean a picture of nature so much as a \textit{picture of our
relationships with nature}. ... Science no longer confronts nature as an objective
observer, but sees itself as an actor in this interplay between man and nature. The
scientific method of analysing, explaining and classifying has become conscious of its
limitations, which arise out of the fact that by its intervention science alters and
refashions the object of investigation. In other words, method and object can no longer
be separated.\textsuperscript{99}

In an effort to reconcile this contradictory worldview, Heisenberg sought to get “back to facts.”

During a sojourn on the island of Heligoland, he had a flash of inspiration that the “mystery of
quantum physics lies in the act of measurement itself.”\textsuperscript{100} In a single day and evening,
Heisenberg developed a mathematical formalism which describes that rather than owning
actual dynamic attributes, quantum systems instead comprise an array of probabilities which

\textsuperscript{97} Albert, David, \textit{Quantum Mechanics and Experience}, Cambridge, MA: Harvard University Press, 1992, quoted in
Wendt, pp. 47
\textsuperscript{98} Smith, pp. 4
\textsuperscript{100} Smith, pp. 4
could be represented as the elements of an infinite matrix. This paper also enumerated what became known as the Heisenberg Uncertainty Principle whereby a particle’s position, or its momentum, can be individually measured and known, but not both simultaneously. Further, he determined the more precise the knowledge of a particle’s position, the less precise our knowledge of its momentum, and vice versa.\textsuperscript{101} This is what is known in quantum science as the “measurement problem” whereby, as Heisenberg describes above, the observers of science are intimately linked to the objects of observation; the scientists and their tools of measurement in a way create the results observed in the material world. It also hints, through this idea of a quantum field, at the existence of the Akasha described in Hindu philosophy, or of Indra’s Web mentioned in chapter two, as well as Wolfgang Smith’s conceptualization of the physical versus corporeal realms captured in chapter two. In international relations terms, then, this inextricable linkage between the subjects and objects of scientific experimentation and the creative nature their entanglement engenders can be likened to the inextricable link between agents and structures and the creative nature their entanglement engenders; a unified whole beyond measurement, yet nevertheless real in its physical manifestation.

Heisenberg’s Uncertainty Principle provided fertile soil for Danish physicist Niels Bohr who also sought to reconcile the gap between quantum and physical reality. In an attempt to develop a conceptual framework which could describe the seeming gap associated with wave-particle duality, Bohr developed the principle of complementarity in 1927. Complementarity in essence describes more broadly what Heisenberg’s matrix formalism described mathematically. Bohr’s concern was that reality was not a fixed condition, but rather a relational condition.

\textsuperscript{101} Wendt, pp. 49
dependent upon how the observers in the laboratory constructed their experiments. For example, if a means to determine the position of a particle is created within the laboratory, and the more that experiment seeks to definitively fix the location of a given particle, there is a corresponding – or complementary – decrease in the understanding of that particle’s momentum. In this way, he sought to preserve both the probability, or potentiality, of the quantum realm with the deterministic observation of the material realm. His principle of complementarity and subsequent debates with Einstein created the first schism within the quantum physics world. This debate regarding whether the quantum realm contained elements which had pre-existing dynamic properties, or whether the quantum realm was rather a field of potentiality evoked the famous Einstein quote, “God does not play dice.”

Through the competing interpretations of quantum mechanics offered by what came to be known as the Copenhagen interpretation *a la* Bohr, versus the Einstein-Podolsky-Rosen, or EPR, interpretation on the other side of the debate, those who clung to the idea the quantum realm contained dynamic elements similar to those already discovered, versus what Bohr and Heisenberg determined to be an altogether separate realm which somehow nevertheless manifests itself into the macroscopic world of things through, perhaps, collapse of the quantum (or probabilistic) wave function, found themselves at an impasse. It wasn’t until 1932 when Hungarian mathematician Jon von Neumann sought to develop axiomatic principles to provide greater mathematical rigor to the quantum conundrum that the divide between the two interpretations slowly began to narrow.

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102 Wendt, pp. 50
For von Neumann’s part, his formalization of the quantum realm into theorems determined that if an ordinary object has dynamic attributes then there are no ordinary objects in the quantum realm.\textsuperscript{103} Dissatisfied with the mathematics of his own design, von Neumann went on to determine if wave function collapse could be broken down into a series of steps; what later came to be known as the “von Neumann chain.”\textsuperscript{104} His conclusion was that the collapse occurs at the end of the chain when the results are recorded in the observer’s mind. This was a radical idea which mirrors the lengthy Heisenberg quote above where the observers (the subjects in the subject-object duality mentioned in the previous chapter) as well as the experimental apparatus all had an impact on the wave function collapse.\textsuperscript{105} What this implies is that the observers and the equipment used in the experiments must also be in quantum states, or “entangled” with the system in question to impact the results in the physical realm.

Von Neumann’s conclusion was too much for some and spurred Schrödinger and Einstein to develop the thought experiment mentioned above to defend the classical worldview. So, what is the famous Schrödinger’s Cat popularized throughout our culture now? Wendt provides a nice summation:

In this scenario a cat is put inside a sealed box with a vial of lethal poison gas, the release of which is determined quantum mechanically, i.e. randomly. We know that if we open the box (perform a measurement) we will observe the cat to be either alive or dead. The question is what is going on inside the box before we open it? According to the classical worldview the cat must be either alive or dead; since objects exist independent of subjects, opening the box merely confirms what has already transpired. However, if we take seriously that the cat is itself in a quantum state by virtue of entanglement with the quantum mechanically determined release of the gas, we must conclude that as long as the box remains sealed the cat is in superposition, which is to say that both alive and dead have some potential to be observed at each moment.

\textsuperscript{103} Smith, pp. 5
\textsuperscript{104} Herbert, Nick, \textit{Quantum Reality}, New York, NY: Anchor Books, 1985, pp. 147
\textsuperscript{105} Ibid., 148
Since that seems absurd, Schrödinger argued that macroscopic systems could not be quantum mechanical, thereby justifying a subject-object distinction at that level.\textsuperscript{106}

Yet the question arises, if the wave collapse does not take place in the mind of the observer, but rather at some indeterminant point prior, then what is the mechanism which causes that collapse? This has broadly come to be known as the measurement problem mentioned above – the impact attempting to measure the quantum world has on the material results – and has led to the belief at some point in the chain this measurement becomes creative, i.e., creates a material reality by virtue of the question being solved. This, of course, sounds very much like Heidegger’s formulation which he produced at about the same time the quantum revolution was taking place. Is this synchronicity in Jungian terms, or is there some other possible explanation other than happenstance?

**Theoretical Evolution**

Although French physicist Louis de Broglie logically and temporally more aptly belongs in the “Beginnings” portion of this chapter, it is his early work on wave-particle duality and development of the pilot wave model in 1925 which inspired David Bohm’s later work in the 1950’s. Bohm took up de Broglie’s pilot wave model and developed what came to be known as the de Broglie-Bohm theory, or the Pilot-Wave Theory, in 1952. As mentioned in chapter two, Bohm was dissatisfied with the cartesian approach quantum mechanics had taken and sought to determine whether there was an implicate order to the universe which explained the manifest explicate order of our perceptions. To this end, he leaned heavily on the Schrödinger and Heisenberg equations while revisiting the de Broglie work on wave functions.

\textsuperscript{106} Wendt, pp. 69
In simple terms, Bohm sought to develop a theory which would explain some of the paradoxes of quantum mechanics explored in the Schrödinger’s Cat thought experiment, or the measurement problem described above. In this, he was attempting to create a theoretical approach which would provide a local, causal, and objective description of quantum “weirdness.” To do this, he and his colleague, physicist Basil Hiley, initially called the approach a “hidden variable theory,” but later described it as an ontological theory – that there existed a wholeness, or field, which consisted of waves which moved the particles of empirical observation as opposed to a wave-particle duality and wave function collapse as previously conceived.\(^{107}\) Somewhat paradoxically, this ontological theory also explained the phenomenon of non-local causality since the wave in-formed the behavior of the particles “carried” by the wave resulting in the seeming connection, or entanglement, of particles separated from each other (or what Einstein called, “Spooky action at a distance.”)\(^{108}\) This active in-forming of the particles is what separates what has come to be known as Bohmian Mechanics from the classical mechanics of Newtonian design, and has raised the question of whether information is actually physical, or as James Gleick succinctly describes it, “It from bit.”\(^{109}\)

This wholeness, or field, he would later describe as the implicate order. Why he changed the theory from one of hidden variables to one of ontology stemmed from his belief the scientific community’s privileging of particles and the disaggregation of reality into its constituent parts to better understand the whole was exactly the reverse of where science


needed to focus. Instead, he felt it is the whole which should be the focus of scientific inquiry which would then lend a greater understanding of its constituent parts.\textsuperscript{110} By way of analogy, Bohm discusses how from a classical perspective society could be viewed as individuals who, in aggregate, create society. His argument would be that society in this view would be impossible without the information communicated amongst those individuals in the form of mores, traditions, structures, and the actual communication between and amongst individuals as well.\textsuperscript{111} Society as a whole, then, is a property transmitted to the constituent parts rather than through the tenets of emergence whereby the constituents create the whole. This recursive and discursive relationship echoes the philosophical perspectives captured in chapter two, especially Indra’s Web where Bohm likens individuals in a society to holographic parts, each containing the Whole within them – a reflection of the information from the Whole – and is finding some traction in the scientific world today. Because Bohm’s theories were initially discounted within the physics community, a renewed interest in pilot wave theory more recently can be traced back to the work of Irish physicist John Stewart Bell who found inspiration in Bohm’s theory for his own investigations which would later result in Bell’s Inequality, or Bell’s Theorem.

John Stewart Bell may be the most important, yet likely least well-known, scientist of the twentieth century. In an effort to determine which side of the Copenhagen-EPR debate between Bohr and Einstein was right, Bell figured out a way to test the underlying assumptions of both in 1964. He developed a theorem which stipulated some inequalities in the correlations

\textsuperscript{110} Bohm Interview, 1989
\textsuperscript{111} Ibid.
between test results must be satisfied if local realism – the underlying assumptions from the
debate that objects exist despite the imposition of ‘mind’ on the experiment, and that objects
must be local since nothing can travel faster than the speed of light – was true.\textsuperscript{112} It turned out
the inequalities are \textit{not} satisfied when calculated using quantum mechanics, so either quantum
mechanics was wrong, or local realism was wrong. Bell suggested experimental tests to
determine whether quantum mechanics were in fact correct, and in 1981 French physicist Alain
Aspect conducted what came to be known as the “Bell Experiments” which proved that
quantum theory was indeed correct, and that local reality was \textit{not} a basic feature of the
universe.\textsuperscript{113}

In the interest of brevity, I won’t go into the details of the experimental set-up, but an
excellent description can be found in Alberts and in Wendt. In general, though, Aspect set out
to determine if there was a correlation of photon spin between a pair of photons shot 180
degrees in different directions. This spin is either around the vertical axis, or the horizontal
axis, and the measurement device would be set to either allow a photon to pass, or to register
if its spin was the same as what was set on the measurement device. In quantum physics, if the
photon pair are entangled, then the ‘A’ photon recording on the measurement device (thus
recording its polarization, or spin) would directly correlate to the measurement of the ‘B’
photon spin. This is exactly what took place. Further, Swiss physicist Nicolas Gisin performed
the same experiment, but separated the two measurement devices by eleven kilometers with
the exact same results. The implications staggered the physics community since the test results

\textsuperscript{112} Wendt, pp. 52
\textsuperscript{113} Ibid.
indicated non-local phenomenon, far from being limited by space, could theoretically occur at a cosmological/universal scale. Fearing, however, that the measurement problem and the interaction of the optical receptor measurement devices still might somehow communicate information to the paired photons in a manner which would violate the Bell inequality, researchers in 2017 tested the photon correlation at a cosmic scale:

In the first of a planned series of “cosmic Bell test” experiments, [researchers] sent pairs of photons from the roof of Zeilinger’s lab in Vienna through the open windows of two other buildings and into optical modulators, tallying coincident detections as usual. But this time, they attempted to lower the chance that the modulator settings might somehow become correlated with the states of the photons in the moments before each measurement. They pointed a telescope out of each window, trained each telescope on a bright and conveniently located (but otherwise random) star, and, before each measurement, used the color of an incoming photon from each star to set the angle of the associated modulator. The colors of these photons were decided hundreds of years ago, when they left their stars, increasing the chance that they (and therefore the measurement settings) were independent of the states of the photons being measured.

And yet, the scientists found that the measurement outcomes still violated Bell’s upper limit, boosting their confidence that the polarized photons in the experiment exhibit spooky action at a distance after all.114

As Wendt describes it, “since all particles in the universe have at some time or other been entangled, the upshot is that everything in reality is correlated. The universe, in short, is one big quantum system.”115

The theoretical debates continue from the lineage begun by Albert Einstein, Erwin Schrödinger, Niels Bohr, Werner Heisenberg, and a host of others who have wrestled with the incongruities and seemingly fantastical properties of the quantum realm with descriptions of

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wave function superposition – where the wave function is a field of all potentialities – proposed by Schrödinger, or the notion of complementarity proposed by Bohr, and Heisenberg’s Uncertainty Principle, where a particle’s location, or its momentum, can be measured, but not both simultaneously. As stated above, eventually there grew two “camps” within the physics discipline, one led by Einstein, Boris Podolsky and Nathan Rosen who crafted the now famous “EPR interpretation,” and Niels Bohr’s “Copenhagen Interpretation” which ultimately gained the most adherents within the field.116 But as the theoretical debates continued, so too did the experimentation as later physicists and mathematicians such as John von Neumann, Richard Feynman, David Bohm, John Bell, and others advanced quantum science.

Quantum theory is now nearly one hundred years old. As Zohar describes it, “In terms of its ability accurately to predict experimental results to several decimal places, it is our most successful physical theory ever. Its practical applications have given us nuclear power, laser beams, and the microchip, all of which have transformed our technology.”117 But the physics and the experiments continue and are producing increasingly profound discoveries. From quantum computing which is on the cusp of practical application, to discoveries of quantum properties at biological and macroscopic scales, the science continues to open new avenues of understanding. It is my contention these later developments within the field are lending new insights into the nature of reality and providing new ontological perspectives through which humans might be able to reorient their perception and experience of the world. We are at a point where quantum physics can accurately describe all physical phenomena. In other words,

116 Ibid., pp. 50-51
117 Zohar and Marshall, pp. 39
the quantum determines the material, and the material determines the quantum, much like the Vedic notion of the Akasha and its co-constitutive relationship with the material elements, or gross matter, of the physical world. As David Bohm has stated, “Quantum physics has been experienced by everybody far more than classical mechanics.” But because we have become so captured by the Newtonian paradigm of material and matter, causality and determinism, we have blinded ourselves to the potential of a different paradigmatic view, one which embraces holism and potentiality versus reductivism and determinism. Which finally leads us to Wendt’s proposal of a quantum approach to the social sciences.

**Quantum Social Science**

Much like the reception Bohm’s pilot wave, or ontological theory, was initially received within the physics community, so too has Wendt’s proposal of a quantum social science been met with skepticism in international relations as well. While there are some within international relations who have given Wendt’s proposal a fair hearing, it is safe to say, at least at this juncture, that it has failed to generate any wide-spread acceptance within the field. The aim here will be to summarize Wendt’s proposal articulated in his book, *Quantum Mind and Social Science: Unifying Physical and Social Ontology*, and to capture some of the arguments for and against his gambit. It is situated here in this chapter as it reflects the evolution of quantum theory not only in terms of its application to the physical sciences, but also due to its interdisciplinary character where one of the last bulwarks against the application of quantum theory is in the social sciences. After this summation here, chapter four will juxtapose Wendt’s argument against the debates between the traditional schools of international relations.

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118 Quoted in Zohar and Marshall, pp. 40
theoretical perspectives, beginning with the Bull-Kaplan debate and then moving on from there to interrogate Realism, Liberalism, and Constructivism through a Connectivist quantum proposal.

**The Outline of Wendt’s Argument**

In his introduction to *Quantum Mind and Social Science*, Wendt describes the current debates occupying not only international relations, but also the other social sciences such as economics and political science, as ongoing and intractable because certain assumptions made in one camp can be easily refuted or debated with the assumptions from other camps resulting in a scenario where “social scientific theories rarely die, and if they do, like zombies they inevitably come back from the dead.”\(^{119}\) It was during this “Land of Confusion” insight when he came across an idea which set him on the quantum path:

My own “aha!” moment came in 2001 after reading Danah Zohar and Ian Marshall’s book *The Quantum Society*, which I had picked up almost randomly at the University of Chicago bookstore. Zohar and Marshall were writing for a general audience . . . However, their basic idea – that the mind and social life are macroscopic quantum mechanical phenomena – hit me as just the kind of thesis that could help move philosophical debates in the social sciences forward. That is because it calls into question a foundational assumption taken for granted by all sides – namely that social life is governed by the laws of classical physics.\(^{120}\)

Wendt decided to explore this idea with greater academic scrutiny, and so embarked on his ten-year project to write the book which outlines his quantum gambit.

At the heart of this project is the question of consciousness, or the mind-body problem described in previous chapters, and whether consciousness derives from classical or quantum properties. As Wendt describes it, the classical worldview implies a materialist ontology in

\(^{119}\) Wendt, pp. 2

\(^{120}\) Ibid.
which reality is just made up of matter and energy.121 Interestingly, the quantum indeterminacy represented by the Schrödinger and Heisenberg wave function mathematics described in the historical overview above highlight the tension between the classical and quantum worlds. Wendt goes on to capture the essence of a Connectivist approach for the social sciences and international relations when he writes:

Social scientists might reasonably doubt that a hoary philosophical controversy like the mind-body problem could be relevant to their work. Yet we have hoary controversies of our own . . . And then there is perhaps the biggest debate of all, between materialists who think social life ultimately can be explained by material conditions and idealists (or idea-ists) who think that ideas play an autonomous or even decisive role. Moreover, this debate is not merely like the mind-body problem in seeming intractable, but of a piece with it substantively, because ideas are dependent on consciousness. Which is to say: some of the deepest philosophical controversies in the social sciences are just local manifestations of the mind-body problem. So if the theory of quantum consciousness can solve that problem then it may solve fundamental problems of social science as well.122

Wendt stakes a scientific realist claim on the quantum gambit as a bridge between the social and science of international relations. I happen to concur with his approach but have modified it slightly through an attempt to maintain focus not only on the emerging science of quantum mechanics, but also on the philosophical traditions which seemingly have intuited what is now becoming rationalized through scientific inquiry and discovery. This will help the field adapt to the possibility of a quantum social science not through a lens of skepticism and trepidation, but rather through a reconnection with our forebears – the social aspect of our field – steeped in a long lineage of human understanding which has preceded what could be a quantum turn for the field. On that note, how does Wendt break down his quantum argument?

121 Ibid. pp. 3
122 Ibid. pp. 6
Quantum Consciousness

As mentioned above, the central question Wendt explores is consciousness as a factor in the social sciences. He argues consciousness is necessary for intentional action, and intentional action is necessary for the pursuit of social science. As he puts it, “Even self-consciously non-intentional approaches like structural and evolutionary social theories assume purposive action at the micro-level, and insofar as institutions are collective intentions, intentionality is present at the macro-level as well. A social science that could not accommodate this fundamental fact would be an impoverished social science indeed.”

He goes on to develop the mind-body problem through the analogy of living, subjective persons who experience their surroundings and others versus zombies who, though they have brains, enjoy no such conscious experience:

What robots and zombies lack – though they could never know what they’re missing – is the best thing about being a brain, which is the experience of it, or consciousness. It is only when we are conscious that we can take an Other’s perspective and thus be social at all, not to mention taking the perspective of the literally millions of Others encompassed by an institution like the state – which has no material existence as such at all, but only a shared fictive one in many minds. In short, almost everything social scientists study presupposes consciousness. And yet as social scientists we tend to take that fact for granted, as no more interesting than the fact that we breathe air, and so consciousness rarely appears explicitly in our work at all.

This echoes Heidegger’s concept of Being-with, and a They-self, such that Dasein cannot understand its being without access to and awareness of the Others with whom he/she is a part in the overarching Being of existence. The counterargument from many in the social sciences, though, is so what? “Regardless of the knots that philosophers can get themselves into, we know that people are conscious. So why can’t social scientists just take that knowledge as

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123 Ibid. pp. 20
given, and get on with explaining/understanding human behavior, like we always have?”

Wendt goes on to counter that social science has embraced “folk psychology” in lieu of the hard problem of consciousness as an “as-if” explanation for human attributes such as beliefs, desires, intentions, choices, passions, etc. Since this folk psychology has enabled human beings to create enduring societies long before science and social scientists came along to study the phenomenon of social organization there is no need to worry about the hard problem of consciousness at all.

This harkens to the argument laid out in this work that the human intuition of holism and an overarching unity are integral to our understanding of the subjects and objects of the social sciences. The problem, however, as explained by David Bohm in the previous chapter, is that by privileging the scientific over the social, we have crafted parsimonious theories which, rather than helping to explain reality, have for many become reality. This is important because how one views the world and the interactions between the players in the world becomes a recursive and discursive (for the interpretivists and Constructivists) self-fulfilling prophecy. For international relations that means many Realists view the world as necessarily conflictual as nations play out the zero-sum game of power acquisition in an anarchic system. Cooperation then gets boiled down to the classic Prisoner’s Dilemma where human intention is reduced to a version of homo economicus utility maximization which precludes any other motivational variables resident in human interaction. So, what might quantum consciousness provide the social sciences that classical, materialist physics does not? In this regard, Wendt tackles the

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125 Ibid., pp. 191
126 Ibid.
agent-structure debate within international relations through a quantum social ontology in a step-by-step manner.

Wendt begins by discussing quantum consciousness theory and how the brain – and by extension, the mind – is quantum mechanical. As he describes it:

Although there are plenty of classical things happening inside the brain, these would be supports for what underneath is a quantum process of thinking inside a wave function – a structure of potentiality which has no separable parts and, by definition, cannot be observed. It is thus noteworthy that most human thinking occurs unconsciously, which makes sense if cognition takes place inside our wave functions. If the brain is a quantum computer capable of exploring many possibilities at once, it will be able to do that only as long as none of those possibilities is actualized in consciousness.127

He goes on to describe subjectivity as the combination of cognition, experience, and will. Cognition is the act of thinking where aspects of information processing, memory storage and retrieval, and learning are all well-studied and amenable to classical scientific observation and interpretation.128 Experience, however, is an intrinsically personal and private matter where individuals process “what it is like” to be in the world at any given moment. This, of course, is very similar to Heidegger’s conceptualization of Dasein and being where he describes Dasein as uniquely predisposed toward what it means to experience “my life.” Cognition and experience, then, are “passive and reactive in the sense that they reflect rather than create reality; their direction of fit to the world is one of world to mind.”129 Will, on the other hand, is “active and purposeful, a drive that imposes itself upon, and thus changes, the world,” or agency in social

127 Wendt, Quantum Mind and Social Science, pp. 120
128 Wendt, pp. 116
129 Ibid.
science terms\textsuperscript{130} This, then, is a visual depiction of Wendt’s conceptualization of quantum minds:

![Quantum Mind Coherence and Decoherence](image)

Figure 1: Quantum Mind Coherence and Decoherence, author created depiction, February 23, 2021

Here we can see that within our unconscious minds the world of quantum potentiality is operative, similar to our attunement to the Akasha, or Heidegger’s Being, or the \textit{ unus mundus } of Jung’s characterization where our quantum consciousness resides in a state of superposition – a state of potentiality – until the act of cognition and experience of that reflective act serves

\textsuperscript{130} Ibid.
as the measurement function described above and collapses the indeterminant wave function into the determinant reality of existence. This is the passive side of reality, but only when our will actuates that reflection into action in the material world does the quantum mind find purchase in the world of things and matter. Science, whether quantum or classical, has yet to determine exactly when, how often, how quickly, etc., this transposition between the quantum and classical realms takes place, but because it is continuous and recursive, and because time in a quantum or Heideggerian sense is all-encompassing rather than vectorial in nature, it can be postulated that human existence is in a constant state of flux and, as such, the quantum and the classical are two sides of the same reality coin. How quickly this juxtaposition between the two realms is actuated in a quantum sense is meaningless since temporal non-locality is operative in a quantum ontology; in effect, our minds are both quantum receptors and quantum generators, actuating the relationship between the two realms simultaneously as described by Smith’s conceptualization of vertical causality. This is an important insight for the following section and its application in international relations.

**Quantum Decision and Quantum Game Theory**

Wendt begins his application of the quantum thesis to the social realm in earnest by discussing quantum cognition and rational choice. He argues, using quantum decision theory (QDT), that the classical view of the human mind possessing well-defined beliefs and preferences which can be maximized through expected utility is contrary to a quantum model

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of mind which exists in a superposition of infinite potential states. As such, there is nothing to be maximized through the expected utility theory model since no ‘ends’ (in the ends, ways, means conceptualization) exist prior to determining the ‘means’ of ends achievement. In other words, while some outcomes may exhibit the classical traits expected by rational choice or expected utility theory, many decisions do not. This was highlighted by the groundbreaking work of Daniel Kahneman and Amos Tversky begun in 1979 on what they called Prospect Theory, which describes the non-rational “heuristics” people use to judge probabilities, and also anomalies and paradoxes associated with human decision-making empirically explored by Maurice Allais and Daniel Ellsberg in the 1950’s and 1960’s.

In addition to the quantum versus classical model of decision-making, Wendt explores the measurement problem described above as it pertains to psychological experimentation. Since the subjects and researchers of these experiments exist in a quantum world, and if, as Wendt and I assert, humans are quantum systems, then the act of “measurement” in a clinical psychological experiment asserts an influence on the outcome just as measurement influences experiments with particles. In this quantum system, the subject and the observers become entangled in a way which provides a new context through which the subjects perform order preferences in their decision-making. More than this, though, the subject is also entangled with the environment within which he or she are present, thus open to that contextual reality as well. This results in what Wendt describes as unbounded rationality whereby:

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132 Wendt, pp. 166
133 Ibid.
135 Wendt, pp. 166
Quantum brains are non-separable and orders of magnitude more powerful, and capable of feats that for classical brains are inconceivable. Thus, whereas classical rationality is mechanical and forces us to purge our every inconsistency, the quantum model allows us to think incompatible thoughts simultaneously and to exploit non-local connections to our environment. So why base the definition of rationality – our highest standard for behavior – on what our brains do only in the classical limit? From this perspective, “bounded” rationality is a more apt characterization of classical decision theory, while the ostensibly irrational processes explained by quantum decision theory constitute a kind of super – or “unbounded” – rationality.136

In other words, descriptions of human behavior/decision-making through models or experimental processes box humans in specific contexts from which their order preferences will arise. Here, Bayesian statistical analysis may capture the classical statistical probability of given decisions, but utterly fail to capture the potentiality resident within the superposed minds of the subjects in that given context before a decision is made. And that is within the context of controlled experiments or formalized models. How, then, can social scientists extrapolate those findings from classically based and narrowly focused experiments onto the multivariate, multi-contextual and dynamic environment of social interaction in a quantum world of infinite potentiality?

While many will argue theoretical abstraction is only a means through which to understand the complexity of human interaction, as described above it all too often becomes a means through which to replace the reality of complexity with the “reality” of the proposed theoretical worldview. Replacing quantum potentiality with classical probability reduces our ability to view cooperative and relational – or social – ontologies and instead replaces them with more competitive and reactionary – or material – ontologies. This alone should make the prospect of a quantum social scientific approach more appealing in terms of its progressive and

136 Wendt, pp. 167
cooperative nature versus a reactive and competitive materialist conception of humanity. This will be explored in more depth in chapter five.

Wendt then turns his attention to the application of QDT in quantum game theory (QGT). Rather than classical players in the normal conceptualization of the Prisoner’s Dilemma game, where the players are offered a binary choice of cooperate or defect (or bits, in informational terms), F. M. C. Witte proposes the players are actually quantum players with superposed potentiality in their preferences (or qubits, in quantum informational terms). In essence, rather than an ‘either/or’ decision matrix in the classical version of the game, the players are in a state of ‘both/and’ in terms of their superposed potentiality or, in other words, cooperate and defect remain operative in their choice potential. Wendt explains:

That means, first, that for each of them considered individually, their two strategies are now entangled, such that each can – in a sense – play both at once. Note that this is not equivalent to playing a mixed strategy: “in a quantum superposition the decision maker is not randomizing in the sense of mixed strategies. Rather, all pure strategies not only equally contribute to shape the decision-making process, but also either sub-additively or super-additively interfere with each other’s contribution to weaken/enhance each other’s contribution.”

So, while the final outcome for both players ultimately results in a classical choice (cooperate or defect) just as wave function collapse results in particle hits, the players can only know the result through the result, and not ex ante. Until that point “because of entanglement with the actual choice, the choice(s) not made also play a role in the process.”

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140 Ibid.
Where this gets even more interesting is that since qubits and a quantum system is proposed, entanglement is not limited to what is happening within the individual minds of the players but extends to their minds considered jointly.\(^{141}\) This again harkens to Heisenberg and Bohr’s insights into the measurement problem and entangled states between the researchers and the objects of their observation. In a quantum game, each player shares an entangled state with the other player thereby exerting some measure of control over each other’s decisions. This control exists without the benefit of communication, whether in the form of a pre-game agreement, signaling, third-party mediation, or conversation between the players.\(^{142}\) This joint control works through non-local correlations in much the same way the Bell experiments mentioned above measured the spin of particles travelling in opposite directions to determine if the spin of one particle could induce a state change in another particle from a distance. This gives strategy in quantum games a wholly collective aspect whereby the players preferences are at least partly determined by a “We-mode” as opposed to the classical version which is solely constructed under an “I-mode” separatism.\(^{143}\)

So, what might this mean for the social sphere and international relations? This quantum game theoretic approach corresponds to what sociologists would consider a shared normative order which constitutes us as members of a society as opposed to animals in nature.\(^{144}\) But rather than this normative order being bolted onto individuals and societies from some external authority, they are in fact created by the very people within that society,
whether in the form of laws, constitutions, mores, institutions, etc. As Heidegger might describe it, rather than a being, or thing which simply is, norms exist in some way and have been gifted to Dasein from the overarching Being which are then instantiated through the existentiell of everyday life. Wolfgang Smith might describe the development of norms as a consequence of vertical causation, while David Bohm would describe it as an explicate order arising from the influences of the implicate order. Regardless, norms are not static noun-like entities which pop into existence, but are rather dynamic, living reflections of the interactions – both local and non-local – and shared beliefs of those who subscribe to them. In this manner, norms are a social construct which can only be realized through an entanglement of the individuals and their intentions within a given society.

As Karen Barad describes it in, Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning, human beings only become who they are through the collapse of our wave functions into well-defined states which occurs as a result of continuous measurements on and by our environments. This phenomenon vitiates the notion of interaction in the classical prisoner’s dilemma game. But more importantly, she goes on to describe how that, as quantum systems, we are all entangled with the social world and so we are not fully separable from each other. This she classifies as intra-action, since who we become through our measurements on each other is internal to each individual through entanglement rather than something which happens external to us. In other words, though we may think of ourselves in terms of ‘I’ or ‘myself,’ those internal subjective experiences of the external

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146 Ibid.
world through our conscious selves, we nevertheless, as was noted with Heidegger in the previous chapter, are more accurately a ‘They-self’ since we cannot be without referencing the other minds in the world. This imparts a powerful social ontological perspective on our existence in the world. As Frederick Zaman puts it:

[Classical] forces are fundamentally non-cooperative because they are blind and mechanistic, and everything that happens . . . occurs through the external imposition of forces that are unwilled and without purpose. [Quantum] forces, on the other hand, are potentially and often truly cooperative because everything that happens occurs through the mutual dissemination of information amongst the forces involved.\(^{147}\)

Wendt concludes his examination of QDT and QGT by stating, “The ‘cooperative’ nature of quantum processes is due to entanglement, which gives reality a holistic dimension that is completely foreign to the atomistic classical worldview.”\(^{148}\) He goes on to describe how this impacts the social sciences by observing that if we as social scientists are captured by the classical, Newtonian worldview, then we should expect competition and conflict to be the default human condition and that we will continually be surprised when real people confound our pessimism.\(^{149}\) If, however, social scientists and international relations scholars were to embrace a quantum worldview, then “instead of seeing human beings as separate elements in causal interaction, we ought to see them as correlated projections of a common ground.”\(^{150}\) This reorientation of our ontological worldview may create normative impacts of their own through our social entanglement and engagement in a cooperative quantum system.


\(^{148}\) Wendt, pp. 173

\(^{149}\) Ibid.

There is more to unpack in Wendt’s exhaustive treatment of individuals in a quantum ontology, but because time and space grow short I’ll forego an analysis of Will as the motive force for change in a cooperative quantum system, time and non-locality as a factor in social constitution, and language as a binding, non-local mechanism which enables a manifest form of entanglement between societal collectivities, and instead jump into the heart of the matter with regard to a quantum social ontology.

**Agency and Structure: A Quantum Take**

Of the many debates within international relations, (those “hoary” debates mentioned in the Wendt quote above) the agent-structure debate perhaps most clearly crystalizes the divide between structuralists and idealists (or idea-ists, in Wendt’s terms). The important question for international relations is, what is a state? Is it a structure within which humans occupy time and space as dictated by that structure, or is it an idea co-constituted by its inhabitants through the habit and practice of serving that idea? In a very broad sense this is the primary distinction between the various camps within international relations. There are, of course, myriad shades and forms of this generalized distinction too numerous to list here, but the gap between focusing on agential, or endogenous implications for the state, or structural imperatives, or exogenous factors which impel social collectivities, has been ongoing for some time, now.

Wendt’s conceptualization of this important question takes a different form. Though maintaining a scientific realist perspective on the question through the application of a quantum versus materialist ontology, he nevertheless charts new territory in the agent-structure debate and offers a more holistic vision which privileges human beings as intentional
and connected entities which are very much alive. Rather than the dead objects of Newtonian observation, Wendt injects a vitality into the state question which offers a more dynamic, relational ontological perspective than that offered by the naturalists, materialists, constructivists or other -ists in the field. As he states:

I argue that human beings are conscious, free, and purposive in a teleological sense – in short, very much alive. I suggest this amounts to a genuinely vitalist ontology – not the ersatz vitalism of New Materialism, but a phenomenological vitalism in which subjectivity is constituted by a physical but non-material and unobservable life force: quantum coherence.\textsuperscript{151}

This, of course, echoes the Heideggerian phenomenology whereby it is through everyday existence and our experience of the existentiell and others-in-the-world that Being – arguably the life force, or quantum coherence described above – is made apparent to Dasein and enlivens Dasein in the manner which Wendt describes as a vitalist ontology.

Beyond this individualistic vitality, though, Wendt takes quantum coherence further by arguing social structures are also in a state of superposition, or infinite potentiality through the entangled nature of its inhabitants and are thus in quantum coherence.\textsuperscript{152} The best way to summarize this difficult concept is to let Wendt do the speaking himself:

Conceptualized in quantum terms, as a structure the state is a wave function shared non-locally across both time and space by millions of people, but as such it is only a potential reality, not an actual one. As a practice, in turn, the state is an actual but local phenomenon, materializing momentarily as people collapse its wave function in their daily affairs such as voting, paying taxes, and going to war, and then disappearing again. Neither aspect captures our ability to “see” the state, the former because wave functions are not really “there,” the latter because practices are not the state as a whole.\textsuperscript{153}

\textsuperscript{151} Wendt, pp. 267
\textsuperscript{152} Ibid.
\textsuperscript{153} Ibid., pp. 268
I want to emphasize that this is not an ‘as if’ analogy that Wendt is proposing, but rather a scientific realist claim to what a state actually is under a quantum versus materialist paradigm.

So again, the question arises: What is a state? Is it something we can see? As Wendt has offered many times in his previous work, if aliens were to observe planet earth from orbit, would they see states as material objects which exist on the surface? The answer, he posits, is of course not. So, if there is nothing “there” in the material sense, then how is it that a superposed version of the state which exists in infinite potentiality, collapsing only in local scenarios of intentional action by its inhabitants, remains a social structure with such enduring longevity? His answer is that the state is a kind of hologram. As was mentioned previously, the notion of a holographic universe can be found in the Vedic tradition of Indra’s Web and has been expounded upon by thinkers, philosophers, and physicists more recently. How this applies to the state is that the information stored within each individual member of a state is shared non-locally through language, practice, and a shared wave function process which creates a sort of reinforcing feedback loop within the inhabitants of a state.

How this works from a quantum perspective is that states exist in a condition of quantum coherence, or a continual state of potentiality since the measurement function cannot illuminate a social structure, *per se*:

Recall that practices and thoughts are the classical effects of measurements of quantum phenomena, and as such what they mirror can’t be the state as social structure, which exists only as a potentiality. So when we observe a policeman arresting a drunk driver, although the state’s wave function is collapsing before our very eyes, we are not

actually seeing the structure that makes the collapse possible . . . So what is the ontological status of this object [the state] which we all know is “there” even though we can’t see it?  

Much like Heidegger in his conceptualization of Dasein as both an ontic and ontological being, so too are individuals within a state both ontic in terms of their being (i.e., citizens, taxpayers, voters, etc.), but also the ontological creators of the state through their Being/quantum coherence which is shared non-locally across the polity (i.e., the stored information of the state through this entangled coherent view of what the state “is”).

Unlike a classical version of a hologram, however, where the information is statically stored in the disparate parts which contain the whole within them, a quantum holographic state achieves storage of that information dynamically through how individuals behave which then encodes the quantum information within them. “Quantum emissions from any material entity carry information non-locally about the event history (e.g. an evolving record of everything that has happened) of the quantum states of emitting matter.”  

In the case of the policeman, the words, “you are under arrest” is this emitting matter since through his actions – how he is behaving dynamically – encodes the history of that police function in the collective memory of the entangled inhabitants of that state. The quantum wave functions occurring within the minds of the inhabitants of the state, in other words, serve as a reconstructive phenomenon which decodes the quantum emission of the policeman’s actions and stores that information through the entangled participants in the state function.  

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155 Ibid., pp. 271
157 Wendt, pp. 272
means is the state as an organizing principle is reified through the interactional, interrelational, and purposive intentions of its inhabitants. This dynamic view of the state places its ontological basis squarely in the individual and collective realm of its inhabitants versus an external structure which imposes its imperatives onto unthinking, unfeeling and unconscious inert matter which mindlessly reacts to that exogenous force. This quantum vitalist sociology is Wendt’s chief insight regarding the application of a quantum versus classical materialist ontology, one which privileges the agents of the agent-structure debate while simultaneously obviating the structure side of that equation through highlighting the state’s continuous superposition of potentiality and thereby its need for ontological humans for its very existence. In other words, the structure side of the debate finds its whole existence, its ontological raison d’etat, within the agents of this false divide.

Conclusion

What I have hoped to capture in this section is the evolution of quantum science through some of its key theorists and to highlight some of the debates within the physics community which have born a philosophy that has mirrored the ancient and more recent philosophy covered in chapter two. This section ended with a somewhat detailed examination of Wendt’s central arguments with regard to adopting a quantum social ontology versus a classical materialist ontology since he has embraced and internalized both the science and the philosophy behind the quantum physicists’ debates while applying it to the field of social science.

Of course, chapter two and this chapter have spent a tremendous amount of time and space laying out the foundational aspects of what I term Connectivism, so, “Where’s the beef?”
Having immersed the reader in nearly one-hundred pages of preparatory foundational work, it is a legitimate question! This work has quite a few balls in the air – philosophy, quantum science, social science and international relations – so the upfront work of giving the reader a peek into these multiple vectors was a necessary evil to bring everyone onto the same page. With that goal hopefully now complete, the rest of this work will focus specifically on how the adoption of quantum science for the field of international relations, with a reinvigorated appreciation for the philosophy of the past coupled with the dynamics occurring in the world of the twenty-first century, will bring the notion of Connectivism into clearer view.

The next chapter will begin by discussing the three major schools within international relations and how the tenets of each might be reevaluated through the philosophy and science described above. Next, an examination of three cases where a quantum/philosophical view toward social movements and hierarchical structures will provide a new lens with which to evaluate the Arab Spring, the Black Lives Matter movement, and the military establishment. Finally, in the conclusion Connectivism will be evaluated in terms of research questions and possible epistemological approaches for future inquiry into a dynamic and socially/technologically changing world.
CHAPTER IV

INTERROGATING THEORY: INTERNATIONAL RELATIONS THROUGH A CONNECTIVIST LENS

The difficulty arises where the pursuit of the measurable leads us to ignore relevant differences between the phenomena that are being counted, to impute to what has been counted a significance it does not have, or to be so distracted by the possibilities that do abound in our subject for counting as to be diverted from the qualitative inquiries that are in most cases more fruitful

--Hedley Bull, World Politics, 1966

I was struck early in my PhD coursework by the debate between Hedley Bull and Morton Kaplan captured in the journal World Politics back in 1966.158 As highlighted in the introduction, and as the epigraph above from Bull implies, the divide between the traditionalists and the empiricists has seemingly become more trenchant and in some cases acerbic since. But beyond the epistemological differences, there remain obvious differences between the leading brands of international relations theories as well. While the field of international relations should be predisposed to vigorous debate – the dialectic of thesis, antithesis, and synthesis – its utility should be predicated on a context of inquiry where those debates can prove progressive and enlightening in terms of expanding understanding. Within international relations, it is debatable (if you’ll pardon the pun) whether our currently entrenched theoretical camps and their various offshoots have served the field well in that regard as states and institutions have seemingly come under increased crisis in the face of an ever-pervasive globalizing impetus across multiple facets of global life.

All of that said, debate can be a good thing so long as it allows the field to move forward, so this contribution is added in that vein. To assist laying the groundwork for analysis, a brief outline of the Great Debates within the field will help to set the stage for the ensuing analysis in this chapter. In that regard, a useful, clear, and insightful survey of the three main theoretical approaches in international relations written by Jack Snyder, professor of international relations at Columbia University, provides a helpful starting point for an interrogation of those theories through a scientific realist/traditionalist, or Connectivist, lens.²⁵⁹

In the article, Snyder notes:

Indeed, when realism, liberalism, and idealism enter the policymaking arena and public debate, they can sometimes become intellectual window dressing for simplistic worldviews. Properly understood, however, their policy implications are subtle and multifaceted. Realism instills a pragmatic appreciation of the role of power but also warns that states will suffer if they overreach. Liberalism highlights the cooperative potential of mature democracies, especially when working together through effective institutions, but it also notes democracies' tendency to crusade against tyrannies and the propensity of emerging democracies to collapse into violent ethnic turmoil. Idealism stresses that a consensus on values must underpin any stable political order, yet it also recognizes that forging such a consensus often requires an ideological struggle with the potential for conflict.²⁶⁰

This tension between theoretical abstraction and the realities of “on-the-ground” events has been the impetus for the so-called Great Debates within the field. And while those debates and subsequent development of an ecosystem of other subordinate theories within the interstices between the three major schools have improved our understanding of international relations, there nevertheless exists an almost quasi-religious dogmatism which still persists within the field. This has seemingly frozen the discipline in a trench warfare scenario where the opposing

²⁶⁰ Ibid.
forces hunker down in their trenches with occasional forays into no-man’s land before returning once again to their epistemological/ideological trenches.\footnote{Lake, David, “Theory is Dead, Long Live Theory: The End of the Great Debates and the Rise of Eclecticism in International Relations,” \textit{European Journal of International Relations}, 19(3), 2013, pp. 567-587} This dogmatism not only encompasses the specific theoretical approaches, but also the epistemological approaches within each where the traditionalists, empiricists, and “post-ies” play out their own internal debates.

Similarly, the insights from James Rosenau in his book, \textit{Distant Proximities: Dynamics Beyond Globalization}, are helpful since he critiques mainstream international relations theories and their focus on the state in a globalized context of the early twenty-first century. He opens his book with a lengthy quote from Barbara Adam which nicely captures the nature of the motivation for this dissertation and its applicability to the international relations field:

\begin{quote}
The social sciences today encounter conceptual and methodological difficulty when they face a world of rising uncertainty; when they are confronted on the one hand by constructed futures that outlast their creators by millennia and on the other by information technology operating at the speed of light, which facilitate simultaneous networked responses across the globe. They tend to acknowledge the limitations of traditional theories when they encounter situations where local actions have global effects, when many of the hazards we face today are no longer linked to the time and space of their genesis/inception, and when simultaneity, instantaneity, in/visibility, im/materiality, multiplicity, the loss of “other” and the construction of the future are confronted with the characteristic assumptions of traditional social science. Consequently, there is a widespread consensus amongst social scientists that we need theories that can encompass the contemporary condition and facilitate active engagement with the process.\footnote{Adam, Barbara, “Detraditionalization and the Certainty of Uncertain Futures,” in Paul Heelas, Scott Lash, and Paul Morris (eds.), \textit{Detraditionalization: Critical Reflections on Authority and Identity}, Oxford, UK: Blackwell, 1996, quoted in Rosenau, James, \textit{Distant Proximities: Dynamics Beyond Globalization}, Princeton, NJ: Princeton University Press, 2003, pp. 1}
\end{quote}

But beside the obvious incongruities the contemporary global environment presents to the major theoretical schools and Rosenau’s attempt to develop a methodologically sound
approach with which to understand those dynamics, he also offers a convincing path whereby
the traditionalists, positivists/scientific realists, and the current strain of post-approach
theorists (post-modernists, post-structuralists, post-positivists, etc.) can decamp from their
fortified redoubts and trenches to attempt a synthesis between their currently competing
epistemological – and in some cases ontological – differences. This, too, is a state that is
achievable with the adoption of quantum social ontology and an approach of Connectivism: a
means through which the calcified and rigidified theoretical debates amongst scholars of our
field might find common ground through a melding of quantum and traditional perspectives; a
blending of the scientific and traditional as a means to move forward in order to better explain
the incongruities of modern global life which are increasingly confounding our extant
theoretical perspectives.

The chapter begins by providing a quick survey of the Great Debates within international
relations. After that is complete, an interrogation of those theories through the lens of
quantum social ontology and Connectivism will take place to see what may, or may not, come
into sharper focus. After pursuing that theoretical reconstruction exercise in this chapter, the
following chapter will extend Rosenau’s analysis of globalizing influences and factors, as well as
the concept of Connectivism, to examine three recent social phenomena which have played, or
are in the process of playing, significant roles in altering the global dynamic. This, then, will be
a macro-to-micro examination and application of Connectivism to evaluate its efficacy for the
field of international relations.
The Great Debates

In terms of international relations’ Great Debates, David Lake begins with the clash between the idealists of the interwar period between World War One and World War Two, and the realists who came as the second world war was approaching. The idealists, perhaps best personified by Woodrow Wilson, came from a tradition of formal legal theory based on Hugo Grotius’ initial treatises on international society through his works *De jure belli ac pacis* (On the Law of War and Peace), and *Mare Liberum* (The Free Seas), and a form of progressive ideals enumerated by Immanuel Kant in *Perpetual Peace: A Philosophical Sketch*. Following World War One, the idealists sought to focus on the potential role of institutions in improving the human condition and mitigating conflict between states while the realists, led most notably by Hans Morgenthau, sought to describe human nature and the world as they are and to develop pragmatic steps for leaders to take to improve world order. The realists drew their intellectual foundations from the Greek historian Thucydides and the philosophical insights of Niccolò Machiavelli and Thomas Hobbes, among others, and have built upon those foundations ever since.

The second Great Debate took place during the late 1960’s between the traditionalists and the behaviorists as exemplified by the Bull-Kaplan debate highlighted here, as well as Rosenau’s evolution away from a strict behaviorist/empiricist predilection toward a “softer” empiricism captured in *Distant Proximities*. While the traditionalist argument emphasizes

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163 Lake, pp. 569
165 Ibid. See also Rosenau’s postscript in *Distant Proximities* which he titles, “A Transformed Observer in a Transforming World: Confessions of a Pre-Postmodernist,” where he provides a personal glimpse into this transformation over decades of scholarship in the field.
the complexity of world politics, the role of contingency, and leadership in diplomacy and
eschews any attempt at reductive theorizing as too narrow to capture the multivariate
complexity and dynamism of global politics, the behaviorists adopted the scientific method as a
means of capturing classes of events versus the singular variables of specific events in history.
While it is my contention the positivists/behaviorists/empiricists have firmly captured the field,
Lake argues that while that may be true in the U.S., the English School and constructivism
remain popular, if not dominant, in Europe where a post-positivist, post-modern, and post-
structural frame has injected new life into the traditionalist camp.  

The last “Great Debate” is characterized by Lake as difficult to nail down. Ostensibly, it
is between positivists and ‘reflectivists,’ though Lake has difficulty with either term, but this
overarching debate is comingled or subsumed within other debates as well: realism, liberalism
and radicalism in the 1970’s, or neo-realism, neo-liberalism, and constructivism in the 1980’s.
As he notes, “the final debate might be best understood as the fracturing of the field into
multiple, overlapping identity groups, each seeking to bolster and affirm its own theoretical
‘turf’ against not only the mainstream of the discipline but against each other as well.”
Perhaps most importantly, Lake emphasizes these debates are “a North American or possibly
US-European story, with few voices from the developing world being heard.”  

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166 Ibid., pp. 570
167 Ibid.
168 Ibid., pp. 570-571
169 Ibid. pp. 571
the foundational documents for each have a Euro-centric flavor to them, whether in terms of their philosophical foundations, or in the analysis of historical events to bolster their claims. Eastern, African, Middle Eastern, South American and other perspectives, while given mention in some of the work in the field, remain largely anecdotal or otherwise ancillary addenda to the overarching theories described above which is why a quantum approach to Connectivism could serve to replace the feuding factionalism within our field while making space for a truly holistic and ecumenical lens through which to evaluate the world of the twenty-first century.

So, this is the state of play within international relations today. We currently have the three primary theoretical schools under which multiple regressive theoretical approaches have blossomed in an effort to somehow capture the dynamic, changing, and complex environment of global politics in the twenty-first century. What follows is an attempt to re-visualize those three major schools through a Connectivist lens.

As stated earlier, Connectivism is not offered as a fully coherent theory given the paucity of quantum social science work to date and the lack of a model through which to propose such a theory. Indeed, because Connectivism incorporates the traditionalist focus on philosophical and social historical foundations while at the same time proposing the adoption of a heretofore underspecified quantum approach to the social sciences, the best that can be realistically hoped for at this early stage is to present a different perspective – a different lens if you will – through which the social sciences and international relations can be viewed. While many in the field may find this approach unsatisfying, it nevertheless exposes and brings into clearer focus many of the inconsistencies and missing elements left unexplored within our extant theoretical approaches. This more holistic and ecumenical view will allow the
international relations field to capture a broader range of perspectives while also providing a different analytical lens through which to evaluate current trends in global politics.

Realist Connectivism

*The State Through a Connectivist Lens*

Whether discussing the state from a Westphalian point of view where juridical, territorial, and international legal sovereignty are paramount, or as an entity which exists within a system of extreme anarchy and behaves according to that structural reality, the state is the primary focus of analysis for the various realist schools as noted above. This is the classical, or neoclassical, interpretation of the international order and is predicated upon a scientific realist, or classical scientific view of reality whereby states are simply another form of matter similar to the atoms and subatomic material which constitutes reality from a Newtonian/Democritean/Aristotelean point of view. As Wendt describes this Newtonian view, “At the end of the day, social systems are just matter in motion – complex, even intelligent matter, but dead just the same.” But what if we were to apply a quantum/Connectivist perspective to international relations and world order?

As mentioned in the previous chapter, Wendt argues the state is a quantum coherent entity, a superposition of potentiality which is maintained through the non-local entanglement and collective consciousness of its citizens through locally manifested events of decoherence. In essence, the state is a holographic phenomenon which exists through countless moments of coherence and decoherence, each occurrence of wave front collapse transmitting the information – the code of the state – from each individual to the state, and from the state.

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170 Wendt, *Quantum Mind and Social Science*, pp. 267
through each individual. In this manner, the state as an organizing principle is reified through this ongoing and continual collapse of potentiality into local reality, and then a return to potentiality once again. Much like what was described in the previous chapter regarding individual minds and the continual flux between quantum coherence and decoherence as cognition, experience and will actuate quantum potentiality into material effects, so too does the state reflect this continual flux between quantum potentiality and local material manifestation; the holographic notion of the state Wendt proposes. As he describes it, this is a holist and vitalist ontology through which each individual’s subjective understanding of the world is exemplified through cognition, will, and experience. Will and experience, then, becomes the actuating mechanism through which decoherence occurs, and where our experience of the classical world of things takes place. Wendt describes this holism not in terms of something which subsumes the individual parts but is rather a realm of potentiality where, “. . . in quantum coherence the whole exists merely as a potentiality (a wave function), and as such is not “real” in the usual sense. It only becomes real in its expression (collapse), which actualizes it into something classical. That would give a quantum basis for Schopenhauer’s claim that Will “objectifies” itself in the world . . . .”

Quantum coherence is just such a force. It may sound strange to call coherence “non-material,” since it is a physical phenomenon and as such a far cry from metaphysical speculations about entelechies and an élan vital. But that is precisely the point: coherence is physical but not material. Moreover, it cannot be observed because doing so would by definition collapse its wave function and thus render only its particle manifestations visible. As I see it this is the ultimate contribution of quantum theory to

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solving the problems of consciousness and life, since it provides an opening within the causal closure of physics for the naturalistic but non-materialist doctrine of vitalism.\textsuperscript{172}

This continual process of potentiality collapsing into local reality and back again is characterized by Karen Barad where her concept of agential realism through \textit{intra-action} takes into account the entanglement of all things/beings such that separability in a quantum world is impossible. All things are ‘agents,’ and all things (humans, scientific apparatuses, rocks, birds, etc.) \textit{intra-act} through the process of wave function diffraction. Localized phenomena, therefore, are simply manifestations of this holistic \textit{intra-action} where time, meaning, and place are all enfolded in that particular moment.\textsuperscript{173} This would be a quantum scientific explanation of the state in realist (both scientific and international relations) terms.

From a traditionalist perspective, the quantum scientific explanation of the state echoes those of the Hindu and Buddhist philosophies captured in chapter two, as well as the Heideggerian, Bohmian, and Smithian philosophies as well. First, the Akasha of Hindu design is the unseen reality, what in its subtle aspect underlies all things and in its gross aspect becomes all things. In its subtle aspect it cannot be perceived, but it can be observed in its gross aspect, in which it has become the things that arise and evolve. As mentioned, Laszlo calls these two realities the A-dimension for the Akashic Field, and the M-dimension for the material world. This, of course, though thousands of years old, captures the quantum scientific claims of quantum coherence, or wave functions of potentiality, and quantum decoherence where the unseen wave function collapses into the material reality of ‘gross matter.’ Similarly, the quantum explanation of the state articulates the Bohmian concept of an implicate and explicate

\textsuperscript{172} Ibid., pp. 144
\textsuperscript{173} Barad, pp. 139
order where the pilot waves of the implicate order carry and in-form the particles of the explicate order, or the idea of vertical causality proffered by Wolfgang Smith which describes the instantaneous interactions between the corporeal and physical realms.

From a Heideggerian perspective, the implications seem clear. Being, for Heidegger, can be read as the quantum coherent state of potentiality, the realm of possibility beyond time, space, or understanding in the cognitive sense, yet is nevertheless actualized – gifted – through our everyday *intra-actions* with the beings/things in the world. Through this existentiell Dasein receives Being as a gift which could be interpreted in quantum terms as the wave function serving as the Being which is gifted to individuals who in turn collapse the wave function into the everyday objects of the manifest world. Additionally, Dasein is also concerned with the others-in-the-world through their *intra-action* with other minds whether through their disregard for others – which still indicates a local reality through the choice that is made to disregard others – or through their care for others such that the ‘my-self’ of classical liberal Enlightenment thinking is more accurately a ‘they-self’ given their *intra-action* or entanglement with other individuals in the world. This more holistic and vitalist/interrelational ontological worldview situates humanity in a much more cooperative environment where the reality of identities and states is not an individualistic endeavor, but rather a cooperative ongoing and iterative endeavor.

What is perhaps most important regarding a Connectivist approach to international relations which melds both the traditional and quantum scientific perspectives is its ecumenical inclusivity of other cultural habits, practices and beliefs. Rather than relying solely upon the western canon of the Scientific Revolution and Enlightenment thinking, Connectivism offers a
more broad and culturally agnostic view toward humanity and its social organizations. For example, Connectivism not only embraces the disparate philosophical views captured in chapter two, but also a broad range of the other cultural philosophies from across the globe. Whether examining Asian philosophies such as Zen Buddhism, or Confucianism, Taoism, etc., or Native American or other tribal traditions, or the various Abrahamic theological traditions, or the secular humanist perspectives regarding new-age spiritualism in the post-modern era, Connectivism brings into focus the many philosophical perspectives which so closely resemble one another in terms of their conceptualization of a spiritual and material world in which we live. Importantly, however, it does this not through comparative studies which might lead to ‘othering’ the cultures being examined – thus creating the very bifurcation and duality Connectivism seeks to eradicate – but rather an all-inclusive perspective of humanity which allows for all of these similar traditional practices and beliefs through the scientifically agnostic lens of quantum mechanics. While in the past religion or secularism has often divided us into warring tribes or camps, Connectivism could serve as a bridge across those disparate belief systems into a more holistic, interrelational human approach.

How, then, might one view the international order through a Realist Connectivism lens? For starters, states would still be the primary actor in global politics, but rather than viewing them as material entities with certain distributions of capabilities which fortify their existence – their redoubts and parapets of a material fortress state, say – Realist Connectivism would acknowledge the ephemeral, holographic nature of the state, the fragility of the state as an organizing principle based on potentiality versus Newtonian probability built upon material assumptions. Many states, certainly the most developed democracies in the current
international order, contain pluralistic societies composed of different ethnic, cultural, religious, political, and economic points of view. These competing identities and interests are all bound together within the politics of each given nation. As Bernard Crick describes this arrangement, “politics is a distinctive form of rule whereby people act together through institutionalized procedures to resolve differences, to conciliate diverse interests and values and to make public policies in the pursuit of common purposes.” Likewise, Hedley Bull expands the idea of society to the international realm where he posits:

The future of international society is likely to be determined, among other things, by the preservation and extension of a cosmopolitan culture, embracing both common ideas and common values, and rooted in societies in general as well as in their elites, that can provide the world international society of today with the kind of underpinning enjoyed by the geographically smaller and culturally more homogenous international societies of the past . . . Like the world international society, the cosmopolitan culture on which it depends may need to absorb non-Western elements to a much greater degree if it is to be genuinely universal and provide a foundation for a universal international society.

This cosmopolitanism has been expounded upon by Norbert Elias, Peter Singer, and Steven Pinker, the latter providing a detailed statistical analysis of the decline of global violence as a result of this civilizing cosmopolitanism. But, as we’ve seen in the recent past, common ideas and common values are difficult in the extreme to achieve on a national scale, much less on a global scale. But why is this seemingly true?

As Saskia Sassen, James Rosenau, Anthony Giddens and others have noted, the pressures and opportunities resident within globalization are creating a push-and-pull on

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societies where the clash between traditions, cultures, interests and values are accelerated through mass migration, global communication technologies, and mass transportation. The accommodation of these pluralistic differences within states has become strained by the compression of time and space within which integration and appreciation for those differences has little absorption time to allow conciliation through the political process. This in turn creates a dynamic whereby the holographic nature of the state, its potentialities and localized realities, faces diffractive wave fronts in the form of these differentiated cultural, ethnic, political, and religious beings who bring their own version of Being/reality into the state potentialities. Much like the two-slit experiment mentioned earlier where the wave-particle duality manifests as wavefront interference and amplitude patterns on the recording screen, so too do these competing cultural wavefronts combine, diffract, and diffuse into a collapse of emergent, different, or competing realities within the holographic state. While the state maintains continuity and longevity through its reified relationship between the state wavefront in-forming citizens’ wave function and local collapse into reality (in the form of institutional participation in state matters such as voting, paying taxes, recognition of and obeisance to the rule of law, etc.), and the communication of that localized information co-constituting the state wave function, the holographic state is able to maintain its ‘reality’ through accommodation of these different potentialities within its citizenry. That said, in a ubiquitous information environment where the extant state wave function can face multiple alternative wave function potentialities from

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within, this environment where competing wave functions operate within an overarching state wave function can be ripe for intervention. An examination of the U.S.’s primary competitors will help illuminate this dynamic.

Russia

Take, for example, the Russian approach toward international affairs over the past decade, or so. Though a nuclear power and key player in the global hydrocarbon economy Russia, in classical realist terms of its distribution of capabilities, is a minor – and possibly declining – actor relative to the U.S., the EU, and rising China. Nevertheless, Russia has adapted its relative weakness into a strategy of cooption and narrative battle where it seeks to serve as a disruptor to U.S. ambitions and exert the classic tactic used in coalition warfare of splitting the coalitions against which it is aligned to gain relative advantage since it is incapable of gaining absolute advantage. As the Carnegie Moscow Center casts it, “In the confrontation that followed, and which is still ongoing, Russia, the underdog vis-à-vis the West, has had to employ tactics designed to compensate for its relative weakness. It sought to keep its opponents off balance by holding snap military drills, taking higher risks while trying to keep NATO aircrafts as far as possible from the Russian airspace, and making decisions swiftly and secretively.”178 In the face of its relative weakness on the international stage, Russia has had to resort to unconventional warfare it coins Grey Zone operations, or hybrid warfare.

For example, its invasion of South Ossetia and Abkhazia in the state of Georgia in August 2008 on its face seemed a classic, realist use of force to achieve its political aims. But a careful

178 Trenin, Dmitri, “Russia as a Disruptor of the Post-Cold War Order,” Rasina Files, Observer Research Foundation, Ritika Passi and Harsh V. Pant, eds., Vol. 3, 2018
examination of its tactics reveals something much more nuanced and complex than that of a simple military intervention into a sovereign nation. Though poorly executed, it was a complex, joint, multi-dimensional attack on Georgia utilizing ground, air, naval, cyber and informational elements to achieve its aims. Perhaps more importantly, Russia asserted the ethnic Russian population living within the Abkhazia and South Ossetia regions were maligned by the Georgian government. To solidify this claim, they utilized the Russian peace keeping forces deployed in both regions to issue the ethnic Russian populations passports as Russian citizens thus providing a potential *causus belli* should they deem invasion necessary for those communities’ self-determination and emancipation from Georgian abuses. From a realist, liberal institutionalist and constructivist point of view, what Russia was involved in was, respectively: *realpolitik* of one nation exerting its power over another in order to achieve its aims; a subversion of Georgia’s desire to engage in the western institutional constructs of NATO and the EU through coercive and informational means; and a desire to instantiate new habits and practices within Georgia which would realign its internal and external relationship with Russia by creating new narratives and new norms through which this new discourse and state response could be created.

From a Connectivist point of view, though, Russia was creating a new reality within Georgia internally through the introduction of disruptive wave functions which could collapse into local manifestations contra to the holographic wave function under which Georgia had previously been functioning. This disruptive diffractive wave function in turn weakens the

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179 Nilsson, Niklas, “Russian Hybrid Tactics in Georgia,” *Central Asia-Caucasus Institute Silk Road Studies Program, Silk Road Paper, January 2018*
extant holographic wave function thus weakening a common, shared, entangled collective consciousness of what Georgia *is*. Within current international relations orthodoxy some might argue this is simply a battle of ideas, or a battle of the narrative no different from those which have occurred over millennia, but ideas are just things-in-the-world (beings, in Heideggerian terms) lacking any physical or motive force. What makes ideas important in a Connectivist/quantum manner is how they are experienced through individual consciousness – the subjective experience of those ideas and narratives through the unconscious (coherent) and conscious (decoherent) interplay of wave function superposition and wave function collapse within individual minds. Will, then, actuates those potentialities and local realities into a *novel and new* collectively entangled understanding of what Georgia *means and is*. This different lens through which to evaluate the importance of ideas on identity, meaning, and action strips away the baggage of comparative analysis and the need for anthropological, ethnic and historical analysis (though I *will* discuss the importance of historical understanding as a part of this Connectivist approach). These various analytical approaches, where collectivities and individuals are binned into categories for hypothesis making and analytical hypothesis testing, are instead viewed through a more holistic quantum perspective to understand the nature of change in a largely indeterminate world of quantum superposition and potentiality. This enlivens the social element of state formulation and interaction and places human dynamism, agency, and action squarely in the center of analysis versus treating humans and their social organizations as inert historical and ethnic material – lumps of clay dead to the world – upon which the state and information contra to the state exert their push and pull on those otherwise lifeless particles. In this reading, Russia *enlivened* its ethnic Russian populations
within Georgia to create a new reality which reified Russia’s claims to legitimacy for its actions in Georgia. In fact, due to its successes there, Georgia could be considered the prelude to Russia’s involvement in Crimea and Ukraine six years later. 180

After the Euromaidan revolution in Ukraine which forced the ouster of its Russia-aligned leader, Viktor Yanukovych, Russia began its annexation of Crimea and invasion of Eastern Ukraine. Much like the invasion of Georgia, Russia had issued passports to its large ethnic Russian population living in Crimea and had begun paying its “citizens” stipends to bolster Russian self-determination in the Crimea question. As New York Times reporters Steven Lee Myers and Ellen Barry characterized Putin’s actions, “Reaching deep into Russian and Soviet history, he cast himself as the guardian of the Russian people, even those beyond its post-Soviet borders, restoring a part of an empire that the collapse of the Soviet Union had left abandoned to the cruel fates of what he described as a procession of hapless democratic leaders in Ukraine.” 181 Using a combination of Russian Special Forces units dressed in anonymous fatigues – the now-infamous “Little Green Men” – Russian defectors from the Ukrainian armed forces, information and disinformation campaigns, and a strong appeal to the historic ties between Russia and Ukraine, Putin was able to annex Crimea through a referendum which reportedly garnered ninety-seven percent of the vote. These economic, informational,

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180 While it is uncertain this was by design, it is interesting to note the Russian invasion of Georgia in August 2008 happened to coincide with the opening ceremonies of the Beijing Summer Olympics, while the Russian annexation of Crimea and intervention into Ukraine happened to coincide, ironically enough, with the Sochi Winter Olympics in February 2014. While a quantum explanation may be difficult to discern, these large international gatherings designed to promote goodwill amongst nations essentially entangled a host of disparate nationalities with the Olympic games thus offering an opportunity to generate diffractive wave functions within the two beleaguered nations to “create” a new reality on the ground while the ‘international community’ was otherwise engaged, or entangled, in the normative aspirations surrounding the Olympics.

and historic appeals, in combination with military force in the Donbas region of eastern Ukraine, all mirror the multi-dimensional hybrid approach taken in Georgia in 2008. Interestingly, even though from a western perspective this seems improbable, as Brookings senior fellow Steven Pifer notes in a 2020 article, Putin’s annexation efforts remain popular among the Crimean population.\footnote{Pifer, Steven, “Crimea: Six Years After Illegal Annexation,” The Brookings Institute, March 17, 2020, https://www.brookings.edu/blog/order-from-chaos/2020/03/17/crimea-six-years-after-illegal-annexation/, (Accessed 19 February 2021)}

Here again the effects of identity, meaning, and association as manipulated through a narrative and economic campaign was actualized through the individual as well as entangled unconscious and conscious experience of those factors. This resulted in the creation of disruptive wave functions in the form of individual unconscious experience of the new wave functions, which then collapsed (or decohered) through the conscious act of experience and will toward action on the new reality offered. This action could have taken the form of participation in the annexation of Crimea, or active violence in the Donbas, or even an inaction of sorts where acquiescence or even disregard, in Heideggerian terms, nevertheless \textit{created} a dynamic whereby the Ukrainian wave function was diluted or diffracted enough to enable annexation and territorial gains in the east of the country. Interestingly, even amongst the minority Tatar population of Crimea who initially strongly opposed annexation, there is a growing acceptance and even appreciation for the new reality of a Russia aligned Crimea where their approval has gone from thirty-nine percent in 2014, to fifty-eight percent in 2019.\footnote{Toal, Gerard, John O’Loughlin and Kristin Blake, “Six Years and $20 Billion in Russian Investment Later, Crimeans are Happy with Russian Annexation,” The Washington Post, March 18, 2020, https://cc.bingj.com/cache.aspx?q=did+putin+pay+crimean+russians&d=4754653531154737&mkt=en-US&setlang=en-US&w=6GnvkBnOYBhyKtb5azm2gnQH5vhHZC5k, (Accessed 19 February 2021)}
Here, I would like to take a moment to expand upon this phenomenon of unconscious quantum coherence. C.G. Jung, in his book, *Synchronicity: An Acausal Connecting Principle*, discusses the notion of archetypes and the collective unconscious. In it, he describes archetypal equivalences as *contingent* to causal determination.\(^\text{184}\) He describes archetypes as a state which “exists between them and the causal process in a manner that does not conform to law.”\(^\text{185}\) In other words, “It is an initial state which is not governed by mechanistic law but is the precondition of law, the chance substrate on which law is based.”\(^\text{186}\) He goes on to proclaim that archetypes represent “psychic probability” which then manifest themselves into causal action. This is mentioned here because what Jung was intuiting through his research and observations was the quantum influence on the unconscious minds of individuals which then is activated – decohered, or collapsed – into localized action and reality through the conscious experience of consideration and reflection upon those “dreams,” and then a will to action on that contemplation. As he notes:

*Synchronicity is no more baffling or mysterious than the discontinuities of physics. It is only the ingrained belief in the sovereign power of causality that creates intellectual difficulties and makes it appear unthinkable that causeless events exist or could ever occur. But if they do, then we must regard them as *creative acts*, as the continuous creation of a pattern that exists from all eternity, repeats itself sporadically, and is not derivable from any known antecedents. For these reasons it seems to me necessary to introduce, alongside space, time, and causality, a category which not only enables us to understand synchronistic phenomena as a special class of natural events, but also takes the contingent partly as a universal factor existing from all eternity, and partly as the sum of countless individual acts of creation occurring in time.*\(^\text{187}\)

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\(^\text{185}\) Ibid.

\(^\text{186}\) Ibid.

\(^\text{187}\) Ibid., pp. 102-103
This, then, is what Wendt and I are articulating when referencing a quantum explanation for a change in the holographic state such as that experienced by Georgia or Ukraine. Quantum interference patterns are introduced through this synchronistic collective unconscious which then find realization in the material world through a conscious reflection and then subsequent action upon those “psychic” probabilities. Literally, this quantum coherence and decoherence becomes the creative act of mind into matter. And if Jung is correct in asserting this quantum effect is truly archetypal and derived from a “continuous creation of a pattern that exists from all eternity, repeats itself sporadically, and is not derivable from any known antecedents,” then perhaps the old aphorism describing how history does not repeat, but it does rhyme, gains greater salience and offers an insight into how these unknowable but nevertheless primordial subconscious factors can motivate social movements. This helps explain the power of the past, of previous lives and experiences which, like the recursive and co-constitutive nature of the Akasha, or of Being and being, these past lives and experiences perhaps ‘imprint’ themselves into the quantum realm and become part and parcel of that reality which then decoheres within individual minds in the material world of things. But if this phenomenon is true of pluralistic, ethnically diverse nation states where competing wave function coherence and decoherence can affect state or national identity, what then of largely homogenous polities more centrally controlled by authoritarian or autocratic regimes?

**China**

China’s rise can also be analyzed through a Realist Connectivism lens. In classical realist terms, China has undergone a massive increase in its capabilities, expanding its economic, military, diplomatic, and influence power across the globe. Robert Gilpin would describe
China’s rise as troubling, viewing their actions through the lens of Hegemonic War Theory.188 Since the U.S., as the status quo power currently in the lead of the international order in terms of its preponderance of capabilities, views China’s rise and claims to global dominance by 2050 as a threat to U.S. standing, the potential for war between the two hegemonic claimants becomes increasingly possible.189 And according to the State Department Policy Planning Staff paper titled, “The Elements of the China Challenge,” China not only seeks preeminence in the established world order, “but to fundamentally revise the world order, placing the People’s Republic of China (PRC) at the center and serving Beijing’s authoritarian goals and hegemonic ambitions.”190 Similarly, the Atlantic Council has published a paper titled, “The Longer Telegram: Toward a New American China Strategy” (an obvious nod to George Kennan’s Long Telegram of 1946 and later article which discussed the sources of Soviet conduct and how the U.S. should address the challenge), where they outline what they believe to be President Xi’s strategic objectives:

- Leapfrog the United States as a technological power and thereby displace it as the world’s dominant economic power
- Undermine US dominance of the global financial system and the status of the US dollar as the global reserve currency
- Achieve military preponderance sufficient to deter the United States and its allies from intervention in any conflict over Taiwan, the South China Sea, or the East China Sea
- Diminish the credibility of US power and influence sufficiently to cause those states currently inclined to “balance” against China to instead join the bandwagon with China
- Deepen and sustain China’s relationship with its neighbor and most valuable strategic partner, Russia, in order to head off Western pressure

Consolidate the Belt and Road Initiative (BRI) into a geopolitical and geoeconomics bloc in support of China’s policy ambitions, forming the foundation for a future Sinocentric global order.

Use China’s growing influence within international institutions to delegitimize and overturn initiatives, standards, and norms perceived as hostile to China’s interests—particularly on human rights and international maritime law—while advancing a new, hierarchical, authoritarian conception of international order under Xi’s deliberately amorphous concept of a “community of common destiny for all mankind.”

As the State Policy Planning Paper argues, Xi intends to achieve these strategic objectives through authoritarianism at home, economic co-optation and coercion abroad, developing a world-class military, and reshaping international organizations. China has embarked upon an aggressive assertion of its power in the South China Sea, building and then militarizing manmade islands and then making extravagant claims toward the resources within those waters. It has crushed freedom in Hong Kong in contravention of the agreed treaty stipulations with Great Britain and is threatening the same in Taiwan. It has wielded its impressive economic might through the development of infrastructure and other agreements necessary for realization of its Belt and Road Initiative (BRI), while coopting signatory nations through predatory lending practices and what has come to be known as “debt trap diplomacy.” It has also vastly increased its spending on military modernization and technological advancement to protect its interests in the Indo-Pacific and elsewhere, and it has gained far more positional authority and influence within the institutional frameworks currently in place.

In classical or neo-classical realist terms, China is doing nothing the theory does not already predict. Just as the U.S. in the nineteenth and early twentieth centuries built its

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192 State Policy Planning Staff, pp. 8-27
capabilities and power while free riding off Great Britain’s global dominance and security guarantees of global trade, so too has China slowly but inexorably built its power and capabilities while free riding off U.S. guarantees of stability and global trade after World War Two. In neo-classical terms, because of the structural realities imposed upon China due to a pervasive anarchy in the international system and, given the diametrically opposed governing and economic philosophies between the U.S. and China, the Chinese Communist Party (CCP) and its leader, Xi Jinping, are compelled to establish dominance over the U.S. in terms of capabilities and influence to secure their survival and a leading role in the anarchical global system. To date, minus minor incidents such as the American P-3 grounding on Hainan in 2001, the sinking of a Vietnamese fishing vessel in 2020, and its crackdown on Hong Kong freedoms still underway, China’s chief instrument for achieving its goals has been economic through the use of massive scale industrial espionage, debt trap diplomacy through its BRI initiative, and currency manipulation in its trade with other nations. All of this accords with a traditional realist perspective, so what might a realist Connectivism lens offer?

First, while Russia engaged in what I will term reality shaping within Georgia and Ukraine through the introduction of wave front diffraction and the use of collective historical memory to actuate those wave functions into actions counter to the existing state wave function potentialities and local realities, China is engaging in something similar, but on a much more massive scale. In effect, if U.S. policymakers agree that China seeks to overthrow the liberal international order of U.S. and European design and replace it with a socialist order with Chinese characteristics, then it is embarking upon a reality shaping exercise on a global scale. Again, this is something much more profound than a simple battle of the narratives, or
information operations, because it is a multi-pronged, multi-dimensional approach which seeks to create conditions whereby global citizens of many different backgrounds are being conditioned to a Chinese wave function interference pattern which is destabilizing the local wave function patterns in individual nations.

Far beyond public diplomacy which has guided international relations and involves government-led efforts to communicate with foreign publics to build support for their objectives, Chinese efforts have been characterized as “covert, coercive, or corrupting.”

Though the article capturing this dynamic specifically analyzes China’s role within Australian politics, it is clear Chinese influence operations are taking place on a global scale and are designed to intimidate diaspora Chinese populations, coerce or otherwise corrupt national elites and politicians, and do so “under the radar” as a means to inject disruptive wave function potentiality into the individual minds of influential citizens to then actuate those potentials into local realities which then initiate diffractive wave front patterns within the body politic worldwide. Much of this work is conducted by a little-known department within the CCP called the United Front Work Department (UFWD) which Xi Jinping has called a “magic weapon” for the aggrandizement and rejuvenation of the Chinese people. The UFWD:

. . . guides and controls an elaborate network of proxies and front organizations which are used to reward, intimidate, surveil, and coopt the overseas Chinese community – its civic and business associations, student groups, and Chinese language media – as well as academic institutions, politicians, and others with influence. The goal is to ‘win hearts and minds’ of overseas Chinese and other influential targets and unite them in support of the CCP and its goals while neutralizing critics.

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194 Ibid.
Through a Connectivist perspective, the UFWD might more properly be called the United Wave Front Work Department.

Certainly, within the U.S. these Chinese influence operations have been going on for some time. Whether through the targeting of political leaders such as Senator Dianne Feinstein who employed a Chinese staff member and driver who served with the senator for nearly twenty years and who was later identified by U.S. intelligence in 2018 as a Chinese spy, or Representative Eric Swalwell who was targeted by a Chinese spy during his time serving on the Dublin, California City Council and who continued to fundraise for Representative Swalwell as he rose to national prominence as a member on the House Intelligence Committee and later as a Democratic contender for President, Chinese operations in the political realm have been ongoing and apparently pervasive for many years. FBI Director Christopher Wray is quoted in the Axios article stating, “Beijing is engaged in a highly sophisticated malign foreign influence campaign . . . These efforts involve subversive, undeclared, criminal, or coercive attempts to sway our government’s policies, distort our country’s public discourse, and undermine confidence in our democratic processes and values.” This, too, is an effort at reality shaping but on a much grander, global scale.

In addition to political influence, China is also involved in shaping academic, corporate, and other national institutional entities in order to shape reality congruent with Chinese

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197 Ibid.
objectives and desires. These efforts include the establishment of Confucian Institutes across the university systems throughout the world, with nearly fifty-five institutes operating across most states in the U.S.\textsuperscript{198} In the corporate realm, Chinese influence on corporate decision-making in exchange for access to the lucrative Chinese market is well-documented, as is the requirement for U.S. corporations to share proprietary product and process information to the Chinese government before being allowed access to the vast Chinese market or to Chinese territory for corporate operations. In return for these corporate concessions, China is able to shape reality through expunging media which runs counter to Chinese objectives or narratives, or which might place China in a negative light. This has been most recently witnessed regarding news and information about the origins and responses to the COVID-19 pandemic which swept throughout the world in 2020.\textsuperscript{199}

There are many more examples where China is engaged in reality shaping through a concerted and multi-dimensional effort to alter global perceptions through the introduction of a disruptive and diffractive wave function on a global scale to destabilize the existing U.S. and European wave function of a liberal international order to replace that reality with a socialist world order with Chinese characteristics. The Chinese efforts are ubiquitous, span the range of national instruments of power, and are long-term in their strategy to change the reality of the extant global order. And while realists might proclaim that regardless of \textit{what} might be

\textsuperscript{198} National Association of Scholars, “How Many Confucius Institutes are in the United States?” \textit{National Association of Scholars}, February 17, 2021, \url{https://www.nas.org/blogs/article/how_many_confucius_institutes_are_in_the_united_states} (Accessed February 28, 2021)

effectuating the changes described above since it is the results in the material world that matter, it is clear the insidious nature of reality shaping and wave function disruption through individual minds places far more importance on the individuals involved than on the systemic focus offered by the realist camp. If the pen is truly mightier than the sword, then the multidimensional efforts embraced by the CCP is truly mightier than the external reality upon which our current international relations orthodoxy tends to focus. It is these individuals – whether politicians, corporate CEOs, institutional elites, or the people subject to the decisions they make – who actuate and operationalize these state actions which ought to be the focus of international relations study.

Archetypes and societal memory may serve to stabilize state wave functions for a long period of time, but as we have seen throughout history no empire, state, or other collective societal organizing principle lasts forever. What a Connectivist lens can help bring into sharper focus, then, is how these realities, as instantiated and reified within the continual coherence and decoherence of state wave functions, can be altered within the minds of the individuals who make up the societies of these various organizational forms. Rather than conceptualizing states in ‘as-if’ anthropomorphic terms, or even that “states are people too,” 200 Connectivism instead inverts the relationship to privilege the agents – those individual minds within which quantum mechanics is realized – as the very reason states exist at all. In other words, rather than deriding Louis XIV for his comment l’état cest moi as simply egocentric bombast, we

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should instead embrace that conceit and expand it to every citizen, subject, and individual within a state as the quantum manifestation of this very real reality.

**Neoliberal Connectivism**

**Institutions Through a Connectivist Lens**

As mentioned previously, the liberal schools of thought within international relations ground their conceptual frameworks primarily on Immanuel Kant’s work, *Perpetual Peace: A Philosophical Sketch*.\(^{201}\) In the work, Kant lays out three definitive articles which he considers necessary precursors to establishing a perpetual peace among nations:

- The Civil Constitution in every state shall be republican
- International right shall be founded on a federation of free states
- The rights of men as citizens of the world shall be restricted to conditions of universal hospitality\(^{202}\)

Though this is not exactly what Kant put forth in his work, many have boiled down his articles to mean: democracy; international institutions; and international trade. While all three articles are operative in the neoliberal approach to international relations, the focus lies primarily on the institutional and trade factors of Kant’s sketch. That said, as the lead theorists for the neoliberal school, Robert Keohane and Joseph Nye argue, while complex interdependence is a growing factor in modern politics which deserved theoretical attention, they nevertheless went through great pains to clarify their focus on institutional and economic factors by no means meant an abrogation of the realist view on state centrality in world affairs. In other words,

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\(^{201}\) Kant, Immanuel, *Perpetual Peace: A Philosophical Sketch*, Benjamin Trueblood trans., Washington, DC: American Peace Society, 1897

\(^{202}\) Ibid., pp. 11-20
states remain the primary actors within interstate relations and are considered intentional actors working within the framework of institutional and economic interdependence.

Perhaps the most important aspect of neoliberal approaches is how institutional frameworks bind nations together through the normative imposition of institutional rules, processes, and mutually agreed upon collaboration and cooperation within those institutional frameworks. While military power remains an option for member nations, it is less fungible in a world of complex interdependence where institutional and economic linkages present possibly more salient avenues for power asymmetries than military power alone. As a consequence, neoliberals can argue that since the Bretton Woods agreement establishing the post-World War Two international organizations, violence has declined dramatically amongst nations. In fact, Steven Pinker discusses the work of Bruce Russett and John O’Neal and how they put the Kantian peace to the statistical test.203 As Pinker notes, “Kant got it right three out of three times: democracy favors peace, trade favors peace, and membership in intergovernmental organizations favors peace. A pair of countries that are in the top tenth of the scale on all three variables are 83 percent less likely to have a militarized dispute in a given year, which means the likelihood is very close to zero.”204 But as statisticians are aware, correlation does not necessarily equal causation, so while the statistical analysis of the Kantian peace may illuminate the efficacy of his philosophical insights, the disaggregation of exogenous variables in a western scientific approach might not tell the whole story. So, what else might explain this correlation?


204 Pinker, *Better Angels of Our Nature*, pp. 290
If states are holographic entities dependent upon the co-constitutive nature of its existence between the reifying state wave function and local wave function collapse – a collective intention lived through its citizens in a continual, constant dance between local causation and non-local entanglement – then so, too, are institutions holographic entities which are instantiated and reified through the same processes. For Heidegger, institutions, trade agreements and the rules governing them are all things-in-the-world, or beings, which are only actualized and enlivened through the existentiell of everyday practice through Dasein, or the individuals which comprise the members of those institutional constructs. For him, it is only through Being – the unseeable overarching reality of existence – as gifted to Dasein which allows for those constructs to have meaning. As a result, the normative impact of those beings/things can only be actuated through the existentiell of everyday exercise. Norms in and of themselves do not exist outside of ourselves, but are rather instantiated through Dasein’s everyday exercise of those agreed upon ordering principles.

Similarly, participation in institutional and economic forms very much involves other minds, or others-in-the-world as a reflection of a they-self versus a my-self orientation. This also echoes Karen Barad’s notion of *agential realism* where our intra-action with other agents and things creates the reality within which we operate. Some might argue that international institutional membership, or international trade agreements, are not individual functions but rather state functions, and as such are not amenable to a quantum or traditional philosophical interpretation. But if states require some measure of representation within these normative arrangements, it is done so as an extension of the state wave function within those organizational parameters and within the individual minds of the members assigned to
represent state equities within those organizations. But if a state wave function can also in-
form state membership within these organizational constructs, can a state initiate a disruptive
or diffractive wave function into the institutional construct as well to redefine the meaning of
the norms of that institution, or even the institutional value itself? Once again, an examination
of Russian and Chinese actions might clarify if a Connectivist view of state participation in
institutional and economic interdependence can shed new light.

Russia

Just as Russia has taken a largely regional approach to alter the dynamics in the former
Soviet satellite states on its border to achieve its security ends, so too have they taken an active
role in the institutional frameworks within which it is a member, one which has seen a
decided turn away from a defensive stance toward a more offensive approach. And while it is
ture Russia has expanded its scope of influence operations into the Middle East, Africa, South
America, the Arctic, and Asia, arguably its greatest focus remains on its “near abroad.” This
reflects Russia’s view of the U.S. as a unilateral power overreaching in its global ambitions and
threatening European and Russian autonomy. As Foreign Minister Sergey Lavrov puts it:

We see how the United States and the U.S.-led Western alliance are trying to preserve
their dominant positions by any available method or, to use the American lexicon,
ensure their ‘global leadership.’” The EU and NATO are treading on the freedom of their
new member states, because representatives of these countries concede behind closed
doors that they can’t take any significant decision without the green light from
Washington or Brussels.205

Similarly, Russian Sinologist Alexander Lukin identifies U.S. actions as a “Western philosophy of
democratism, a one-sided mixture of political liberalism, human-rights thinking, Enlightenment

205 Lavrov, Sergey, “Russia’s Foreign Policy: Historical Background,” Russia in Global Affairs, March 5, 2016
secularism and theories of Western supremacy that strongly resembled colonialism” where the best way to introduce “the ‘backward’ nations of the world to the joys of freedom and democracy is to incorporate them into Western-dominated economic and political alliances.”

As a result, Russia views the major international institutions as U.S. controlled and subsequently used as a means of exerting influence and control over the other member nations of those organizations. Similarly, Russia views U.S. and western European influence in those organizations as a form of western civilizational chauvinism – a cultural form of colonialism – which excludes or mutes other perspectives from global governance.

As a result, from the UN, to NATO, to the Organization for Security and Cooperation in Europe (OSCE), to the World Bank, to the International Monetary Fund (IMF), Russia has sought institutional membership as a means to both exert its voice as a great power in international politics, while seeking to hinder or cast a negative light on what it perceives to be an overwhelming U.S. exertion of power through those organizational constructs. Indeed, it has been posited that because of NATO expansion into Russia’s “near abroad,” specifically following the declaration in 2008 at the Bucharest Summit that Ukraine and Georgia would become members of NATO, that Russia decided to invade Georgia later that summer. Analysts described that action as one in which, “Putin assumed that the shock of Russia’s war with Georgia would force a reassessment of U.S. democracy-promotion policies and a recalculation

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207 Radin, Andrew and Clint Reach, “Russian Views of the International Order,” *Building a Sustainable International Order: A RAND Project to Explore U.S. Strategy in a Changing World*, Washington, DC: 2017, pp. 45. It should be noted here as well that following the double blow of U.S. recognition of Kosovo independence in February 2008 and the Bucharest Declaration in April of 2008, Russia perhaps considered drastic action a necessary means to shift the narrative as a condition for exerting its voice and sovereign intentions against what it saw as a western encroachment into its regional prerogatives.
in Washington about how far to go in pushing NATO membership for Georgia and Ukraine.”

From a Connectivist perspective, then, Russia was not only engaged in introducing disruptive wave functions into Georgia to create diffractive or diffused wave functions and local wave function collapse in the Ossetia and Abkhazia regions to destabilize the holographic Georgian wave function, but also to introduce disruptive wave functions into the NATO organization as well. For if, as is asserted above, institutional membership is simply an extended function of state intentionality, then the same processes which take place in the holographic state likewise take place in the holographic institutional frameworks as well. Similarly, within the UN Russia is able to advance its key objectives since the existing system grants Russia recognition as a great power through its role in and veto power as a permanent member on the security council. In this capacity Russia can “prevent, or at least delegitimize, both noninterference in domestic affairs where Russia does not approve and a coordinated international response to Russia’s own interventions” in places like Georgia, Ukraine, and Syria.

But much like its more visible efforts in those nations, Russia is also engaged in regional fora through which to exert its influence with its neighbors in the “near abroad.” Rather than attempting to change the global institutional and political order, it seems Russia is content to work within those institutions to achieve its obstructionist goals while creating regional institutional counterweights with which to solidify its position in its sphere of influence. Initiatives such as the Eurasian Customs Union (ECU: a counter to the European Customs

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209 Radin and Reach, RAND, pp. 36
Union), the Eurasian Union comprised of Russia, Belarus, Kazakhstan, Kyrgyzstan and Tajikistan, the Shanghai Cooperation Organization (SCO), and participation in the Asia Infrastructure and Investment Bank (AIIB) as a counter to the World Bank and International Monetary Fund (IMF), all serve to create alternatives to western-led international organizations while subsequently maintaining a voice and vote within those larger organizations. In this manner, Russia is creating an alternate reality at the mostly regional level where it can control how its neighbors view Russian intentions and actions through a Russian versus western lens. This reality shaping in the minds of the individual delegates to these various institutions in conjunction with more material means such as trade and economic deals, helps instantiate a Russian face on regional cooperation and perspective, vice the more threatening (to Russia) western narrative and reality shaping in Russia’s “near abroad.” In this manner, Russia can realize its obstructionist or revanchist goals within the international institutional system by introducing new quantum realities – new, disruptive wave fronts – to sow doubt, or to otherwise alter international perspectives on its actions. This approach has had many interpretations over the recent years, to include mis/disinformation operations; influence operations; hybrid warfare; fake news; and other apppellations which describe the ‘why’ and ‘what’ of such methods but fail to describe the ‘how’ of those operations, i.e., the mechanism through which ends are achieved. For our purposes here ends are achieved through the conscious experience of the individuals against whom such wave function interference takes place whereby their cognition and experience pondering these different perspectives take form in the material world through their will to act upon those subjective interpretations of alternative wave function realities.
Materialists would argue these narrative battles, or alternative realities, or fake news are all simply elements which affect cognitive processes and that, through the firing of certain neurons and synaptic responses obtain results in the material world. A Connectivist perspective, though, goes much deeper than what occurs within individual brains – the organ and its material and chemical composition which sits in our skulls – and in fact alters consciousness at the individual level where we are all connected in the realm of Being, or the implicate order, or in the collective unconscious of entangled minds. This deeper reality that is shared through our connection with one another is where momentum in the material world can be realized and leveraged.

Like memes, which biologist Richard Dawkins defines as a cultural unit of transmission – typically behaviors or ideas – that, like genes, will be passed from person to person, these shared but competing quantum wave functions are broadly experienced, but collapsed individually within the minds and actions of the individuals involved. This, of course, describes a phenomenon in the internet and information age where internet memes can “go viral” for seemingly inscrutable or random reasons. This will be explored in more depth in the next chapter, but for now this is a fitting metaphor for what can take place amongst the inhabitants of these holographic entities we call states or institutions where ideas and different realities can gain purchase and traction through this process of wave function diffusion and collapse. But if Russia is somehow channeling quantum processes to alter reality to their favor within the existing international organizational and ordering construct, what might it take to

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create an alternative organizational and ordering construct? How might China actualize its desire to reorder the international system in its image?

**China**

As the State Policy Planning Staff puts it, “China’s quest for preeminence — powered by economic might, cutting-edge technology, and an increasingly powerful military — proceeds outward through the Indo-Pacific to encompass the globe. It includes the reshaping of international organizations, a domain critical to the CCP’s efforts to remake the norms and standards of global governance.”\(^{211}\) Some of this has taken place through a rise in China’s influence and power within the international organizations, but some has also arisen out of China’s simple refusal to acknowledge judgements from these organizations as well.

For example, China has routinely defied international law regarding its goals in the South China Sea (SCS). Beijing has dismissed the Permanent Court of Arbitration 2016 ruling which rejected the PRC’s historical claim to what it calls the “nine-dash line” and to its claims on what is legally considered Philippine territory in the Scarborough Shoals.\(^{212}\) It has also militarized another atoll within the Philippine’s Economic Exclusion Zone (EEZ) in direct defiance of that same ruling. China has also subverted territorial claims of Indonesia, Malaysia, and Vietnam, and has also subverted UN votes on North Korea by providing food, oil, and investment despite the UN goals of pressuring North Korea through sanctions.\(^{213}\) This inaction, or disregard in Heideggerian terms, serves to destabilize the institutional wave functions by subverting the shared norms as instantiated and reified through the institutional wave function

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\(^{211}\) State Policy Planning Staff, pp. 17

\(^{212}\) Ibid., pp. 19

\(^{213}\) Ibid., pp. 20
and local collapse of that wave function in the individual minds of the member delegates. This norm busting on China’s part serves to initiate a new reality where, over time, Beijing can begin to create a new reality where the international order is set and reshaped by China with Chinese characteristics.

But beyond negation within these institutional frameworks, China has also embarked upon a path of cooption and leadership within those organizations as well. Within the UN General Assembly, China routinely delivers higher levels of development assistance to countries who vote in accordance with Chinese wishes.²¹⁴ The PRC, as a permanent member on the UN Security Council, has also found common cause with Russia in their role toward frustrating measures proposed by the U.S. and Europe surrounding challenges in Syria, Ukraine, North Korea, Venezuela, Iran, and elsewhere, and it has also gained leadership positions within the UN and other international organizations. Many Chinese citizens now serve as heads of these organizations, to include the International Telecommunications Union (ITU), the International Civil Aviation Organization (ICAO), the United Nations Industrial Development Organization (UNIDO), and the Food and Agriculture Organization (FAO).²¹⁵ Additionally, China is exerting growing influence over and outright cooption of other international organizations, to include the World Health Organization (WHO) and its handling of the COVID-19 response in a manner many consider to be self-serving to Beijing’s interests.²¹⁶ As former National Security Advisor, H.R. McMaster, characterizes it, China operates off of both ambition and insecurity given its

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²¹⁴ Ibid., pp. 26
²¹⁵ Ibid.
²¹⁶ Ibid.
historical worldview. In international matters, this is made manifest in China’s efforts to turn trade into a:

...modern-day version of the tributary system that Chinese emperors used to establish authority over vassal states. Under that system, kingdoms could trade and enjoy peace with the Chinese empire in return for submission. Chinese leaders are not shy about asserting this ambition. In 2010, China’s foreign minister matter-of-factly told his counterparts at a meeting of the Association of Southeast Asian Nations [ASEAN]: “China is a big country, and you are small countries.”\(^{217}\)

As noted above, China’s efforts are not limited to the institutional or trade realm but are rather a coordinated and synergistic approach. As McMaster states, “The party has no intention of playing by the rules associated with international law, trade, or commerce. China’s overall strategy relies on co-option and coercion at home and abroad, as well as on concealing the nature of China’s true intentions. What makes this strategy potent and dangerous is the integrated nature of the party’s efforts across government, industry, academia, and the military.”\(^{218}\) This includes its “Made in China 2025,” the BRI, and a “Civil-Military Fusion” to achieve its desire to reorient the global international order toward a more authoritarian and socialist perspective with Chinese characteristics.\(^{219}\) But outside of China, these same means are underway as discussed above.

This, then, is Beijing’s attempt at reality shaping not on a regional level like Russia is largely pursuing, but rather on a global level through a multi-domain, multi-pronged effort at influence peddling, narrative shaping, and, ultimately, reality shaping to alter the reality of a western-led international order. This is an approach which seeks to influence the conscious


\(^{218}\) Ibid.

\(^{219}\) Ibid.
and unconscious perspectives of specific individuals across the globe – politicians, corporate leaders, academics, governmental elites, etc. – which will then serve to reorient the order preferences and decision-making preferences of the people whom they ostensibly serve. This, in turn – coupled with mis/disinformation, election interference, economic enticements or outright corruption, extortion, or simply preferential treatment – creates alternative wave functions which serve to disturb the extant state wave function and create new local collapses of that wave function which reflect decision-making and order preferences more aligned with Chinese objectives and goals. It is a patient, time-intensive means of reality shaping over the long-term which will ultimately alter the global perspective on China and perhaps help Beijing realize its dream of a Chinese-led world order.

Again, practitioners of the orthodox schools within international relations might proclaim that what is important is not how China achieves its aims in the minds of the influenced, but rather what effects China’s actions have on the material world of states and institutions. This is wrong because if we are more concerned about the material results of PRC actions, then we are merely reacting to something which has taken root in the consciousness of target populations and has become, in essence, a fait accompli long before we even realize what has occurred. This subtle, insidious approach is very different from our western conceptualization of material cause-and-effect problem solving where complex and even interactively complex problems are simply linear puzzles to be solved through the material means of hypothesis proposal, variable selection, linear regression, and statistical analysis. China’s eastern approach, on the other hand, is much more nuanced, targeted (though holistic in its aims), patient, and aimed at the root of systemic change: the minds and consciousness of
those whom they seek to influence. In this age of digital and algorithmic revolutions where connectivity between people has become increasingly ubiquitous, it is the cognitive – or conscious – domain which is growing in salience regarding the exercise of power and influence. This privileges humans – their minds – and the agency which propels action through conscious cognition and subjective experience into the will to act as the motive force in world politics over our current materialist emphasis on the exogenous factors of states, structures, or power asymmetries which guide our theorizing. As such, it is truly the mind over matter where our emphasis should lie.

Of the three primary theories within international relations, constructivism comes the closest to this realization, though not in the manner proposed through this work. An analysis of the constructivist perspective through a Connectivist lens might better aid in discerning how we might reconceptualize our perspectives on Russia and China as a result.

**Constructivist Connectivism**

It is easy to discern why constructivism comes closest to Connectivism since the school’s chief theory builder, Alexander Wendt, has undergone an evolutionary shift in his perspective on the approach since he first penned “Anarchy is What States Make of It: The Social Construction of Power Politics,” in 1992, and *Social Theory of International Politics* in 1999. He begins by challenging the realist view that structural anarchy obviates the possibility of transformation of identities and interests and that structure and anarchy have no existence or

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causal powers apart from process or, in other words, anarchy is what states make of it.²²² From this, Wendt goes on to explain how Waltz’s structural theory of anarchy is insufficient to describe how states might act differently toward one another based upon whether they view each other as enemies, or as friends.²²³ This view obviously adds a social and process component to international relations theorizing which in effect makes state interaction a constructed reality as a result. From that article, Wendt moved on to a more detailed examination of his thinking in the 1999 book.

In 2004, Wendt began to expand his earlier arguments by exploring the idea of a state as person and his initial foray into a discussion of consciousness:

Finally, I explore how far a realist view of state persons might be pushed, even if this means leaving physicalism behind. Intentionality is a thin criterion of personhood, and correspondingly easy to show. But there are two other, more radical senses in which states might be persons: they might be organisms, understood as forms of life; and they might have collective consciousness, understood as subjective experience. These are hard cases for the realist view, and indeed within IR theory states are never explicitly treated even ‘as if’ they are organisms or conscious. This reluctance to give states full personhood is justified by physicalism. I argue that as long as we accept a physicalist ontology, even a non-reductive one, states can at most be superorganisms (like beehives) rather than organisms, and cannot be conscious at all.²²⁴

This exploration obviously became the foundation for his later work on *Quantum Mind and Social Science* published in 2015. So why is this evolutionary move on Wendt’s part important to this discussion on Connectivism? Aside from the obvious fact I have chosen Wendt’s work as the foundation for my own scholarship, there are important linkages between the philosophies already discussed and international relations writ large.

²²² Wendt, “Anarchy is What States Make of It,” pp. 394-395
²²³ Ibid., pp. 397
First, far from simply an esoteric vanity project, Wendt has tackled international relations from an ontological perspective much like Heidegger did with phenomenology. Rather than simply accepting and then bracketing consciousness as something that simply is, both have sought to explore why consciousness might exist at all. In other words, what is it from which consciousness springs? For Heidegger it was Being as gifted to Dasein through the existentiell of everyday experience. For Wendt, it was quantum mechanics and the underlying reality of the quantum world which manifests itself in the material world of things through cognition, experience, and will to action. For both, it would be impossible to achieve progress in the human endeavor without conscious interaction with this reality beyond the material world. For many within the field of international relations this becomes problematic since this reality is not measurable or even visible so is therefore untestable in the scientific sense, but this is exactly the point. To paraphrase a famous Einstein quote and to capture Bull’s thinking in the epigraph above, not everything that is important can be measured, and not everything that can be measured is important. It is this appreciation for the unseen quantum world, coupled with a traditionalist perspective from the philosophical discussions of reality, that Connectivism attempts to draw together the realist/materialists and the traditionalists of the field.

For international relations this becomes highly important for the liberal and neoliberal perspectives on state interaction and institutional norms as a means for tempering structural anarchy. For if the Kantian peace from which both forms of the liberal school of international relations spring is to be realized in the world of things, then those notions of international institutions, laws, and trade must: a) modify human behavior in a manner consistent with
progress away from violent tendencies; and b) do so in a manner which means something to the people engaged in the processes and practices of international politics. This can only take place within the conscious minds of those individuals as they create – or as they construct, in Wendt’s term – the reality which will actualize Kant’s original philosophical sketch. Without this endogenous conscious intention and action, it is only through the exogenous forces and factors through which human action will be dictated.

As Wendt argues, this is the materialist, Newtonian ontology which the West has adopted that has separated humans from the realities of their creation. In a Bohmian sense this is important because how we see the world – i.e., our theoretical views on how the world operates – manifests itself in how we perceive others in the world; in other words, theory becomes reality. Structural anarchy, in this view, has nothing to say about nations with whom another nation might be friendly (anarchy is what states make of it), nor does it explain how normative impacts of institutional design might manifest in the tempering of anarchy at all. If anarchy means it is a self-help world, then a state’s relations with others will be seen through skeptical eyes, a psychic wall built between states regardless of how each state views the other. Similarly, the normative binding of institutional membership will only be as strong as the member states’ willingness to abide by those norms. As the case of China mentioned above highlights, it is not the institutions doing the work through exogenous means, but rather how each member nation measures the benefit of compliance with, or dismissal of, those normative structures through the conscious and unconscious effect of its own quantum reality. Once again, this enlivens the human element of international relations – the social of social science – and squarely places consciousness as the privileged factor in interstate relations. Reality
shaping, indeed reality itself, is a quantum process of coherent wave functions and collapse of those wave functions through the conscious, subjective experience of those wave functions within the individual minds of leaders, elites, members of collective organizations, or citizens of states. So, what would this mean in the case of Russia or China?

The Olympics

The Olympics may seem an odd choice for analyzing Russia and China from an international relations perspective, but there are some important points surrounding the Beijing Summer Olympic games of 2008 and the Sochi Winter Olympics of 2014 which bear scrutiny from a constructivist Connectivism point of view. First, as noted in the footnote above, it seems plausible Russia used both the Summer games of 2008 and the Winter games of 2014 as the precursors for their ambitions in the Caucasus, the Crimea and Ukraine. While there is no proof of this of which I am aware, it nevertheless offers a tantalizing avenue for further exploration.

That said, Russia’s opening ceremony for the Sochi games provides an interesting glimpse into how a nation can construct a national reality – a state wave function – by connecting its people to their common history and cultural touchstones, a nod toward Jungian archetypes, perhaps. As noted by Guardian writer Mary Dejevsky:

Together, the alphabet and the pageant combined to present a Russia that was culturally inclusive, both traditional and modern, in which each age, from Muscovy through to the pluses and minuses of Soviet times, had its allotted place. Yes, some of the most painful aspects were missing – the gulag, for a start; Solzhenitsyn was rejected (too divisive?) for S – but there was an encouraging lack of dogma and militarism. You could say something similar of London 2012. But the idea – to present a Russia for today
that built national pride on a continuum of cultural and scientific distinction – was largely realised.225

Using the Cyrillic alphabet, the producers of the ceremony developed a distinctly Russian vehicle through which to communicate Russian history, culture, and accomplishments. Unlike most Olympic opening ceremonies which are used as semi-propaganda for the host-nation’s message to the rest of the world, Putin sought to direct his message to the Russian people themselves. After a tumultuous post-Soviet era and then, from Putin’s perspective, a dismissive and arrogant West which had encroached into Russia’s “near abroad” in the form of NATO expansion and EU enticements serving to diminish Russia and its standing in the world, the games were meant to instill pride in Russia, a call to rejuvenation of the greatness that was once the Russian Empire.

As noted above, this may have been a shrewd campaign on Putin’s part, developing a sense of Russian pride through the historical and cultural references during the games in order to facilitate the annexation of Crimea which began before the games had even ended. In effect, Putin had created a strong state wave function – a new reality – whereby his citizens would react unconsciously to the information, then generate that unconscious understanding into a conscious appreciation for the nation they call home. This then would create a strong conviction that those ethnic Russian populations in Crimea and eastern Ukraine were deserving of Russia’s effort to assist in their self-determination. Historical, cultural, and emotional appeals to Russia’s greatness were not simply meant to affect the brains of the Russian people

but rather their minds through an alteration of their conscious appreciation for what Russia is and means. This, of course, cannot be measured except perhaps through opinion polling which is notoriously subjective regardless of how well the polling questions are constructed, and so is generally dismissed from international relations theorizing. That said, changing our perspective—shifting the lens—from the state and exogenous factors to the minds of citizens and the endogenous forces which form both their unconscious and conscious perceptions which then collapse into will and action provides a possibly richer avenue toward understanding state behavior and motivation. In this manner the Winter games opening ceremony offered Putin an opportunity to construct a new reality for his nation by connecting his people to their heritage to achieve his geopolitical objectives. China, on the other hand, had much larger ambitions.

The 2008 opening ceremony for the Beijing Summer Olympics was a massive and awe-inspiring production. Like any other ceremony of this type, it served as an opportunity for the host-nation to display its pride and to revel on the world stage as it told its story. But unlike the Russian target audience for the Sochi Olympics, the target audience for Beijing was not only their citizens, but the global population as well. As Jim Yardley reported in the New York Times, “For a lot of foreigners, the only image of China comes from old movies that make us look poor and pathetic,’ said Ci Lei, 29, who watched the pageantry on a large-screen television at an upscale downtown bar. ‘Now look at us. We showed the world we can build new subways and beautiful modern buildings. The Olympics will redefine the way people see us.’”

Then-President Hu Jintao had a specific goal in mind: “Any Olympic opening is a propaganda exercise,

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but Friday night’s blockbuster show demonstrated the broader public relations challenge facing the Communist Party as China becomes richer and more powerful. The party wants to inspire national pride within China, and bolster its own legitimacy in the process, even as leaders want to reassure the world that a rising China poses no danger.”227

China’s rapid economic rise saw its gross domestic product nearly triple from $1.3 trillion in 2001, to $3.6 trillion in 2008.228 While the rapid expansion and growth of the Chinese economy was a source of awe to the world, it was also a source of concern. With the world’s largest authoritarian political system, massive inequalities in terms of wealth distribution, human rights abuses against minority Muslim and Christian communities within China, and severe pollution accompanying the manufacturing which had given rise to China’s burgeoning economy, the Summer games gave Hu Jintao an opportunity to create a new reality of what China represented to the world. This was reality shaping – or constructing – on a global scale to connect the global population with the Chinese citizens and culture in a new and more modern sense. And, before Xi Jinping’s declarations during the Nineteenth Chinese Communist Party Congress which has given the western world pause, it seemed to have worked.

Despite a dramatic drop in Chinese trade in 2009 following the global economic crisis, sharp increases occurred over the next six years which drove Chinese exports from less than $1.2 trillion to over $2.3 trillion.229 Obviously the world was ready and willing to trade with China. Some of that of course was due to the financial collapse of 2009 when the world needed

227 Ibid.
228 Ibid.
not only U.S. and EU economic stimulus, but Chinese stimulus as well. It is interesting to note that directly on the heels of Hu’s reality shaping opening ceremony the world became both dependent upon the Chinese economy while also wary of a capitalist system which had seemingly become too dangerous for a deeply integrated global economy. This ironically may have provided Xi Jinping the impetus and confidence to begin his aggressive and more assertive approach toward global politics and China’s desire to replace that order with a socialist agenda with Chinese characteristics. Time will tell whether the COVID-19 pandemic will hinder Xi’s goals, but given the increased influence China is asserting in the international institutions mentioned above, they may be actively constructing a new reality which will alter global perspectives regarding China’s aims and whether a new institutional order is a reality worth pursuing.

A Final Word on Authoritarian Versus Democratic Regimes

It was mentioned earlier how pluralistic societies could introduce disruptive and diffractive wave functions into the existing state wave function of potentiality. These alternate potentialities can impact the state as a shared intention over time depending upon how deep the cultural and historical roots of that state reality goes – the co-constitutive archetypes of collective memory as communicated through the collective unconscious of successive generations. Under ideal circumstances, the political system of more open and transparent governmental structures can accommodate and conciliate these diverse potentialities under the extant state wave function in operation. But what of more authoritarian regimes?

As H.R. McMaster notes, for China this means an ever-expanding state of control over its population:
Inside China, the party’s tolerance for free expression and dissent is minimal, to put it mildly. The repressive and manipulative policies in Tibet, with its Buddhist majority, are well known. The Catholic Church and, in particular, the fast-growing Protestant religions are of deep concern to Xi and the party. Protestant Churches have proved difficult to control, because of their diversity and decentralization, and the party has forcefully removed crosses from the tops of church buildings and even demolished some buildings to set an example. In Xinjiang, in northwestern China, where ethnic Uighurs mainly practice Islam, the party has forced at least 1 million people into concentration camps. Party leaders have accelerated the construction of an unprecedented surveillance state. For the 1.4 billion Chinese people, government propaganda on television and elsewhere is a seamless part of everyday life. Universities have cracked down on teaching that explains “Western liberal” concepts of individual rights, freedom of expression, representative government, and the rule of law. Students in universities and high schools must take lessons in “Xi Jinping Thought on Socialism With Chinese Characteristics for a New Era.” The chairman’s 14-point philosophy is the subject of the most popular app in China, which requires users to sign in with their cellphone number and real name before they can earn study points by reading articles, writing comments, and taking multiple-choice tests. A system of personal “social credit scores” is based on tracking people’s online and other activity to determine their friendliness to Chinese government priorities. Peoples’ scores determine eligibility for loans, government employment, housing, transportation benefits, and more.230

From a Connectivist perspective Chinese governmental behavior makes perfect sense. Fearing the introduction of these different potentialities which would compete with the state wave function and CCP reality, the Chinese government is engaged in a program of control and disconnection from the world of alternative potential. Homogeneity, cultural purity, cultural history, and state control over information are elements of a CCP exhibiting an insecurity regarding its reality and exerting monumental resources to ensure the holographic state as instantiated by Mao and successive communist leaders remains intact. This is why Chinese ambitions of altering the existing world order in favor of one with Chinese characteristics makes sense. Without a competing reality the extant Chinese wave function could conceivably become a global holographic reality, realized first within the international institutions, and then

230 McMaster, “How China Sees the World”
later through global perspectives regarding the Chinese version of reality/potentiality. This is an approach which is echoed within other authoritarian regimes to varying degrees: North Korea is perhaps the most extreme example, while Russia, Iran, and other smaller autocratic regimes exercise similar measures to ensure survival of the holographic state.

Through a Connectivist lens, then, perhaps lies a reorientation of where opportunity might lie. Rather than pursuing material capabilities as dictated by neoclassical realism, or institutional binding as advocated by the neoliberal camp, perhaps a deeper and more comprehensive approach is warranted. Rather than pursuing predominantly exogenous means toward generating the desired effects on the global stage, a more direct path into the motivations behind the citizens, subjects, or inhabitants of our competitors’ nations would prove more fruitful, less costly, and more lasting in terms of the effects sought. Rather than balancing or binding, perhaps persuading through a reorientation of the consciousness of the people we seek to influence might create a much more durable reality through endogenous means than those we seek to impose upon our competitors through exogenous means. This no doubt would require a much more patient, nuanced, and long-term perspective than the U.S. has exhibited in the past, and it will obviously still require the material capabilities as currently understood – I am not a Utopian, after all – but it could help the U.S. balance its resources to pursue means through which to better achieve reality shaping of its own as opposed to the brute force methods we have employed in the past.

Conclusion

This has been an attempt to view the main theories within international relations through a different perspective than what is currently the mainstream approach. These current
theories in the field rely heavily upon a materialist ontology whereby exogenous factors of
structures, states, institutions, and power are the coin of the realm and have produced
compelling and oftentimes exquisite insights into state behavior and global politics. That said,
by privileging these units of analysis through a physicalist ontology we may be missing the
deeper ontological reality where motivation to action is derived.

Connectivism seeks to interrogate that deeper social and quantum ontology as a means
of providing a more holistic understanding of human motivation regarding state, interstate, and
global politics. This attempt at developing a sense for the endogenous factors which motivate
human action is obviously at a very early stage, the applications of quantum science to the
social sciences still in an embryonic state. But by privileging minds over matter – the social over
the science – while adhering to a physical science still in its infancy, we may better discern the
forest and the systemic forces affecting it rather than solely focusing on the individual trees to
calculate statistical probabilities for what might occur within the forest. While many might
argue this is an impossible reductionism which would confound our ability to analyze trends, it
is my contention that because of the interconnected nature of our world – not only due to
globalization and technology – but also because of the entangled and non-local connection we
have with each other and with other beings/things in the world, by focusing on consciousness
and its impact on the will to action we can perhaps better predict trends in the world rather
than reacting to them. As Thucydides trenchantly noted, states act out of fear, honor, and
interest. If agreed, then those emotional states can only be made manifest through conscious
experience and will to act upon those emotions by the citizens, subjects, or denizens within
those states. In other words, to paraphrase Wendt, anarchy is what the citizens of a state make it.

Having analyzed the main theories in international relations through a Connectivist lens, the next chapter will focus upon those elements of the global dynamic which do not fit neatly within those theoretical perspectives. Chapter five will examine globalization as a systemic, trans-regional, transnational phenomenon which currently defies theoretical abstraction. It will then take the Arab Spring and Black Lives Matter movements as examples of transnational social phenomena which do not fit neatly within our major theoretical constructs, but which do find a home through a Connectivist lens.
CHAPTER V

CONNECTIVISM AND MEANING: EVALUATING GLOBALIZATION, SOCIAL MOVEMENTS, AND MILITARY PLANNING IN AN INDETERMINATE WORLD OF POTENTIALITY

One can sometimes speak of collectivities as if they were agents, but this is only metaphorical. It presumes certain qualities which they have in the aggregate – firms oriented towards profit, for example, or hospitals concerned with curing people. But the only true agents in history are human individuals.


A theory of global politics that disregards the people that make up the global polity is, at best, an idealized fantasy and, at worst, an impoverished nightmare.


As the previous chapter sought to highlight, it is people – conscious actors attempting to make sense of the world through their subjective experience of everyday life – who are the motive agents in international politics. While our current theorizing within international relations has relied upon largely exogenous and structural factors as the keys to understanding state or institutional behavior, we have elided or bracketed the one thing which motivates action: consciousness. As the two epitaphs above contend, and as many of the epitaphs throughout this work have acknowledged, it is not the external world of things which dictate the alpha and omega of reality, but rather each individual’s conscious and unconscious perception of the underlying reality made manifest in the world of things – or beings, to Heidegger – which drives individuals toward action. This can obviously take place in various ways and in various contexts and our primary theoretical approaches have oftentimes proven adequate in their approximation of reality to explain the behavior of those aggregated
constructs of states, institutions, polities, and social collectivities. That said, those orthodox theoretical approaches utterly fail in explaining phenomena outside of those contextual boxes into which we have categorized international relations.

Globalization, with its multifaceted effects across multiple domains has escaped a clear, comprehensive definitional treatment, much less a theoretical explanation to assist in holistically describing what it is, or why it is. Likewise, large social movements across history and into the twenty-first century tend to defy theoretical explanation as well. Why did the Arab Spring erupt in 2010 and how did it spread across Arab nations so quickly and comprehensively? Except perhaps for the constructivist camp, international relations theory does not have much to say about this phenomenon. Similarly, current international relations theory does not have much to offer regarding the Black Lives Matter movement, or the movement’s parasitic anarchist offshoot, Antifa. Finally, our institutional constructs modeled on the Weberian bureaucratic model and the industrial age have seemingly failed to keep pace with the revolutions in computing, digital media, and the internet age where hierarchical structural approaches are challenged by flattened, decentralized networked approaches.231

Has this mitigated or exacerbated the phenomena described above? Does neoliberalism offer insights into how those institutional constructs are adapting to the technological milieu of the twenty-first century, or does the theory leave that to other sub-theoretical explorations as addenda to the overarching theme of power and complex interdependence?

These are the phenomena and the questions this chapter seeks to explore. It will investigate globalization, the Arab Spring and BLM movements, and the bureaucratic and hierarchical institutional mindset of the U.S. military as it faces competitors across the globe who are waging hybrid war, or unrestricted warfare, against a military still mired in the twentieth-century mindset of industrial warfare and linear battlespaces.\(^{232}\) Much like the previous chapter where a Connectivist lens was applied to the extant international relations theoretical schools, these phenomena will be reviewed through a Connectivist lens to see if a focus on the philosophical and quantum approaches toward consciousness and human motivation can shed some light on these theoretically bereft aspects of the global landscape. In so doing, I hope to offer a different perspective – a different lens – through which to gain a better insight into how these phenomena might be understood.

As it stands now, our current theoretical approaches do a nice job of answering what is occurring in the world, and how those events can be interpreted through the different theoretical lenses. But when it comes to why these occurrences take place, they relegate the human dimension to the black box of rational choice decision-making and game theoretical approaches which confine human decision-making to one of pure utility maximization – the binary choice between ‘cooperate’ or ‘defect’ in the Prisoner’s Dilemma conceptualization. Connectivism seeks to flip the lens on that ‘outside-in’ paradigm and instead interrogate global events from the ‘inside-out.’ This echoes what business consultant, author, and TED Talk

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\(^{232}\) Liang, Qiao and Wang Xiangsui, *Unrestricted Warfare: China’s Master Plan to Destroy America*, Ian Straus, trans., Brattleboro, VT: Echo Point Books, 2015. Note, this was a manuscript originally written in 1999 by two Chinese colonels in the PLA who analyzed and studied the American tactics, techniques and procedures in the first Gulf War and discerned that China would have to embark upon a long, multi-domain, multi-faceted approach toward war against the U.S. to avoid facing what was at that time the U.S.’s preponderance of conventional and technological superiority.
speaker, Simon Sinek, describes as starting with ‘why’. What motivates human behavior and how does that then impact the structural edifices of states, institutions, and social organizations in our current theoretical approaches? While Sinek describes the ‘why’ as a limbic response – a gut feel based on emotion – Connectivism will approach this similar motivational force through the conscious acts of cognition, experience, and will in the corporeal realm as informed by the unconscious influence from the quantum realm. To paraphrase the main thesis of Sinek’s formulation, people do not act because of what others do, but because of why others do it. From a Connectivist perspective, then, the ‘why’ is a quantum function derived at the individual and collective level through non-local entanglement and shared wave function coherence – similar to the A-dimension in Laszlo’s telling, or Being in Heidegger’s conceptualization, or archetypes from a Jungian perspective – and decoherence through local acts which instantiate those beliefs and those realities into corporeal results in the material world. This would situate humanity squarely in the center of our analysis – emphasizing the ‘social’ of our social science, and the ‘relations’ of international relations – while simultaneously embracing the ‘science’ of quantum mechanics and its role in creating the material world of observation. How, then, might Connectivism shed a new light on globalization and its seemingly systemic reorientation of social dynamics?

Globalization Through a Connectivist Lens

Globalization is nothing new. In fact, one could argue globalization has been underway since humans began to wander, the migration of peoples resulting in competing wave functions

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234 Ibid.
which ultimately created new social forms and organization over human history. From nomadic hunter gatherer groups, to agricultural settlements; from villages, to towns, to cities; from principalities, to kingdoms, to nation-states and empires, these clashing potentialities collapsing into manifest material realities has defined the various forms of political and social organization over the millennia. What is new, however, is the pace and scale of globalization that has been occurring in the last five decades. As greater numbers of individuals have gained access to computing technologies, and as more and more people have greater access to transportation hubs, time and space have been compressed to the point where spacialization – or geographic locality – has perhaps become less meaningful to individuals, while the compression of time due to communications and internet technologies has created an environment of instantaneity and simultaneity. As mentioned in the previous chapter, all these factors have vastly increased the interconnectedness of people across the globe.

That said, while international relations scholars are comfortable with the many definitional terms for our primary referent of the state or other traditional forms of political organization, we seem to lack any theoretical or conceptual language with which to better understand globalization. This is not to say there hasn’t been a tremendous amount of literature produced on the topic, but because the field has taken a more specified and empirical/behaviorist approach to the phenomenon we have lost the conceptual forest for the trees. Despite this, the three scholars briefly mentioned in the previous chapter have captured the key essence of globalization.
Perhaps the most evocative of the three is Saskia Sassen’s characterization of the systemic forces affecting human collectivities as “expulsions.” Arguing academia has no useful theoretical framework with which to describe the systemic forces impacting humanity writ large, she nevertheless argues these expulsions from locality, identity, family, community, and other forms of human understanding of self and place are all too visible:

I examine the sharp shifts in a number of very diverse domains . . . Each of the domains examined is highly specific and functions within a particular assemblage of institutions, laws, aims, and obstacles. As conditions become acute, they contribute to a third phase that is just beginning, one marked by expulsions – from life projects and livelihoods, from membership, from the social contract at the center of liberal democracy . . . It entails a gradual generalizing of extreme conditions that begin at the edges of systems, in microsettings. This is important, because much of this sharp shift I am seeking to capture is still invisible to the statistician.

This “savage sorting,” as she has coined it, is having a dramatic impact on the nature of humanity’s understanding of its role and place within the world and, more ontologically speaking, what it means to be ‘me’ and ‘we’ in this unmoored context.

From a Connectivist perspective this savage sorting is the result of multiple wave function interactions in the information saturated world in which we live. In an oddly “glocal” way, as more people are “expelled” from their localities, and as these populations move to different locales, there exists a push-and-pull of diffractive wave functions between the reality of the state to which they may have moved, and the cultural, historical, or even civilizational wave function to which they are still attuned given the instantaneous communications capability available to most people on the planet. Anymore, today’s diaspora populations no

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236 Ibid., pp. 29
longer feel as strong a need to assimilate into their new host country’s mores and culture since they can maintain a linkage and bond to their relatives and friends in the country from whence they came. These competing wave functions – the cultural/historical/civilizational versus the new state wave function – can create this sense of alienation and yet belonging-at-a-distance that Sassen describes.

We have seen this throughout history, whether discussing the ethnic enclaves in New York at the turn of the twentieth-century, or the Chinatowns and Little Koreas in San Francisco or Los Angeles, or whether we are discussing the Algerian populations within the French banlieues, the Somali populations in Michigan, or the Turkish population in Germany, etc. In each of these instances, what began as a desire to band together in local communities for support and cultural affinity in a strange land has morphed into this version of community on a global level through internet and mobile communications technology. This creates a “glocal” dynamic where diaspora populations can exist in a superposition of identity, a ‘both/and’ potentiality whereby individuals can exist as both British and Pakistani, or both Somali and American. This can place tremendous pressure on the holographic state where the clash of wave functions creates a dissonant reality within what is considered the boundaries and meaning of the state.

Philip Cerny describes this process as "transnational neopluralism." In the old version of pluralist theory, the state is less a cohesive and unified entity than a varyingly stable amalgam of competing and cross-cutting interest groups that surround and populate it. Cerny explains

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that contemporary world politics is subject to similar pressures from a wide variety of sub- and supra-national actors, many of which are organized transnationally rather than nationally. In recent years, the ability of transnational diaspora affinity groups, governance bodies, NGOs, and multinational firms to shape world politics has steadily grown. Importantly, the rapidly growing transnational linkages among groups and the emergence of increasingly influential, even powerful, cross-border interest and value groups is new. These processes are not replacing nation-states, but they are forging new transnational webs of power.

Similarly, Anne-Marie Slaughter utilizes the web analogy where these transnational groups and organizations are creating networks of influence and the application of power far below the traditional level of presidents, prime ministers, or foreign ministers. And it is within this metaphorical web where power is conceptualized through nodal analysis and network centrality rather than simply the accumulation of capabilities on a state-by-state basis. This reorientation of the power dynamic seemingly makes more sense in the twenty-first century networked world which has transcended from the industrial age, to the digital age, to the information age, and into the cognitive, or even algorithmic, age of information influence and dominance. In this analysis, an argument could be made that Twitter, Google, Apple, Amazon and other large media corporations exert more power and influence than any individual nation state, while the products or services they provide help to empower and globally connect their customers. While meant metaphorically, the goods and services provided by these large multinational companies is creating a neural net on a global scale where each individual with a

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mobile phone is a single neuron linked together with all the other mobile phone owners through the neural pathways of our satellite and internet connections while the “synapses” of the servers and satellites facilitate that movement of information. While consciousness from this metaphorical global brain remains within each individual rather than as an emergent or supervenient property of the architecture writ large, it is easy to picture how non-local connection can occur in the world of things while entanglement at the quantum level drives that connection as well.

Neural metaphors aside, James Rosenau’s perspective on the dynamics of globalization are equally descriptive. In Distant Proximities he characterizes the dialectical force of globalization as one which creates an integrative and fragmenting push-and-pull on societies which he describes through the clever portmanteau of fragmegration. As the book title implies, this dialectical impulse where the distant is increasingly proximate, and where the integrative features of interconnectedness also generate fragmenting expulsions from traditional notions of time, place and self as described by Sassen, is creating a novel new form of human existence – an emergent characteristic of the system – which has yet to be captured through an explanatory theoretical lens. But much like the diaspora populations mentioned above, this fragmegrative force creates superpositions for individuals as well as collectivities whereby a person walking down the street working on their phone can be both local and distant at the same time; literally a walking wave function of potentiality. This is perhaps why coming to define the phenomenon of globalization which is in reality indeterminate becomes so problematic without a Connectivist perspective.
That said, in what is one of the better definitional attempts at describing globalization, Rosenau quotes Philip Cerny: “Globalization is neither linear nor unidimensional; rather it is a multilayered, asymmetric admixture of international, transnational, domestic, and local processes, the interaction of which increasingly generates multiple equilibria.”239 Along with this, Rosenau adds:

It is perhaps a measure of this gap between the emergent epoch and the conceptual equipment available to comprehend it that our vocabulary for understanding the transformations lags well behind the changes themselves. However messy the world may have been in the waning epoch, at least we had confidence in our tools to analyze it. But today, as the course of events moves beyond globalization, we lack ways of talking about the diminished role of states without at the same time treating them as superior to all the other actors in the global arena . . . We do not have techniques for analyzing the simultaneity of events such that all their interconnections and feedback loops are identified.240

And while our theoretical frameworks may currently be inadequate, Rosenau emphasizes that “Understanding and not prediction is the task of theory. It provides a basis for grasping and anticipating the general patterns within which specific events occur.”241 Connectivism can help us bridge this gap to provide a different perspective through which to gain a better understanding of the dynamics at play. Additionally, Connectivism can help us discern the indeterminate nature of interactively complex problems as these forces of globalization accelerate, better attuning international relations scholars to the dynamic world of quantum coherence and decoherence versus a world described through the linear cause-and-effect determinism of Newtonian mechanics.

240 Rosenau, Distant Proximities, pp. 210
241 Ibid., pp. 221
Along those lines, Rosenau and Cerny’s descriptions of globalization echo a remarkable article written by Horst Rittel and Melvin Webber in 1973 where they develop the notion of wicked problems.\(^2^{42}\) In the article they discuss how consensus on myriad social issues:

is being eroded by the growing awareness of the nation’s pluralism and of the differentiation of values that accompanies differentiation of publics. The professionalized cognitive and occupational styles that were refined in the first half of the century, based in Newtonian mechanistic physics, are not readily adapted to contemporary conceptions of interacting open systems and to contemporary concerns with equity. A growing sensitivity to the waves of repercussions that ripple through such systemic networks and to the value consequences of those repercussions has generated the recent re-examination of received values and the recent search for national goals.\(^2^{43}\)

This, then, results in challenges with goal formulation, problem definition, and solutions which address multiple equities within a pluralistic society. What is fascinating is how their description of the dynamic clash of multiple concerns within a pluralistic society creates different “waves of repercussions that ripple through such systemic networks.” This evocative description of course mirrors quantum wave diffraction in an information soaked twenty-first century. Along with this visual is their description of the properties associated with wicked problems, all of which serve to conceptualize and articulate what is the indeterminate and dynamic nature of a quantum social system:


\(^{243}\) Ibid., pp. 156
Properties of Wicked Problems | Quantum Interpretation of Wicked Problems
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1. There is no definitive formulation for a wicked problem | Because wicked problems are interactively complex, every proposed solution alters the dynamic of the problem. In quantum terms, the collapse of quantum coherence in-forms the material world which in turn alters the quantum realm in a co-constitutive and creative transfer or in-formation between the material and quantum realms
2. Wicked problems have no stopping rule | Every action taken to “solve” a wicked problem alters the dynamic of the system and environment such that new wicked problems arise. In quantum terms, this represents the “measurement problem” described in chapter three
3. Solutions to wicked problems are not true-or-false, but good-or-bad | In a quantum sense, then, solutions go from ‘either-or’ to ‘both-and’ in a superposition of potentiality until a decision is made. Once made, the quantum realm is altered slightly creating new realities in the material world.
4. There is no immediate and no ultimate test of a solution to a wicked problem | Any proposed solution generates waves of consequences over an unbounded period of time, so it is impossible to determine whether solution ‘A’ actually produced effect ‘B’ as planned. In the quantum realm this would be the introduction of disruptive or diffractive wave functions which ultimately in-form and alter the quantum realm
5. Every solution to a wicked problem is a “one-shot operation” because there is no opportunity to learn by trial-and-error, every attempt counts significantly | Every collapse of the wave function produces results which then in-form the quantum realm in unknowable ways. This in turn will create new potentialities and local collapses which will manifest in the material realm

Table 1: Wicked Problems and their Quantum Interpretation
<table>
<thead>
<tr>
<th>Properties of Wicked Problems</th>
<th>Quantum Interpretation of Wicked Problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. Wicked problems do not have an enumerable (or an exhaustively describable) set of potential solutions, nor is there a well-described set of permissible operations that may be incorporated into the plan</td>
<td>Quantum indeterminacy and potentiality prevent a specification of exact solution sets</td>
</tr>
<tr>
<td>7. Every wicked problem is essentially unique</td>
<td>Through the unconscious and conscious experience of the quantum realm in individual minds, each problem and solution is unique to separate individuals, or to entangled collectivities through collective consciousness</td>
</tr>
<tr>
<td>8. Every wicked problem can be considered a symptom of another problem</td>
<td>Everything – energy, particles, phenomena, ideas, etc., are connected and inseparable in a quantum world. This linkage is what can create non-local systemic effects across space and time</td>
</tr>
<tr>
<td>9. The existence of a discrepancy representing a wicked problem can be explained in numerous ways. The choice of explanation determines the nature of the problem’s resolution</td>
<td>By proposing a solution, we are in effect collapsing the wave function potentiality through the ‘measurement’ of the problem into a material reality among infinite possible realities</td>
</tr>
<tr>
<td>10. The planner has no right to be wrong</td>
<td>Because quantum effects in the social sphere are not falsifiable hypotheses which can be tested before application in the world, it is impossible to apply linear regression and standard statistical analysis to determine the efficacy of a proposed solution</td>
</tr>
</tbody>
</table>

Table 1: Continued

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244 Ibid., pp. 161-167. The numbered bullets in the first column represent Rittel and Webber’s analysis, while the sub-bullets in the second column represent my quantum take on what is essentially indeterminacy and dynamism captured in their characterization of what wicked problems are.
Finally, Anthony Giddens perhaps supplied the seed corn for Rosenau and Sassen with his description of how the rapid advances of technology through a globalized market economy was creating a sort of cognitive and emotional dissonance for more traditional societies who were less enthusiastic about embracing the modern. Some have argued, like Walid Phares, that this is the very catalyst which pushed a violent transnational actor – al Qaeda – onto the world stage to begin its war with the west; in essence, its war against modernism. But if the effect of globalization is creating ever greater interconnectedness between people across the globe, and if this enhanced interconnectedness is enabling ever increasing transnational webs of informal transactional power and influence, are the two factors together creating greater interdependence between states and the people who inhabit them?

As mentioned in the previous chapter, realists argue it is only a matter of time before states will begin balancing against the U.S. and, indeed, that seems to be the case with Russia’s provocative actions and China’s increasingly global ambitions. Similarly, Robert Pape describes in the same volume how soft-balancing is already occurring as can be seen in the Russian, Iranian, and Chinese efforts to draw collaborators into their spheres of influence, or to cooperate with each other where amenable in order to balance against U.S. ambitions. And John Mearsheimer argues that while no nation will have the capabilities necessary to challenge American preeminence on a global scale, many regional powers will seek hegemony within their spheres of influence as a counter to U.S. power. Again, we see this playing out with

Chinese expansion into the South China Sea, and through economic coercion and enticement throughout the Asia-Pacific. Similarly, Russia seeks to expand its influence and dominion over the former Soviet Republics of Central Asia as well as the Caucasus in what it terms its “near abroad,” while Iran continues to seek Shi’a predominance in the Middle East. While this seems to vindicate the realist conceptualization of global politics, Connectivism would argue otherwise.

Across the globe social movements, whether motivated by economic, political, class, or ethnic rationales, are gaining traction as people find themselves responding to the inchoate emotions and fear they feel perhaps as a response to the systemic forces of globalization described above. From a Connectivist perspective this is a result of the multiple and near instantaneous barrage of disruptive wave functions from the quantum realm creating a sense of dislocation through the unconscious and conscious experiences of individuals and social collectivities as the holographic state and institutional wave functions become more diluted or diffused over time. Similarly, at the individual level this sense of existing in a near-continual state of superposition between local and global – defined and potential realities – may prove disorienting to people and ironically creating a sense of disconnectedness in the midst of the greatest global connectivity the world has ever known. Global communications technology has enabled the introduction of new potentialities in the quantum realm at a much more accelerated rate than in the past, and the former anchors of the state and institutional quantum and material realities are increasingly coming under pressure from these new potentialities.
As the pace of commerce and the speed of the information age creates a growing desire for Google quick and Amazon efficient responses to individual and collective needs, but in an institutional and hierarchical world built on the model of the industrial age where adaptation is slow to materialize under the bureaucratic weight and inertia of burdensome and expanding institutionalization, citizens increasingly feel removed from the social contract between themselves and the elites who supposedly govern on their behalf. Connectivism would argue this is due to the acceleration of changes in the potentiality of the quantum realm whereby the holographic national and institutional system has so far removed the citizen from the calculus of governing – or belonging – that they are finding themselves unmoored from the previously known realities of their existence. As such, the old bumper sticker, “Think Globally, Act Locally” seems to have been inverted in this confusing milieu to, “Live Locally, Act Globally,” to answer the overwhelming effects of globalization, the current institutional inability to mitigate its effects, and the increasing salience citizen populations are once again placing on their own subjective experience of these multiple wave functions and their seeking of like-minded others who share their reality.

Going back to Rosenau, though here he is speaking specifically about poverty, he discusses how current mainstream international relations theories are more concerned with expressing ideas “in terms of their relationship to states and the vertical boundaries that divide them and their consequent inability to see the world in terms of horizontal boundaries that separate the poor and rich within and among states.”

249 Despite the specificity of poverty in his observation it could easily also apply to transnational organizations, whether terrorist, criminal,

249 Rosenau, pp. 382
religious, or corporate, as well as cross-cutting technological advancements which have flattened the globe into a world of networks vying for influence in the still-present world of hierarchies. He goes on to state, “Whatever variant of realism or liberalism to which they may be committed, theorists have focused on the world of states and the ways in which their members, individually and collectively, frame external policies, exercise power, maintain stability, build institutions, respond to crises, and pursue a host of other goals that have little direct bearing on daily life within societies.”\textsuperscript{250} As such, Rosenau feels the perspectives of realism and liberalism are reactive to, vice proactive with, events which don’t fit neatly into either theoretical perspective:

Is this to imply that empirical IR theory has tended to follow, rather than anticipate, the issues that surface in the empirical world? Yes, it is. Our theories have been so narrowly state-oriented that they are modified or extended only when the concerns of states shift and expand. While this fact has thus far been inconsequential insofar as IR theory is concerned, its salience may well increase if developed states and their international economic institutions continue to face variants of the problems of joblessness and economic insecurity and if, as seems likely, street protests over IMF, World Bank, and WTO policies continue as recurring features of the world scene.\textsuperscript{251}

Since the time of the book’s publication, it is safe to say the financial crisis of 2008-2009 which spawned the Occupy Wall Street movement, the Arab Spring movements of 2010-2015 and beyond which sparked a massive social, economic, and humanitarian crisis across North Africa and the Levant, and the COVID-19 pandemic of 2020 which uncorked not only economic and medical but social issues as well, serve to only accentuate Rosenau’s intuition captured above. The reason these questions remain, and the reason our explanations seemingly answer


\textsuperscript{251} Ibid., pp. 383
“yes” to every ‘either-or’ question is because we have been utilizing incomplete and ontologically incorrect lenses through which to view the world. Might a different ontology, one focused on quantum physics and humankind’s increasing attunement to ancient philosophical traditions rather than the implicit or explicit focus on a Newtonian materialist ontology where “matter is the only matter which matters,” offer new insights into the increasingly atomizing (again, if you will pardon the pun) effects of globalization? How might Connectivism help us to better understand social movements within the broader context of globalization?

**Social Movements**

**The Arab Spring Through a Connectivist Lens**

Much has been written about revolutions within nations, but there is scant discussion regarding a region-wide revolution as was witnessed with the Arab Spring. Just as the American, French, and Russian revolutions sprang from the technological innovations of the printing press and Industrial Revolution which in turn propagated new ideas – new potentials – during the Enlightenment which introduced disruptive quantum wave functions antithetical to the holographic nature of monarchical rule, so too did the technological revolution of the digital era offer broader and more instantaneous effects across greater distances. What was once a decades-long – if not centuries-long – evolution toward new forms of governance (initiated by the introduction of new quantum wave functions and collapses into revolution and renewal as technological advancement enabled the propagation of these new potentialities) has now become a near-instantaneous transmission of alternate potentials and competing wave functions across the globe. Enlightenment thinking coupled with the spread of mass communication through the printed word in effect over time slowly altered the consciousness...
of the newly informed societies giving rise to the organizational revolutions described above. Something similar is occurring today with the recent technological innovations of the internet and smart phone technologies, but the effects of those advancements are still in the beginning stages of altering the consciousness of societies today, but on a much larger scale and on a greatly compressed temporal timeline.

The Occupy Wallstreet movement as a response to the global financial crisis in 2008-2009 may have been a global “revolutionary” movement, but its impact on the financial and governing institutions was marginal. The Arab Spring, on the other hand, has had far-reaching and dramatic effect across North Africa, the Levant, and the broader Middle East, resulting in a host of changes – some beneficial, some destabilizing in the extreme – but consequential all the same. How might a Connectivist perspective on the movement offer insights into not only what occurred, but why, and how might this perspective shed new light and understanding on this phenomenon in lieu of orthodox theoretical approaches which are inadequate to the task? First, a quick historical background on the events in the Middle East leading to the Arab Spring is in order to provide the context necessary for evaluating a Connectivist approach.

When Mohamed Bouazizi self-immolated in the southern city of Sidi Bouzid in mid-December 2010 in protest of the lack of opportunity for young men in Tunisia and the rampant corruption in the Tunisian government, it created a moment which effervesced into a movement that swept throughout North Africa, the Levant, and the Middle East. Interestingly, though seemingly a Black Swan event, the Jasmine Revolution of Tunisia which resulted in the abdication of its president, Zine al-Abidine Ben Ali just twenty-eight short days later, perhaps saw its predicates in the Cedar Revolution in Lebanon in 2005, and the Green Revolution in Iran
in 2009. But why is it that neither the Cedar Revolution nor the Green Revolution sparked the region-wide Arab Spring movement, but the seemingly isolated event in Tunisia did? A number of factors were in play which ultimately built to the Arab Spring moment.

First, the U.S. invasion of Iraq in 2003 introduced a radically new approach to U.S. foreign policy in the region. On the heels of the September 11, 2001 terrorist attack on the Pentagon and World Trade Center in the U.S., Islamic terrorism became the focus of the Bush administration as his team tried to decide how the U.S. would respond to the attacks. Invading Afghanistan to capture or kill the leader of al Qaeda and organizer of the attack, Osama bin Laden, made sense and had strong support from the UN and many nations across the globe. But why did the Bush administration then turn its sights on Iraq? This is a question which confounded critics and supporters alike. “No blood for oil!” was the cry from the left side of the political spectrum, while “Iran will be the winner of any U.S. war in Iraq” was the warning from the right. Similarly, the support and good will from nations across the globe was shattered when the administration made the decision to invade Iraq. As a result, the theories abounded, as did the conspiracy theories, and the shifting rationales from within the administration itself only served to fuel the confusion and speculation. But the deeper rationale was far more strategic and far more complex an issue than the administration was willing or able to articulate to the world.

At the heart of the administration’s conundrum was the realization the U.S. was unable to defeat al Qaeda or other terrorist organizations militant-by-militant, fighter-by-fighter, but rather needed to attack the main sources of support for those organizations utilizing all the

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instruments of national power – diplomatic, economic, military, and informational – in a strategic effort. While killing terrorists made for satisfying rhetoric at home to maintain the support of the American people, the need for a broader, more comprehensive approach to the problem of terrorism was required. Indeed, in its analysis of how to proceed against al Qaeda, the administration began to think in the broadest possible terms. As former Undersecretary of Defense for Policy, Douglas Feith stated, “Action against Iraq could make it easier to confront – politically, militarily, or otherwise – other state sponsors of terrorism, such as the regimes of Muammar Gaddafi in Libya and Bashar al Assad in Syria.” He goes on to discuss then Defense Secretary Donald Rumsfeld’s notes to President Bush where Rumsfeld described how, “if the war does not significantly change the world’s political map, the U.S. will not achieve its aim. The U.S. should envision a goal along these lines: new regimes in Afghanistan and [some other states] that support terrorism; Syria out of Lebanon; dismantlement or destruction of WMD in [key states].”

This ambitious and, in retrospect, catastrophic vision clearly went well beyond the overthrow of the Taliban and the capture or killing of Osama bin Laden in Afghanistan, or even the simple overthrow of Saddam Hussein in Iraq. This altering of the political map was something much broader, and it is in the redacted “[some other states]” and “[key states]” of Rumsfeld’s notes where a radical vision of a U.S.-led alteration of the Middle East comes into focus. Far from simply the positional advantage occupation of Iraq afforded the U.S. in terms of

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255 Ibid., pp. 82
geographic location, it was the psychological impact the U.S. sought to inflict upon the two main powers in the region, namely Saudi Arabia and Iran, where the true thrust of the U.S. effort was aimed. This was due to the altered world view of the administration and the foreign policy elite following the 2001 attacks in addition to the history within the region leading up to the destruction of that September morning.

Whether it was the withdrawal of forces from Beirut following the Marine barracks bombing in 1983 during the Syrian Civil War, the withdrawal of U.S. forces from Somalia following the battle of Mogadishu in 1993, or the tepid response to the USS Cole bombing in Yemen in 2000, America was increasingly seen as a weak player, an irresolute nation unwilling, or unable, to exert influence in the region. By shocking the system with the goal of altering the pathologies of U.S.-Middle Eastern relations over the previous half-century, the U.S. sought to recalibrate Saudi Arabia’s foreign policy calculus and bring it in line with America’s war on terror. The Saudis were wavering and feared al Qaeda more than they feared the U.S., so a bold move into Iraq to demonstrate U.S. resolve while putting pressure on the Saudi royal family was required to redefine the U.S.-Saudi relationship. In Tehran, on the other hand, it was thought the example of U.S. strength, resolve, and sponsorship of democracy in neighboring Iraq would embolden the Iranian people to rise and topple the theocratic regime. In addition, this shock to the system in the heart of the Middle East, as Rumsfeld envisioned in his note to the president, would also lead to the eventual ouster of Gaddafi in Libya and Assad in Syria.

In orthodox international relations terms, the Bush administration was engaged in a realist foreign policy to exploit its overmatching capabilities to alter the map of the Middle East.
As Charles Krauthammer characterized the endeavor, it was the application of democratic realism in a unipolar world. From this mainstream perspective it appeared the administration was initially successful in its aims. First, the initial responses from regional players to the U.S. invasion showed an awareness of the magnitude of the shift in U.S. foreign policy, and a fear the U.S. was matching its rhetoric with its actions. Libya announced in December 2003 renunciation of its pursuit of weapons of mass destruction (WMD), a move lauded by the world community as the first step toward reintegration of Libya into the international community. This move was the culminating gesture of a regime which was deathly afraid the U.S. would blame them for the attacks on 9/11. In fact, a diplomatic cable from the U.S. embassy in Libya dated a week-and-a-half after the attack stated Gaddafi was “hysterical in his telephone call to [Jordan’s] King Abdullah as if only his personal intervention would prevent U.S. action.” Perhaps most importantly, the Libyans gave up Pakistani nuclear physicist, A.Q. Khan, who was assisting Libya in their development of nuclear capability. This act of goodwill toward the U.S. exposed other nations in addition to Libya who were seeking to surreptitiously acquire nuclear weapons.

Finally, because the U.S. redefined the terms of its relationship with Grand Ayatollah Ali Sistani and the Shiite majority within Iraq in 2004, it is plausible the Iranians increased pressure

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on Lebanon through Syria and its Hezbollah proxy to maintain its influence in and hold over its Levantine allies. However, when Syrian-aligned forces killed popular former Prime Minister Rafic Hariri with a car bomb in Lebanon in 2005, it led to massive protests among the Lebanese people dubbed the Cedar Revolution, ultimately resulting in the withdrawal of Syrian forces from Lebanon. So, with Gaddafi acquiescing to U.S. pressure and giving up the nuclear proliferator A.Q. Khan, and with Assad chastened in Lebanon, it would appear the U.S. strategy of executing a realist foreign policy intervention in Iraq had been successful, but at what cost?

As already mentioned, the Cedar Revolution was successful in its aim of ousting Syrian presence within Lebanon but failed to ignite a broader Arab revolt in the region. But another revolt, this time in Iran in 2009, while also failing to ignite a larger Arab revolt nevertheless provided the tinder for the events not long after in Tunisia.

Much of the burgeoning unrest which bubbled up over several years in the Middle East gained traction as cellular and smart phone technology advanced. When the protests erupted in Tunisia, al Jazeera provided constant coverage as the rallies gathered momentum and streamed those images into Arab homes across the Middle East providing real time images of Arabs in open revolt against their dictatorial oppressors. Additionally, with the advent of the iPhone 3 in 2007, the massive growth in mobile technology coupled with the proliferation of social media applications available on smart phones made it increasingly easy for broad swaths of people to stay connected and to organize events. As smart phones multiplied, it provided more and more Arabs the means with which to organize and communicate.

By 2009, this leaderless web of communication and images created a disorganized pattern of protest which confused the various state security organizations and denied them
easily identifiable ringleaders they could arrest and imprison.260 Perhaps nowhere was this combination of information technology, narrative, and image more potent than in the widespread circulation of images capturing the murder of a young Iranian woman, Neda Agha-Soltan, who was shot and killed by Iranian basij militia while participating in the Green Revolution as part of a protest over the election results of 2009. If the self-immolation of Mohamed Bouazizi was the literal match that lit the flame of revolution across the Middle East, then an argument can be made the images of Neda’s death in Iran, proliferated through the relatively new technology of smart phones and social media applications, provided the ample tinder to fuel that conflagration.

From the moment in December 2010 when the Jasmine Revolution in Tunisia took place, the Arab Spring began to blossom across the region. First, in Egypt where massive protests toward the end of January 2011 resulted in the abdication of longtime president and U.S. ally Hosni Mubarak and the subsequent election of Muslim Brotherhood candidate Mohammed Morsi to the presidency in June of 2012. He in turn would be ousted after massive protests one year later. Libya too would fall as open civil war resulted in the capture and killing of Muammar Gaddafi on October 20, 2011. Finally, Syria was caught in the wave of revolution in March 2011 and has struggled through a brutal civil war to the present day. How, then, did seemingly localized uprisings spread into open and major revolt across North Africa, the Levant, and the Middle East?

What is captured above is a relatively orthodox, western cause-and-effect view of the events following the U.S. invasion of Iraq in 2003. Pursuing a realist foreign policy option in Iraq, the U.S. sought to impose exogenous means to influence and alter the ideological and geographical map of the predominantly Muslim Middle East. In linear and materialistic terms, the Bush administration thought if they could overthrow Saddam Hussein in Iraq – remove a proton from the nucleus of the Middle Eastern power structure – then the alteration would result in a transformation from the old into something more amenable to U.S. interests. As Charles Krauthammer articulated it, the hope was that a “domino effect” of spreading democracy would be the desired result of our invasion into Iraq. While this aim was partially realized, U.S. actions in Iraq also spawned the rise of ISIS as the Arab Spring movement fractured Syria into a brutal civil war that ISIS leader Abu Bakr al Baghdadi was all too willing to exploit. The results of the massive loss of life and refugee crisis the Syrian civil war has generated are still impacting the dynamics of the Levant, Turkey, and the European Union to this day. As such, it would seem the net balance of the U.S. decision to invade Iraq has resulted in more chaos and instability than in stable democratic reforms across the Middle East. But what if the U.S. had taken a different approach? What might have transpired if the U.S. had viewed the war on terror through a Connectivist versus a traditional realist lens? How might that different perspective have obviated, or at least assisted in understanding, the Arab Spring movement which motivated so much hope, but which ultimately devolved into chaos and revolution?

First, and perhaps most importantly, we saw the major difference between western and eastern thinking play out on the geopolitical stage with the highest of stakes imaginable.
Whereas western culture views history in linear, quantifiable terms of past, present, and future and relies heavily on analysis as the coin of this rational, quantifiable realm, the Muslim culture views history as a never-ending story where the time-space continuum represents an ongoing narrative of existence. For them, the past, present, and future is all one, an ever-present mythos that informs their existence and view of the world around them. Thus, when Muhammad came out of the desert in the 7th century as a holy man with a message to unite all Arabs under the word and law of Allah, the story of his journey and ultimate success became part of the mytho-heroic continuum of Islamic identity.261 Indeed, whenever the Ummah, or Muslim people, lost its way, great leaders would sweep out of the wilderness:

There was Ibn Tumart leading Berber and Tuareg zealots out of the bleak Sahara. There were the *Mahdi* storming out of the desert Sudan to overthrow Gordon and his *Raj* at Khartoum. There was Babur too, brand-ancestor of Pakistan, sweeping down from Afghan mountains. Then came the pious Mamluk Baybars, last scourge of the Crusaders, and of course the chivalrous Saladin, whose *jihad* wrested Jerusalem from infidel Frank.262

And now, after the ineffectual radicalism of Osama bin Laden and the U.S. focus on the Middle East he had wrought, the Arab people picked up the mantle and immersed themselves in the never-ending, ahistorical story of Islam. That this story has been so passionately and so often replayed is not surprising. What is surprising is how the West dismisses its claim and forgets as well the leitmotif of an Ummah that has lost its way.263 The emergence of a movement, therefore, as it occurred in 2010-2011, created the anticipation of an imminent renewal of the

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262 Ibid., pp. 7
263 Ibid., pp. 9
Ummah. As Vlahos asserts, “Renewal in Islam is thus civilizational rather than simply theological: by seeking to purify the Ummah, its goals are as much political as religious.”

This eastern view of history where the Ummah found itself in extreme crisis and in need of renewal versus the western approach where the introduction and application of exogenous factors to create diplomatic, informational, military, and economic change in the Middle East is perhaps the clearest recent example of the philosophical and narrative split between the two cultural perspectives. That said, like most things in a globalized context, some blurring between the two certainly occurred. For example, the global financial crisis of 2008-2009 was a factor in the Middle East and North Africa. As Charles Tilly notes, protests within Egypt had been increasing over the years leading up to the Tahir Square movement: “Worker protests grew more frequent, rising from 97 in 2002 to 742 in 2009,” and protests from other groups against police brutality, the Muslim Brotherhood against the 2009 Israel invasion of Gaza, and the Coptic community over the killing of six Copts near Luxor in 2010, were factors as well. In other words, localized conditions set the stage for what became a regional movement. Tilly explains:

When young protesters in Tunisia demonstrated their solidarity with an unemployed university graduate who was fined for selling vegetables without a permit – and who set himself alight in protest – activists and ordinary people identified with their struggle and saw parallels to their own situation. When protesters succeeded in forcing out the longstanding leader [of Tunisia], they signaled a political opportunity to those critical of their own regime.

. . . international connections clearly mattered in the movement in Egypt. Some Egyptian youth leaders attended a 2008 technology meeting in New York, where they were taught to use social networking and mobile technologies to promote democracy.

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264 Ibid.
Among those sponsoring the meeting were Facebook, Google, MTV, Columbia Law School, and the State Department.\textsuperscript{266}

He goes on to claim that political entrepreneurs mobilized dissatisfaction which was amplified through text messaging and social media platforms such as Facebook and Twitter. The economic crisis and police killing of Khaled Said provided the context, and then the ouster of Tunisia’s leaders provided the discourse of “rights talk” and “democracy” as a way of spreading the movement beyond Egypt.\textsuperscript{267} This, too, is a fairly straightforward, insightful, and orthodox explanation of the events leading to the broader Arab Spring movement, but it is still a focus on the \textit{what} of those events without truly appreciating the \textit{why}. From a Connectivist point of view, though, a number of potentials come into focus.

First, from a philosophical and cultural perspective as was mentioned above, the U.S. templated a western scientific view of change onto its desires for Middle East reform. If ‘$X$’ amount of exogenous military, diplomatic, economic and informational efforts could be applied to the Middle East, then the observers of this experiment would then be able to catalogue the results of their choice of variables and the impact they would have on the hypothesis of democratizing the region. From an Arab perspective, though, the ahistorical threat to the Ummah was one which resonated throughout the collective unconscious of the people and created a new wave function of potentiality in response to the multiple crises they were facing: authoritarian rule; economic stagnation; lack of opportunity; another western power dictating the terms of Arab identity and self-determination; etc.

\textsuperscript{266} Ibid., pp. 111-112
\textsuperscript{267} Ibid., pp. 113
Second, faced with this existential crisis, rather than playing the classical game where expected utility was the forecast outcome, the demonstrators in Tunisia, Egypt, and then across the Middle East, North Africa, and the Levant instead chose to play a quantum game of potentiality, or a game of ‘both/and.’ Instead of a binary choice of ‘cooperate’ or ‘defect,’ the Ummah instead embraced a strategy of potential vice a strategy of predetermined outcomes. In essence, they chose to create a new reality through an embrace of uncertainty and potential versus siding with either their respective regimes, or the U.S. From this collective action – this collective consciousness which was part cultural-historic/archetypal and part quantum in its origins – the Arab Spring created a new reality in the material world through their conscious focus on cognition, experience, and will to action in order to effectuate change. As such, they existed in states of superposition and potentiality as both victims and heroes, as both oppressed and liberators in a way that not only altered the consciousness of the participants, but the consciousness of the world as those events played out on an international canvass with the contours of that creation still coming into focus today.

Finally, change takes time as understood from a western perspective. Whereas Heidegger might explain that Being as co-constituted through the beings-in-the-world and Dasein’s everyday interactions with those beings – or existentiell – is timeless and therefore throwing what-is-to-become toward Dasein as the reality of Being is instantiated through those everyday interactions, it is nevertheless a slow process of change in the temporal backdrop of a material world. From our western philosophical and scientific heritage, though, advancement, manipulation of the external world of things, and an arguable proclivity toward achievable results in a timely manner all conspire against understanding the true reality driving the why of
human motivation and action. Perhaps the realist vision of history as “the same damn thing over again,” is only because our western interventions have created this dynamic where short-term results are considered the “new normal” and we can move on to the next “problem” to be solved, leaving behind an unstable and competing wave function which will be replaced over time with a competing wave function which was only interrupted for a brief moment.

In a world of instantaneity and pervasive connectivity, this desire for quick solutions is only becoming more prominent. Where a nation’s actions, or inaction, can fly around the world on Twitter’s wings microseconds after an announcement or event, the pressure to be seen as doing something is profound for leaders in the western hemisphere. But what the Arab Spring and the populations who supported it put into motion back in 2010 may prove instructive for policy planners and international relations scholars who choose to ignore the quick hit of technological dopamine and instead embrace a Connectivist perspective. This is stated in relation to the Abraham Accords initiated under the Trump administration.

A full decade after Mohamed Bouazizi self-immolated in front of a Tunisian police station igniting the Arab Spring, several Arab nations have begun normalizing relations with Israel to include the United Arab Emirates (UAE) and Bahrain, with Sudan, Oman, Morocco, and possibly even Saudi Arabia to follow. Egypt and Jordan had already normalized their relations with Israel in the 1970’s and 1990’s respectively, but the impetus behind this most recent initiative seems to be gaining traction across the broader Arab world. How much of this was made possible by the reality shaping – the consciousness altering grasp of potentiality vice “choosing a side” – embraced by the millions of Arab people who sought something different, striving for a renewal as ordained through their religio-cultural collective unconscious? What
the application of U.S. military force and economic incentives was unable to achieve over sixty years of foreign policy efforts in the Middle East may just have found a much more profound and endogenous means through which to effect change: the unconscious attunement to the quantum realm as actuated into material results through the conscious cognition, experience and will to action of the millions of individuals who sought to alter their reality. As one observer noted in response to a column by New York Times writer Thomas Friedman, “Here’s some real news: There is a new Middle East that has passed you by and demonstrated to you and the rest of the western world that fresh thinking is what was necessary to break the mold and the old narrative. Clearly, that has eluded you.”

A Connectivist lens would help provide policy makers and international relations scholars a new perspective through which to approach “fresh thinking” which would focus less on the macro, “outside-in” approaches of past western interventions and more on the micro, “inside-out” endogenous factors of the unconscious and conscious potentiality of individuals who seek self-determination and change in the material world. Sometimes the policy of inaction might be the most direct route toward lasting change given enough time, but only if policy makers understand and can tolerate the efficacy of prudence and patience in a dynamic world of instantaneous informational flows and constant perceptual flux. As Sun Tzu admonished the Emperor over 2,500 years ago, “To win one hundred victories in one hundred battles is not the acme of skill. To subdue the enemy without fighting is the acme of skill.”


269 Tzu, Sun, The Art of War, Thomas Cleary, translator, Boston, MA: Shambhala Publications, 1988, pp. 34
Connectivist perspective just might help policy and military decision-makers adopt this “inside-out” approach to achieving policy aims in an effort to win without firing a shot.

Another form of social movement has gained attention recently in the U.S. and may very well serve as a consciousness altering factor as well. As Tilly describes the future of social movements, “In the early twenty-first century, the street demonstration looks like an all-purpose political tool – perhaps less effective in the short run than buying a legislator or mounting a military coup, but within democratic and semidemocratic regimes a significant alternative to elections, opinion polls, and letter writing as a way of voicing public positions.”

The most recent example of this phenomenon can be found in the Black Lives Matter (BLM) movement which gained national and global prominence in the late-Spring of 2020 following the death of a Minneapolis man, George Floyd, while in police custody. Can Connectivism provide a rational, unemotional lens through which to view this historically and emotionally fraught movement?

Black Lives Matter Through a Connectivist Lens

The BLM movement began in 2013 when George Zimmerman was acquitted on the charge of second-degree murder in the death of a seventeen-year-old African American boy, Trayvon Martin, in Sanford, Florida in February 2012. The story gained national prominence and focused on the Florida Stand Your Ground law which allows for the use of deadly force in public spaces when an imminent threat to life is suspected. In the Martin case, Zimmerman

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270 Tilly, Social Movements, pp. 147
was acting as a neighborhood watch volunteer when Martin was seen walking through the neighborhood in a “suspicious manner.” When Zimmerman confronted Martin, the two got into a physical altercation where Martin was able to bring Zimmerman to the ground, get on top of him, and begin slamming his head into the ground. Zimmerman, fearing for his life, fired his gun at Martin killing him at the scene. The case gained national attention given the racial background of the two men involved. Zimmerman, though of mixed Hispanic and German descent, was described as a white male, or a white Hispanic male, while Martin was of African American descent and black. The perceived injustice of the ruling in Zimmerman’s favor centering around the racial component and the Florida Stand Your Ground law generated protests from white and black activist groups, ultimately giving rise to the BLM movement.

Since then, BLM has garnered national and international prominence as a social justice movement and has become a powerful political and social force for change. In its 2020 Impact Report, the current director of the BLM organization, Patrisse Cullors, writes, “Our movement’s three entities, Black Lives Matter Global Network Foundation (BLMGNF), Black Lives Matter Political Action Committee (BLM PAC), and BLM Grassroots, together, make up and support a multi-faceted, global movement predicated on the belief that Black lives matter. That Black policy matters. That Black organizing matters. And that Black joy matters.” She went on to describe the organization’s primary goal:

2020—in the midst of a global pandemic, a growing economic divide, and a massive movement towards racial consciousness—could not be met like any other. We were challenged to reimagine the road to a world in which Black lives matter. In 2020, we realized that this world could not be met through a series of patchwork programming,

half-drawn blueprints, and rapid responses that left integral members of our movement drained. This year called for deep thought, reflection, and intentionality. Our movement will be where it needs to be when our call is in the mouths of every individual, nationally and globally. “Black lives matter.” It will be where it needs to be when, collectively, our organization—as the amplifier of the movement—is looked to as a leader in radical thought and policy impacting Black communities, rather than the recipient of consistently empty promises from elected officials.273

Obviously, the desire for a “massive movement toward racial consciousness” is a goal of altering the consciousness of people around the world by introducing a new reality – a new wave function – through which the BLM movement seeks to alter the material reality of racial awareness within the U.S. and around the world. While political action is certainly a component of their advocacy, it seems clear that “empty promises from elected officials” is not enough and that altering the way individuals perceive and identify with black people is the ultimate goal. That the reach of the movement has become international is a clear indication they are well on their way toward achieving that aim.

Within the 2020 Impact Report, Cullors lists the organization’s reach by the numbers:

- 24 million visitors to the BLMGNF website
- 1.9 million email list recipients resulting in over 1 million actions taken
- 25% of BLMGNF’s online presence is international
- 750,000 Facebook followers
- 1 million Twitter followers
- 4.3 million Instagram followers
- 51,895,161 total impressions for BLMGNF Digital ads
- 2.5 million impressions on Twitter for the BLMGNF petition ad to end systemic racism
- 177,000 total impressions and over 10% engagement rate on the Defund the Police ad
- 117 ad runs on TV in Midwestern media markets
- BLMGNF entered the legislative advocacy space with the introduction of the BREATHE Act274

273 Ibid., pp. 4
274 Ibid.
Arguably, the numbers behind the BLMGNF reflect the traction the movement gained following the death of George Floyd in Minneapolis in May of 2020. The images of that moment while Floyd was in police custody ignited a massive protest movement in the midst of a pandemic which galvanized people of all races and socio-economic classes to the BLM cause. As the New York Times reported in July 2020:

According to the Civis Analytics poll, the movement appears to have attracted protesters who are younger and wealthier. The age group with the largest share of protesters was people under 35 and the income group with the largest share of protesters was those earning more than $150,000. Half of those who said they protested said that this was their first time getting involved with a form of activism or demonstration. A majority said that they watched a video of police violence toward protesters or the Black community within the last year. And of those people, half said that it made them more supportive of the Black Lives Matter movement.  

Since that initial May movement, between 15 to 26 million people had participated in over 4,700 demonstrations across nearly 2,500 small towns and large cities across America during the summer of 2020. Much like the Arab Spring before it which caught observers and ruling elites by surprise, the massive scale of the BLM demonstrations had a similar impact on media observers and politicians here in the U.S. as well. So, what can be concluded about this phenomenon?

First, the dynamics leading up to the outrage over George Floyd’s death while in police custody are multi-faceted and possibly multiplicative as well. After the Trayvon Martin incident

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276 Ibid.
and subsequent trial, a number of racially charged police-involved shootings and deaths took place leading up to the events of May 2020:

- July 17, 2014: A black man named Eric Garner died in an incident with New York City police officers after he was placed in a chokehold after initially resisting arrest.\(^{277}\)
- August 9, 2014: A black man named Michael Brown was shot and killed by a Ferguson, Missouri police officer after charging the policeman while resisting arrest.\(^{278}\)
- April 12, 2015: A black man named Freddie Gray sustained neck and spinal injuries while in police custody in Baltimore, Maryland, slipped into a coma and later died of his injuries on the April 19, 2015.\(^{279}\)
- July 6, 2016: A black man named Philando Castile was shot during a routine traffic stop in St. Paul, Minnesota after reaching for his wallet.\(^{280}\)
- March 18, 2018: A black man named Stephon Clark was shot and killed by police responding to a break-in call in Sacramento, California. No weapon was found on Mr. Clark.\(^{281}\)
- March 13, 2020: A black woman named Breonna Taylor was shot and killed by police during a drug raid on Ms. Taylor’s boyfriend’s apartment in Louisville, Kentucky.\(^{282}\)

Each of these separate incidents generated protests at the local level but failed to create any national-level protest marches of any coordinated significance. Again, much like the Arab Spring, isolated moments of protest failed to create the region-wide uprising described above.

All of that changed after the death of George Floyd. While a case can be made these


separate incidents accumulated over time to the point where the death of George Floyd became the catalyst for unleashing a growing sense of injustice, it should also be remembered the May incident in Minneapolis took place in the context of the COVID-19 pandemic. As such, it may be impossible to ascertain how much the popularity of the BLM protests during the summer of 2020 was the result of those accumulated feelings of injustice, and how much could be attributed to the pent-up emotions resulting from the nation-wide pandemic lockdowns and COVID restrictions. In either case, it became a watershed moment and a tipping point which has catapulted the BLM movement into the collective consciousness of millions across the globe.

For example, a catalog of this global phenomenon depicts how in the summer of 2020, protests took place around the world, to include:

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Table 2: BLM Protests Worldwide 2020
Caution is warranted here not to conflate all the protestors’ rationales under the one banner of social justice and change for their activism during the summer of 2020, but it is clear given the scope of the protests over that short span of time BLM had struck a nerve across the global citizenry for reasons which remain their own. This awakening – this conscious decision to attend these protests and advocate for the BLM cause – was shared across millions of individual consciousnesses forming a connection that can only be described as a shared reality at a distance; a non-local causal and motive factor for action-at-a-distance.

Again, as discussed above regarding the phenomena of globalization and the Arab Spring, while technology, a global pandemic, and economic factors all have a part in the events of this uprising, it is only through the conscious experience of cognition – individual minds

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considering the message offered by the death of George Floyd and BLM’s interpretation of that moment – and then a will to take action on that subjective, individual experience that this global phenomenon could have taken place. As Heidegger might explain, only through the existentiell of Dasein’s everyday interaction with that technology, those ideas, and the external imposition of economic, social, and medical hardship associated with COVID-19, could Being be co-constitutively altered such that reality in the material world, and reality in the unseen world of Being, has been altered in a manner which has possibly changed both through that iterative process. From a Hindu perspective, the A-dimension of the Akasha, and the M-dimension of the material world have possibly both been altered through this recursive and co-constitutive relationship between the seen and unseen realities of existence. Millions of people across the globe were moved to action in a connected, non-local appreciation for this reality shared through the individual minds of those involved. In quantum terms, then, new realities were born – new wave functions introduced – as a result of these material realities occurring at that given time. Time will tell whether this new reality will continue to collapse into what was begun in the summer of 2020 and ultimately instantiates a new material reality as a result, but developments since then and into the spring of 2021 seem to indicate it might.

First, BLM has gained the sponsorship and support of many commercial and corporate entities across the globe. These corporations have donated hundreds of millions of dollars to BLM and other organizations dedicated to racial equality. But beyond donations, these corporations have also actively dedicated advertising space and money advocating on behalf of the organization. From commercials, to teams from the NFL, MLB, NBA, NASCAR and other professional sports organizations who have included BLM iconography and messaging into their
uniforms, their stadiums, and the players’ activism on the courts and fields during the playing of the national anthem, to media corporations who have given largely positive airtime, print, and digital access to a global audience, BLM has been able to expand its reach, its message, and its movement through these business and cultural entities. Hollywood, too, through its massive cultural sway has offered focus on BLM activism, endorsements from Hollywood actors, and focus on black voices in film through the various streaming services online. Universities across the nation have added their voices to the BLM cause as well, organizing lectures, marches, and symposia through which to discuss and advance the BLM message. As the founder of the conservative news site Breitbart News, Andrew Breitbart was fond of saying politics is downstream of culture. This assertion seems to be true in the case of BLM as well.

Again, from the BLM 2020 Impact Report, Patrisse Cullors outlines the political activism through the BLM PAC which was largely enabled, funded, and popularized through the support of the commercial, media, sports, and education industries across the country:

- In partnership with the Working Families Party, 6,000 BLM PAC volunteers signed up for almost 10,000 shifts as part of a GOTV effort that called and texted 5.4 million voters in Arizona, Colorado, Florida, Georgia, North Carolina, Pennsylvania, South Carolina, and Wisconsin.
- In Fort Lauderdale and the Greater Fort Lauderdale area in Florida, a team of 30 canvassers knocked the doors of 2,826 African American voters that were recognized as having not voted. They had 555 conversations.
- Focusing our final efforts on Pennsylvania, this partnership also yielded 195 Shifts, 2,674 conversations, 2,635 pledges to vote, 1,902 pledges to text friends & family, and 25 E-Day poll sites covered in Philadelphia.
- Advertising took the form of billboard, radio, and digital, with nearly 15 million combined impressions across platforms.
- Several candidates used our endorsements in their final GOTV push and 44 of our endorsed candidates and ballot measures were victorious.284

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In addition to this activism, the BLM organization was able to lobby congress to introduce H.R. 585, otherwise known as the Bringing Reductions to Energy’s Airborne Toxic Health Effects, or BREATHE Act, into the House.285 Sponsored by New York democrat representative Yvette Clark, and co-sponsored by forty-seven House democrats, the act calls for:

- Section 1: Divesting Federal Resources from Incarceration and Policing & Ending Criminal-Legal System Harms
- Section 2: Investing in New Approaches to Community Safety Utilizing Funding Incentives
- Section 3: Allocating New Money to Build Healthy, Sustainable & Equitable Communities for All People
- Section 4: Holding Officials Accountable & Enhancing Self-Determination of Black Communities286

While only section three directly addresses the environmental concerns the act’s name implies, the act’s other sections call for a radical reconceptualization of public policing, justice, voting and political accountability. But with this legislative achievement, BLM is formalizing its approach toward political change – and consciousness altering – through tactics very similar to insurgent movements of the past. While it is important to note this is not a claim BLM is an insurgent movement in the classical, violent way most insurgencies are understood, it nevertheless exhibits certain similar characteristics which are propelling its aims and introducing disruptive wave functions into the American polity.

Most insurgencies follow a classic vector that has a beginning, middle, and end, and they exhibit characteristics that can be considered universal. First, at the heart of any

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insurgency is the primacy of legitimacy and political cachet.\textsuperscript{287} It is the goal of any insurgency to overturn the status quo and establish its own political agenda, and it is here where BLM has struck a nerve within the American psyche and tapped into a deep reserve of racial guilt and despair that has served to heighten its standing within the broader American and global public.

The second characteristic shared by most insurgencies is the importance of effective psychological warfare, or the propaganda war for the “hearts and minds” of the people.\textsuperscript{288} Again, this is not to say BLM is engaged in psychological warfare, but the amount of support they have garnered, the media presence they have leveraged, and the influence they are wielding at the grass roots and political level are all serving to advance their agenda – their new reality – while winning hearts and minds along the way. Finally, the last characteristic shared by most insurgencies is the reliance on unconventional forces, tactics, and strategies.\textsuperscript{289} At least at inception, every insurgency has begun its struggle from a position of weakness in almost every sense, from manpower, to military strength, to popular support, to financial solvency. Armed only with an idea or ideal, a small band of loyal followers, and conviction in their cause, these embryonic insurgent movements have no choice but to resort to unconventional methods to gain the legitimacy and political standing necessary to affect their aims.

The summer riots and protests which took place in 2020 demonstrated the convergence between what is largely considered the peaceful protests sponsored by BLM, and the violent and destructive rioting of the organization known as Antifa, or anti-fascist movement. While

\textsuperscript{288} Ibid., pp. 73
\textsuperscript{289} Ibid., pp. 75
there is no proof the two organizations have actively sought collaboration, it is clear the loosely organized and de-centralized nature of the Antifa movement allowed for members from that organization to infiltrate the BLM protests and inflict widespread property destruction in cities across the U.S. Some have posited BLM is the political wing of this insurgent movement, while Antifa represents the shock troops and “action” wing of the movement. While this may be overstating the case, one can look back in history – whether it was Mao’s Red Guard during the Chinese Cultural Revolution, or the *Sturmabteilung*, or Brown Shirt paramilitary organization, which aided Hitler’s rise to power – insurgencies require a political as well as paramilitary arm in order to effectuate change. This is mentioned not as a condemnation of either BLM or Antifa per se, but rather as an analogy for how small groups and movements can employ radical alternative methods as a means to instantiate through disruptive wave function diffraction, and then ultimately reify through the creation of a new reality within the collective consciousness of target populations – whether Chinese, German, or American – an *altered consciousness* regarding the goals of these movements.

While this may seem far-fetched, much has been discussed about how the German population could have so easily acquiesced to Hitler and the Nazi party’s platform, but it can be argued it was this introduction and then amplification of a new reality as shared through the collective consciousness of the target populations which altered their view of reality and what that meant as a polity. Through the actions in the material realm of these political and paramilitary organizations, a new quantum reality was created which was then shared through

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the entanglement of those minds and the shared ideas through non-local interactions. Seemingly overnight, the holographic state wave function had been altered, local collapses through the actions of those paramilitary organizations re-writing the “code” of the state and then the citizens’ conscious experience of the new reality mobilizing them through their will toward action.

Whether it was the COVID-19 pandemic, resistance to the Trump administration, or some other factors not yet considered, it is not too great a leap to state the U.S. has seemingly changed overnight as well. As noted above, the massive uprising which ensued following the death of George Floyd, and the massive outpouring of support which has altered the political landscape are similar to the effects propagated and then realized in the Chinese and German contexts. While this work is at pains to state it is not equating those earlier events with what is occurring now with BLM, it is important to highlight how the nature of the holographic state, while ordinarily difficult to overwrite, is not impervious to alterations which can ultimately change the nature – change the reality – of what is understood as the state in its citizens’ minds. But while the scenarios described above were essentially organic to each of the states mentioned, the combination of globalization, internet technology, and smart phone usage has led to the introduction of alternate potentialities from exogenous actors as well.

As mentioned in the previous chapter, Russia has mastered misinformation and disinformation as a cost-effective tool through which to sow discord and doubt within target nation populations. As Anna Romandash reports of Russian efforts concerning the BLM protests in the U.S., “The conspiracy theories seek to fuel the already existing paranoia in the U.S., according to [Kristina] Gildejeva. ‘There are several claims that the so-called “deep state”
organized the protests, or that the protests were organized to support forced vaccination of the Americans,’ she explained. ‘Basically, the technique is to bring all topical and painful issues together and push it to the U.S. audience.’ This effort allows Russian President Putin to exacerbate and sow division within the U.S. while at the same time painting Russia as a stable alternative to the violence and discord witnessed during the summer of 2020.

Similarly, the Chinese have adopted an approach of outright support for BLM:

Yet the most vocal support for Black lives from Asia came from the representatives of Beijing. State-run media outlets such as the Global Times and the China Daily published hundreds of articles related to the killing of George Floyd and the subsequent unrest. Lijian Zhao, a spokesperson for China’s Foreign Ministry, described the United States’ race problem as a “social ill” and argued that “Black Lives Matter and their human rights should be protected.” Another spokesperson, Hua Chunying, affirmed a now common refrain of the movement by tweeting, “I can’t breathe.”

More recently, Chinese leaders took the opportunity during a summit in Anchorage, Alaska with Secretary of State Antony Blinken and National Security Advisor Jake Sullivan to use the BLM movement to chasten the U.S. administration:

And the challenges facing the United States in human rights are deep-seated. They did not just emerge over the past four years, such as Black Lives Matter. It did not come up only recently. So we do hope that for our two countries, it’s important that we manage our respective affairs well instead of deflecting the blame on somebody else in this world.

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Similarly, at a UN meeting on combatting racism, after U.S. Ambassador to the UN Linda Thomas-Greenfield commented on the injustices in Myanmar and with the Uyghurs of Xinjiang Province in China:

China’s deputy U.N. Ambassador Dai Bing took issue with Thomas-Greenfield’s comments and noted that despite her having "admitted to her country’s ignoble human rights record," it "does not give her country the license to get on a high horse and tell other countries what to do," If the U.S. truly cared about human rights, they should address the deep-seated problems of racial discrimination, social injustice and police brutality, on their own soil, Dai reportedly told the General Assembly.294

These comments, coupled with Chinese media amplification of the BLM protests and the riots over the summer of 2020, should concern policy makers in Washington, D.C. and serve as a warning for how both the Russians and Chinese governments intend to weaken America’s international position by coopting the consciousness altering movements like BLM to sow doubt within the U.S. citizenry and weaken the existent holographic state wave function.

Rather than adopting realist, neoliberal, or constructivist approaches toward addressing Russian and Chinese strategies – applying exogenous, ‘outside-in’ means with which to affect relations with both countries – the U.S. should instead be aware of the Connectivist perspective offered here, be alert to the reality shaping and consciousness altering strategies being employed against the U.S. and adopt similar strategies to combat the weakening of the American holographic state. But if policy makers can alter their approach, shift their perspective to view the world through a Connectivist lens, what might that then mean for those charged with executing those policies? As one of the lead organizations for executing U.S.

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foreign policy objectives, how might the U.S. military adopt a Connectivist approach toward enhancing the American holographic state while also weakening those of our adversaries?

**Military Planning Through a Connectivist Lens**

A retired Special Forces Army officer and current professor emeritus at the Naval War College asked me a question while serving as my thesis adviser in 2003, and the answer to that question has stuck with me ever since. We were discussing the nature of insurgent movements, something which he had combated in Central America his entire career, when he asked: “What is the key piece of terrain in any conflict?” He answered his query by stating it was the eight to ten inches between the ears of the combatants or, in other words, the minds of those involved in the conflict. His argument was that ‘winning’ or ‘losing’ were not due to material factors which determine the outcome of conflict, but rather in the minds – the conscious cognition and subjective experience of the conflict within those individual minds – which determined whether a side was ‘winning’ or ‘losing.’ Professor Waghelstein’s expertise in the Special Forces was in psychological operations, or PSYOPS, so his insight is not particularly surprising, but it did plant a seed which, when connected to Wendt’s quantum proposal, offered a new insight into the nature of power and how it ought to be employed in this second decade of the twenty-first century.

As noted above and in the previous chapter, the Chinese and especially the Russians have adopted a hybrid warfare approach whereby they are engaging in competition below the level of armed conflict. Much of this approach rests on their use of cyber-attacks or espionage, disinformation or misinformation, and other means meant to sow doubt within the minds of

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their target populations. While *Truth* is fraught with philosophical and theological claims, it can be argued that because of the co-constitutive nature of the quantum and material realm truth, like art, is in the eye – or the *mind* – of the beholder or creator. Whereas in the past western armies have relied on the application of force through the external imposition of ground, naval, and later air forces against their enemies, in the twenty-first century where the use of such force is less fungible than in the past, a more direct approach to the cognitive – or conscious – domain seems more salient. So, while psychological and later information operations have always been a part of any plan for the application of force, those components have always been a supporting effort to the main effort of imposing a nation’s will on their enemies through the application of physical force.

Unfortunately, as briefly discussed above, the military, like many bureaucracies conceptualized and built during the industrial revolutions of the eighteenth and nineteenth centuries, is a hierarchical organization built upon the western material paradigm of rationality and linear cause-and-effect approaches toward military application. Born from the Napoleonic staff structure in the early nineteenth century and then later bureaucratized and modernized by the Prussian General Staff under General Helmuth von Moltke, the theories of Carl von Clausewitz from his treatise, *On War*, were placed into a modern context and the science of war had begun.\footnote{Clausewitz, Carl von, *On War, Indexed Edition*, Michael Eliot Howard, ed. and translator, Princeton, NJ: Princeton University Press, 1984} What is interesting about this period is that unlike their eastern predecessor, Sun Tzu, who had written the *Art of War* more than 2,000 years earlier, the European approach during the rise of the Industrial Revolution sought more mechanized, rational, and formalized
approaches toward warfare. For Sun Tzu, the focus of the commander needed to be on preparation, assessments, spies, and what we today call psychological warfare so that the war was won before even engaging the enemy, while the French and Prussian focus was on ends, ways and means, where the ends represented the goal of an operation, the ways were the broad strategies necessary to achieve those ends, and the means were the resources required to execute the ways. This linear, logical, and particularized approach to warfare reflected the age in which it was applied and shifted the art and science of war much more heavily toward the science side of the equation as a result. So, much like the differences between eastern and western philosophies discussed earlier, so too did differences between eastern and western ways of war develop on the European continent and then spread to the western world in general. This is important for a couple of reasons.

First, as mentioned above, after the 9/11 attacks the U.S. embarked upon a distinctly western conceptualization of warfare against an ideology when it enunciated its War on Terror. While it is clear the George W. Bush administration sought to avoid a civilizational war against Islam and the Muslim people, it is equally clear following the initial invasion into Iraq in 2003 that a declared war against a tactic rather than against an enemy left planners and strategists bereft of a theory for victory. In essence, it was hoped the application of the science of war would generate a consciousness altering transformation of the Middle East through exogenous means. This, of course, is the western heritage passed down from the Industrial Era theorists mentioned above who are still taught in military universities to this day, but a common saying within military circles is that hope is not a strategy. That said, once the war in Iraq devolved into a bloody insurgency, U.S. strategists and theorists began to realize something was missing
from U.S. planning, something which would require a re-introduction of *art* into the art and science of war. Interestingly, the notion of wicked problems as articulated by Rittel and Webber above was introduced into military thinking, and the concept of Design became a formalized portion of military doctrine and education.

As a professor in the National Defense University for the past fifteen years, it has been my job to educate mid-level U.S. and international officers in how to translate national level policy into executable joint and combined operations at the theater-strategic level. My focus has been to introduce design thinking into their planning efforts, or to reintroduce the *art* of war back into their planning endeavors. Given the cultural and epistemological DNA inherited from our European forbears and reified through countless battles and wars since, it has not been an easy task. The reason I bring it up here, though, is that there are many similarities between Professor Waghelstein’s insight, Alexander Wendt’s quantum proposal, and my own conceptualization of Connectivism.

Design thinking focuses on several key factors for consideration:

- Curiosity
- Discourse
- Learning
- Visualization
- Non-linearity
- Skepticism
- Framing²⁹⁷

These factors are proposed to assist planners and their staffs in obtaining understanding of the environment within which they are to operate. Curiosity is obviously required to generate the

²⁹⁷ National Defense University, Joint Forces Staff College curriculum created for Academic Year 2021
interest needed to understand the operational environment and the history, cultures, and people within it. Discourse refers to the practice of a dialectical approach whereby a thesis is proposed – perhaps a particular approach that needs to be taken – followed by antitheses whereby alternate approaches are proposed, and then ultimately synthesis as the discourse and iterative understanding unfold into a commonly shared agreement toward which approach to take. Learning is enabled through this process of discourse, while visualization provides an alternate means to assist with learning within the planning group, as well as shared understanding for the command writ large. Skepticism reflects the need for a purposeful interrogation of each proposal, and to ask why any proposed approach should be considered. Finally, framing considers the iterative nature of planning in a dynamic environment where changes to the environment will require constant framing and reframing to evaluate and adjust as necessary to those changes. Assessing operations as they are being conducted is a means through which to evaluate the changes in the environment and whether those adjustments need to be made. All of these factors acknowledge and assist with aiding in learning, understanding, and then assessing approaches and operations in a dynamic environment.

For the purposes of this discussion on Connectivism, though, a focus on the factor of non-linearity is important. In a dynamic, multi-variate world of potentiality where multiple change vectors occur nearly simultaneously, the need to think in terms of systems, systems of systems, and system interaction is required. This holistic view echoes the holism Connectivism calls for and is one way to determine how interaction within a given locale – the constant local collapse of holographic wave functions into material reality and then back again – might ultimately impact the holographic state through the minds of the target populations with whom
the U.S. seeks to interact, and through whom the U.S. seeks to effect change. In the real world
of constant flux and change – the world of human minds where wicked problems are born – the
application of Connectivist thinking most accurately reflects this dynamic and offers a
potentially different approach toward conceptualizing power within this realm. For if true
change takes place within the “key terrain” of individual minds, and those individual minds are
quantum minds where consciousness is derived through the constant juxtaposition between
potential and material reality – the existentiell between Dasein and Being, or the relationship
between the implicate and explicate order, or the relationship between the A-dimension and
the M-dimension – then planners should adopt a more Sun Tzu-ian approach and make
intelligence, psychological operations, and information operations the main effort in U.S.
operations, with the physical application of land, naval, air, cyberspace, and space forces the
supporting effort. This is an inversion of current U.S. military practice, but one which could
prove more advantageous in terms of lives lost, or resources expended, while simultaneously
targeting the critical node of a target population: their minds. As one might imagine, this is not
a particularly popular take in U.S. military circles, but it is worth considering since, as already
noted, it is one which our primary competitors are actively pursuing against the U.S. and
Europe. So, how might the U.S. military and other western militaries weaned on the concepts
of warfare born of the Industrial Revolution and adherence to western scientific and Newtonian
determinism adapt to this proposition?

First, just as Wendt proposes unifying social and material ontology through a quantum
approach, unifying the art and science of warfare through a Connectivist approach is possible as
well. If reality is a constant interplay between the material and quantum realms, then so too
can military operations be conceptualized through the constant interplay between human minds – the art of war – and the application of power to effectuate change within those minds through the science of war. While difficult to visualize, it might look something like this:

Figure 2: Design in the Joint Planning Process (JPP): Unifying the Art and Science of Warfare

The left side of the figure describes where the design factors listed above most naturally fit within the joint planning process, a space where divergent thinking, discourse, and learning can take place to aid in understanding the environment in which U.S. and coalition forces may need
to operate. As depicted, this is the imaginative space where the art side of the equation can flourish.

The right side of the figure represents where planners need to develop courses of action to include the types of forces required, the movement of those forces to the theater of operation, and then how those forces should be employed to achieve U.S. aims. This is where skepticism and framing as described above would most naturally occur, constantly asking why the forces are the right ones for the job, and then constantly assessing the environment while operations take place to determine whether reframing needs to take place. But it is also where the science needs to apply in order to move large numbers of personnel, equipment, and all the other supporting activities associated with such movement. As previously noted, I am not a Utopian so it is understood U.S. aims will not always be achieved simply through influence and a focus on the minds of those whom the U.S. seeks to influence, so sometimes the physical application of force will be necessary. So, how does that make a Connectivist approach different from other international relations theoretical perspectives when it comes to implementing U.S. foreign policy in the material world?

An article in the Small Wars Journal touches on this important question. Arguing for a need to focus on the human domain of warfare – the one attribute or variable which is constant in war – the article suggests the US western approach to conflict has failed:

The grand failure in our approach to rapidly transform and centralize these [indigenous] political and economic systems continues to be driven by the classical realist and liberal political science theories that dominate the strategic direction and the rules of engagement. This creates strategic and operational failures in predicting and preventing the ongoing outbursts of violent interplays between state and non-state actors, violent extremist ideologies that continue to spread through fractured and vulnerable societies—the same vulnerabilities that our state adversaries such as Russia, China and Iran continue to cleverly exploit.
One of the main reasons for our lack of understanding the complex system of the human domain is our overreliance on the classical realist and rational actor frameworks, the trademark theories of Western political science. By relying mainly on the rational actor theory, political scientists have failed to help those intervening in violence (government and military) to understand the seemingly irrational motivations and behaviors of different actors in conflict and their delicate interplay. We have failed to understand the nature of the human element outside the comforts of the rational-actor framework because no political science theory has ever been able to accurately explain variables most prevalent in unconventional warfare—fear, hope, trauma, dreams, and myths i.e., the covert drivers of conflict that power up, drive and sustain violence.298

The authors answer this failure can be rectified through an understanding of “how identity is constructed, how the mind and memory works, how an individual is contextualized and how it functions within a complex socio-cultural system, and how such systems organize and sustain individuals and groups within them.”299 While I agree with this assessment, I disagree with their recommendation of applying psychological, anthropological, and sociological means through which to motivate social action.

First, no matter how deeply a military individual studies, understands, and empathizes with a culture different from their own, western military observers nevertheless are products of their own western identities, memories, contexts, and social dynamics. These observers’ own cultural DNA subconsciously and quite unwittingly predisposes them to “otherize” the very cultures with whom they seek to interact and understand. No matter how assiduously they might try to put themselves into the lives and minds of their target audiences, their minds are not entangled with the reality of those other minds they seek to understand. The archetypes, or collective unconscious, from which collective memory and non-local entanglement proscribe


299 Ibid.
the historical, cultural, and group identities of these different cultures – the vastly different existentiell partaken by the group studied and the Being which is gifted to Dasein within that context – means that group’s cognition, experience and subjective understanding of that context, and then their will to motivate action will be difficult if not impossible to completely understand. Perhaps through years of living with these groups, participating in their everyday lives, rituals, myths, and social mores, this dynamic could change – the mind of the observer becoming entangled with the reality which serves to instantiate the material world of that particular culture – however, in military circles this is often impossible to achieve given the relatively short-term nature of military deployments.

That said, understanding the underlying quantum reality which drives those minds toward action, whether it is the “fear, hope, trauma, dreams, and myths, i.e., the covert drivers of conflict that power up, drive and sustain violence,” or other motivations derived from that higher reality, military strategists might find it a more fruitful approach to introduce alternative wave functions consistent with the prevailing archetypal collective unconscious in an effort to shape the reality of that target group toward a will to action consistent with U.S. aims. In other words, rather than trying to understand the people from an individual or group anthropological perspective which, as described above is difficult if not impossible due to an inescapable western cultural heritage, it would be better to understand the context – the reality – which encompasses that group and ultimately finds its instantiation in the material world through that group’s habits and actions. Understanding the collective, entangled consciousness of that quantum reality and then applying subtle diffractive wave functions consistent with that reality to nudge behavior might be the most direct route military forces could take to effectuate
change in the environment. This might be facilitated by psychological, sociological, and anthropological study, but ultimately change will only take place in the quantum realm which is free from western baggage and “otherization.”

In current western military thinking and doctrine, this would be considered an indirect approach toward achieving U.S. objectives stemming from the planning doctrine which is a cognitive and procedural approach premised on western scientific materialism and reified through the international relations theories born from that same milieu. Connectivism, on the other hand, inverts that paradigm by placing the cognitive domain – the minds of those we seek to influence – as the primary effort, or the direct approach toward achieving U.S. objectives. In the first instance, physical force is the main effort and represents the primary, or direct approach, while under a Connectivist approach physical force would be a supporting, or indirect method toward achieving U.S. aims. Design and design thinking, the imaginative and artistic application as described in the diagram above, would be the vehicle toward a deeper understanding of that context, that quantum realm, which would then lead to an application of diffractive wave functions through psychological, information, cyber, and civil affairs operations as the first “salvo” of any conflict. This would not only unify the art and science of war, it would also unify eastern and western thinking by adopting the ancient advice of Sun Tzu from more than two thousand years ago. Finally, a Connectivist approach would see a practical unification of the social and the science of our field through its application in military thinking and operations. As Patrick Biltgen notes, “People are not lifeless particles governed by Brownian motion or Kepler’s laws; we are complex entities whose activities are constrained and influenced by geography and other societal, relational, biographic, historic, and preferential
constraints as outlined in the three axioms. For these reasons, human activities are not entirely random processes.”300 Indeed. And, if I may be so bold, I would add quantum processes to his analysis as well.

Conclusion

What is hopefully captured here is the culturally agnostic and ecumenical lens Connectivism offers through which to see and understand otherwise seemingly alien cultural movements, or otherwise surprising movements and events which our current theoretical perspectives fail to adequately understand or predict. Whether it is the systemic and multivariate phenomenon of globalization, the uniquely cultural eruption of the Arab Spring, or the pent-up emotion of the BLM movement, Connectivism serves to comprehend the nature of reality through a holistic philosophical and quantum perspective which unifies the human and scientific realms under this overarching reality. By situating humanity as the co-creators of their realities versus simply lifeless automatons responsive to an external structural reality which simply exists outside of conscious interaction, Connectivism inverts the traditional top-down, outside-in approaches of international relations by privileging humans – conscious, living beings responsible for, rather than simply responsive to, their realities – as the motive force in international politics. It is consciousness, as actuated by and enlivened through the quantum realm of science and the human realm of philosophy, where international relations theorists need to focus their attention. Connectivism is my proposal to reorient the field toward that reality.

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300 Biltgen, Patrick, “Activity-Based Intelligence: Understanding Patterns of Life,” The State and Future of GEOINT, United States Geospatial Intelligence Foundation, 2017
CHAPTER VI

CONCLUSION: CONTINUITY AND CHANGE THROUGH A CONNECTIVIST LENS

The change, it had to come  
We knew it all along  
We were liberated from the fold, that's all  
And the world looks just the same  
And history ain't changed  
'Cause the banners, they are flown in the next war

I’ll tip my hat to the new constitution  
Take a bow for the new revolution  
Smile and grin at the change all around  
Pick up my guitar and play  
Just like yesterday  
Then I’ll get on my knees and pray  
We don’t get fooled again!

--The Who, “We Won’t Get Fooled Again,” Who’s Next, August 14, 1971

As the British rock band, The Who, intone in the epigraph above, change and continuity tend to exist side-by-side in a kind of superposition all its own: Plus ça change, plus c’est la même chose. Interestingly, guitarist Pete Townsend, the creator of the song “We Won’t Get Fooled Again,” was a follower of Meher Baba, a Hindu spiritual leader who combined various forms of Vedic, Sufi, and Yogic logic in his teachings.³⁰¹ Baba had a following of hundreds of thousands of people by the 1960’s and his teaching centered on the idea that all beings should gain consciousness of their own divinity, and to realize the absolute oneness of God.³⁰² This

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unity, of course, echoes the philosophy captured in the previous chapters and highlights the connection between all things and the timeless instantaneity which exists beyond spacetime but which nevertheless influences and shapes the material world resident within our conception of spacetime. This pop-cultural reference is included here to capture what this dissertation has sought to achieve. By examining both the philosophical insights regarding holism and oneness and the quantum insights which have begun to scratch at the surface of this phenomenon through scientific exploration, the rift between human intuition and scientific rationalization is beginning to narrow, the social and science merging as humanity and consciousness once again gain a privileged place in international relations. The epigraph was also included to highlight the nature of change and continuity within our conception of reality and to discuss in this final chapter how Connectivism can attune us to those forces which retain state and societal cohesion along with those forces which precipitate change within those structures as well.

For readers who have managed to struggle their way to this point in the dissertation, it has no doubt become quite obvious this is not a dissertation in the traditional sense. It should also be obvious by this point that this was a deliberate and conscious decision by design. While Connectivism might broadly be considered a hypothesis of sorts, there are clearly no dependent or independent variables against which Connectivism has been tested, no regression analysis of empirical data which points to material conclusions about the thrust of this proposal. How could there be? In an indeterminate quantum world where the act of measurement as noted by Heisenberg and Bohr affects the material results due to entanglement of the measurement apparatus, the researcher, and the variables being
measured, it is difficult if not impossible to “prove” a Connectivist theory through traditional, classical means.

What is proposed here, then, is not an epistemological process through which to gain explanatory and predictive purchase in the social realm of human interaction, but rather an **ontological** reorientation which situates humanity as both ontic and ontological beings who creatively and recursively instantiate facts in the material world through their connection to the quantum realm. Much like Heidegger parted from his mentor, Husserl, in an effort to understand the ontological origins of consciousness, so too does Connectivism part from the traditional international relations orthodoxy to understand the ontological origins of subjective human experience through conscious action in the material world. Rather than adopting the objects – those externalities associated with governance, social collectivities, and human interaction such as states, institutions, structures, power dynamics, etc. – as the primary units or objects of analysis, Connectivism seeks to “flip the script” a la Heidegger to focus upon the subjects of the social sciences. This reorientation moves the field away from a binary either/or materialism – where the subjects are separated from the objects of their inquiry – into the quantum possibility of a both/and interpretation of humanity’s role – the subject and object of our pursuits – as the conduit and co-creator between the material and quantum realms. This is what is meant by the unity or oneness of all with all.

The structure of this argument, then, began with an appreciation for the human intuition regarding this unity and oneness as exemplified through the many philosophical, religious, and other traditions over the millennia as a means to reattune the reader to the foundational attributes of reality awareness and seeking those traditions have captured.
Chapter two was a quick survey of Hindu, Buddhist, and Heideggerian thought, but could have also included native, tribal, and other indigenous thought, or the philosophies behind the major Abrahamic traditions of Judaism, Christianity, and Islam, as exemplars across time and geography of this important human intuition. This portion of Connectivism was appended to Wendt’s realist approach toward a quantum social science as a means to more intuitively and (hopefully!) empathetically embrace a quantum approach through an understanding that it is nothing new, per se, but rather something which has resided within humans since we began to tell stories. We have *always* been attuned to the luminal while living in the interstices of the liminal between the spiritual and material realms. Wendt’s argument and what is proposed with Connectivism is that this “spiritual” element to which we have all been exposed is today becoming something much more “physical” in that our science is beginning to just now grasp that which was otherwise unknowable or simply felt, but not seen.

What is perhaps even more interesting and telling about what is presented in chapter two is the many men of science who reached back to those ancient philosophies to assist with their understanding of the nature of reality, and to then form hypotheses for their scientific pursuits based upon that understanding from yore. As Fritjof Capra notes:

In 1929 Heisenberg spent some time in India as the guest of the celebrated Indian poet Rabindranath Tagore, with whom he had long conversations about science and Indian philosophy. This introduction to Indian thought brought Heisenberg great comfort, he told me. He began to see that the recognition of relativity, interconnectedness, and impermanence as fundamental aspects of physical reality, which had been so difficult for himself and his fellow physicists, was the very basis of the Indian spiritual traditions. ‘After these conversations with Tagore,’ he said, ‘some of the ideas that had seemed so crazy suddenly made much more sense. That was a great help for me.’”

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Along with those mentioned in the chapter – Tesla, C.G. Jung and Wolfgang Pauli, David Bohm, Wolfgang Smith – other luminaries from the scientific world also accessed eastern philosophies in their quest for understanding. From Max Planck to Erwin Schrödinger, Niels Bohr to Albert Einstein, J. Robert Oppenheimer to Carl Sagan, many have reached back in order to move forward. If such distinguished scientists were unafraid of understanding the human intuition of the unity, holism, and oneness of the universe resident in the world’s ancient philosophies, then certainly it would be forgivable for a PhD candidate of modest pedigree to propose just such an approach as well.

Having explored this human connection to the universe and the unseen reality driving it, it was obligatory in chapter three to explore the evolution of quantum mechanics to lay the foundation for Wendt’s quantum proposal and a Connectivist approach toward international relations. Quantum ‘weirdness’ and the concepts of non-local causation, entanglement, quantum indeterminacy and wave function properties, and the effect measurement has on the quantum realm were all necessary components requiring a brief explanation before diving into Wendt’s quantum proposal and this Connectivist gambit. QCT is the focus of Wendt’s work and lies at the heart of Connectivism as well. Through the unconscious condition where our brains are linked to the quantum realm, to the conscious cognitive effect of pondering that unconscious state, the subjective experience involved in that conscious consideration, and then the will to act upon that cognitive and subjective experience all link human motivation and action in the material realm to the quantum realm through the quantum and material properties of individual minds/brains. This, of course, echoes Jungian depth-psychology and his consideration of archetypes as the universal imprinting of human consciousness and historical
continuity upon the quantum realm residing outside of spacetime. This collective unconscious, as he coined it, was only accessible during periods of sleep – or unconsciousness – when human minds were able to access the reality existing beyond spacetime. This also brings up an intriguing and fascinating CIA experiment from the 1980’s which was discovered late in the research process for this dissertation and so was not incorporated into the previous chapters, but which certainly merits attention here in the conclusion.

In the 1980’s, the CIA conducted experiments on what was known as the Gateway Experience, or the Gateway Process pioneered by radio executive Robert Monroe. Monroe was convinced specific sound patterns could have identifiable effects on human capabilities, especially with regard to expanded consciousness.\(^{304}\) Army Lieutenant Colonel Wayne McDonnell was asked to detail the process in a report which remained classified until 2003. In that report, he described how Monroe’s process was conceptually difficult to grasp:

Niels Bohr, the renowned physicist once responded to his son's complaints about the obtuse nature of certain concepts in physics by saying: "You are not thinking, you are merely being logical." The physics of altered human consciousness deals with some conceptualizations that are not easily grasped or visualized exclusively in the context of ordinary "left brain" linear thinking. So, to borrow Dr. Bohr's mode of expression, parts of this paper will require not only logic but a touch of right brain intuitive insight to achieve a complete comfortable grasp of the concepts involved. Nevertheless, once that is done, I am confident that their construction and application will stand up to the test of rational critique.\(^{305}\)

He then went on to describe the basic goal of the process as:

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Fundamentally . . . a training system designed to bring enhanced strength, focus, and coherence to the amplitude and frequency of brainwave output between the left and right hemispheres to alter consciousness, moving it outside the physical sphere so as to ultimately escape even the restrictions of time and space. The participant then gains access to the various levels of intuitive knowledge which the universe offers.306

This hemispheric synchronization, or hemi-sync as Monroe described it, was attained through a combination of hypnosis, meditation, and biofeedback to attune the participants’ brainwave frequency to roughly 7 - 7.5 Hertz, or cycles per second, which coincides with the Earth’s electrostatic field which also resonates at 7 – 7.5 Hertz. It was ascertained that when hemi-sync coherence was established and brought the participants into consonance with the Earth’s resonant frequency the participants would then be able to lift their consciousness beyond their physical bodies into the surrounding environment.307

McDonnell then goes on to discuss how the terms matter and energy as two distinct and separate states of existence is misleading. Instead, he offers, atomic structure is composed of oscillating energy grids surrounded by other oscillating energy grids which orbit at extraordinarily high speeds. He quotes Israeli scientist, Itzhak Bentov, when he writes:

The energy grid which composes the nucleus of the atom vibrates at approximately $10^{22}$ Hertz (which means 10 followed by 22 zeros). At 70 degrees Fahrenheit an atom oscillates at the rate of $10^{15}$ Hertz. An entire molecule, composed of a number of atoms bound together in a single energy field vibrates in the range of $10^9$ Hertz. A live human cell vibrates at approximately $10^3$ Hertz. The point to be made is that the entire human being, brain, consciousness and all is, like the universe which surrounds him, nothing more or less than an extraordinarily complex system of energy fields. The so-called states of matter are actually variances in the state of energy, and human consciousness is a function of the interaction of energy in two opposite states (motion vs rest).308

306 Ibid., pp. 4
307 Ibid., pp. 6-7
While this seems a strictly Newtonian interpretation of matter, the energy hypothesis nevertheless hints at a quantum explanation as well. Is it possible the Gateway Process was a means of unifying physical and quantum ontologies? By creating resonant fields of energy between the experiment participants and the field of energy generated by the Earth, it might be possible the measurement problem of quantum mechanics was obviated by placing the participants into a resonant, quantum state with the universe. In a sense, the coherent state of the participants’ minds during the hemi-sync process may have produced the coherent quantum states humans achieve during the unconscious realm of REM sleep, connecting them to the quantum realm as coherent wave functions attuned to those of the universe. Could it be the quantum wave function is nothing more than the amplitudes created by those universal energy frequencies and that when these energy frequencies become matched – entangled? – between observers and observed they become resonant and unified? And, if so, would this then place the observer and observed onto the same plane such that the measurement problem is no longer operative?

Interestingly, McDonnell goes on to describe how this “energy creates, stores and retrieves meaning in the universe by projecting or expanding at certain frequencies in a three-dimensional mode that creates a living pattern called a hologram.” As is understood, holograms reveal the information stored within them only through the application of a highly focused and coherent beam of light produced by a laser. Much like the digital video discs of recent vintage would display the encoded information on them through the application of an optical laser, the Gateway Process scientists believed that by concentrating the focus and

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309 McDonnell, pp. 7
coherence of brainwave energy the participants would be able to access the encoded
information stored within the universal hologram. McDonnell goes on to mention the work of
David Bohm who theorized the brain itself generates a holographic energy field and that
consciousness is the process whereby:

Changes in the frequency and amplitude of the electrostatic field which comprises the
human mind determines the configuration and hence the character of the holographic
energy matrix which the mind projects to intercept meaning directly from the
holographic transmissions of the universe. Then, to make sense of what the holographic
image is "saying" to it, the mind proceeds to compare the image just received with
itself. Specifically, it does this by comparing the image received with that part of its own
hologram which constitutes memory.310

Of course, this harkens back to the previous discussion of Indra's Web and the holographic
nature of reality it conjures regarding the information stored within each jewel or dew drop
containing the entirety of the universal information within it. As Gateway Process researcher
Marilyn Ferguson describes it, “Like certain strange discoveries of quantum physics, the radical
reorientation of [Bohm’s] theory suddenly makes sense of paradoxical sayings of mystics
throughout the ages.”311

But more than this, McDonnell goes on to describe how this universal hologram exists
beyond perception as an Absolute:

Since the Absolute is conscious energy in infinity (i.e., without boundaries), it occupies
every dimension to include the time-space dimension in which we have our physical
existence, but we cannot perceive it. It overlays everything as do many of the
intervening gradients or dimensions through which the energies of the universe pass on
their way to and from their home in the state of infinity (the Absolute). To enter these
intervening dimensions, human consciousness must focus with such intense coherence
that the frequency of the energy pattern which comprises that consciousness (i.e., the
brainwave output) can accelerate to the point where the resulting frequency pattern, if
displayed on an oscilloscope, would look virtually like a solid line. Achievement of this

310 Ibid., pp. 8
311 Quoted in McDonnell, pp. 9
state of altered consciousness sets the stage for perception of non-time-space dimensions [the Absolute] because of the operation of a principle in physics known as Planck’s Distance.312

Before explaining the theory of Planck’s Distance and how it relates to the Gateway Process research, it is important to note how the passage above echoes the Hindu concept of the Akasha mentioned previously, the overarching reality from which “gross” matter is born, and to which “gross” matter returns. It also marries quantum reality with the material reality of our perception through the oscillation amplitudes of individual energy fields and the overarching universal Absolute which exists beyond spacetime.

Regarding Planck’s Distance, McDonnell refers to the fact that any oscillating frequency – like those of human brain waves – reaches two points of complete rest at the top and bottom of each oscillation before changing direction either up, or down.

But it is also true that when, for an infinitesimally brief instant, that energy reaches one of its two points of rest it "clicks out" of time-space and joins infinity. That critical step out of time-space occurs when the speed of the oscillation drops below $10^{-33}$ centimeters per second (Planck’s Distance). To use the words of Bentov: ‘quantum mechanics tell us that when distances go below Planck's Distance, which is $10^{-33}$ CM, we enter, in effect, a new world.’313

What is interesting about this in terms of what this paper is exploring, is how often – or how fast – do these oscillations between quantum coherence and quantum decoherence occur to create the material reality of our perceptions? The discussion of Planck’s Distance happens to coincide with Planck time, which is considered to be somewhere in the realm of $10^{-43}$ second. The Planck Distance, described above as $10^{-33}$ centimeters per second, is how far light travels in one unit of Planck time. To this point, any attempt to measure Planck time using particle

312 Ibid., pp. 11
313 Ibid., pp. 12
accelerators requires energies that are still $10^{20}$ times weaker than what would be required to observe events on the scale of Planck time.\footnote{Diddams, Scott and Tom O’Brien, “What is the Fastest Event (Shortest Time Duration) that can be Measured with Today’s Technology, and How is this Done?” \textit{Scientific American}, December 27, 2004, \url{https://www.scientificamerican.com/article/what-is-the-fastest-event/}, (Accessed May 4, 2021)} In other words, the gap between what we know as spacetime and what exists beyond spacetime in the Absolute is in effect an instantaneous transition, an ever occurring and constant flux between the quantum and material realms. But for the Gateway Process participants, by attuning their brain frequencies to that of the Absolute – the flat line oscilloscope analogy applied above – they are able to maintain coherence with the Absolute while remaining conscious of what transpires in that other dimension. This was the ultimate goal of the experiment.

For the purposes of this discussion on Connectivism, this constant flux between coherence and decoherence – continuity and change – is important because, due to the considerations of Planck time and distance discussed above, it could be said that continuity is an illusion because we are in a constant state of change, a constant state of movement. As McDonnell notes in the memo where he discusses the implications of the Gateway Process for the belief systems of the world, “The tangible world is movement, say the [Buddhist] Masters, not a collection of moving objects, but movement itself. There are no objects ‘in movement,’ it is the movement which constitutes the objects which appear to us: They are nothing but movement.”\footnote{McDonnell, pp. 24} He goes on to describe this movement as a “continued and infinitely rapid succession of flashes of energy (in Tibetan ‘tsal’ or ‘shoug’). All objects perceptible to our senses, all phenomena of whatever kind and whatever aspect they may assume, are
constituted by a rapid succession of instantaneous events.\textsuperscript{316} So, what might this mean for the international relations practitioner?

Chapters four and five sought to interrogate the current leading schools of thought within international relations through a Connectivist lens, and then to apply a Connectivist lens to those events and movements in the world which are not adequately addressed by the current theoretical orthodoxies. It is the hypothesis of Connectivism that if events in the world were to be analyzed by the means of their creation through the iterative, continual, and recursive process of coherence and decoherence within the individual minds of the people involved rather than through an analysis of the effects of those events on the external material world of things, a more holistic and objective understanding of the ‘relations’ of international relations could be attained. By understanding the relationship between individual minds as the conduits between the quantum realm – the Absolute in the Gateway Process – and the instantiation of material reality through that recursive and continual interplay, then it should be humans and agency which would become the primary focus of international relations study rather than the structures of their creation.

As previously mentioned, the social sciences and international relations have become transfixed by the ‘scientific’ approach, focused upon the material world of things while simultaneously separating individuals from the world they seek to observe and understand. This bifurcation has led to a sense that humans can observe material reality, develop hypotheses regarding that reality, and then implement controls through which to shape that

\textsuperscript{316} Ibid.
reality, all while obviating the single most important source of that reality’s creation: Humanity itself. As McDonnell notes in a section titled “Left Brain Limitations”:

Twentieth Century physics would seem to be revisiting insights belonging to mankind as far back as written records can take us: The only difference is that Twentieth Century physics is using a left brain, linear, quantitative style of reasoning to approach the same knowledge which the mystics of old apparently acquired in a holistic, intuitional, right brain style. As a tool in the hands of our left brain culture, Gateway would seem to be a promising method for achieving the intuitive, holistic type of interface with the universal hologram needed to provide the context that thinkers like Einstein have sought in their labors to discover a unified field theory in physics.317

Because his report on the Gateway Process was developed for the Department of the Army, McDonnell includes insights into the cultural proclivities of military practitioners toward linear thinking, tactical questions, and matters of managerial form and system, and how access to altered states of consciousness – what would be the quantum realm for the purposes of this work – would offer a mechanism through which to “know” or understand the world in a truly objective way. As he describes it:

This is so because the self-imposed limitations to balanced perception and objective logic which our cultural and personal psychological subjectivity imposes when we use the strictly left brain thinking style could be offset by the holistic form of perception associated with altered states of consciousness. To the extent that we come to perceive ourselves fully in the context of that portion of the universal hologram which is the reflection of ourselves, to that extent we release ourselves from the prison of subjectivity.318

Just so. This blending of intuitive and scientific reasoning is the heart of human understanding, a means – through the balancing of reason, logic and intuition – through which truly objective knowledge can be obtained. This blending of intuitive and scientific reasoning is what animates this idea of Connectivism.

317 Ibid., pp. 25
318 Ibid.
Conclusion

Consciousness, while having been debated for millennia, has nevertheless been ignored for too long in the social sciences and international relations. It seems a rather odd development that within the humanities and the colleges of arts and letters, the social science and international relations departments have largely eschewed the one thing that makes us human, or social, or capable of relations: Consciousness. As Hamlet exhorts Horatio in the eponymous play, “There are more things in heaven and earth, Horatio, than are dreamt of in your philosophy,” so too does Connectivism exhort the social sciences regarding the current “philosophies” – i.e., sciences – which have taken root and held sway over international relations and asks that they reintegrate the unseen in heaven and earth as a means toward truly objective analysis.\(^{319}\) Connectivism, then, is an attempt to reorient the field toward a more holistic and ontological understanding of humanity’s role as the co-creators – the conduits between the quantum and material realms – of the reality international relations seeks to understand.

As already noted, this work focuses on an ontological reorientation of the social sciences and international relations and so has only briefly touched on possible epistemological approaches along a Connectivist line in the discussion on military planning. How, then, might international relations practitioners operationalize what is admittedly an epistemically scant and untestable approach toward an unobservable reality? The hypothesis here is that by reorienting the field toward a more human-centered approach that is universal and ecumenical

by default, it focuses research on the commonality that is shared across all cultures, ethnicities, genders, and types. Rather than seeking understanding by binning humanity into categorical boxes in order to better ascertain their motivations – essentially treating human beings as rats in a cage upon which our experiments will lend insight – practitioners can instead privilege humanity irrespective of their nationality or other currently defining characteristics and instead focus on their ontological nature as co-creators of, and conduits between, the material and quantum realms. Rather than viewing humanity as distinctly differentiated variables against which statistical data can interpret correlation and causation, or as lifeless automatons who are reactive to, rather than creative of, external and exogenous forces beyond their control, Connectivism places humanity and the critical component of consciousness in the center of our analysis. This is important for two reasons.

First, there is no ‘social’ in the social sciences, or ‘relations’ in international relations without the living, motive force of consciousness which animates it all. To exclude consciousness – the very thing which makes us human to begin with – is to invalidate the very enterprise to which we all belong. What point is there to social science or international relations if the only things which interest us are the ‘science’ and ‘international’ sides of the equation? Connectivism offers a bridge across these divides by applying quantum science as the vehicle through which consciousness can be reintegrated with the science of our field, while highlighting the human intuition of unity and holism as captured through the various philosophical traditions as a means to reattune us to the things we already “know,” but which are now on the cusp of scientific rationalization through quantum science.
Second, Connectivism highlights the cooperative and interrelational aspect of the human condition. Rather than the Hobbesian, conflictual view of humanity violently bouncing off one another in a constant struggle for power, Connectivism instead provides a different lens through which to view the intrinsically cooperative nature of humanity, and the connectedness we all share with one another. While this sounds utopian, Connectivism offers an agnostic and ecumenical lens through which to situate human beings as essentially all the same, thereby allowing us to regain perhaps the one thing western science has increasingly denied us: Empathy. Understanding the connectedness we all share with each other expands the circle of empathy, allows us to better understand the conscious actions of people across the world, and then allows us to better develop tools through which to understand their motivations, desires, and fears in order to prescribe more humane and less destructive means for conducting global politics. This, then, is the hope Connectivism brings to our field, and the promise of moving the field toward a new perspective – a new paradigm – through which to focus our analysis and efforts.
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