

# Why the Temporal Turn in IR Should Care About Quantum Theory, and Vice Versa

Written by Christopher McIntosh

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CHRISTOPHER MCINTOSH, APR 19 2022

Unsurprisingly, and perhaps understandably, Russia's invasion of Ukraine was met with significant commentary on the part of IR scholars. Most (in)famously, John Mearsheimer's work arguing that Russia was compelled to invade due to realist principles was cited by the Russian foreign ministry as justification, sparking serious debates about the role of scholarship and its purpose. While obvious, after reading some of what the IR community has most prominently produced in reaction to Russia's invasion and occupation of Ukraine, it might be necessary to reaffirm just how complicated and indeterminate global politics can be. The desire to assert theoretical mastery over an ongoing and unfolding situation, alongside the reduction of the act to yet another case of great power expansion to study is alarming. Much of it reflects a particular way of approaching the world, such as asserting a radical separation between subjects—IR scholars—and objects—e.g., Russia, Ukraine and its people—as well as a belief in the primacy of scientific ways of knowing for producing insights into international politics. These insights, often causal and purportedly timeless, are then bent and shaped to the contours of the particular situation at hand. Where they are seemingly inaccurate, the specific claims are discarded largely without reflection regarding the appropriateness of that framework for engaging the world.

This failure illustrates something critical scholars of all types have emphasized. Our assumptions and chosen methods for knowing the world are profoundly important to the way we encounter each other in our collective political presents. The means by which we imagine the world and the way we go about investigating it operates as a form of 'world-making', contributing meaningfully, tangibly, and physically to how that world is imagined and what it becomes (Agathangelou 2004, Agathangelou and Killian 2016, Agathangelou 2021). As IR increasingly turns to complicated and intersecting issues like the ongoing climate disaster, structural violence(s) and the erasure of difference, everyday practices of security, and the continual expansion of the capitalist system, along with the more traditionally recognized politics of macropolitical institutions, this 'world-making' capacity requires greater attention (Onuf 2013). Asserting a comfortable separability from what we we produce knowledge about no longer seems tenable, if it ever was.

Two scholarly trends within IR seem to be gaining steam of late, as the field's substantive focus begins to shift away from traditional centers of institutional power. The role of time and temporality in global politics has been increasingly foregrounded, theorized, and identified as an important lens for engaging the contemporary moment(s), so much so that some are referring to the occurrence of a 'temporal turn' within IR (Berenskoetter 2011, Chamon 2018, Hom 2018, Hom 2020, Hutchings 2008, Hutchings 2011, Hutchings 2016, Hutchings 2018, McIntosh 2015, Younis 2018).

Given the centrality of relationality across much IR work of late, attention to time and timing mechanisms makes some sense (McCourt 2016). To see relationships as in a state of becoming, for instance, is to make a statement about these relationalities and their relationship to time—they are considered to be processual, rather than static in nature. The attention to time and temporality traditionally has focused on narrow methodological concerns, but has begun to operate at substantive levels as well (Stevens 2015, Hom 2021, Debrix 2015, Fisher 2013, Stockdale 2016, Aradau and Blanke 2017, Anderson 2010, McIntosh 2019, Muller-Hirth and Oloya 2018) This research shows how temporality shapes the politics of everything from cybersecurity (Stevens 2015), preemption (Stockdale 2016), terrorism (Fisher 2013), and war (McIntosh 2019) to sovereignty (Hom 2010, Debrix 2015) and climate change. It

# Why the Temporal Turn in IR Should Care About Quantum Theory, and Vice Versa

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also shows the influence conceptions of time have on IR theory (Drezner 2020, McIntosh 2015) as well as international political theory more broadly (Hutchings 2008). Equally so, it explores epistemological commitments and ontological assumptions. Time plays a role at all levels of thought and is an intrinsic element of our understanding of reality. It can neither be wished away nor ignored, because ideas about time, its duration, and the past, present and future structure thought itself.

Similarly, albeit to this point mostly unrelatedly, quantum theory has become increasingly relevant and accepted as providing useful insights for thinking carefully about IR. Much of this is currently located in the response to Alexander Wendt's book (Wendt 2015, Security Dialogue 2020), which ironically enough, has no real engagement with IR itself even as it generates a great deal of work within the discipline. There is a vibrant and necessary corrective to Newtonian ideas emerging that takes this seriously. Ever since its emergence in the early part of the 20<sup>th</sup> century, social theorists (Mead 2002) have considered the ramifications quantum insights have for their own work, even though social interactions appear far removed from the reach of theoretical physics. What quantum does, both scientifically, but perhaps even more importantly, as a social theory and foundational ontology (Barad 2007), is provide an avenue for thinking differently about reality at its most fundamental level. It also identifies a literature that can serve as a guide for thinking through how this can affect one's attempt to explain and understand the world. Ideas like entanglement, non-locality, and duality exist alongside an embrace of indeterminacy at all levels of reality. Given science's ubiquity in life, as well as thought, the quantum challenge provides a language and apparatus (Zanotti 2019) that can reveal facets of knowledge production in IR that may be uncomfortable to confront.

While both trends seemingly possess significant overlap—at root, each utilizes fundamental aspects of our understanding of the world as a lens for rethinking much of what we think we know about it—there has as of yet been little interaction and engagement amongst the two sets of scholarship (McIntosh 2020). Here I argue that there is much each can appreciate in the other by identifying parallel theoretical moves, insights, and utilizing each as an apparatus for better appreciating the other's work as well their own. Knowledge about IR is a form of world-making and bringing quantum social theory into conversation with time and temporality[1] in IR appears one way to emphasize aspects of scholarship that are in somewhat short supply of late.

When brought together, these two areas of thought force us as scholars to confront and accept the limits of our knowledge, accept that the knowledge we do produce is not under anyone's final control and requires us to fully theorize the dangers of asserting universality across time and/or space. This is most necessary particularly in those times and places where our most seemingly central theories—e.g., great power politics and power transition—appear to apply. If there is one thing to learn from IR's initial confrontation with the events in Ukraine and their implications, it's a sense of the limitations of theory, the indeterminacy of its effect on the world and the inability to easily separate ourselves from the politics we study and purportedly possess expertise over.

## Encountering Science

When IR scholars talk about science and scientific ways of knowing it can operate at any one of a number of levels. Some central ones for the field are the explicit debates regarding theory and whether its relationship to science constitutes it as a social science. Typically centered around positivism, these debates provide one useful way of taxonomizing the field (Lapid 1989). While these debates are quite explicit regarding how scientific understandings, concepts, and practices shape our view of the world, there is another level where a vision of science operates in a way that is so obvious as to be nearly unquestionable (Jackson 2010). The common thread that runs through both is Newtonianism, and what Kavalski refers to as IR's 'deep Newtonian slumber' (Kavalski 2015). What temporality does, and quantum improves upon, is question the Newtonian sensibility that exists throughout IR from both perspectives. Separability between subject and object, causality, linearity, and perhaps most importantly, our understanding of reality's limits are all conditioned by Newtonian understandings of the world. Temporal work in IR provides one way of showing how these ideas operate even in places that are self-consciously critical of it. Hom (2018) provides a useful analysis of the many ways that critical IR endorses notions of time that shape the understanding of becoming, relationality, and subjectivity. Quantum social theory adopts a similar position, but offers a lens that critiques Newtonianism in a more comprehensive fashion—e.g., beyond the concept of time—and does so with an extant alternative literature. Much of the temporality literature functions as critiques of particular ways of

# Why the Temporal Turn in IR Should Care About Quantum Theory, and Vice Versa

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knowing time and the views of political reality they undergird. Quantum social theory does this through concepts like complementarity, entanglement, nonlocality, diffraction and the like, but provides an affirmative way of knowing the world based on quantum understandings of reality (Murphy 2021). Quantum includes a critique of time and the relationship(s) between past, present, and future, but goes beyond it to include physical reality and other elements (Barad 2007, Zanotti 2019).

What's most important about each of these literatures and offers a space for better engagement is that each's critique of science is also a critique of reality (Barad 2007). At a base level, each offers an ontology where that which is supposedly physical (time and material reality, respectively) is social and/or relational. The other element is that the binary between scientific and non-scientific ways of knowing is a false one and needs to be displaced. What Barad (2007) shows, among others, is that there is no choice one can make between science and non-science, just as there is no real choice about employing time in one's way of knowing the world. One is always already doing both whenever they produce scholarship.

Newtonian and positivist elements of science always implicitly populate one's thought and their understanding of reality, but equally importantly, nearly all scholarship accepts the causal closure of physics (Murphy 2021). This is the idea that while (Newtonian) physics cannot explain the political world, the political world does not *disobey* the laws of physics. For instance, if I employed a methodology for a paper that cited my 'weeks of praying on the issue' or ability to literally 'see the future' as warrant for my conclusions, I would be summarily dismissed, because neither of those claims are 'real'. Critical work in IR does this as well. This is a problem, because much of what defines contemporary critical IR involves a commitment to post-positivism, which while not explicitly rejectionist toward science, in practice comes dangerously close (Sjoberg 2020). What quantum reveals—and in particular quantum social theory shows even for temporality scholars—is that even post-positivism employs a number of elements of positivist reality or at a minimum, accepts it as a type of ground rules for understanding reality (Murphy 2021).

Put differently, both make arguments about the role of science in IR that are hard to hear, but ultimately useful for both. Time and quantum both speak to implicit ideas that many scholars would explicitly argue they are already 'against' or 'resist'. Time is inescapable and quantum asserts a powerful claim that control is an illusion and agency a construct of particular constellations of social/material reality (Barad 2007). To assert that one's commitment to post-positivism obviates any critique relating to 'science' presumes a level of control over one's knowledge, work, and thought that is incommensurate with quantum understandings of reality—something that parallels the desire to argue one's theory of time is already explicit and reflexive, despite a typical theoretical silence.

## Materiality

Temporality currently relies on social theories which are typically—albeit not universally (Stevens 2015, Hom 2018b, Mead 2002, Joas 1997)—anthropocentric, because they focus on the human role in the social construction of time and privilege human-centered time scales. One thing the temporality literature can take from the quantum move is to focus more on the role of materiality and the nonhuman. Barad (2007) is most well-known for this with her explicitly materialist 'agential realism' which mirrors a Butlerian commitment to performativity with a physical ontology, but others exist as well. Relationality is physical as well as social, and theorizing these relations is crucial to any understanding of the world. The threat of climate change, for instance, shows one clear place where this is already necessary and occurring. The ways we understand the temporality of climate change (Marquardt and Delina 2021, Agathangelou and Killian 2021) call into question all sorts of world-making ideas we have with politics (Agathangelou 2021). For instance, it reveals how the time-scales most appreciable to humans might be inappropriate for thinking about climate change. Or how there can be multiple different temporalities around a globe universally impacted by climate change even as the actual effects operate on countless different temporal dimensions. Ecological awareness and environmental theory are becoming unavoidable in global politics—if they ever were before—and that will likely have an impact theoretically, methodologically, epistemologically, and ontologically. Quantum ideas like entanglement, particle/wave duality, and the relativity of space/time all seem particularly adept for transforming a discourse already dominated by a specific and inappropriate scientific imagery and representations.

This should already be fairly straightforward—or at least a light lift in terms of convincing time scholars to take

# Why the Temporal Turn in IR Should Care About Quantum Theory, and Vice Versa

Written by Christopher McIntosh

seriously—because time itself is an idea that straddles the line between materiality and sociality. There are elements of time that feel inevitable, most notably time's apparent passage and an important part of the broader agenda of temporality work is to remove the conventional way of knowing and enacting action so as to better engage our collective realities. Most timing mechanisms (Hom 2020) that purport to represent time itself are cyclical aspects of ecological reality—the motion of the planets, subatomic behavior, seasonal change—or they use technology to replicate such features, particularly in an increasingly cyber-based political and economic world (Stevens 2015).

## Reflexivity

Part of what quantum social theory emphasizes is the world-making capacity of the 'apparatus' used for 'measurement' (Zanotti 2019, Murphy 2021). Measurement is not merely a neutral, objective act in a quantum world, but constitutes a creative process that does not mimetically reflect or measure the characteristics of the object of inquiry. Indeed, if quantum ontologies are correct, they simply could not do this the principle of uncertainty. For instance, every time scholars accept the naming of a particular act of violence as a war, they are engaged in an act of bringing that into reality. Given that the process of measurement is inevitably interventionary, it requires attention to positionality. To theorize the world is to theorize one's relationship to it and how one's intervention shapes that world we claim to discover (Barad 2007). This is commensurate with temporal concepts in IR, but provides a point of overlap that could improve each through more intentional engagement. If one cannot assume one's place in time, just as one cannot assume one's place in space, then we must be heavily attuned to our positionality whenever making assessments about the world.

These assessments—what quantum theorists call measurements—occur via an apparatus of knowing. Books, computers, archival materials, words, fieldwork, conceptual foundations, our individual past experiences—they all constitute the apparatus by which we apprehend the world. Just as IR scholars use scientific tools like machine learning or 'rigorous' qualitative methods to ensure objectivity, from a quantum perspective these don't just represent analogues to experimental apparatuses, they literally are experimental apparatuses. Given that they perform a creative role, however, rather than merely a reflective one, to theorize them is to theorize whatever it is one seeks to better understand. How has the unanticipated utilization of Mearsheimer's work impacted those who subscribe to it? How has the event shaped the thinking of those who hold fast to a strict separation of empirical and normative theory? Other examples of scholarship impacting the world already exist—democratic peace, the 'clash of civilizations'—but it goes even further than that, because this phenomenon constitutes *all* of our work, not just the famous examples that have shifted macropolitical institutions. Similarly, given the heterotemporality of experience and non-universality of temporal positionality (Hutchings 2007), any analysis of what the world *is* turns on how one is going about understanding it. The simple question of when and where are global politics illustrates the importance of this claim (Fisher and McIntosh 2021). Global politics operates throughout the personal and the everyday in everything from familial labor divisions to video games and fashion. Each of which constitutes and is constituted by a heterogeneity in temporal experience in terms of duration, tempo, and multiple pasts, presents, and futures. So reflexivity is not limited only to critical work or work on macropolitical institutions, it is a crucial element of inquiry itself.

Put differently, positionality is complicated by the fact that even collective history—and its attendant presents and futures—is constituted via heterogeneity. One person's present is never the totality of any others' present, much less when the idea is elevated to that of collectives. For both quantum theorists and temporality scholars, the interaction of these presents—and their concomitant pasts and futures—constitutes sociality. For some, these interactions are what create the emergence that makes life creative rather than simply a predetermined outcome based on the long tail of a universal past. Emergent phenomena are relationally constituted and fully consistent with quantum ontologies because a quantum ontology accepts that the whole is never merely the sum of its parts. Collective entanglement at the quantum level isn't just about increasingly complicated lines of interaction, it connotes the possibility of collectives connected without any apparent threads.

Part of what quantum social theory emphasizes is the lack of control one has over their place in the world and what they create within it. The experimental apparatus itself is a world-making device, but the experimenter does not create the world as they see fit (Zanotti 2019, Barad 2007). Given the potential connections that exist with an

# Why the Temporal Turn in IR Should Care About Quantum Theory, and Vice Versa

Written by Christopher McIntosh

acceptance of quantum entanglement and nonlocality the implications of one's work can be minimal or potentially enormous. A short piece in a professional journal may amount to only a handful of views by friends and family, or cited by a state as justification for an imperial conflict that could start World War III. Yet, however illustrative, even that example is fairly blunt. Ideas travel, they impact the world, but rarely in the ways we intend or can even easily appreciate.

Given the lack of control and indeterminacy of cause and effect, humility over our ability to predict the future, as well as humility regarding the impact our interventions have in as complex a system as 'global politics' is imperative. Humility, though, is not the same as passivity. To be humble in this case is to recognize the lack of control and utilize moments of agency to assist, a type of bravery that must be active because we are always actively intervening in the world even if we only claim to be neutrally describing and explaining it (Campbell 1999). From a temporal perspective, the past and future are constructs of an emergent present created and recreated through interactive relationalities. Given this combination of non-universality and emergence, one must be highly aware of and attend to what one's actions; e.g., predictions or histories, do to the world itself. Quantum social theory emphasizes this through the concept of potential, arguing for an epistemology of thought that shows care toward what theory enables, not just what it claims to identify. Temporality scholars' utilization of the future could benefit from engaging this idea.

## Conclusion: The Utility of IR

One of the central questions animating the temporal turn emerges through its denial of universal linear reality and time. If we cannot assume that we all share a temporality or that our knowledge is contributing to some timeless accumulation of wisdom, what is the utility of IR itself? Quantum social theory offers some answers, provided one is willing to reorient the role of theory and its goals away from either critique or explanation/understanding. Returning to the example of the Russia/Ukraine debate, thinking carefully about time and its role in terms of directionality of the conflict, time horizons, and the distinctions among pasts, presents, and futures—collective memory, most obviously—all emerge as central concerns (Edkins 2003). Pushing further, however, there is a need to also think carefully about one's positionality with respect to the conflict. How does our apparent temporal separation as IR scholars shape our understanding of it? If experience is heterotemporal what differences exist even between scholars regarding how they interact and approach the topic? How does it shape the apparatuses we use to examine it and what do those apparatuses do in the world?

The addition of quantum theoretical insights pushes us to think about those concepts at a larger scale. What are the implications of putting out ways of knowing and making the world out that remove Ukrainian agency? Or treat Russian imperialism as a value-neutral exercise? Part of what quantum social theory adds is the idea that measurement is creative, but also that relationalities are entangled in ways that our conventional understandings of reality either don't understand or actively deny. It might give us pause when putting out ideas that can be used to normalize massive acts of violence in our own time. If we choose to 'theorize' some of the worst acts of violence in global politics, we must also recognize that we are helping to create those acts of violence. Thinking more carefully about how that operates in time is helpful, but it will only be more so if we add in ideas that are counter-intuitive regarding entanglement and effect that provide warrant for even more intentionality and caution, while recognizing and acting upon the relative lack of control we have over what we put into the world.

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# Why the Temporal Turn in IR Should Care About Quantum Theory, and Vice Versa

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Written by Christopher McIntosh

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Written by Christopher McIntosh

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[1] I use 'time and temporality' to try and capture the different ways that people are paying attention to the manner in which we mark, measure, experience, theorize, and represent time and its passage. Hom (2020) refers to all of these as 'timing mechanisms' and encourages attention to *timing* rather than *time* in order to denaturalize it and recognize its processual nature.

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## About the author:

**Christopher McIntosh** is an Assistant Professor of Politics at Bard College. His research explores the intersections of time, temporality, quantum social theory, war and political violence. His published work appears in *International Studies Quarterly*, *Journal of Global Security Studies*, *International Theory*, *Security Dialogue*, *International Studies Review*, *Time and Society*, and *Millennium*, among others. Currently, he is completing a book manuscript on the importance of the present as a frame for thinking international relations called: *The Time of Global Politics*.