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Unlocking the whole of soft power: a quantum international relations analysis

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ABSTRACT

Soft power is one of most applied, yet nebulous, concepts in social science. In this paper, we show that it is not soft power *per se* that is of issue here, but rather the Newtonian parameters through which the concept has been described. In making an original and significant contribution, we introduce a radical break from conventional attempts to explain soft power by drawing on quantum international relations. Through this, we show that Newtonian-based analyses fail to unlock soft power's full complexity. We close by identifying how quantum soft power advances research and practice.

1. Introduction

Since its coining in 1990 by American political scientist Joseph Nye, soft power has emerged as one of the most discussed concepts across the social sciences. Defined as the ability 'to obtain the outcomes one wants through attraction' (Nye 2008, p. 94), soft power has been employed the world-over to shape, drive, and evaluate the success of states and their leaders. While soft power has primarily been associated, by way of definition, with cultural and civil spheres, it also reaches into almost every other field of state engagement, from the quality of a nation's social and economic performance at home (see, for example: Zanardi 2016), to contributions to humanitarian and/or environmental causes aboard (see, for example: Vale and Marques 2022), and even a city or country's staging of a sports mega-event, such as an Olympic Games or FIFA World Cup (see, for example: Brannagan and Rookwood 2016).

While widely utilized across social science, soft power is also a highly vague term to work with, one fraught with theoretical ambiguity. This is in part due to the lack of clarity around the concept of 'power' itself, meaning any sub-power construct is likely to struggle – indeed, as Drezner (2021, p. 29) locates in reference to international relations, scholars 'are certain about two facts: power is the defining concept of the

discipline and there is no consensus about what that concept means'. Despite several attempts to add theoretical clarity to soft power (see: Mattern 2005, Fan 2008, Rothman 2011, Roselle *et al*. 2014, Vuving 2019), scholars nonetheless continue to highlight conceptual inadequacies with respect to: how this attractive form of power materializes; in what ways soft power intertwines with 'hard power' strategies – that is, getting outcomes through a mix of attraction, coercion, and payment; if soft power can be controlled by the sender state; and, in what ways attempts at soft power may be influenced or resisted by others. Combined, this lack of clarity has led some academics to the conclusion that, despite its vast popularity, soft power remains 'an ambiguous signifier with a nebulous theoretical core' (Kearn, 2011: 66), continuing to act as an 'elusive concept' (Feklyunina, 2016: 774) and one of social science's 'confusing neologisms' (Henne 2022, p. 2).

The continued lack of clarity surrounding soft power provides the impetus for this paper, in which we advance a radical break from conventional attempts to theorize or explain the concept. In making an original and significant contribution to the theorization of soft power, we show that it is not the concept *per se* that generates confusion, but rather the parameters through which analysts have sought to understand, improve, and, ultimately, (re-)conceptualize the term. In the next section we first show how soft power analysis has largely been situated within a traditional 'Newtonian mechanical' worldview, based on the general principles of motion, causation, and predictive regularity. Although we do not discount Newtonian accounts of soft power, in later sections we argue such a worldview only uncovers part of how soft power works. To unlock the whole of the concept, we suggest a new perspective is needed, one that draws on the emerging research on quantum international relations. Accordingly, in subsequent sections we outline how quantum international relations adds new levels of analytical rigour to Newtonian understanding of global politics, before advancing an original, quantum analysis of soft power. To develop a rigorous analysis, we discuss and apply three of quantum mechanic's key concepts - *quantum wavefunctions, quantum wavefunction collapse*, and *quantum entanglement* - to enable a radical re-conception of soft power. We conclude by detailing the significance of this new paradigm, in rethinking soft power in quantum terms, both for academics in future global development and application of the concept, and for policymakers in reframing and pursuing their foreign policy aims, strategies, and objectives.

2. Soft power as a Newtonian concept

For Nye, soft power lies in contrast to what he calls 'hard power', referring to 'the ability to get desired outcomes through coercion and payment' (Nye 2011, p. 16). The genesis of soft and hard power lies in Nye's recognition that different scenarios call for diverse power approaches. This softer side of power, Nye argues, rests largely on the liberal order and the spread of various democratic values around the world, stemming from qualities such as a state's attractive culture, appealing policies, principles, ideas and institutions, or acclaimed accomplishments. Examples of soft power include: the way the Republic of Peru benefits from increasing international tourism gains, thanks to the country's iconic cultural attractions, such as Machu Picchu (World Travel and Tourism Council Report 2018); how a state such as Iceland gains praise and admiration for its high level of human

development at home (Human Development Report 2022); or, for a country such as Italy, the 'global omnipresence of Italian cuisine and its iconic, internationally-renowned luxury brands' (Portland Soft Power 30 2019).

We argue that soft power has continued to experience a lack of conceptual clarity due to the way it has been analysed, that is, through a Newtonian mechanical worldview, one that generates predictive regularities based on the general principles of causation, time, and motion. Dominant across both natural and social science, Newtonian mechanics is underpinned by two key assumptions. The first is an adherence to a 'causal mechanical' view of prediction. Such a perspective is based on the belief that occurrences can and should be broken down into clearly defined and stable entities/parts, and then analysed through the principles of local and linear causation, underpinned by the notion that space is local, and time is unidirectional, always flowing from past to future (Montgomery 2016, Murphy 2022). And second, that relations should be seen as merely external functions of interactions. Zanotti (2017) refers to this as 'Newtonian substantialism', denoting the ontological belief that, regardless of context, entities/parts exist *prior* to their interactions, and analysis should subsequently focus on the ways individual entities/parts *become* related. It is in this sense that entities/parts are assumed to exist 'in' time and space, with time and space conceived of as a type of neutral stage within and through which events unfold (Wendt 2015, Smith 2016).

Although contrasting attempts have been made to clarify and (re-)conceptualize soft power, all such attempts broadly align to the conception shown in Figure 1. In doing so, all such endeavours seek to break down soft power into well-defined, self-subsisting parts, parts which are then assembled into a clear and sequential order, and when they interact in this way, are assumed to predicatively produce the intended, overall effect (in this case, the intended outcome of the soft power strategy). The result is that soft power has continuously been subjected to explanations based on Newtonian laws of mechanical motion, grounded by local and linear causation, whereby the very existence of the whole depends on its parts, their order, and the exact way they are connected. In other words, in this worldview, there is no soft power strategy without a linear relationship that proceeds with: 1) power resources – the tangible and intangible vehicles through which power is conveyed; 2) conversion attempts; and 3) power outcomes – the (positive or negative) cognitive and/or behavioural responses to conversion attempts. Indeed, in his most recent attempt to 'respond to several criticisms of the [soft power] concept', Joseph Nye (2021, pp. 197–198) himself adopts such a Newtonian mechanical perspective when he argues: 'Power implies causation and is like the word "cause". When we speak of causation, we choose to pick out the relation *between* two items in a long and complex chain of events . . . Power is conveyed through resources, whether tangible or intangible. Power conversion – getting *from* resources *to* behavioral outcomes – is a crucial intervening variable' *[emphasis added]*. Such an approach views soft power as an 'actor-centric', 'strategic' and linear process (see: Bakalov 2019, p. 134), one that hinges on how successful actors are in converting soft power resources *into* outcomes.

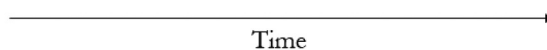Soft Power Resources + (Successful) Power Deployment/Conversion = Soft Power Outcomes

Time

Figure 1. A Newtonian mechanical conception of the soft power process.

Important to note is that we are not completely rejecting such Newtonian mechanical understandings. These approaches do indeed have the benefit of casting light on those parts of soft power that lend themselves to clearly defined, sequential analysis. However, in doing so, such accounts, we argue, underplay the complexity of soft power, and thus offer up a too narrow and simplified account of how soft power truly takes shape. Consequently, in what follows, we do not intend to offer up another alternative Newtonian mechanical explanation – this 'will not solve the problem', as Drezner (2021, p. 31) reminds us, on how we define power. What is needed, we argue, is a radically new way of looking at the concept, one that breaks free from the Newtonian paradigm that has restricted our understanding of how soft power works in its entirety. One solution, we claim, is to draw on the theory of quantum international relations.

3. Quantum international relations

Quantum international relations (henceforth 'QIR') is the application of quantum mechanics to the study of political science. Laying claim to be the most well confirmed theory in scientific history, quantum mechanics provides a radical, yet more accurate, account of the physical world than Newtonian mechanical models, leading to physicists' general abandonment of the latter in favour of the former (Wendt 2015, Murphy 2021). Although quantum mechanics' accuracy lies in explaining the micro-physical world, it is a misconception that it focuses exclusively on small things; rather, quantum mechanics is foremost a theory that studies 'the property of isolated things' (Chown 2007, p. 34). Quantum mechanics does not deal with subatomic particles *per se*, but rather with models of information, on how the world and everything in it (co-)exists (Orrell 2020). In other words, quantum mechanics seeks to detail how the 'operating system' of the world works, with the most precise findings suggesting that this 'system' is quantum-based, not Newtonian (Schnabel 2022).

In what follows, we seek to explain – and later apply – what can be broadly aligned to the dominant Copenhagen Interpretation of quantum mechanics. Crucial in this regard, and to the successful development of quantum mechanics more broadly, has been the theory's findings on the properties of light. In the 1900s, physics struggled to settle the debate on whether light was a wave or a particle. To the great minds of the day – Niels Bohr, Max Planck and Albert Einstein – it was clear that a paradigm shift was needed, enabling scientists to ask new questions that went beyond the Newtonian mechanical worldview (Murphy 2021). In turning to quantum mechanics, physicists paradoxically proved that not only was light *both* a wave and a particle, but that it could be both at the *same time* (Heisenberg 1983). This duality was unintelligible within the Newtonian approach, but later came to be understood as the foundation for all matter and energy (Murphy 2021). It is because of this that quantum mechanics can explore beyond Newtonian models of the world, particularly when confronting complex and intricate uncertainties in relation to space, time, and causality, both at the micro and macro levels (Der Derian and Wendt 2022).

The triumph of quantum mechanics in physics has arguably been slow to transfer to other disciplines. However, recently quantum mechanics has been successfully applied in areas such as biology, information technology, cognition, and game theory, along with political science and international relations (Der Derian and Wendt 2020). While there

are multiple interpretations of quantum mechanics, so too are there contrasting viewpoints on the transfer of quantum mechanics to international relations analyses. One such approach is what Wendt (2006) denotes as the 'quantum consciousness hypothesis'. In rejecting a materialist-view of matter, Wendt puts forward a 'panpsychist ontology', one that situates mind and matter as ontological dualities. Indeed, as Wendt argues, 'matter has an intrinsically subjective aspect' at the quantum level, whereby 'consciousness neither reduces to matter nor emerges from it, but is present in matter all along' (ibid.: 17). A key tenet of Wendt's ontology, therefore, is that both physical and social phenomena are grounded within a quantum mechanical reality (see also: Murphy 2021). The ramifications of this for the mind-body problem, are that 'the elementary units of social life, human subjects, are quantum systems – not just metaphorically or by analogy, *but really are*' [emphasis added] (ibid.: 26). If the human subject – or, more specifically, the human brain – is indeed really a quantum system, then, Wendt argues, human consciousness and social behaviour can only ever be fully understood through a quantum mechanical lens.

A contrasting viewpoint, and one that we broadly align to, argues that the transfer of quantum mechanics to international relations is more an epistemological than an ontological one. Commonly known as the 'analogy' approach, analysts in this camp argue for the need to apply quantum mechanics for a better understanding of social life, but do not go as far as to claim that quantum-like features make up the very nature of the human subject at the ontological level (see, for example: Akrivoulis 2002). From our own perspective, we are not claiming that Wendt's quantum consciousness hypothesis is, in any way, inaccurate – indeed, we note how it is reflective of findings in key areas of neuroscience, such as quantum brain theory. However, for the purposes of what follows, our intention is to show how the application of quantum mechanics to international relations provides radically new ways of understanding global politics, its structures, processes, and power relations. Our contribution here therefore sits more at the epistemological than the ontological level, as we hope to demonstrate – through our analysis of soft power – how QIR offers analysts a far more reliable and accurate level of analytical and theoretical rigour than do Newtonian analyses.

Quantum approaches provide greater analytical rigour than do Newtonian understanding of international relations in two notable ways. First, QIR takes up a very different perspective on mechanical locality, as well as time and space. The finding that light was both a wave and a particle challenged the Newtonian assumption of 'the composition of atoms existing in concrete, absolute space and time' (Akrivoulis 2002, p. 176). In contrast, quantum analyses showed that particles and atoms demonstrate *dynamic* patterns of activity which are in a constant state of erratic change (ibid.). Accordingly, QIR is more attuned to explain the uncertain, unpredictable, complex, and paradoxical elements of international politics (Wendt 2015). Second, QIR advocates 'relational holism'. As opposed to Newtonian assumptions that view relations only existing *between* entities (as connections, networks, interactions, etc.), QIR conceives relations, in contrast, and from the outset, as *implicated in things* (Pan 2020, Der Derian and Wendt 2022). In other words, as opposed to purely seeing relations as mechanical connections that externally join pre-existing and separable actors and entities to one another, as is the case with actor network theory and other 'relational turn' perspectives, QIR rather treats 'relations as the very condition for the being of "things" or "actors"'

(Pan 2020, p. 18). From a QIR perspective, therefore, a part can never be completely separated from the 'whole' or other entities that make up the whole – entities are, in this sense, and by the very nature of their existence, always relational and part of the whole, even when they appear to stand alone (Biersteker 2022). As Pan (2020, p. 25) notes, by 'whole' 'we mean the entirety of space, time, and the information, relations, structures, processes, movements, and parts/agents contained within that all-encompassing space-time; when we speak of the whole, we are referring to the embodiment of 'social and ecological systems as well as their explicate and implicate relations both between *and* embedded within their constituent "parts"' *[emphasis added]* (ibid.: 25).

Given its focus, the particular theoretical benefit of QIR thus lies in its much stronger desire to unlock, and answer, new questions relating to wholeness and complexity, and the inseparability of matter and subject. The strength of QIR is its ability to identify the 'hidden complexity that lurks beneath simplified (Newtonian) reality' (Murphy 2021, p. 62). The need to do so is paramount in the current epoch, characterised by high levels of global interconnectivity, social media, information exchange, cyberwarfare, terrorism, and the growth of non-state actors, all of which add levels of complexity to international relations that a Newtonian perspective struggles to fully explain. Consequently, in the next section we argue that only through a QIR lens can we locate the full complexity and wholeness of soft power, leading to new ontological insights, and a re-conceptualization on how this form of power can and should be understood.

4. A quantum mechanical soft power analysis

In offering up the first QIR analysis of soft power, in this section we apply three of quantum mechanics' key findings: *quantum wavefunctions; quantum wavefunction collapse*; and *quantum entanglement*. We deal with each in turn.

4.1. Soft power and quantum wavefunctions

A major finding of quantum mechanics has been that light is *both* a wave and a particle, a phenomenon known as the 'wave/particle duality'. Even more significant is that light only moves as a wavefunction when we are not measuring it; when we do measure it, light waves collapse into particles, in a process known as 'wavefunction collapse' (a phenomenon we discuss in detail in the next sub-section) (Der Derian and Wendt 2022). Put differently, in quantum mechanics, the very act of observational measurement is a consequential process, altering and disturbing light in a physical and behavioural sense (Schnabel 2022). In quantum mechanics, this is known as the 'observer effect', referring to when the act of measurement itself collapses a wavefunction into single position particles (Murphy 2021). Such a finding suggests that elementary particles – the building blocks of reality – are not inherently material, objective objects, as once thought, but rather only form as such through an interaction of some kind (Fierke and Mackay 2022). This dual-natured existence is, to Newtonian mechanics, untenable, yet it entails that the world is not just 'out there', but something we have a direct impact upon through our use of measurement apparatus (Murphy 2021).

One consequence of the observer effect is that, when not under observation, in their wavefunction form light and other particles are, in essence, invisible. This is complicated

by the fact that, just like waves in the ocean, these wavefunctions move in every direction, and are thus never fixed in one specific point of space (Murphy 2021). We argue that while wavefunctions detail the highly complex and fluid nature of the physical world, so too do they show significant parallels to the reality of the social world. Notable here is how wavefunctions operate in the much the same way as the existence of social structures. By this, we refer to the shared norms, values and practices that guide human understanding, meaning and action. These structures point to the normative context that underpins the nation-state system and global society, and which both shapes and is shaped by states' choices and behaviours, and the subsequent (re)actions to these (Temby 2015). Like wavefunctions, social structures are invisible, and while we have never 'felt' a social structure, we know their effects and outcomes are real (Orrell 2020). Furthermore, like wavefunctions, because we cannot see these structures, they are both uncertain and unpredictable, and we can thus never know which form they may take in future points of time and space. This means that we can only ever predict social structures by modelling them in the same way as we would a quantum wavefunction – that is, in a state of constant *superposition*, whereby we must calculate *all* potential forms at indicated times (Der Derian and Wendt 2022). The result, as others have also argued, is that social structures can be seen as superpositions of shared mental states, or what we may term as 'social wavefunctions' (Wendt 2015).

Identifying these social wavefunctions as crucial elements of social reality helps us understand soft power in new ways, providing a much fuller understanding of how this process works. As previously stated, a Newtonian account of soft power takes its starting point to be a state's soft power resources. Doing so is like starting with collapsed wavefunctions in their visible, particle form, and thus offers up an actor-centric perspective of soft power, pushing the focus onto how state leaders endeavour to convert their resources into definitive soft power outcomes. This predictive view overlooks the preceding invisible aspects of soft power, treating soft power resources (cultural attractions, institutions, sporting success) in similar ways to hard power resources (military personnel, wealth, trade agreements) – as entities that are visible and fixed in time and space, simply waiting to be converted into outcomes by state leaders. In contrast, a quantum (social) wavefunction approach forces us to locate how resources themselves can never be the starting point for a full understanding of soft power. This is, in short, too narrow an account of how soft power works. Rather, this starting point should not be soft power *per se*, but rather the invisible structural patterning on which the very existence of soft power relies. As we have seen, soft power rests on attraction – or, in more structural terms, the 'shared' norms and understandings of what constitutes 'attraction'. This social structural fabric of attraction that lies beneath soft power is not a fixed process in time nor space, but rather can be said to act and move like a wavefunction. Indeed, the shared nature involved here means the very constitution of attraction is in a constant state of erratic movement, always taking on new directions as fresh ideas, trends, beliefs, and tastes emerge in different socio-cultural contexts, driven by a myriad of stakeholders. This is particularly the case thanks to advances in information technologies, whereby the very meaning of 'attraction' is 'subject to constant observation, intervention, manipulation and even production by a pervasive and diffuse global [and social] media' (Der Derian 2011, p. 377).

A quantum wavefunction perspective thus goes beyond a Newtonian account of soft power by identifying how soft power resources become 'resources' in the first place. In pinpointing the wholeness and relationality of the soft power process, this view includes a recognition that resources can only be resources based on what we call corresponding 'waves of attraction'. These waves of attraction refer to shared understandings between what is considered to be 'attractive', 'positive' and 'credible', on the one hand, and that which is considered to be 'unattractive', 'negative' and 'untrustworthy', on the other. It is these intersubjective waves of attraction that grant life (and death) to soft power resources. At the end of the day, soft power resources go in and out of fashion, depending on what the constitution of attractiveness is across varied shared contexts and timescales. The presence of waves of attraction thus add to a Newtonian model of soft power accordingly (see Figure 2):

—Soft Power Resources + (Successful) Power Deployment/Conversion = Soft Power Outcomes

WoA
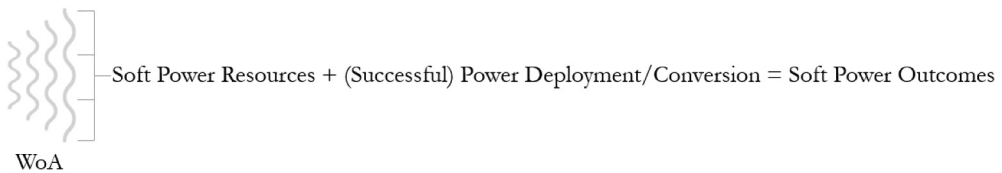
Figure 2. The soft power process, inclusive of 'waves of attraction' ('WoA').

The inclusion of waves of attraction draws our attention to three crucial facets of the soft power process that Newtonian accounts have overlooked. First, what we might generally refer to as U.S. soft power vs Chinese soft power, for instance, is not, in fact, U.S. soft power vs Chinese soft power at all – rather, what exists are competing waves of attraction at the social structural level. Take China's recent attempt to leverage its various soft power resources, such as its Belt and Road Initiative, the spread of its Confucius Institutions around the world, promotion and expansion of its China Global Television Network (CGTN), and its staging of major sporting events – in February 2022, Beijing became the first city in the world to have hosted both the Winter and Summer editions of the Olympic Games (*Council on Foreign Affairs* 9 February 2018). Despite this, Chinese soft power has struggled in many parts of the world. This is not due to inadequate soft power resources – on the contrary, there are today over 530 Confucius Institutions located across six continents of the world, while CGTN enjoys 13.3 million followers on Twitter, nearly five million more than its U.S. rival, CBS News (*The Diplomat*, 28 May 2022). Nor is this necessarily due to unsuccessful conversion attempts *per se* – indeed, few such attempts carry the kind of prestige as being the world's first to host both a Summer and Winter Olympics. Rather, the issue here is that China itself does not align to waves of attraction that are dominant in specific regions of the world. In the same year Beijing staged the Winter Olympics, for example, negative perceptions of China had grown in the countries of South Korea, Japan, Australia, Sweden, the Netherlands, and the UK; in the U.S., 67% of citizens even considered China's growing international influence as a 'major threat', suggesting the more successful China is with its soft power attempts, the more negative it may be perceived to be in certain parts of the world (*Pew Research Centre*, 28 September 2022). Consequently, conversion of resources

into outcomes is not the key variable here for soft power success, as traditional analysts have argued. Nor should soft power resources be seen as the 'start' of the soft power process. As the case of China demonstrates, it is the underlying relationship between nations and dominant waves of attraction that really matter, as resources that are associated with an 'unpopular' nation will not produce soft power, regardless of how successful their resources and conversion attempts might be.

Second, there exist infinite waves of attraction – one for every person's interpretation of what attraction is in varied contexts and timescales. Some waves are, of course, larger than others. What we classify as 'universal' human rights, for example, although not shared by all of humanity, nonetheless forms a large social wavefunction that guides the attitudes and values of many modern states. Large waves of attraction – which exhibit high levels of shared understanding on what is 'attractive' - move across and through state boundaries in ways that come to redefine our understandings of borders, space, and time. Like quantum wavefunctions, waves of attraction not only co-exist, but, at times, collide with one another. When these waves directly collide on specific policies, causes or visions, the direction, form, and/or path each takes is impacted by either *destructive* or *constructive quantum interference*. The former occurs when a wave of attraction directly collides with opposing waves of unattraction, and in doing so cancels out the potential for successful soft power conversion to form. As one form of destructive quantum interference, take the awarding of the rights to stage the 2022 World Cup, for instance, which was arguably a notable soft power coup for host Qatar, one that sought to be used to garner soft power by positioning the state as a welcoming and friendly international actor. This soft power attempt was, however, curtailed almost immediately after the award due to the state's poor human rights record, resulting in significant public critique of Qatar from a multitude of global actors, such as Amnesty International, Human Right Watch, *New York Times, The Guardian* and *The Sunday Times* (see: Brannagan 2017, Brannagan and Reiche 2022). In the most recent version of the 2023 Democracy Index, produced by the *The Economist Group*, Qatar ranked in 114th position out a total of 167 countries; while the latest Cato Institute's Human Freedom Index (2022), which assesses states on their level of personal, human, and economic domestic freedoms, placed Qatar 129th out of a total of 165 countries. When destructive interference occurs on a topic or policy that concerns a large wave of attraction (such as 'universal human rights'), the amount of destruction caused by the wave to one's soft power can be devastating. The case of Qatar demonstrates this – indeed, crucial to pinpoint here is that this specific outcome was not the result of Qatar's inability to successfully convert its soft power resources *per se*, but rather because a smaller wave of attraction (Qatar's desire to use the World Cup to improve its image) was cancelled out by a much larger and stronger opposing wave (the Western-led criticisms of Qatar's right to host the event).

In contrast, constructive interference occurs when the colliding of waves extends the height of each wave's crest, raising the importance of certain issues, and thus forming highly favourable circumstances for specific soft power attempts to flourish. Take the COVID-19 pandemic, which generated a large wave of attraction and mass public desire for a vaccine, on the one hand, and an equally large wave of attraction by state leaders and their scientists to be the first to produce said vaccine, on the other. For the 'winners' of the COVID-19 vaccine race, was the rare opportunity to wield immense soft power by taking the lead in confronting a significant global threat. The UK, for instance, has

administered 2.5 billion doses of its Oxford University-AstraZeneca vaccine across 170 nations worldwide, many of which are 'low and lower-middle-income countries' (*UK Government* 4 January 2022). The result, has been the UK's rise up the various soft power rankings published annually, rebounding from the 'tumultuous environment' caused by Brexit (*Brand Finance* 15 March 2022).

Third, structural inequality within the international system both grants and limits control over waves of attraction, and soft power. This draws our attention to the vital relationship between soft and hard power, and how one can greatly support the other. Orrell (2020) identifies how the global financial system operates like a wavefunction, moving through some states more than others, and when this economic wavefunction (hard power) collides with the desire to influence waves of attraction (soft power), constructive or destructive inference can take place, depending on the economic wealth/propensity of a particular state and/or region. Greater wealth leads to better access to such things as internet connectivity, opinion polls and survey data, foreign policy analysts, sports science technologies, and infrastructural development. The result is that states with a greater share of wealth and technology are better positioned to respond quickly to, take advantage of, and shape situations in which constructive interference occurs and multiple waves of attraction collide to form highly favourable scenarios for soft power to flourish. This is arguably reflected by once again looking to the annual soft power rankings, which are consistently led by states such as the U.S., the U.K., France, and Germany; countries with lower standards of living (such as South Sudan, Somalia or Afghanistan) find themselves at the bottom of such lists, or, in some cases, do not even feature at all (see, for example: Portland Soft Power 30 2019).

4.2. 'Soft power' quantum wavefunction collapse

A further way QIR can unlock a fuller understanding of soft power is through quantum wavefunction collapse, and in particular how this quantum process moves us beyond Newtonian understandings. This is largely down to how a Newtonian perspective emphasises the formulation of clearly defined and stable mechanical parts ('resources', 'conversion attempts', 'outcomes'). The Newtonian desire to seek out predictive regularities has, however, simplified soft power, and in doing so, has underplayed the intricacies involved in this process, leading to continued conceptual difficulties. However, with its propensity to address irregular phenomena, quantum wavefunction collapse offers us a more suitable avenue through which to expose the extensive complexity of soft power. Indeed, as Zanotti (2022, p. 371) notes, from this perspective, 'the universe is not the manifestation of an already written divine master plan' but it is rather 'uncertainty [that] is the ontological condition'.

Crucially, quantum wavefunction collapse advances our understanding of soft power by adopting a much deeper analysis than Newtonian accounts on how soft power is brought into 'being', and, in doing so, exposes the duality of the concept. As we saw in the last section, quantum mechanics has shown that elements (particles, electrons, photons, etc.) exhibit a dual existence – that is, they take the form of invisible wavefunctions up until we 'collapse' them into visible particles at the moment of measurement. As we are unable to observe particles in their wavefunction state, we cannot trace their precise form, and it is only when a wavefunction collapses into an observable particle are we

able to accurately pinpoint its location across time and space (Salter 2022). Nonetheless, the collapse of a wavefunction into an observable particle should been seen as an 'agential cut' of the whole (Barad 2007). In other words, although we may only be able to see one observable part (a single measured particle), we must remember that this part is always part of a whole (in this case, a wavefunction), even when the whole remains unobservable. In international relations analyses, this parallels with the fact that, while social structures/wavefunctions are themselves invisible, when we seek to study (or collapse) them, what we see are humans, policies, objects, and other constituent parts of the whole, and it is only these parts that we can actually 'see' (Murphy 2021). Take the nation-state itself, for example, which, in essence, is invisible; what is visible, and therefore all we can observe, are the nation-state's collapsed constituent parts – border checkpoints, legislative buildings, politicians, flags, emergency services, armed forces, national sports teams, and so on.

In dealing with a greater level of complexity, wavefunction collapse forces us to re-examine Newtonian evaluations of soft power in three key respects. First, by urging us to locate how soft power's existence rests on both invisible *and* visible parts. This, in turn, highlights the need for us to consider what exactly we are studying when we attempt to conduct 'soft power' analysis. Soft power is, of course, just a term, and when we combine these two words, 'soft' and 'power', what we are really describing are our own interpretations of waves of attraction. This means, in typical quantum terms, that, in the case of soft power, 'measurements create reality, not just reveal it' (Schnabel 2022, p. 96). Consequently, if 'soft power' rests on the existence of invisible waves of attraction, when we 'observe' or 'measure' soft power, what we are really doing is collapsing waves of attraction into their visible, constituent parts. Take U.S. soft power, which has consistently been 'analysed' by academics, policymakers, journalists, and the like, even though no one has ever actually observed U.S. 'soft power'. What countless audiences have witnessed however are those constituent parts of the U.S. that we simply label as 'soft power' – Hollywood, McDonald's, Coca-Cola, congressional elections, Ivy League universities, Apple, Microsoft, CNN, Tesla, Meta, Amazon, Nike, Major League sports teams, Olympic medal success, globally-renowned athletes, etc.

Second, wavefunction collapse forces us to examine how we bring soft power to life through our measurements. The measurement 'apparatus' we use to collapse waves of attraction into 'soft power' is language. 'Speech acts', for instance, be they spoken, written or otherwise, turn language as a potentiality into a reality, and in doing so, collapse an infinite range of potential meanings and interpretations into actual understandings, which in turn, inform decision-making, actions, and reactions (Fierke and Mackay 2022, O'Brien and Milkoreit 2022). Note, for instance, FIFA President Gianni Infantino's speech on the eve of the 2022 World Cup, where he labelled western critique of Qatar's human rights record as a form of 'hypocrisy'. To some based in Qatar and the wider Arabian Gulf who had long argued that the West's criticism of the tournament amounted to forms of international racism, this speech was met with support (see: *Doha News*, 19 November 2022); however, many, predominantly western audiences, received Infantino's address with a great deal of scrutiny, described by certain onlookers as an 'insult' to the migrant workers who had lost their lives working on World Cup-related infrastructure projects in Qatar (see: *CNN*, 19 November 2022). Through this example,

we see how, via the use of language, soft power can occupy a dual role: it can be brought to life in a state of existence, whilst simultaneously also be in a state of non-existence, depending on which interpretations certain audiences choose to collapse.

Third, wavefunction collapse entails the need for us to consider how our measurement apparatus changes across different contexts. If we collapse social wavefunctions through our use of language, then we need to identify the role played here by our various underlying political predispositions. Take, for instance, how soft power can mean different things to different political leaders – while to U.S. policymakers 'soft power' refers first-and-foremost to America's image abroad, in states such as Russia and Saudi Arabia, 'soft power' has primarily come to refer to perceptions of the leadership at the domestic/national level (Wilson 2015; Grix *et al.* 2019). In this sense, soft power is both simultaneously a local and global concept. This is also the case in practical terms. Through the use of language, soft power becomes a local, visible, and stationary entity – when, for example, brought to life by a certain actor in a specific, fixed location, such as in the form of a national address at a major political, cultural or sporting event. Simultaneously, soft power is global, invisible, and always moving – when, for instance, this same speech is recorded or written about, and then distributed online, moving through and across state borders undetected up until the point audiences interpret (or measure) it, at which time it once again becomes local, visible, and stationary, at least until it is then reshared and re-distributed, when it then reverts back to a state of globality, invisibility, and movement.

Consequently, while a Newtonian analysis attempts to tame soft power by treating it as a process with stable entities that can be clearly defined, quantum wavefunction collapse shows us that soft power is far more complex. This complexity lies in the way soft power is far from stable but is rather a multitude of things at the same time – as we have seen in this section, and as Figure 3 illustrates, soft power is simultaneously local *and* global, stationary *and* moving, existent *and* non-existent, and observable *and* invisible. As with particles, the idea that something demonstrates a dual form of existence is untenable to a Newtonian perspective. More worrying for a Newtonian analysis, is that, if soft power is brought to life by our measurement of such things as its observable parts (cultural amenities, medal success, etc.) or through our use of language, then there arguably exist endless versions of soft power, one for each measurement we have ever, and will ever, take. In other words, soft power can be said to be a process that is always adapting and transforming, and always popping in and out of existence as different interpretations lead to forever unique and contrasting wavefunction collapses. This level of uncertainty is arguably best captured by seeing soft power in a constant state of *quantum superposition*,
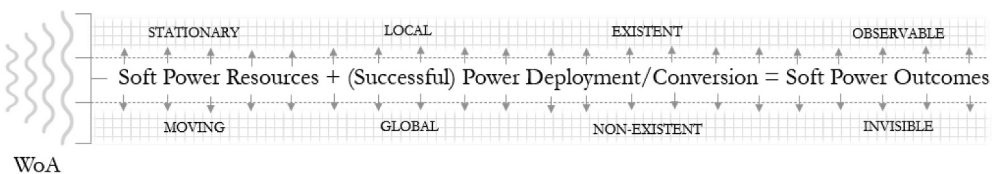

Figure 3. The dual nature of soft power/soft power as a quantum superposition.

whereby it is never in a singular, fixed form, but is rather always in a state of amorphous duality, and thus to truly understand the concept in its entirety, we must calculate *all* forms and future possibilities.

4.3. Soft power quantum entanglement

The final quantum mechanical concept we apply here is that of entanglement. In quantum mechanics, one of the most radical claims is that the elementary parts of reality are not fully separable, but rather 'entangled' – that is, particles are connected to one-another, regardless of the time and distance between them, so that a change to one particle correspondingly impacts another (Fierke 2019, Harrington 2022). In a Newtonian worldview, for something to have an impact on something else there is a limit on how far away it can be (a process known as 'locality'), and the time it takes to travel from one location to another cannot be faster than the speed of light. Quantum entanglement breaks both these key Newtonian assumptions (Murphy 2021). Indeed, the fact that particles exhibit 'non-local causation' contradicts the Newtonian laws of force, space, and time, revealing how the building blocks of reality consist of powerful and mysterious connections that act in instantaneous ways across vast distances, something Albert Einstein once described as 'spooky action at a distance' (ibid.; Der Derian and Wendt 2022).

Quantum entanglement adds to a Newtonian perspective of soft power in two key respects. First, whereas a Newtonian analysis treats specific soft power resources, conversion attempts and/or outcomes as belonging to certain states and their leaders, a QIR perspective locates how the 'building blocks' of soft power are rather the end-states of more complex entanglements. On soft power resources, take, for example, U.S. soft power, commonly linked to the global exportation of consumer products such as Hollywood films, Starbucks coffee, McDonald's hamburgers, and major league sports. Now consider how the American film industry was only made possible by developments in early cinematography that took place in countries such as France, Britain, Italy and Belgium; how the growing and drinking of coffee originated in Arabia, and specifically Yemen; how the hamburger was initially a product of Germany, one that was introduced to America by European immigrants who travelled from Hamburg to New York City; and how American football and baseball are adaptations of the British sports of rugby and rounders respectively, while modern-day basketball was invented by James Naismith, a Canadian-born physical educator and chaplain (*New York Times* 15 December 2015). From these examples, we are reminded that the apparently sui generis 'particles' of a 'state's' soft power are, in fact, never their own *per se*, but rather the long-term entangled result of the localization of foreign soft power outcomes that become actively transformed into 'new' soft power resources which are then re-packaged and re-disseminated across space and time.

Furthermore, soft power conversion attempts should also be seen as entangled end-states. Crucial in this regard is memory, and how this comes to guide both the learning and decision-making process of state leaders on how to convert soft power resources into outcomes. Note, for example, how the past, present, and future become entangled when states seek to stage sports mega-events in a bid to convert their soft power resources into outcomes. Take the opening ceremony of London's staging of the 2012 Olympic Games,

which looked to act as a celebration of Britain's past and contribution to the world – featuring sequences that hailed the UK as the birthplace of the Industrial Revolution, the Beatles, the Rolling Stones, James Bond, Mr Bean, Monty Python, Pink Floyd, punk rock and Harry Potter – all as part of a strategic attempt to make 'the UK more attractive' as a future place to study, visit or do business with (British Council 2015). Or take, once again, the example of China's Belt and Road Initiative, which is portrayed as an attempt to benefit future generations by resurrecting the historical Eurasian trade routes of the 15th Century Silk Road; or how state leaders look to play on shared pasts in the creation of present-day intercontinental treaties – we may point here, for instance, to the creation of the 'Organization of Ibero-American States', an agreement between 22 Spanish- and Portuguese-speaking nations in Europe, Africa and South America to cooperate on shared political matters, develop joint commercial opportunities, and to further promote the international profile of their shared history and culture (Secretaría General Iberoamericana n.d.. In all such cases, we see how, through collective or state-based memory, the past, present and future become entangled, as shared imagined pasts of soft power resources and outcomes come to influence present day conversion attempts, which, in turn, look to influence future soft power outcomes.

A QIR approach further locates how soft power outcomes are also entangled across space and time (leading to forms of 'spooky action at a distance'). We may point here to how Argentinian soft power was instantly generated by the men's national football team's winning the 2022 World Cup, a tournament that took place on the other side of the planet, in the small Middle East state of Qatar; or similarly for the Brazil national team, which won other editions of the tournament, staged in Sweden, Chile, Mexico, the U.S. and Korea and Japan respectively. These examples also draw our attention to how soft power outcomes can be negatively impacted across space, but also through time. Note how attitudes of previous family relations become passed on, and in doing so, come to generate, at times, perceived rivalries, leading to present and future generations' more negative mindsets to other nation's 'success' in specific areas – such as in international sport (Brazil vs Argentina in football, or England vs Wales in Rugby Union), religion (Catholic vs Protestant), space exploration (U.S. vs. Russia), economics (Washington Consensus vs Beijing Consensus), and politics (Republican vs Democrat, Conservative vs Labour). In this sense, soft power can be just as much dependent on the past as it is the present and future.

Consequently, what quantum entanglement shows us, and as Figure 4 illustrates, is that soft power is not solely a process that flows in one direction, as Newtonian perspectives suggest; rather, soft power exhibits a fluid and multidirectional existence, one that is
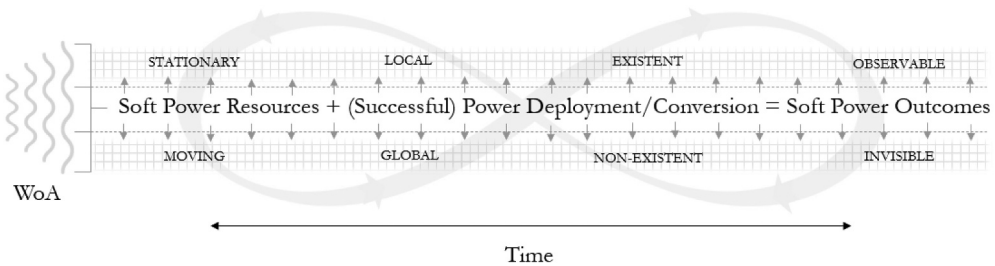

Figure 4. Soft power quantum entanglement.

constantly moving forwards *and* backwards: in the classical, Newtonian one-directional view, soft power resources lead to conversion attempts and then onto definitive outcomes; however, as we have seen, so too can soft power outcomes later revert back to new soft power resources; in doing so, conversion attempts are not solely concerned with turning resources into outcomes, but also converting outcomes back into resources. Moreover, soft power does not take place solely in the present, but its existence is dependent on the entanglement of past, present *and* future. This, as we have seen, occurs through memory, and demonstrates how the measurement of past, present and future as separate entities 'obscures the more complex, open field within which the memory remains alive' (Fierke and Mackay 2022, p. 346). Memory is thus itself an entangled phenomenon that can be triggered by contemporary challenges, and in doing so, bring past events to the surface, in turn creating new memories and thus new realities (ibid.).

Viewing soft power in this way draws attention to our second, and final point: how, in order to truly understand soft power, any analysis needs to be fundamentally holistic – that is, to recognize that the properties and very existence of the parts depend on the whole, rather than the other way around (see also: Der Derian and Wendt 2020). Take the concept of 'soft disempowerment', referring to 'actions, inactions and/or policies of states that ultimately upset, offend or alienate others, leading to a loss of credibility and attractiveness' (Brannagan and Giulianotti 2015, 2018, p. 1152). Soft disempowerment has been applied in multiple contexts around the globe to show how any attempt at soft power holds the potential to backfire, leading to international scrutiny from a myriad of actors (media networks, non-governmental organizations, human rights groups, activists, celebrities, etc.) resulting in a loss of reputational gains. This inherent, ever-present potential for negativity, and the highly complex transnational architecture of actors involved in this process, shows how soft power and soft disempowerment are intricately connected; in fact, a QIR perspective moreover identifies how their very existence is brought to life by their entangled state – indeed, there would be no soft power without some form of soft disempowerment, as the constitution of 'attraction' is always relationally dependent on the constitution of 'unattraction', and vice versa.

Consequently, we cannot develop a full understanding of soft power by treating resources, conversion attempts and outcomes as separate entities. Rather, we must prioritize the inherently connected, and at times, long-distance, relations that produce soft power in the first place. Indeed, as we have seen, viewing soft power as something that is state-specific is too narrow a perspective; instead, soft power – as manifest in the form of ideas, causes, visions, and events – is something that is shared between actors, as inventions in one part of the world lead to new interpretations in another. A 'state's soft power' is, therefore, never truly their own, but rather just one fluid, transient component of the world's matrices of soft power. Thus, whilst we may indeed say that states such as China and Qatar are 'going global', so too is the world being absorbed into China and Qatar as these two countries seek to produce their own hybrid version of borrowed soft powers from elsewhere, which in turn, also create new, direct soft power reactions by others (see also: Pan 2018). Accordingly, as opposed to seeing relations simply *between* discrete actors (as in Newtonian perspectives), soft power is a process that actually takes shape *out of* complex matrices of inter-relationality. The result is that everything is related to everything else – there is thus no one single, essential entry point for analysis (Biersteker 2022).

This holistic view also draws our attention towards the need to see soft power as part of an 'entangled assemblage'. An 'assemblage' refers to 'new geographies of power that are simultaneously global and national as well as public and private' (Abrahamsen and Williams 2010, p. 175). From a quantum perspective, an assemblage is not simply the coming together of sets of individual relations, but rather denotes a highly complex web of intrinsically entangled relations that stretch across the globe, producing profound implications for everyday life (Murphy 2021). The entangled nature of assemblages means that to understand this complex web of inseparable relations, the assemblage in its entirety must be considered when endeavouring to explain any of its parts. This is because, with entangled assemblage, the various entangled relations that form the assemblage 'are no longer fully separable, but rather correlated non-locally' (Wendt 2015, p. 234).

In soft power terms, entangled assemblages locate how social structures – including our waves of attraction – should not be viewed as hierarchical but rather as composed of messy webs of entangled relations. The phenomenon of entangled assemblage takes us full circle, back to how our waves of attraction become 'waves' in the first place. As previously mentioned, social structures are not only invisible, but unpredictable, demonstrating uncertain movements at given times. What instigates the movement of waves of attraction are entangled soft power assemblages – that is to say, soft power assemblages that are entangled across space and time, between *emergent* conceptions of 'attraction', on the one hand, and responses and reactions to *emerging* events, causes, trends, and actions, on the one other. In this sense, the social structural forces of waves of attraction and the agency of political leaders are mutually causative, as the interaction and entanglement between structure and agency comes to simultaneously facilitate both the development of the waves of attraction themselves, and the action of political leaders that make up that very structure in the first place. Put differently, there exists here a double involvement in which past, present and future soft power attempts both create waves of attraction and are at the same time conditioned by them.

5. Conclusion: implications of a quantum soft power

In responding to ongoing theoretical difficulties, this paper set out to offer a highly original and radical rethink of one of international relation's most applied and versatile concepts: soft power. It has done so by highlighting the inflexibility and narrowness of Newtonian accounts of soft power, with their adherence to the general principles of motion, local and linear causation, and predictive regularity. To develop a true understanding of soft power in its entirety, we have argued that a quantum mechanical framework is required. Only through a QIR approach are we able to fully capture the complexity, unpredictability, and wholeness of soft power. To conclude, we chart the high significance of the quantum paradigm on soft power for academics, and policy makers and strategists, with respect to retheorizing, developing, and applying the concept, and to reframing and pursuing foreign policy aims and objectives. From both a theoretical and practical perspective, the quantum theorization of soft power has three key areas of overarching significance. First, we have sought to advance understandings of how soft power materializes by showing that resources should not be the starting point for any analysis. Indeed, from a QIR standpoint, we have shown how foreign policy analysts, as well as academics, should rather focus attention on how their resources align to dominant waves of attraction. Consequently, we

call for a step change in analysis of soft power, one that fully appreciates the totality, multi-dimensional complexity, contingencies, and fluid nature of the global landscape in which soft power is constantly made and remade, pursued, negotiated, and exchanged. As we have seen, part of this complex fluidity involves the intertwining of soft and hard power, as those states with the largest share of wealth and technology occupy a greater capacity to locate and influence dominant waves of attraction, through, for example, population surveys, internet data sweeps, infrastructural development and the hosting of major sport and other cultural events. We argue, therefore, that states should think carefully about at what stage of the soft power they focus their spend, as spending significant sums on soft power conversion strategies – such as investment in the staging of major cultural events, for instance – may well be a much less effective approach than directing spend towards understanding the current landscape, particularly when one's soft power resources fail to align to waves of attraction. This was the case with our example of Qatar, whereby the significant sums spent on organizing the 2022 World Cup should have been redirected towards first understanding if and how the state aligned to dominant waves of attraction. Investment in research, therefore, should be seen as the crucial variable of success for foreign policy makers, and not solely one's ability to convert resources into outcomes. Second, academics and foreign policy strategists should not treat soft power as something that belongs to, or can be controlled by, any specific state or its leaders, but must rather be understood as a shared process. Our example of China's image in the U.S. demonstrates this – while China's soft power conversion strategy may well be seen as relatively success-fully, in the U.S., China's soft power will only ever be considered in positive (as opposed to malign) terms if and when China actively embraces and aligns itself with U.S. foreign policy, and vice versa, through, for instance, the creation of new joint projects, policies, initiatives or development programmes. Conversation strategies are not enough on their own, but rather soft power survives on shared understandings of the very constitution of 'attraction' between sender and receiver. Furthermore, and perhaps more significantly, soft power resources, conversion attempts and outcomes do not take place in political, geo-graphical, or historical vacuums, but are constantly made and remade within sets of space-time relations. Consequently, the soft power process does not end with fixed outcomes, as Newtonian accounts would assume, but rather any attempt at soft power should be seen as one fluid, transient component of the world's matrices of soft power, as outcomes in one part of the world come to be transformed into resources and conversion attempts in another. Consequently, we suggest policy analysts should exercise high degrees of flexibility and agility, not solely in response to other's deliberate attempts to change their soft power strategies, but more importantly due to the way past and present soft power resources, conservation attempts and outcomes, by their inherent nature, become rapidly recycled and reactivated across time and space, leading to highly uncertain and unique effects. In this sense, to keep pace with the fluidity of soft power a 'state's' soft power strategy should never been seen as something fixed in time nor space, but rather cutting edge approaches to foreign policy need a greater emphasis on in-depth research and analysis to try to pinpoint the erratic movement of soft power, and in turn to ensure one's soft power maintenance exists in a constant state of adjustment and evolution. Soft power is, in other words, a process that requires constant attention, whereby effective foreign policy needs to be informed by investment in continuous analysis.

Furthermore, crucial for strategists is that, in order to force strategic relations abroad, tactically drawing on other's soft power outcomes to form their 'own', repackaged versions of 'new' soft power resources can go some way towards forging key relationships between nations and target populations – which, as we have seen, is vital to the influencing of waves of attraction in specific target areas, and in turn to the success of soft power resources in the first place. In this sense, foreign policy analysts should think carefully about who they wish to target with their soft power attempts, and then seek to actively draw on the soft power outcomes of those they seek to attract. As we have demonstrated with our reference throughout to Qatar, the staging of major sporting and other cultural events may well be one way to do this (see also: Brannagan *et al*. 2014). The significant global interest in events such as a World Cup is the result of the high levels of emotion and passion they inflict upon audiences, emotions which are generated by the past (soft power) successes of others (Brazil, France, Germany). Thus, future hosts seek to actively harness this passion for their own, recycled version of soft power. In this sense, State A (in this case Qatar) may draw on the previous soft power successes of States B (Brazil), C (France) and D (Germany), to generate 'new' resources as part of deliberate and tactical attempts to attract States B, C and D, and/or their different peoples, if indeed these are of strategic interest to State A. Of course, as we have seen, Qatar's efforts to effectively use the World Cup to harness the positive emotions of the World Cup was curtailed by the rigidity of the state's soft power strategy, and the inability to manoeuvre this strategy in line with dominant waves of attraction, most specifically linked to universal human rights.

Third, we argue that academics should move beyond viewing soft power as a stable entity that can be easily defined, as Newtonian accounts would suggest. Rather, soft power is a highly diffuse and complex process that occupies a duality of simultaneous existences, transforming only through the act of measurement. As we have seen, soft power lies in multiple conditions – it is both local *and* global, stationary *and* moving, existent *and* non-existent, observable *and* invisible, all at the same time. In turn, soft power will always be concurrently accepted *and* resisted by audiences at the moment of collapse. This is ensured through the way soft power is always impacted by destructive interference patterning, both in the present – through new negative waves of attraction – but also via the past, such as through memories and biases, that, in many cases, are transferred from generation to generation. Crucial in this regard is that soft power never dies, but is rather in a condition of quantum super-position, constantly popping in and out of existence across space and time as new interpretations lead to forever unique and contrasting wavefunction collapses. Key for both academics and policymakers to remember therefore is not only that outcomes can always come back into existence, but so too can they quickly transform into a state of non-existence as emerging ideas, visions and attitudes lead to the formation of new waves of attraction and unattraction.

Disclosure statement

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