Introduction

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The control of knowledge is fast becoming the dominant means by which economic, political, and social control is exerted globally. We can observe these dynamics in countless and seemingly unconnected corners of society, ranging from the increasing dependence on intellectual property rights and other intangible forms of property to capture economic value to the ever-more invasive cataloguing of citizens and migrants alike by the state at the border. The embrace of digitisation, the expansion of ubiquitous commercial and state surveillance, and the interpenetration of online and "offline" activity are reshaping our societies and our everyday lives.

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Scholars from various disciplines have recognised the significance of these changes. Interdisciplinary fields, such as Socio-Legal Studies, Science and Technology Studies (STS), Surveillance Studies, and Communication Studies, focus on discrete areas related to knowledge or specific issues, such as intellectual property, privacy rights, internet governance, or data governance. Unfortunately, International Political Economy (IPE) lags far behind these more specialised fields, still largely content to focus on production, trade, and finance as its primary concerns (Haggart 2017a). While much excellent work has emerged from the division of labour by discipline, much of it suffers from the same problem that afflicts modern academic knowledge production in general: the siloing of research and the stifling of dialogue across disciplinary borders. Even though phenomena such as the increasing economic reliance on intellectual property, ubiquitous surveillance, the preoccupation with data collection, the rise of online platforms, and the obsession with technological innovation describe different aspects of the same phenomenon—that is, the move of the control of knowledge to the centre of social life—they are almost always treated and studied discretely.

This edited volume makes the case that it is essential to study these phenomena as related and connected forms of knowledge governance. It came about because the three of us realised that although we are based in different disciplines—Haggart in IPE, Henne in Socio-Legal Studies and STS, and Tusikov in Criminology and Regulatory Theory—our specific research areas overlap significantly. This overlap was not so much in terms of our actual subjects: Henne has an abiding interest in the biometric tracking and regulation of bodies, Tusikov's work focuses on non-state internet governance, and Haggart focuses on copyright governance. Rather, we noticed that our three research agendas all shared a concern with technology-enabled surveillance, and the commodification of different aspects of the world for the purposes of exerting economic, political, and social control. Most significantly, it was abundantly clear that the rules governing all three areas were the result (and source) of great power. These rules create winners and losers, advancing certain values, norms, and policies at the expense of others. In short, we were all studying the control of knowledge as determinant of societal power and influence.

In order to test our assumption that these disparate issue areas can be productively linked, we convened a workshop in May 2018 at the Balsillie School of International Affairs in Waterloo, Ontario. The two-day work-

shop brought together leading and emerging scholars from across the social sciences with the goal of seeing whether a common dialogue and understanding would be possible. The chapters and reflections in this volume are the result of that workshop. Our authors and discussants represented the fields of Communication Studies, IPE, International Relations (IR), Criminology, Law, Political Science, Anthropology, STS, Socio-Legal Studies, and Women's and Gender Studies, a diverse group with positivist, interpretivist, and poststructuralist commitments.

In this introductory chapter, we set out the purposes of the workshop and this volume. We also outline our overall shared theoretical framework, which draws on the understudied (at least from a knowledge-governance perspective) work of the late IPE scholar Susan Strange. We then offer a critical analysis of her theory as it relates to knowledge governance, and conclude with an overview of the chapters in this volume.

1   Creating a Common Dialogue

For this project, we were interested in a few basic questions: what is the nature of a knowledge-based (or digital- or information-based) society? What are its effects? What sustains it? How just is this new form of society, and how can be it be made more just?

One of the biggest challenges to fostering truly multidisciplinary dialogue is agreeing on theoretical "ground rules." Every discipline has its own peculiarities, emphases, and jargon, as well as different conceptions about the purpose of social-scientific inquiry, namely whether research should primarily be to understand or to change society. In our case, the contributors to our volume did share two pre-existing general points of agreement:

First, a common understanding of knowledge as being socially constructed. In this volume, we do not share a single, fully realised, specific definition of what, exactly knowledge is. In fact, we argue that such a definition is likely a fool's errand. Our two lead-off chapters, by Haggart, and Bannerman and Orasch, employ somewhat different definitions of knowledge. Taken together, they suggest that different approaches to knowledge yield different insights, without one view being more absolutely correct than the other. While we might disagree, for example, about exactly what type of knowledge *technology* is, we all shared an understanding that *knowledge* represents a socially constructed interpretation of reality, and is distinct from the concept of information. Elsewhere, Haggart

(2017b), drawing on Berger and Luckmann (1966) and the sociology of knowledge, argues that if *information* is phenomena that exist regardless of human observation of it, knowledge is the necessarily partial, biased, and always-incomplete interpretation of information. Knowledge thus captures everything from data itself to intellectual property to privacy and surveillance regulations, all topics that are discussed throughout this volume. Categories like "data" and "intellectual property" may themselves resist easy definition, but acknowledging that they are socially constructed—as Gitelman (2013) remarks, "raw data is an oxymoron"—and thus have a certain flexibility to them allows us to engage in a productive debate over the consequences of defining these forms of knowledge in a particular way. This is why we as editors have not required that our contributors agree on all nuances of these and related definitions: our goal is to spur discussion, not to artificially close off debate. After all, if all knowledge is necessarily partial, so too will any single definition fail to fully describe the underlying "reality" to which it is applied.

Second, an emphasis on the importance of regulation in creating and framing knowledge, and in governing its social effects. As Haggart lays out in this volume, regulation governs the way that knowledge is legitimised, created, disseminated, and used. The study of regulation is therefore a gateway to understanding power dynamics in society, as well as how rules (both formal and informal) create and sustain power imbalances, creating (and perpetuating) winners and losers.

This focus on regulation also partly accounts for the fact that most of this volume's chapters share a strong emphasis on empirical research. While this volume might be focused on the big picture—understanding the nature of the knowledge society—the chapters are all interested in how these macro-level societal changes are working themselves out on the ground, on how they affect actual individuals and groups. More specifically, while the contributors may differ somewhat on whether all research should be designed to emancipate groups, all are concerned with issues of social justice, and are conscious of the existence of injustices and how they can be propagated by social norms and regulations. Halbert, for example, grapples with whether a more permissive copyright regime of the type that she would otherwise tend to favour is actually promoting hate speech that she (it should go without saying) finds abhorrent. Henne, meanwhile, provides us with a consideration of how India's unique-identity verification system, Aadhaar, has affected the most vulnerable members of Indian society.

As we note below, we still ran into misunderstandings and theoretical disagreements, particularly with respect to terminology and over the primary end purpose of theory. In the end, we felt these disagreements were generative: participants' open commitment to dialogue and to understanding these differences helped to clarify, not impede, our discussions. They were "productive problems," to use a phrase that was repeated several times during the workshop.

2   ENTER THE STRANGE

Theory, consciously or unconsciously, precedes analysis. Therefore, even with these shared commitments, we agreed on the need for a shared theoretical framework that would be flexible enough to incorporate potentially conflicting ontologies and epistemologies, one that would allow us to talk with, not past, each other, and to give us a common reference point, even it sparked disagreements.

Susan Strange's name is not found in the pantheon of those theorists who have been brought to bear on our understanding of knowledge governance—Foucault, Veblen, Haraway, Berger and Luckmann, and so on. A giant in IPE, she founded the British School of IPE thought, coming to academia in her 40s following a 20-year journalism career including with the *London Observer* newspaper. Strange, who passed away in 1998 at the age of 75, was an idiosyncratic thinker who strongly favoured empirical research, building her understanding of the world from the ground up. For her, IPE was defined by its subject matter, the politics and economics of the international order, and it invited a multitude of different theoretical approaches.[1] She was highly critical of American IPE and IR scholarship generally, seeing it primarily as a handmaiden to the U.S. state.

Despite her stature in IPE, Strange is virtually unknown outside of IPE and IR. Although (as we shall see) she placed the control of knowledge at the very heart of her theoretical framework, this lack of awareness holds true for those disciplines that study knowledge-related issues of the type covered in this volume: This lack of attention does make some sense, since her primary empirical contribution was to the study of global finance, not knowledge. With some exceptions (e.g., Mytelka 2000), those scholars

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[1] That said, as Langley (2009) notes, her materialist commitments have led to a bias against poststructuralist theory in the British IPE School.

who have picked up Strange's mantle have also tended to focus on international financial governance (e.g., Germain 2010).

Her relative lack of profile outside of IPE represents something of a missed opportunity for knowledge-governance scholars. As we develop through this volume, she offers us a very compelling, if imperfect, way of synthesising and understanding not only disparate parts of the knowledge society, but of showing how knowledge-regulation connects to and affects the wider society.

Strange does not offer a grand theory to explain social relations. Unlike Marx, for example, she offers a minimalist theory of the global political economy derived from some basic first principles. This theory tells us what is in the world and how these elements are related. Because its claims are very broad and general, her approach can accommodate vastly different theoretical perspectives. This framework may frustrate those seeking a theory of everything, but it is perfect for those of us who eschew such theorising and want to talk across theoretical boundaries.

2.1   Key Concepts

Like all productive theories, Strange's framework is useful because it focuses our attention on key aspects of the world around us, and allows us to generate productive questions. Here, we highlight four in particular:

2.1.1   Structural Power

In her 1987 (2nd edition 1994) book *States and Markets*, Strange argues that societies of any size must provide the following: physical security, a sense of justice, material wealth, and individual freedom. Societies differ in how they order the relative importance of each of these, and how they are delivered.

These aspects are delivered through the creation of rules and norms that comprise social orders. This is done through the exercise of power. For Strange, the key form of power was not relational power, defined as the ability to compel someone to do something they would not otherwise do. Rather, she argued we should focus more on what she called structural power. Strange defines structural power as:

> the power to shape and determine the structures of the global political economy within which other states, their political institutions, their economic

enterprises and (not least) their scientists and other professional people have to operate. This structural power … means rather more than the power to set the agenda of discussion or to design … the international regimes of rules and customs that are supposed to govern international economic relations. … Structural power, in short, confers the power to decide how things shall be done, the power to shape frameworks within which states relate to each other, relate to people, or relate to corporate enterprises. The relative power of each party in a relationship is more, or less, if one party is also determining the surrounding structure of the relationship. (Strange 1994, 24–25)

In short, Strange advocates focusing on the underlying game and the norms that structure interactions. Such an approach has an obvious utility to students of regulation and norm construction.

2.1.2   *Four Key Structures; The Knowledge Structure*

If Strange's conception of structural power has an innate appeal for those interested in studying how societies are structured and change, it is her observation of the key areas of power in the global political economy that should make anyone interested in anything related to knowledge governance pay attention. Different theorists have identified different ultimate sources of social power. For traditional realists in IR, it is the ability to provide security for one's society that is the ultimate precondition for the very existence of society. Marxists, famously, argue that in the end it is production that turns the motor of history. Poststructuralists, for their part, say that it is language that makes the world go round.

In contrast to these monocausal theories, Strange argues that power emanates from not one, but four, key sources:

- Security: the ability to provide or deny physical security;
- Production: the ability to determine what gets produced, by whom, and who can consume production;
- Finance: the ability to create money and to allow and deny access to credit; and
- Knowledge: the ability to determine what is considered to be legitimate knowledge, and to determine who can create, disseminate and use this knowledge.

Strange argues that none of these is necessarily a priori more important than the others. Instead, the question of which one is most important can only be answered by looking at history to determine which structure is

dominant at that moment. Historical context matters. Each source of structural power (which she refers to as "structures") is interrelated, meaning that what happens in one structure affects what happens in another. The dominance of a structure means that its logic will dominate the functioning of the other structures. For example, in an era dominated by production, as most of the twentieth century was, research and development was seen as an input into the production of new products. In the twenty-first century, with the knowledge structure dominant, technology itself is no longer just an input; it has become the product to be bought and sold (Breznitz 2007).

Of greatest importance to this volume is Strange's description of a knowledge structure. Her conception of structural power offers us a framework to understand the historical emergence of a knowledge-based society as being continuous with what had previously existed. It links the various forms of knowledge-regulation under a concept—the knowledge structure—in a way that allows us to overcome the artificial barriers created by academia. Focusing on the underlying rules and norms helps to render visible otherwise-hidden power dynamics. For example, the chapters by Tusikov and Winseck (complemented by Carr's reflections on their contributions) both examine what underlying structures—related to the Internet of Things (IoT) in Tusikov's case, and control over the internet's infrastructure in Winseck's—can tell us about the exercise of power in the internet age, rendering visible the "plumbing of power."[2] Strange, herself a materialist, would likely also have agreed with Carr's acknowledgement of the importance of the materiality of the internet to the exercise of power as elaborated by Tusikov and Winseck.

While her knowledge-structure framework poses some conceptual problems, discussed below and in the chapter by Haggart, it has the very distinct advantage of identifying where we should be focusing our attention: on the rules and norms governing the knowledge structure, and how changes in their relative importance compared with the other structures are affecting society, for better and worse.

2.1.3   State and Non-State Actors; Market and Authority
The power of private actors to set standards and enforce rules is one of the defining characteristics of the current digital world. The companies that dominate online activity—what Tusikov (2016) calls macro-intermediaries—often

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[2] Thanks to Mark Schwartz for this turn of phrase.

have the global scope to structure the lives of billions of individuals via their privately set regulations. Examples range from a payments service like PayPal that, through its terms of service, can (and does) go beyond what is required by the law to decide who can and cannot use its services (Bridy 2015; Malcolm 2017), to online intermediaries from Google to GoDaddy engaging in "handshake agreements" to act as judge, jury, and executioner in the private enforcement of trademarks (Tusikov 2016).

Any understanding of the current global political-economic moment, therefore, must account for how private actors have state-like capabilities to regulate our lives. Despite the long history of private actors, especially companies, setting and enforcing rules online, often through self-regulatory efforts or in some form of cooperation with the state (e.g., Marsden 2011), it would be a mistake to write off the state as a dominant global player and form of governance. In fact, as many internet governance scholars have noted, the internet is highly amenable to regulation by both states and private actors (e.g., Wu and Goldsmith 2006; Zittrain 2006). At the end of the day, states are still seen as the primary legitimate authority for organising politics and society. It is also likely that tech companies' regulatory dominance is somewhat overstated. Tusikov (2016) reveals, for example, that supposedly voluntary agreements to enforce trademarks online between trademark rights holders and internet intermediaries like Google are actually actively crafted, very quietly, by states. State power is still important and must be accounted for in any analysis.

These political dynamics would be very familiar to Strange. For Strange, structural power is subject to political contestation and involves a contest between both state and non-state actors. She frames this contestation as a battle between what she calls market (non-state actors, often businesses) and authority (the state). At a given time, either one of these may be more or less important in determining the shape and content of structural power. In her formulation, the state is neither the handmaiden of capital nor the ultimate authority; rather, battles to dominate the various structures involve a contest between what she terms market and authority. In any given situation, structural power may lie with either or both types of actor, with political outcomes reflecting "where structural power lies in that relationship" (May 1996, 174).

This approach thus avoids the tendency, prevalent among American digital-rights activists, to treat concentrated private, corporate power as

less problematic than state power (Glaser 2018). In a Strangean framework, both state and non-state actors are taken seriously, with similar capabilities to structure our lives, for good or ill. Any analysis that downplays either state or non-state actors, or that fails to investigate their interplay, is necessarily incomplete.

2.1.4   Research Focus and Emphasis on Empirical Work

Strange's journalism training is nowhere more obvious than in the research question that motivated her academic work. Her guiding question, famously, was *cui bono?*, or Who benefits? Emphasising that political and regulatory decisions create winners and losers focuses the mind in a particular direction: on the rules, institutions, and mechanisms in, say, finance that drive outcomes; on the actors that set the rules in motion; and on the winners and losers from these policies.

Strange's research question also implies an empirical methodology. It necessarily requires that one get down into the weeds to understand how a particular part of the world actually works, and to analyse its eventual outcomes. Engaging in empirical research makes it difficult to abstract too far from the lived lives and politics of real people. In emphasising the importance of deep understandings through empirical research, it also provides a way for scholars from a multitude of disciplinary backgrounds to get together.

As the preceding reflection suggests, Strange's theoretical approach provides a flexible way for scholars to come together and engage in a dialogue based on a common approach. It has a simple and productive research question. It requires accepting only a few key points: that norms and rules are constitutive of society and worth focusing on; that there is a relationship between her identified structures[3]; that empirical research has value; that both state and non-state actors can be authoritative; and that the relationship between market and authority is historically contingent and must be investigated, not assumed.

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[3] And even if one does not buy Strange's argument about these being *the* key structures/ sources of structural power, or that none of these is necessarily a priori more important than the others, her formulation can still get us thinking about the relationships between these issue areas.

2.2   *Strange in Critical Focus*

For us and the other workshop participants, Susan Strange was a means to the end of facilitating cross-disciplinary dialogue. The workshop was explicitly designed not to be a workshop on Strange's approaches to knowledge governance but rather to be a workshop on knowledge governance that uses Strange to help us engage with the topic. Consequently, the direct Strangean footprint in some of the contributions is relatively light, confined to a focus on state and non-state interactions over knowledge-regulation, as in the chapter by Fish. That said, while the workshop participants all found Strange's theoretical framework a useful way to frame our discussions, we did not (and do not) apply her uncritically in this volume. Our discussions revealed several gaps in her approach. They are primarily related to her embrace of materialism over social construction, and the status quo, or stability, bias in her theory. We revisit these limitations throughout this volume, particularly in the reflections that end each section and in the conclusion.

2.2.1   *Underdeveloped Conception of the Knowledge Structure*

Of her four identified main sources of structural power, Christopher May (1996, 182) argues that the knowledge structure is both the "most suggestive (and problematic)." The other three structures are relatively well-developed. The production structure draws on Marxist analysis (May 1996, 178), while the security structure would be familiar to any realist IR scholar in terms of its relationship between the strong and the weak and the need to police borders against other states. The finance structure, meanwhile, was the subject of much of Strange's productive scholarly work (most notably Strange 1986, 1998).

There is a logic problem at the heart of her knowledge structure. The knowledge structure consists of two parts: the power to designate what is thought of as useful knowledge—in other words, what is considered to be "true" knowledge—and the power to determine what knowledge is produced, and how it is disseminated and used, and by whom. Moreover, Strange claims that the knowledge structure is interrelated and equivalent in importance to the other three structures. As May points out, however, the power to determine what constitutes legitimate knowledge would seem to also involve the power to determine whether we should value security, say, over prosperity. As a result, this power would necessarily have to stand above the other structures.

Strange does not make this move because her conception of power is strongly materialist. As a result, she never fully (or perhaps directly is a better word) engages with the notion of immaterial power and how this might construct material power. Instead, she leaves this problem unresolved. Strange's materialism also manifests itself in her failure to mark a difference between *information* and *knowledge*. For her, the two are effectively the same thing, with knowledge essentially being more-complex forms of information. That Strange does not buy into the notion of social construction explains the conflation of these two points and represents a key difference between our approach and hers.

As we discussed earlier, we take the position that knowledge is indeed socially constructed and that how it is constructed, and in whose favour, is a primary research question. That said, for reasons that we discuss below, we do not believe this is a fatal flaw in her theory. In his chapter, Haggart offers a possible way out by analytically separating these two parts of the knowledge structure, so that the study of what knowledge is legitimated, and by whom, is set aside to focus on the regulation of knowledge. This question of knowledge-legitimation is picked up by Harb and Henne's discussion on the power dynamics behind disinformation in the service of the state constructing the identities of marginalised groups. In his reflection, Haggart highlights the significance of the power to name marginalised groups as discussed by Harb and Henne, connecting it to Halbert's discussion of copyright as a censorship regime. In both cases, power expressed through the knowledge structure is used to legitimise a particular form of truth itself. Meanwhile, Bannerman and Orasch offer a finer-grained conceptualisation of the knowledge structure. Both of these chapters suggest that while Strange's knowledge structure is very provocative, there is a need for further discussions about the best ways to conceptualise it. In this light, the chapters by Haggart and by Bannerman and Orasch should be seen as the start of the conversation, not its conclusion.

2.2.2   Identity Construction and Definitions of Granularity

Another consequence of Strange's materialist commitments is that she ignores identity formation and how socially constructed dynamics, such as race or gender, influence the provision (or not) of security, finance, and production, or their relationship to the creation or legitimisation of knowledge. Not only is her work silent on these points, in her 1995 presidential address to the International Studies Association, she famously said of feminists—in comments that were deleted from the published

version of her address—that they should "stop the whining and just get on with it" (Whitworth 2006, 88) (reported elsewhere as telling the female members of the association to "…stop whining, have their babies sooner rather than later and get on with their careers" [Centre for the Study of Globalisation and Regionalisation 1998]) even as her own ascendance to the very heights of a male-dominated field, was the embodiment of what many would characterise as a feminist achievement (Sen 1998).

Our workshop discussions also uncovered other theoretical blind spots. While we and the workshop participants found her commitment to empirical research as a means of understanding the world to be one of her most appealing characteristics, it nonetheless emerged as a point of contention. The issue turns on the notion of "granularity." In IPE, granularity refers to the embrace of a fine level of detail about a subject: to understand the global financial system, study how exchange rates are determined, and by whom, for example. In other disciplines, such as feminist studies and anthropology, however, they favour the notion of knowledge being "situated." According to Donna Haraway, a prolific feminist scholar who is attentive to human and non-human relations and inequalities, situated knowledges rely on "partial, locatable accounts of the world," which "are both accurate and explicitly embedded within the contexts of its own production" (Haraway 1988, 575–599). In other words, we have to get close to the ground—as opposed to far away, which positivists tend to embrace—in order to generate robust knowledge. In this book, Harb and Henne, Fish, and Henne embrace a more situated approach by looking at individual persons, or actual bodies, and how they affect and/or are affected by their social locations. While Strange's research question, *cui bono?*, gives pride of place to the location of winners and losers in one's analysis, it does not necessarily translate into either a direct focus on people as the unit(s) of analysis, nor does it necessarily foreground issues of inequality, be it economic or social. Needless to say, the lack of specific attention to these issues is concerning to scholars interested in issues of subjectivity and representation against the backdrop of social difference. Here, Germain, an IPE scholar, and Musto, a Gender Studies scholar, use their reflections to work through these issues.

2.2.3   Status Quo Bias

"Theory," as Robert W. Cox reminds us, "is always for someone and for some purpose" (1981, 128). All theories contain inherent biases, and Strange's is no different. While her focus on winners and losers emerging

from the exercise of structural power reflects a concern with justice, her framework also exhibits a bias in favour of stability and the status quo. For example, her 1987 article on whether the United States should still be considered a dominant power—"The Persistent Myth of Lost Hegemony"—embraces the values of order and stability. Here, the main problem with the global financial system was not the fact of U.S. hegemony, but that the United States, the dominant global power, was acting irresponsibly, a consequence of its peculiar domestic politics. In her analysis, order and stability emerge as key values. While she elsewhere indicated that she was not wedded to the states system and hoped to see the emergence of a "global civil society" to challenge the hegemony of a transnational corporate class (Strange 1999), in this case she expressed the hope that the United States would exercise more far-sighted self-interest in its engagement with the world. She was not necessarily against hegemony; she was against unstable hegemony. The failure to provide good governance is what is problematic for Strange.

2.3   Productive Problems

And yet, we must also note that Strange has tended to be identified as a critical theorist. Her focus on how society's underlying structures are contested—indeed, her insistence that we cannot take them for granted—separates her from problem-solving theorists who take these underlying structures for granted. Highlighting how these rules and norms advantage or disadvantage particular groups, in fact, effectively grants the Critical Theory point that underlying rules and norms perpetuate advantages and disadvantages. Indeed, this is exactly what structural power is supposed to do. Her comfort with the exercise of hegemonic power may not sit well with many social activists, but as Germain notes in this volume, there is no reason why activists cannot use Strange's conceptions to pursue transformative change. In fact, if her understanding of structural power is correct, they would be wise to think long and hard on its implications for how they might achieve such change. If there is one point we can take away from Strange, it is that we cannot wish away the exercise of power in the world: rules will always be contested.

Turning to the role of ideas, identity, and social construction in Strange's theory, we can make a similar comment. One of the most interesting things about Strange is that, in acknowledging that the ability to determine what counts as legitimate knowledge is a key element of

structural power, she opens the door to engage with issues of social construction, of identity construction, and to distinguish between knowledge and information within her theory. Focusing on how the legitimation of knowledge occurs, and by whom, offers a front door through which we can consider the power dynamics involved in perpetuating ideas related to and categories of ideas such as gender and race. While Strange's materialist commitments meant that she was unable to follow her theory to its logical conclusion in this area (May 1996), there is no reason why we cannot.

Overall, Strange's theoretical framework as it relates to knowledge is underdeveloped (May 1996), a fact to which Haggart in this volume pays particular attention. Her conceptualisation of knowledge and information is highly unsatisfying and her stated categories of what comprises knowledge are not wholly convincing, but for all that, they do introduce the fundamental question of what is knowledge as a source of (immaterial) power into a discipline—IPE—that tends to shy away from such questions. Hers is a primarily materialist theory that explicitly includes social construction in her conceptualisation of the knowledge structure. It exhibits a strong bias towards stability and the status quo, but her primary research question, *cui bono?*, is an open invitation to social change for those who are not happy with how this question might be answered. Her (and IPE's) conceptualisation of granularity may not explicitly hold persons as the primary unit of analysis, but as Fish and Henne's chapters suggest, there is nothing in Strange that suggests that they cannot be.

One of the ways to judge a theory is by whether it produces useful research questions. From this perspective, Strange's approach has much to recommend, particularly as it relates to the study of knowledge governance from a multidisciplinary perspective. In fact, its messiness is one of her theory's most important advantages because it produces productive problems that spur further thought rather than close off areas of research. Setting material forces alongside the immaterial (however slight it might be in her original conceptualisation) allows us to use her theory as a playground: she identifies the two as important but leaves it up to the rest of us to have the discussion about their relative importance and how they might fit together. Similarly, asking who benefits from a particular configuration of structural power puts us on the road to solving an empirical question while leaving open whether the discovered state of affairs is desirable or not. It also leaves open the question of which "who's" from her research question that our own research should consider.

Beyond these contested points, her theorising about structural power and the balance between market and authority yields very fruitful pathways for future research. In the case of knowledge governance and its relationship with other facets of structural power, it renders visible the importance of knowledge governance, and invites us to consider how the rising dominance of the knowledge structure might affect our conceptualisations of security or how production is structured. It suggests that we should pay attention to both state and corporate power and their interaction. It places human agency front and centre: change does not happen because of some amorphous thing called "culture" or "the market": it happens because state and non-state actors—people—act purposefully to their own ends. Crucially, it emphasises the need to pay attention to how changing underlying rules and norms create winners and losers in society. Perhaps most importantly, if our workshop experience is anything to go by, it provides a framework to encourage discussion amongst people from disparate backgrounds. Given that our current understanding of what Strange calls the knowledge structure is currently the domain of many different disciplines, this is a very good thing.

3   Organisation of This Volume

As we have already stated, the purpose of this volume is to provide a fuller understanding of the knowledge structure as it is currently constituted, drawing on different interdisciplinary analyses and perspectives. However, we recognise that knowledge structures are historical constructs. Consequently, both the knowledge structure and our understanding of it change over time. One of the challenges in writing anything, be it a book, journal article, or edited volume, is that the act of writing something down tends to imply a degree of finality to the consideration of the topic. In real life, of course, debates are never settled fully. While all of the contributions in this volume are well-considered and thoughtful engagements with their subjects, we see all of our work as part of an ongoing discussion. We want them to inspire as many *yeah, but …* moments as *a-ha!* ones.

Furthermore, we are very conscious that although our individual names are at the top of each chapter, they are the product of numerous dialogues with other texts and colleagues. Of particular importance in this case were our four workshop discussants, who were selected according to their particular expertise and who each commented on two papers. While their work is reflected in the final versions of the chapters in this volume, we

wanted to make visible their perspectives, and to highlight the extent to which these papers are the product of an ongoing conversation that we hope continues far into the future. We have taken their comments and synthesised them with the themes that arose during the workshop's general discussion, presenting them here as "reflections" on the workshop.[4] We hope that they provide readers with an idea of the questions and issues these chapters have spurred in our minds as we worked through the puzzles they presented.

While the expansive nature of knowledge governance means that we are not able to cover all issues in an eight-chapter volume, we have organised the volume to highlight four themes. Each of the four parts includes two chapters, followed by a reflection from the discussant responsible for critiquing the papers.

The first section engages directly with Strange in an attempt to further develop her theoretical framework and to address some of the concerns raised in this introduction. Bannerman and Orasch's lead-off chapter begins by illustrating the relationship between what they identify as the three key parts of the knowledge structure—technology, ideas, and regulation—and the other three structures, including how these three structures (production, security, and finance) themselves feed back on and influence the knowledge structure. In doing so, they offer a template to other researchers who may wish to apply Strange's framework to their own issue area. What's more, they use Strange's framework to offer their answer to explain why some tech and information society writers were so much more optimistic than others. By considering four classic texts in terms of the extent to which their analyses engage with structures beyond the knowledge structure, Bannerman and Orasch conclude that analyses that more deeply engaged with all four of Strange's structures were more likely to register the potential for power inequities emerging from the interactions among the knowledge, production, security, and financial structures.

While Bannerman and Orasch point to the utility of Strange's multi-structural framework of analysis as applied to the political economy of communication literature, Haggart proposes a reformulation of Strange's knowledge structure that renders it more amenable to empirical analysis

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[4] Brad Sherman served as the discussant on Debora Halbert's paper. However, as Jenna Harb and Kathryn Henne's paper was not presented at the workshop, the reflection on these two papers is credited to Haggart and incorporates Sherman's comments.

and addresses the problematic material/ideational highlighted in this introduction. He proposes an analytical distinction between the two, which he calls the *knowledge-legitimation* and *knowledge-regulation* aspects of the knowledge structure. This separation allows us to consider the interplay between the material and the ideational as it relates to the legitimation of knowledge, while focusing on knowledge's regulatory aspects highlights the power dynamics that shape the knowledge structure, as well as the forms of legitimate knowledge it supports. He uses this framework to analyse the negotiation of the Trans-Pacific Partnership (now the Comprehensive and Progressive Agreement for Trans-Pacific Partnership).

The second section is directly concerned with the exercise of structural power as it relates to knowledge governance and the internet. In a departure from the theoretical explorations from Bannerman and Orasch, and Haggart, Tusikov and Winseck offer highly empirical accounts that examine the power relations inherent within the IoT and the internet's material infrastructure. Tusikov argues that knowledge governance is a core feature of the IoT devices, which are embedded within copyright law and manufacturers' licensing agreements that govern the devices' all-important software. Control over software, Tusikov contends, enables control over hardware, meaning that consumers have a limited, even precarious ownership over their purchased goods. Drawing from critical data studies, her chapter invites a consideration of the changed nature of ownership of software-enabled physical goods and, more broadly, the ways in which manufacturers' control over data, in this case from IoT devices, is an increasingly important source of regulatory power and central feature of the global political economy.

Winseck, meanwhile, tackles the conventional wisdom regarding American dominance of the internet. The full picture regarding American power requires looking not just at the content layer of the internet, but also at who controls the physical machinery of the internet—a pure expression of structural power. From this perspective, he argues, the issue of control is much more complex. The rise of non-American control over and involvement in key internet-infrastructure projects around the world suggests that American dominance is already on the wane. In its place, he argues we are likely to see the emergence of what Eli Noam calls a "federated internet."

The third section focuses on what Haggart calls the *knowledge-legitimation* aspect of the knowledge structure: the determination of truth. Halbert's contribution considers copyright—a central form of

regulation in a market-based, knowledge-driven economy—as a tool of censorship. While we are used to thinking of copyright as a law regulating the market in creative works, it functions primarily by determining what can and cannot be expressed, that is, as a form of censorship. Copyright's censorship function has long been targeted by activists in the name of freedom of expression and creativity. Complicating this easy narrative, Halbert profiles two cases in which copyright has been "weaponised" as a tool to fight racism and white supremacy. Given the toxic effects of racism and white supremacy, does this make copyright-as-censorship a good thing? Is tolerating neo-Nazi screeds the price of free speech? Halbert, in the end, rejects this simple framing and invites us to consider not the unrealistic question of whether rules should govern speech, but *what rules* we should adopt. Because there are always rules.

If Halbert's chapter focuses on the use of copyright to delegitimise forms of knowledge (be it culturally enriching or racist and socially destabilising) through its suppression, Harb and Henne's chapter focuses on another form of knowledge power: the delegitimisation of individuals and peoples through the creation of misinformation and disinformation. The ability to determine what counts as legitimate knowledge is a fundamental source of structural power within the knowledge structure, and they show how the U.S. and Canadian governments have used this power against Indigenous populations. If nothing else, as they state, it is a reminder of the continued (structural) power of the settler colonial state to, in a sense, define reality.

Following on Harb and Henne's analysis on state use of misinformation to define and delegitimise vulnerable peoples, the chapters in the final section engage with how knowledge-regulation is used to control people.

Surveillance features prominently in both chapters, in two different contexts. Henne's chapter examines the increasingly relevant practice of jurisdictions using biometric technologies to collect data and verify of social assistance recipients. While usually promoted as a way to save money and prevent fraud, they also represent mechanisms of control over the most vulnerable people in society. Henne considers the Aadhaar system in India, which has issued over one billion unique identification numbers since being launched in 2010, examining the way that such surveillance works as a means to regulate its subjects.

Fish centres her analysis on the history of surveillance at the Mariposa Port of Entry in Ambos Nogales (Nogales, Sonora, in Mexico and Nogales, Arizona, in the United States). Surveillance, she argues, does not exist on its own, nor are its effects solely determined by its technological form (having

changed from face-to-face and paper-based monitoring to more complex digital and visual surveillance). Instead, it must be understood in its particular social and legal context. Ambos Nogales, as a meeting point between two nation-states, intersecting with social, political, and economic interests, is therefore an ideal place to examine how particular technological and social intersections work to define legitimate cross-border practices, including how "trust" is constructed in determining who and what is considered to be legitimate travellers and trade.

In our conclusion, we offer our answers to our primary questions—what is the nature of the knowledge structure as it is currently constituted? In whose interest is it operating? Drawing on the previous eight chapters, we assess the utility of Strange for understanding knowledge structure-related developments, arguing that this collection points to the many ways power structures are shifting. In the interests of continuing this important discussion we make an argument for treating knowledge governance as a single, albeit interdisciplinary, field of inquiry, defined by subject and open to diverse perspectives, similar to Strange's conception of IPE, and lay out a Strange-inspired research agenda. It is our hope that this agenda and the research presented in this volume will inspire others to approach knowledge governance as an integrated field of study, with this Strangean framework as a potential meeting point for future inter- and multidisciplinary research.

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