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## The Value of Diversity in Multilateral Disarmament Work

John Borrie and Ashley Thornton

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## **The Value of Diversity in Multilateral Disarmament Work**

John Borrie and Ashley Thornton

UNIDIR  
United Nations Institute for Disarmament Research  
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The third volume of research papers, *Thinking Outside the Box in Multilateral Disarmament and Arms Control Negotiations*, was published at the end of 2006.

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The United Nations Institute for Disarmament Research (UNIDIR)—an autonomous institute within the United Nations—conducts research on disarmament and security. UNIDIR is based in Geneva, Switzerland, the centre for bilateral and multilateral disarmament and non-proliferation negotiations, and home of the Conference on Disarmament. The Institute explores current issues pertaining to the variety of existing and future armaments, as well as global diplomacy and local tensions and conflicts. Working with researchers, diplomats, government officials, NGOs and other institutions since 1980, UNIDIR acts as a bridge between the research community and governments. UNIDIR's activities are funded by contributions from governments and donor foundations. The Institute's web site can be found at:

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Lastly, for his part, John Borrie wishes to dedicate this book to the memory of the brilliant Clive Pearson, New Zealand Disarmament Ambassador in Geneva from 1996 to 2002. Clive passed away in 2007. He is missed deeply by all of those who knew him.

John Borrie and Ashley Thornton  
October 2008

## ABOUT THE AUTHORS

**John Borrie** led UNIDIR's project on Disarmament as Humanitarian Action: Making Multilateral Negotiations Work (DHA) and co-founded the Disarmament Insight initiative ([www.disarmamentinsight.blogspot.com](http://www.disarmamentinsight.blogspot.com)), a collaboration between UNIDIR and the Geneva Forum. His research and working experiences have covered many aspects of arms control and disarmament. As well as editing and contributing to the three preceding volumes of the project's work, John is the author of "A Global Survey of Explosive Remnants of War" (2003), and many articles and papers published on disarmament-related topics. Prior to joining UNIDIR, John worked with the Mines–Arms Unit of the International Committee of the Red Cross and was Deputy Head of Mission for Disarmament in Geneva with the New Zealand Government between 1999 and 2002. Currently, he is leading a new UNIDIR project conducting policy-related research about the so-called Oslo Process toward a treaty to prohibit cluster munitions that cause unacceptable harm to civilians, including a book telling its story to be published in 2009.

**Ashley Thornton** joined the DHA project as a researcher in 2006 after completing her undergraduate degree in psychology and French studies at Smith College in the United States. Ashley's research focused on the psychological aspects of negotiations and she wrote about this subject regularly on the Disarmament Insight website in an effort to help multilateral practitioners see their work differently. Ashley has also worked for Landmine Monitor, where she conducted desk research on mine action, mine risk education and victim assistance programmes in Algeria, Libya and Morocco. She is currently undertaking graduate studies in Political Science at the Graduate Institute of International and Development Studies in Geneva.



## FOREWORD

In late 2004, the United Nations Institute for Disarmament Research (UNIDIR) began a research project entitled Disarmament as Humanitarian Action: Making Multilateral Negotiations Work (the DHA project). The project has examined current difficulties faced by the international community in tackling disarmament and arms control. Recognizing that a greater humanitarian focus is relevant to the work of multilateral practitioners such as diplomats and other policymakers, the project is concerned with developing practical proposals to help them apply this focus in functional terms.

The cognitive aspects of multilateral negotiation have been of abiding interest for the DHA project's researchers. From their own observations during the course of the project, they could see that most disarmament diplomats are understandably focused on the practical aspects of their jobs—of meeting, of trying to develop collective intentionality despite differing interests and conceptions of interest, of drafting text, and of managing process. As such, many of them are unaccustomed to thinking about what they do and how they do it in terms different than those they have acquired professionally.

But still, as I noted in the foreword to the previous DHA volume *Thinking Outside the Box in Multilateral Disarmament and Arms Control Negotiations*, despite the often repeated cry that “one size does not fit all”, precedent exerts a strong hold on disarmament diplomacy. Sometimes, the attempted—and often abortive—responses of established multilateral institutions such as the Conference on Disarmament are more striking for their inherited procedural resemblance to one another than whether they were optimally constructed to achieve a meaningful goal. Familiar tools and approaches are often chosen, instead of selecting those best for the job at hand.

At root, disarmament and arms control are issues of human security, and thus a humanitarian approach could have great effect. In particular, such a perspective puts greater stress on the individual and their community as reference points for security and enables problems of armed violence to be framed in new ways and appropriate responses to be identified that may not have been apparent before.

Thinking on the human scale can also help those involved in disarmament work to come to grips with constraints on their own interactions and effectiveness, and that is the focus of this volume. Drawing upon research from domains such as behavioural economics, cognitive and evolutionary psychology, decision modelling and complexity, the authors explore the kinds of intuitions and perceptions affecting how multilateral practitioners frame disarmament problems and interact in multilateral negotiations. In so doing, they show that people's cognitive constraints and the issues and environments with which they are expected to cope can affect their chances of success—quite aside from factors such as “political will”. The message is that, while there is no way to ensure success, multilateral practitioners can increase their chances by recognizing and harnessing diversity of perspective, as humanitarian approaches in recent disarmament-related processes have demonstrated.

With this volume the DHA project ends this phase of its work, although the Disarmament Insight initiative continues and a new project stemming from DHA to document and analyse the Oslo Process on cluster munitions has begun. It has been my pleasure to work from the inception of the project with all of those who have been on the DHA team—Vanessa Martin Randin and Ashley Thornton, interns Talayeh Voosoghi and Eoghan Murphy, all of the contributors to DHA publications, and John Borrie, who led the team throughout.

Patricia Lewis  
Director, 1998–2008  
UNIDIR

Men at some time are masters of their fates:  
The fault, dear Brutus, is not in our stars,  
But in ourselves ...

Shakespeare, *Julius Caesar*, Act I, Scene II



## CHAPTER 1

### KNOWN AND UNKNOWN

#### INTRODUCTION

A lot of attention has been paid in recent years to the need for those involved in multilateral decision-making processes in the domain of disarmament and arms control to “think outside the box” in addressing contemporary challenges. But, beyond recognition that there are imperfections in current approaches, it is not always clear whether the parameters of the existing box are sufficiently understood or, indeed, what such new approaches could be in practical terms:

What is the world waiting for? An easy answer is new leadership with a clear sense of global responsibility—a deficit that is almost everywhere palpably clear: the United States, the United Nations, Europe, the rising power of China, the resource-rich ones of Russia and Iran. Too easy, because at a deeper level the absence of solutions is not only the responsibility of those who directly govern; it also belongs to the world’s flawed institutions, redundant ideas and disaggregated social ethics.<sup>1</sup>

The kinds of collective challenges that fall within the ambit of disarmament and arms control vary greatly. The traditional focus of these activities was on the arsenals of states—the priority during the Cold War being to control the spiralling numbers and spread of nuclear weapons, along with biological and chemical weapons programmes, and there were also attempts to address various conventional weapons systems.

Since the end of the Cold War, broader changes in the international security context have been sometimes rapid and far reaching. Indeed, it is a cliché that we live in a globalizing world, which is another way to say that it is becoming more interconnected. The consequences of greater interconnectedness, in conjunction with other trends such as technological advances and greater socio-economic inequity, are profound for the maintenance and development of international security by multilateral means. For example,



collective regimes such as the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) and the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction (BTWC) now have to come to grips with how to prevent the use of weapons of mass destruction by non-state armed groups, or even individuals—well beyond their traditional focus on states. Understanding and responding to hostile intent—not only restricting materials or technologies—is unavoidably becoming a greater element of the disarmament equation. Moreover, other issues such as addressing the demand for illicit small arms and light weapons or preventing cyberattacks revolve around the behaviour of many individuals and groups within different societies, with whom it is unfeasible and sometimes politically unacceptable to parley over the negotiating table in a multilateral forum.

While the issues and entities with a bearing on the success of multilateral disarmament and arms control work are becoming more diverse, the same cannot necessarily be said of institutional responses. Since 2004, the Disarmament as Humanitarian Action project (or DHA project, for short) has looked carefully at a range of different processes in multilateral disarmament work, and their degrees of inclusiveness and openness to new perspectives vary greatly. Of these processes, the Geneva-based Conference on Disarmament (CD) plays a special role as a standing body tasked with a range of international security-enhancing objectives such as fissile material negotiations, preventing an arms race in space and furthering steps to nuclear disarmament. Yet, as we shall see, the CD's diversity is questionable—in fact, the 65-state body holds outsiders at arm's length. Many of those who might be highly relevant to the CD's deliberations—by way of providing new ideas and helping to generate the collective mindset that would lead to new approaches—are not even allowed to be present. Unable to agree a work programme since 1998, the national diplomats comprising the CD have not made headway on any subject, let alone the priorities mentioned above.

Diversity of perspective is something not talked about much in the work of multilateral disarmament diplomats. Perhaps it is taken for granted that different states offer different perspectives, or it is assumed that different perspectives are synonymous with diversity of identity. We shall argue the presence of identity diversity does not always provide perspective diversity—and it is perspective diversity that is functional, or cognitive, diversity. Nor is it clear that representatives of states, in particular, understand what

benefits perspective diversity brings to their work. Bodies such as the CD were established in an era during which enhancing *national* security was the prerogative, and during which other perspectives were seen as much less relevant or even illegitimate. States were seen as having the answers because they had the weapons and—presumably—control over those weapons. But this is no longer always the case. Also, as we have argued in a previous volume, too often national security is used to prevent debate or reform of aspects of disarmament and arms control processes, such as rules of procedure or decision-making mechanisms.<sup>2</sup> While it is improbable that national security prerogatives would or could be entirely discarded as a final safeguard in negotiations, how these prerogatives are used needs to be regarded with a critical eye and be measured against broader concerns. This is necessary because the new conditions with which multilateral disarmament practitioners have to deal, such as those mentioned above, mean certain traditional assumptions must be relaxed in order to improve the effectiveness of their efforts.

This volume will show how diversity of perspective can benefit multilateral disarmament work, along with practical suggestions to encourage such diversity. For even if diversity is not usually regarded as an issue worth paying much attention to in some multilateral disarmament forums, it is certainly being recognized in other domains related to international security. For example, new methods are being applied in confronting terrorist groups. Data from diverse sources is being aggregated into information- and knowledge-sharing networks to create an improved picture of what is going on. But, as James Surowiecki concluded from looking at flaws in how the Central Intelligence Agency (CIA) and other US intelligence agencies performed in predicting terrorist attacks from 1993 to 2001, this is not enough:

What was missing in the intelligence community ... was any real means of aggregating not just the information but also judgments. In other words, there was no mechanism to tap into the collective wisdom of National Security Agency nerds, CIA spooks, and FBI agents.<sup>3</sup>

Thus, beyond simply gathering new facts in a database, aggregating perspectives is also important. New perspectives bring new insights, and with them useful innovation—even if sometimes they also can create some conflict. There is evidence in the multilateral domain—such as in the process leading to the 1997 Convention on the Prohibition of the Use, Stockpiling,

Production and Transfer of Anti-Personnel Mines and on their Destruction, work on small arms, explosive remnants of war and cluster munitions, and even in the context of the BTWC—that diverse perspectives add value and momentum to disarmament work. But some disarmament diplomats have been reluctant to carry over lessons from these environments into others. They have varied excuses as to why reframing would not help in areas of inertia or blockage (such as the NPT or the CD), such as the nature of the weapon being dealt with, or that matters of such importance should not involve “outsiders”, for example international organizations or civil society.

We suggest the opposite: diversity of perspective aids in solving difficult problems, for reasons we will explain. Indeed, in the course of the DHA project’s research, a range of perspectives was assembled to put the CD and other arms control processes under the microscope, as well as to re-evaluate the nature of some of the problems they face. In this volume, we “connect the dots” between research insights from other domains and aspects of the work of multilateral disarmament practitioners. As such, certain aspects of what we will explore are both partly speculative and potentially applicable to other multilateral contexts. However, we limit our focus to disarmament and arms control in line with the DHA project’s aim to present multilateral practitioners in that domain with new insights of practical relevance of possible use to them in difficult and uncertain environments.

**Box 1.1 What is a multilateral practitioner?**

Traditionally, actors in international processes have been diplomats—professional or politically appointed representatives of governments, and foreign policy decision makers.

In recent decades, the range of actors involved in multilateral disarmament processes has broadened considerably. By multilateral practitioner we mean not only representatives of governments involved in a multilateral process (such as treaty negotiation, participation in a standing multilateral forum or stewardship of a treaty process), but others in a position to participate in some capacity or to influence such processes. As we will see in Chapter 2, this can include not only those directly present in the negotiating chamber, but others as well, for instance those advising or sending formal instructions from capitals. Moreover, by practitioner we are referring to individuals as opposed to entities. For example, as well as those working directly for governments, it can refer to those working for relevant international organizations or people from transnational civil society, such as non-governmental organization (NGO) advocates or academic experts.

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## A WORLD OF SURPRISE

During his time as US Secretary of Defense, Donald Rumsfeld said many memorable things during press briefings. One online magazine even presented some quotations of Rumsfeld as short poems. For example, in reference to Iraq's alleged weapons of mass destruction programmes:

### **The Unknown**

As we know  
There are known knowns.  
There are things we know we know.  
We also know  
There are known unknowns.  
That is to say  
We know there are some things  
We do not know.  
But there are also unknown unknowns,  
The ones we don't know  
We don't know.<sup>4</sup>

Rumsfeld's remarks underline the central conundrum for anyone having to make decisions with important consequences—how to handle uncertainty. Probably unbeknownst to Rumsfeld and some other policymakers, they had already been trapped in the conundrum he identified—that of “unknown unknowns, the ones we don't know we don't know”—as subsequent events showed. The ultimate question in international politics is, how can multilateral decision makers (and, of course, those trying to influence them) successfully handle uncertainty—in Rumsfeld's words, “a world of surprise”?<sup>5</sup> One of the starkest and most persistent problems of uncertainty is the security dilemma. As Robert Axelrod succinctly put it, “nations often seek their own security through means which challenge the security of others. This problem arises in such areas as escalation of local conflicts and arms races. Related problems occur in international relations in the form of competition within alliances, tariff negotiations, and communal conflicts”.<sup>6</sup> Such dilemmas present decision makers with dilemmas of choice. A versatile solution to this puzzle has eluded every decision maker and thinker in history—even if international relations theorists, government press spokespeople or televised statements by heads of state seek to persuade you otherwise. In fact, we will see that the puzzle has no answer. But that is a finding of more practical value than it appears.

What follows is not an analysis of uncertainty in international relations or the security dilemma, *per se*. Instead, we explore the sorts of things that can skew the perceptions of human beings and so hinder their efforts at cooperation and effective problem-solving—of approaching problems of uncertainty with clear heads. If these phenomena are acknowledged, there are ways to ameliorate their effects; indeed, leveraging perspective diversity happens to be a useful way of responding to uncertainty. Considering and incorporating more diverse perspectives can improve group performance in prediction and problem-solving—in some contexts even when there is conflict within the group, as there is in most multilateral processes.

In the next sections of this chapter we will outline some basic understandings as a backdrop. Ideas we developed in the course of the DHA project have been supplemented by those of others. One especially useful framework to be discussed is that of cognitive toolboxes, described in detail in Scott Page's book *The Difference*.<sup>7</sup> Page's ideas are a good fit with our own impressions from observing a range of multilateral arms control processes and will help bring us to how disarmament practitioners can improve their work in Rumsfeld's "world of surprise".<sup>8</sup> In fact, this volume draws heavily on Page's framework for thinking about the potential value of diversity: our purpose here is largely to explore what this framework could mean in the context of multilateral disarmament work as we have observed and participated in it, as his book is very detailed, but also more generic. Other terms, such as community of practice, we have used before in our work and are useful for thinking about how disarmament diplomats interact.

Chapter 2 will explore some constraints on how all human beings (and, by extension, multilateral practitioners) perceive the world and each other, which serves to underline the importance of perspective diversity. These cognitive constraints colour our individual perspectives—sometimes in similar ways, and sometimes in ways that differ. Awareness of these constraints is of particular relevance to multilateral practitioners because, as will become apparent, the environments in which they work may amplify problems associated with cognitive constraints.

Exploring cognitive constraints illustrates why greater cognitive diversity is needed in multilateral disarmament work because "when solving problems, diversity may matter as much, or even more than, individual ability".<sup>9</sup> Note the word "may" in the preceding sentence, as there are inevitable caveats. But our essential thesis is that multilateral processes that reflect a diversity

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of perspectives have greater potential than less perspective-diverse groups to reframe difficult problems in ways that make them more tractable. This is the focus of Chapter 3.

We will conclude with some practical suggestions to help multilateral decision makers recognize and harness diversity. Historically, leveraging diverse perspectives in group problem-solving actually describes what “disarmament as humanitarian action” has been in multilateral contexts such as the process leading to the 1997 Anti-Personnel Mine Ban Convention and, more recently, the Oslo Process, which achieved the Convention on Cluster Munitions in 2008.

### **TACKLING DISARMAMENT CHALLENGES**

Disarmament itself has become a rather loaded term, carrying different connotations depending on who is using it and why. From the late 1990s until very recently, it appeared to have fallen out of vogue among the major military powers—reflected by their lack of progress on disarmament and arms control measures at the multilateral level. Despite pressing imperatives, the CD in Geneva dedicated to such tasks remains in deadlock after almost a decade—unable even to agree on a work programme. In May 2005, the NPT Review Conference failed to achieve anything substantial despite serious challenges to the global nuclear non-proliferation regime.<sup>10</sup> Meanwhile, international efforts to curb the illicit trade in small arms and light weapons remain highly constrained.<sup>11</sup> And after a promising start on tackling the post-conflict effects of explosive remnants of war, states working in the context of the UN Convention on Certain Conventional Weapons (CCW) could not agree on dealing with the deadly effects of anti-vehicle mines, and still face tough challenges in addressing the impacts of cluster munitions on civilians, which prompted the emergence of the Oslo Process.<sup>12</sup>

Where limited progress in the disarmament and arms control domain has been achieved over the last decade, humanitarian approaches tend to have accompanied it. One element of these approaches is increased emphasis on the individual and the community as referent points for “human security” alongside traditional national security perspectives.<sup>13</sup> Another common element is the involvement of a variety of perspectives, including from “the field”; that is, from environments in which people grapple with situations of insecurity in practical ways. As mentioned above, the process

that led to the 1997 Anti-Personnel Mine Ban Convention, in which field-based medical workers and deminers played prominent roles, is a striking example of the positive difference these perspectives can make—although it is by no means the only one. Along side these elements, the input and pressure of international organizations, academic and policy researchers, as well as NGOs and their networks also usefully supplement the work of governments by proposing alternatives to the orthodox ways of framing and responding to global problems of human insecurity.

Recognition of the roles in international security that actors outside of governments may play has traditionally been rather limited. For example, NGOs and even international organizations such as the International Atomic Energy Agency (IAEA) are not permitted to participate directly in the work of the CD. Access to international meetings of states on curbing the illicit trafficking in small arms is very limited. Ostensibly, reluctance to allow these actors significant roles stems from the belief that matters of security are the sovereign prerogative of national governments alone. And, national governments—at least in democratic countries—are accountable to their electorates and so can claim legitimacy that NGOs and others cannot.<sup>14</sup> From a historical point of view, it is because transnational civil society and international organizations appeared later than states that they so often remain marginalized.

History also shows that multilateral diplomatic forums have not been tremendously effective in building or strengthening new disarmament and arms control norms except in brief bursts, like in the 1990s. For most of the Cold War, like today, the CD and UN disarmament bodies were able to do little. It is tempting to blame the major powers for this failure. Critics have observed, for instance, that US leadership has often been crucial to the success of these efforts, but that “unilateralism” has become a byword of the Bush Administration and has hurt the prospects of traditional disarmament forums and treaty processes. In many respects, it certainly has not helped. But such criticism fails to address valid concerns about the effectiveness of multilateral disarmament processes, even as the United States promotes other forms of collective international action like the Proliferation Security Initiative, claiming that such actions are activities, not processes.<sup>15</sup> On occasion, the behaviour of a variety of states claiming, on the one hand, to be upholding international norms while, on the other, preventing meaningful work in disarmament bodies or treaty stewardship

processes has been nothing short of disgraceful. It is clear that blind faith in multilateral institutions is not the answer.

Obstacles to successful outcomes in multilateral disarmament processes are often couched in terms of lack of, or the wrong kind of, “political will”. This is fine as a form of shorthand, but explanations of negotiating process or dynamics predicated simply on levels of perceived political will tend to obscure rather than aid understanding about what really may be going on. Importantly, it fails to help those participating in such processes to distinguish features of their working environments that arise from aspects of the way they work that were not intended or “designed in”, but arose for other reasons. And it is not transparent in terms of their own impact, through the nature of their interactions as negotiators and other influencers.<sup>16</sup>

The reality is that multilateral disarmament practitioners, like all of us, have to act on imperfect information, and each develop predictive models of the world in their heads to help them. At the same time, they are each subject to the all-too-human perceptual biases and other constraints that can influence these models. In sum, collective perceptions and the structures of international security politics can create obstacles to progress for which no single state or person is responsible.

### COMMUNITIES OF PRACTICE

The first DHA volume suggested that it is worth examining the “community of practice” within which multilateral practitioners work, and the way in which it contributes to shaping the choices, for better or worse, that negotiators make. This does not ignore the specific political parameters and pressures that can make or break a negotiation, and which are naturally at the forefront of multilateral practitioners’ minds. Nevertheless, it is worth evaluating whether conventional approaches and past assumptions make sense in the specific contexts to which they are applied.<sup>17</sup>

What is a community of practice? For our purposes, it simply entails “a group of people who over a period of time share in some set of social practices geared toward some common social purpose”.<sup>18</sup> Some of these practices, such as titles, written rules of negotiating procedure (the consensus rule, for example) and other working methods, are formal. Some other practices—perennial coffee breaks, “off-the-record” working dinners and lunches between diplomats—are informal. But an understanding of what they are,



how they work and the roles and responsibilities of members is implicitly shared in that community. It is what connects a group of individuals, and also what sets them apart from others. This community of practice, however loose and amorphous it is perceived to be, is what fashions negotiating outcomes within various parameters.<sup>19</sup>

The concept of a community of practice is also useful as a way of recognizing multilateral diplomats and other national representatives as more than simply mouthpieces of their governments. It acknowledges that their interactions are dynamic. This allows negotiation and compromise to be possible at the multilateral level in the pursuit of policy outcomes. It also presents the possibility of structural problems arising in—and across—multilateral processes for reasons that are not premeditated, which can result in dynamics that are unproductive and unintended. One implication is that:

the multilateral negotiating community of practice in disarmament and arms control is, at best, only partially adapted to changing realities. This is for two reasons. First, its evolution is gradual, constrained by precedent and diplomatic, political and military caution among other things. Secondly, much of its DNA is “junk DNA”, consisting of features for which there is no purpose, for which a purpose has been forgotten, or which performs some function for which it was not originally developed.<sup>20</sup>

A further implication is that, right now, the generation of unintended consequence continues. Too often, as one work—aptly named *System Failure*—put it, “Unintended consequences, which occur in all areas of public policy, are systematically ignored because the evaluation only measures the intended outcomes. Also it is usually impossible to link policy and interventions unambiguously because too many other variables are also changing”.<sup>21</sup> This we examine in depth in Chapter 3.

By connecting a group of individuals with shared concepts, roles and responsibilities, a community of practice can have a significant normative effect. This can be a good thing. Gathering a common understanding of how things work in a community of practice—and thus having useful rules of thumb for making predictions—is crucial for those participating in it. Historians of diplomacy have observed, for example, that early international conferences in the Westphalian era of the seventeenth and

eighteenth centuries (devoted in those days to peace settlements) were “somewhat chaotic” until, with practice, common rules emerged.<sup>22</sup> In multilateral disarmament in the modern era, the established rules reinforced the importance placed on continuity and precedent. Such precedent can be extremely powerful: for example, in the work of the CCW, a UN international humanitarian law treaty, there is no rule to prevent member states from voting on important issues in a situation where consensus has not been reached. However, because disarmament diplomats who administer the CCW are used to the consensus rule in arms control treaties, it has become the practice there too, although it is not for most international humanitarian law and other multilateral treaties.

The collective outlook that develops within a community of practice is potentially useful, but it can discourage diversity of perspective and fresh approaches to problem solving. It is to characterizing perspectives that we turn now.

## **TOOLBOXES**

Scott Page argues that each of us possesses a mental “toolbox” of four frameworks: perspectives, heuristics, interpretations and predictive models. Just like all human beings do in every day life, multilateral negotiators deploy these frameworks in their negotiations—but about issues that are often rather less intuitive, or just not intuitive at all. (When we refer to intuition in this volume, we mean it in the sense of “A mode of understanding or knowing characterized as direct and immediate and occurring without conscious thought or judgement”.<sup>23</sup>)

## **PERSPECTIVES**

Page argued that to organize the very large number of things facing us, each of us has an internal language that describes these objects, situations, events or solutions. An internal language can be written in words, in numbers or symbols, or in abstract shapes and forms. “An internal language differs from a spoken or written external language. Internal languages can assign different words to the same object”.<sup>24</sup>

Internal languages differ across people. Page described the mapping that takes reality and encodes it into an internal language as a perspective, in

which “each distinct object, situation, problem or event gets mapped to a unique word”.<sup>25</sup> When we say that two people have different perspectives, it could mean either that they map reality differently into the same internal language, or that they map reality into two differing internal languages.

Common perspectives within groups have definite advantages. They allow quick and error-free communication—the virtually universal use of acronyms among disarmament experts is one example. And, a thorough knowledge of these acronyms may be a badge of respect in that community of practice.

To illustrate the point that different perspectives can be useful, Page offered the example of Cartesian and polar coordinates. Both are perspectives on points in space. Cartesian coordinates are the familiar  $x$  and  $y$ . Polar coordinates describe a point using an angle and a distance from the origin. Cartesian coordinates make it simple to describe rectangles. But polar coordinates make it easy to describe circles and arcs. Although not impossible, it is difficult to describe rectangles using polar coordinates, or circles with Cartesian coordinates. In other words, the choice of perspective contributes to a task’s difficulty or ease.<sup>26</sup>

Lack of perspective diversity has insidious costs. Novel perspectives have to come from somewhere, and we often construct them from other perspectives. If diversity of perspective is reduced then we all suffer because it “stifles the collective ability of the group to find good solutions” because the bank of perspectives to draw from is smaller.<sup>27</sup>

## HEURISTICS

In basic terms, a heuristic “is any sophisticated, directed procedure that functions by reducing the range of possible solutions to a problem or the number of possible answers to a question”.<sup>28</sup> Heuristics do not guarantee the finding of a solution—they are shortcuts and, importantly, no heuristic works better than any other across all possible problems. They are widely used in science, for instance, in allowing provisional characterizations that can enable the subsequent testing and evaluation of theories. We all use heuristics every day, ranging from those acquired and sharpened through training and experience to others that appear more intuitive.

**Box 1.2 Perspective diversity versus identity diversity**

Crucially, when we talk of functional diversity, we are referring to diversity of perspective, not necessarily of identity. They are not the same thing.

Diplomats in the CD, for example, are diverse in terms of their identities, representing different states and coming, in many cases, from differing cultural and linguistic backgrounds. But they do not seem to be so diverse in terms of perspective. Most are male, mainly of middle age. Virtually all are university educated. As shown by the fact that practically all diplomats there speak English, and many speak French too, they have received schooling in the Western tradition or are at least familiar with it, and operate within that milieu in the CD's gatherings. The majority, if not from the upper socio-economic strata of their societies, likely come from at least a middle stratum. This common ground makes it easier for them to engage in the community of practice that has arisen there. However, in giving them cues about how to interact, that distinctive community can submerge ways of thinking that lie outside its orthodoxy. Diverse identities do not guarantee diverse perspectives.

Identity and perspective are sometimes linked to varying degrees: our identities can of course influence our perspectives. So, greater identity diversity in multilateral disarmament work would be welcome—there are too few women, particularly in senior diplomatic positions, and often a large proportion of white faces in relation to total numbers. But greater identity diversity does not necessarily make a group more effective at predictive or problem-solving tasks. Rather than making the case for identity diversity, the focus of this book is on showing that multilateral work would be more effectively advanced by increasing perspective diversity, because that is likely an indicator of better group prediction and problem-solving.

Is the distinction between identity diversity and perspective diversity really relevant in the CD, where there appears to be a conflict of interests that has made it impossible to achieve agreement? It is, because we shall eventually reach the point in Chapter 4 where we can see that, by encouraging diverse ways of searching for solutions, it is possible for actors in an environment such as the CD to modify their preferences as they gain a better sense of more optimal solutions. In other words, perspective diverse processes can help those involved to reframe, through the development of hybrid perspectives.

From a cognitive point of view, intuitive heuristics help us to cope rapidly with the large amount of information in our environment. We often think of these intuitive heuristics—when we think of them at all—as rules of thumb, or common sense.

For our purposes here, we are concerned with our shared intuitive heuristics. By implication, our brains make continuous unconscious inferences about aspects of the world that impact and guide our behaviour. And, indeed, psychologists have shown that our brains make unconscious inferences about aspects of the world continually, and this process is often completely automatic.

The brain makes a “bet” on the environment, or what the brain assumes the structure to be ... . These unconscious perceptual inferences are strong enough to act upon, but unlike other intuitive judgments, they are not flexible. They are triggered by external stimuli in an *automatic* way. An automatic process cannot be changed by insight or information external to the process.<sup>29</sup>

Certain optical illusions, for instance, work this way. Other intuitive heuristics or rules of thumb are more flexible. They are still fast and frugal and adapted to certain environments. But while unconscious, they can be subjected to conscious intervention. These are “gut feelings” according to Gerd Gigerenzer, and involve quick, unconscious evaluation. “If one doesn’t work, there are others to choose from”.<sup>30</sup>

For example, autistic people can learn to better decipher the intentions of others, which non-autistic people mostly find effortless and automatic—for example, employing the heuristic that the chocolate bar at which a child stares longest among a selection is the one they are most likely to prefer.<sup>31</sup> Intuitions associated with understanding the mental states of others are central to negotiating. This attribution of mental states is referred to as evincing a “theory of mind”, and will be discussed later.

### **INTERPRETATIONS**

Drawing from work in computer learning theory, Page used the term interpretation to describe categorizations of reality within perspectives. It is possible, for example, that two people with a common perspective lump things within it in different ways—for example to categorize an album

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collection of compact discs alphabetically by artist, or by the colour of the spine of their cases. We each construct categories within our perspectives, and these categories differ: “An interpretation is a map from objects, situations, problems and events into words. In an interpretation, one word can represent many objects.”<sup>32</sup>

An interpretation can exclude many of these things too. Page noted that one heuristic for creating interpretations, the *projection interpretation* heuristic, is to take a perspective and ignore dimensions of it, to intentionally create a subset of possible dimensions. Another type of interpretation heuristic would be to create categories of similar objects, situations, problems or events that are not simply projections of attributes—the *clumping interpretation*. The important point here is that interpretations exploit underlying structure in some way.

People use interpretation frameworks for getting on in the world more than they do perspective frameworks. Inevitably we lump reality into categories, and we do not have words for everything, even if perspectives form the basis for interpretations. And for every perspective there is a large number of interpretations. Moreover, interpretations depend on our place or role. Donald Rumsfeld’s statements that Saddam Hussein was certain to have weapons of mass destruction programmes in Iraq and that North Korea was developing nuclear weapons reflected his interpretation of a perspective other neo-conservatives in the Bush administration shared—that “it’s a complicated world, that denial and deception is rampant. ... Things are being done underground, things are being done very cleverly”.<sup>33</sup> Others had differing interpretations.

Importantly, diverse interpretations “lead us to draw different inferences, to make predictions that differ. So we can see the world the same fundamental way, but divide it up differently. This creates lots of diversity. That diversity affects how we predict outcomes and infer causality.”<sup>34</sup>

### **PREDICTIVE MODELS**

Some predictive models are based on quite crude interpretations, which can be remarkably effective in some instances.<sup>35</sup> But, how effective might they be with the sorts of complicated problems multilateral policymakers are likely to face?

Often, policy practitioners and other “experts” work under time pressure and with imperfect and incomplete information. The ways they arrive at their assessments may be crude interpretations mixed with theory-based models. Moreover, there may be little opportunity or inclination to test the shortcomings of one’s predictive model. Such shortcomings were underlined by Paul Ormerod and Shaun Riordan—the latter a former British Foreign Office specialist on China—who observed that the traditional geopolitical analysis, of the kind in which diplomats specialize, has a poor record. They noted the collapse of the Soviet Union, the peaceful reunification of Germany and the Asian financial crisis of 1997 as examples of “surprises”.

In the view of Ormerod and Riordan, there are a number of systemic weaknesses inherent in the orthodox political analysis of foreign ministries, all of which are relevant to multilateral disarmament work, because foreign service personnel attend to, analyse and often coordinate national policies in disarmament negotiating environments. In particular:

- It is overly dependent on the abilities of individual analysts. Such analysts can only handle a limited number of factors at any given time ... ;
- Their produce thus inevitably fails to reflect the full complexity of the interdependent and inter-reacting factors that constitute a globalized world;
- It rarely makes explicit the factors it is taking into account, or the relations it has assumed between them, even to itself. The produce therefore has to be taken as given, and is difficult to assess or interrogate;
- It tends to deterministic predictions, which either prove right or wrong. If it does offer different scenarios, it tends to do so on a simplistic probabilistic basis, assuming a normal distribution of risk. Both tendencies encourage decision-makers to adopt optimal strategies unable to adapt to “surprises” ... ;
- It takes insufficient account of new players in international relations (e.g. NGOs and multinationals) and social factors. It has been slow to assimilate new forms of risk (e.g. reputation risk). It is often poor at capturing the interactions between political, social and economic factors;
- It fails to take full account of the complex network of positive and negative feedback loops which are crucial to the outcomes in the real world. It is unable to help governments, companies or international organizations understand the impact and consequences of their actions, or those

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whom they might influence. Analyses tend to be static snapshots, rather than dynamic strategic tools to assist decision making.<sup>36</sup>

### HEDGEHOGS AND FOXES

Most practitioners would agree that it is very difficult to accurately predict outcomes of complex economic and political processes. But is their record really that bad? Philip Tetlock became interested in this problem during the 1980s, when he was part of a US National Research Council group on issues related to preventing nuclear war, in which big differences emerged among its members over the nature of the Soviet–American relationship: “What did the experts know, or think they know, about Soviet intentions? ... In probing these ‘foundational beliefs’, I was struck by how frequently influential observers offered confident, but flatly contradictory, assessments that were impervious to the arguments advanced by the other side”.<sup>37</sup>

In a long-term study, Tetlock and his colleagues found that “experts” could not very accurately or consistently predict outcomes. Tetlock’s research team asked various specialists to judge the likelihood of a number of political, economic and military events occurring within a specific time frame (about five years ahead). Close to 300 specialists offered outcomes representing approximately 27,000 predictions:

[The] study revealed an expert problem: there was no difference in results whether one had a PhD or undergraduate degree. Well-published professors had no advantage over journalists. The only regularity ... found was the negative effect of reputation on prediction: those who had a big reputation were worse predictors than those who had none.<sup>38</sup>

Importantly, Tetlock found that what experts think matters far less than how they think. Drawing from characterizations in Isaiah Berlin’s book *The Proper Study of Mankind*,<sup>39</sup> Tetlock found that:

If we want realistic odds on what will happen next, coupled to a willingness to admit mistakes, we are better off turning to experts who embody the intellectual traits of Isaiah Berlin’s prototypical fox—those who “know many little things,” draw from an eclectic array of traditions, and accept ambiguity and contradiction as inevitable features of life—than we are turning to Berlin’s hedgehogs—those who “know one big



thing”, toil devotedly within one tradition, and reach for formulaic solutions to ill-defined problems.<sup>40</sup>

Of course, beyond the anecdotal evidence and our own first-hand observations, it is not clear how fundamental a problem inaccurate or conflicting predications are in multilateral disarmament and arms control negotiations. But it does underline the risk noted by Ormerod and Riordan of being overly dependent on the abilities—the perspectives—of individual analysts. Is the answer to making multilateral work more productive simply that we should all be more like foxes, rather than hedgehogs? Certainly it is an appealing thought. Many diplomats, in particular, take pride in their perceived generalism. Foreign services are by nature rotational, and personnel might find themselves working on disarmament, then climate change, then trade relations, for example. Perhaps the foxes just need to be more foxy?

There are several problems with that idea. The first problem is that diplomats operate in an environment in which precedent and the established community of practice to which they belong can make it difficult to leverage being fox-like. Another problem is that many practitioners are more hedgehog-like than they realize.

In Chapter 2, we will examine in more detail why the predictive models human beings have in their heads may not predispose us to effective multilateral decision-making. We will focus in particular on some implications of cognitive constraints for disarmament and arms control diplomacy. In Chapters 3 and 4, which will bring us back to cognitive diversity, we will discuss steps multilateral practitioners could take to recognize the challenges created by the way human minds work, in order to hopefully improve the chances of multilateral disarmament practitioners finding opportunities for cooperation in a given situation.

## Notes

<sup>1</sup> David Hayes, “A world in contraflow”, openDemocracy, 3 January 2008, <[www.opendemocracy.net/article/a\\_world\\_in\\_contraflow](http://www.opendemocracy.net/article/a_world_in_contraflow)>.

<sup>2</sup> See John Borrie and Vanessa Martin Randin (eds), *Alternative Approaches in Multilateral Decision Making, Disarmament as Humanitarian Action*, UNIDIR, 2005.

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- <sup>3</sup> James Surowiecki, *The Wisdom of Crowds, Why the Many are Smarter than the Few*, Abacus, 2005, p. 97.
- <sup>4</sup> See Hart Seely, "The poetry of D.H. Rumsfeld ", Slate, 2 April 2003, <[www.slate.com/id/2081042/](http://www.slate.com/id/2081042/)>; for the original transcript see US Department of Defense, "DoD News Briefing—Secretary Rumsfeld and Gen. Myers", 12 February 2002, <[www.defenselink.mil/transcripts/transcript.aspx?transcriptid=2636](http://www.defenselink.mil/transcripts/transcript.aspx?transcriptid=2636)>.
- <sup>5</sup> US Department of Defense, "DoD News Briefing—Secretary Rumsfeld and Gen. Myers", 17 October 2002, <[www.defenselink.mil/transcripts/transcript.aspx?transcriptid=3793](http://www.defenselink.mil/transcripts/transcript.aspx?transcriptid=3793)>.
- <sup>6</sup> Robert Axelrod, *The Evolution of Cooperation*, Basic Books, 1984, p. 4.
- <sup>7</sup> Scott Page, *The Difference, How the Power of Diversity Creates Better Groups, Firms, Schools, and Societies*, Princeton University Press, 2007.
- <sup>8</sup> See, for instance, John Borrie, "Small arms and the Geneva Forum, Disarmament as humanitarian action?", in John Borrie and Vanessa Martin Randin (eds), *Disarmament as Humanitarian Action, From Perspective to Practice*, UNIDIR, 2006, pp. 137–65.
- <sup>9</sup> Scott Page, *The Difference, How the Power of Diversity Creates Better Groups, Firms, Schools, and Societies*, Princeton University Press, 2007, p. 173.
- <sup>10</sup> These challenges include the nuclear activities of Iran and North Korea and the rolling back by the five "official" nuclear weapon states (China, France, Russia, the United Kingdom and the United States) of political commitments toward nuclear disarmament they made five years before and on which they have largely failed to deliver.
- <sup>11</sup> For a detailed analysis, see "Taking Action on Small Arms", *Disarmament Forum*, UNIDIR, no. 1, 2006.
- <sup>12</sup> See John Borrie, "The Road From Oslo, Emerging International Efforts on Cluster Munitions", *Disarmament Diplomacy*, no. 85, The Acronym Institute, 2007.
- <sup>13</sup> For a concise survey of different perspectives on human security, see various authors in "What is Human Security", *Security Dialogue*, vol. 35, no. 3, International Peace Research Institute, Oslo, 2004, pp. 345–72.
- <sup>14</sup> Gerald Steinberg raised these points in a debate in Geneva to commemorate UNIDIR's twenty-fifth anniversary, the transcript of which is available at <[www.unidir.org/html/en/25th\\_anniversary.html](http://www.unidir.org/html/en/25th_anniversary.html)>.

- <sup>15</sup> Statement by US Under-Secretary of State for Arms Control and International Security John Bolton, "Stopping the Spread of Weapons of Mass Destruction in the Asian-Pacific Region, the Role of the Proliferation Security Initiative", Tokyo, 27 October 2004.
- <sup>16</sup> See John Borrie, "What do we mean by 'thinking outside the box' in multilateral disarmament and arms control negotiations", in John Borrie and Vanessa Martin Randin (eds), *Thinking Outside the Box in Multilateral Disarmament and Arms Control Negotiations*, UNIDIR, 2006, pp. 13–5.
- <sup>17</sup> See John Borrie, "Rethinking multilateral negotiations, Disarmament as humanitarian action", John Borrie and Vanessa Martin Randin (eds), *Alternative Approaches in Multilateral Decision Making, Disarmament as Humanitarian Action*, UNIDIR, 2005, p. 28.
- <sup>18</sup> Ron Scollon, *Mediated Discourse as Social Interaction, A Study of News Discourse*, Addison-Wesley, 1998, pp. 12–3.
- <sup>19</sup> See Vanessa Martin Randin and John Borrie, "A comparison between arms control and other multilateral negotiation processes", John Borrie and Vanessa Martin Randin (eds), *Alternative Approaches in Multilateral Decision Making, Disarmament as Humanitarian Action*, UNIDIR, 2005, pp. 67–129.
- <sup>20</sup> Vanessa Martin Randin and John Borrie, "A comparison between arms control and other multilateral negotiation processes", John Borrie and Vanessa Martin Randin (eds), *Alternative Approaches in Multilateral Decision Making, Disarmament as Humanitarian Action*, UNIDIR, 2005, p. 112.
- <sup>21</sup> Jake Chapman, *System Failure, Why Governments Must Learn to Think Differently*, 2nd ed., Demos, 2004, p. 11.
- <sup>22</sup> G.R. Berridge, *Diplomacy, Theory and Practice*, 3rd ed., Palgrave Macmillan, 2005, p. 151.
- <sup>23</sup> Arthur Reber and Emily Reber, *The Penguin Dictionary of Psychology*, 3rd ed., Penguin, 2001, p. 369. The nature of intuition has become a major (and fascinating) field of study in itself for psychologists, economists and others, but we proceed from the assumption that our intuitions are responses to subtle cues and relationships acquired implicitly and unconsciously, which we explore in the next chapter.
- <sup>24</sup> Scott Page, *The Difference, How the Power of Diversity Creates Better Groups, Firms, Schools, and Societies*, Princeton University Press, 2007, p. 30.
- <sup>25</sup> *Ibid.*, p. 31.
- <sup>26</sup> *Ibid.*, p. 32.

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- <sup>27</sup> Ibid., p. 50.
- <sup>28</sup> Arthur Reber and Emily Reber, *The Penguin Dictionary of Psychology*, 3rd ed., Penguin, 2001, p. 321.
- <sup>29</sup> Gerd Gigerenzer, *Gut Feelings*, Penguin/Allen Lane, 2007, pp. 43–5.
- <sup>30</sup> Ibid., p. 49.
- <sup>31</sup> Ibid., p. 45–6.
- <sup>32</sup> Scott Page, *The Difference, How the Power of Diversity Creates Better Groups, Firms, Schools, and Societies*, Princeton University Press, 2007, p. 79.
- <sup>33</sup> US Department of Defense, “DoD News Briefing—Secretary Rumsfeld and Gen. Myers”, 17 October 2002, <[www.defenselink.mil/transcripts/transcript.aspx?transcriptid=3793](http://www.defenselink.mil/transcripts/transcript.aspx?transcriptid=3793)>.
- <sup>34</sup> Scott Page, *The Difference, How the Power of Diversity Creates Better Groups, Firms, Schools, and Societies*, Princeton University Press, 2007, p. 89.
- <sup>35</sup> See Malcolm Gladwell, *Blink: The Power of Thinking Without Thinking*, Penguin/Allen Lane, 2005.
- <sup>36</sup> Paul Ormerod and Shaun Riordan, “A New Approach to the Analysis of Geo-Political Risk”, *Diplomacy and Statecraft*, vol. 15, no. 4, Routledge, pp. 644–5.
- <sup>37</sup> Philip Tetlock, *Expert Political Judgment, How Good Is It? How Can We Know?*, Princeton University Press, 2005, p. xiii.
- <sup>38</sup> Nassim Nicholas Taleb, *The Black Swan, The Impact of the Highly Improbable*, Random House, 2007, p. 151.
- <sup>39</sup> Isaiah Berlin, *The Proper Study of Mankind*, Farrar, Straus and Giroux, 1997, pp. 436–98.
- <sup>40</sup> Philip Tetlock, *Expert Political Judgment, How Good Is It? How Can We Know?*, Princeton University Press, 2005, p. 2.



## CHAPTER 2

### COGNITIVE CONSTRAINTS AND BIASES

In the preceding chapter we introduced the notion that each of us carries around a set of predictive models in our heads. Some of these predictive models are learned and refined, but many are quite crude, intuitive models. Intuitive predictive models can serve quite well in everyday life. But they do not always serve decision makers well in multilateral processes. This chapter will explain how some of the ways we intuitively perceive the world are at variance with how the world really is, and why that can cause problems in multilateral negotiations.

#### ADAPTED MINDS

Our modern skulls contain Stone Age brains. The biological equipment that enables humans to thrive today is essentially identical to that of our ancestors living tens of thousands of years ago. This is perhaps hard to imagine. These ancestors lacked the Internet, brain surgery or mobile phones, and knew nothing of the atom, genes or the world economy. Nevertheless, as Desmond Morris explains:

It is doubtful whether the day-by-day social intercourse of modern man in the twenty-first century is very different from that of prehistoric man. If we could return, by time machine, to an early cave-dwelling, we would no doubt hear the same kind of laughter, see the same kind of facial expressions, and witness the same sorts of quarrels, love affairs, acts of parental devotion and friendly cooperation as we do today.<sup>1</sup>

At least 100,000 years ago, some of our ancestors began to spread out from Africa until today human beings have colonized the world. That span is only several thousand generations—generally considered too short a time for evolution to produce any major changes in us, including in our brains. When our ancestors spread out from the African savannah they had already

developed the features that would enable the species to thrive, including language, tool use and the capacity for cultural development.<sup>2</sup>

Like many primates, our ancestors lived in groups with complex social structures. Living in groups offers advantages. For instance, there are more eyes to spot predators and others around to help fight them off (or serve as alternate prey). But group living adds challenges as well. An individual's companions are potential competitors for mates and food, and their behaviour can change rapidly. In view of this, scientists believe that natural selection would have favoured those "who were able to use and exploit others in their social group, without causing the disruption and potential group fission liable to result from naked aggression. Their manipulations might as easily involve cooperation as conflict, sharing as hoarding".<sup>3</sup>

Observations in fields such as biology, primatology, archaeology and anthropology suggest that the most important problems to be solved would have included avoiding predators, eating the right foods, forming friendships and alliances, providing help to children and other relatives, understanding the mental states of others, communicating with others and selecting mates.<sup>4</sup> Such problems give researchers clues in looking for evidence of the cognitive adaptations our ancestors would have needed.<sup>5</sup>

What kind of adaptations are we talking about? Steven Pinker compiled a "tentative but defensible" list (as he described it) of cognitive faculties and the core intuitions on which they are based.<sup>6</sup> These include faculties for intuitive physics, the making and use of tools, spatial sense (which we use to navigate the world and keep track of where things are), language, a number sense, as well as a mental database and logic, which we use to represent ideas and infer new ones from old. Cognitive "intuitions" linked to emotion, such as a sense of fear, feelings of disgust (originally linked to the need to identify and avoid contaminated food) or a "moral" sense could also be included.

All of these faculties are, in some manner, relevant to humans engaged in multilateral negotiations. Try to imagine negotiating without language, or the capacity for abstract logic, for instance. Three features of the human mind are especially important to negotiating, however, and form the themes of this chapter:

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- an intuitive sense of economics based on the concept of reciprocal exchange, in which one party confers a benefit on another and is entitled to an equivalent benefit in return;
  - An intuitive theory of mind, with which we understand other people; and
  - cognitive biases, which allow us quickly to perceive and order information in our environment, but can likewise colour how we understand or respond to situations.

A key point for practitioners to think about is that:

These ways of knowing and core intuitions are suitable for the lifestyle of small groups of illiterate, stateless people who live off the land, survive by their wits, and depend on what they can carry. Our ancestors left this lifestyle for a settled existence only a few millennia ago, too recently for evolution to have done much, if anything, to our brains. Conspicuous by their absence [for instance] are faculties suited to the stunning new understanding of the world wrought by science and technology.<sup>7</sup>

There are two major implications here. The first is that, if the brain expresses innate faculties, it strikes a blow at the heart of rationalist notions of the human being as a “blank slate”, or that consciousness is a “ghost in the machine”.<sup>8</sup> Scientists have discovered that the arrow of cause and effect in our thinking, decision-making and actions is rather less clear than previously thought. Researchers have learned, for example, that the brain rewrites some past memories as time goes by<sup>9</sup>—something we consider further when we look at motivational biases later in this chapter.

There is a second implication of our brains having evolved faculties in response to particular kinds of problems: it is that these faculties gather information about the world and process it in ways we are not necessarily conscious of, and they can affect our perceptions and behaviour without us being aware. Knowing that these cognitive adaptations are there and might push or pull our perceptions in a certain direction (hence, “constraints”) is therefore important in examining what is really happening in multilateral negotiations.

Evolutionary psychology might seem far-removed from what goes on in the conference chamber. But many multilateral negotiators we have talked with speak of a sense of being able to “smell the room” or of “knowing what will



fly” in interacting with their colleagues, without being able to deconstruct their own intuitions. Their political instincts or negotiating intuitions may be expressions of the cognitive faculties our ancestors evolved in response to the demands of social exchange—faculties that all modern human beings share to a great extent.

Box 2.1 outlines a well-known example of how the brain quite literally affects how we see the world, a constraint we are normally oblivious to. Moreover, we cannot consciously instruct the parts evolved in our brain that take care of vision to see differently—for instance, at a different wavelength in the light spectrum. We can tell ourselves we are seeing a visual illusion, however, using the brain’s other systems. But these systems, including cognitive features that help to constitute our consciousness, are also constrained in their own ways.

#### **Box 2.1 Vision as a cognitive constraint**

Neuroscientists and psychologists have shown that a considerable proportion of what we see in our field of vision is, in effect, filled in by the brain, rather than by our eyes. For example, the nerves connecting the retina with the brain emerge from the light-sensitive cells in the interior of the eye. They run over the inner surface of the retina to one particular place—producing the “blind spot” as these nerves themselves do not sense light—before passing through the retina into the optic nerve. The brain reconstitutes the portion of the visual field that falls onto the blind spot. We normally do not notice this unless some small object, of which we have independent evidence, moves into the spot and seems to disappear from our sight, to be replaced with the general background colour.

The scientific evidence is that such gaps in vision are not filled in by direct physical perception. Instead, our perceptual systems construct a simplified picture of our environment, focusing on the aspects most important to us, such as colour and shape. This construction of our visual field is what fills in the hole of the blind spot. Most of the time the system works perfectly. But, occasionally, as with the blind spot or with visual illusions, the brain can be fooled, as vision is an act of interpretation, not a strict reflection of the external light patterns the eye receives. Constraints on the ability of our visual system to process information are thus exposed. This is because vision’s purpose is not to depict objects in the world as they really are. Rather, vision is a process that produces from images of the external world a description that is useful to the viewer, not one cluttered with irrelevant information.<sup>10</sup>

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## AN INTUITIVE SENSE OF ECONOMICS

When people have a chance to interact repeatedly, cooperation frequently emerges. Reciprocal principles guide our behaviour in different ways, such as how friends take turns paying for coffee from day to day, or how some doctors collude with drug companies when writing medical prescriptions, depending on the perks they receive from those companies for doing so.

For our ancestors, forming alliances and friendships was just as vital as eating the right foods or avoiding predators. Those who lacked the ability to do so were at a disadvantage. But forming alliances is not an easy task, especially as group sizes increased. An alliance is an “I help you, you help me” arrangement—reciprocal altruism. But the problem with alliances is the risk of defection, of those who take the benefits of group living without paying the costs. Different animals approach this problem in various ways. In humans, it seems we have developed cognitive adaptations to help us deal with the challenges involved in cooperation.

Evolutionary biologists in the 1960s worked out that organisms will seemingly act altruistically the more closely they are related, this is called kin altruism.<sup>11</sup> But this theory did not explain why altruistic behaviour is observed in the natural world and in human behaviour involving organisms that are not closely related. However, Robert Trivers’ work revealed that some features of our social behaviour—aspects of our “moral sense”—are innate, and not learned.<sup>12</sup> The anger and sense of righteousness we feel if we think we are being cheated, for instance, or that someone in a group is not “pulling their weight” has its origins in the need for our species to detect and deter cheating behaviour in social groups. Trivers found that reciprocal altruism may be expected to evolve when two individuals associate long enough to exchange roles frequently as potential altruist and recipient—you scratch my back, and I scratch yours.<sup>13</sup> “There can be hardly any doubt that reciprocal altruism has been a potent force in human evolution. The emotions of friendship, moralistic aggression, gratitude, and sympathy, as well as our sense of fairness, probably arose primarily as mechanisms to regulate reciprocal altruism”.<sup>14</sup>

The Prisoner’s Dilemma is one of the classic hypothetical scenarios in game theory applied to help understand the evolutionary basis of human decision-making (see Box 2.2). This is because it shares its logical structure with many practical problems for organisms in terms of reciprocal altruism. One

might think that engaging successfully in such situations requires a degree of intelligence, but in fact it has been observed in life forms so simple they have no brains at all, such as interactions between viruses.<sup>15</sup> The key is the ability to discriminate against non-reciprocators by withholding future aid.

### **Box 2.2 The Prisoner's Dilemma**

In the Prisoner's Dilemma, the police arrest two criminal suspects and lock them in different questioning cells. Each is told that if they implicate the other they will be set free, while the other will receive a harsh punishment. If neither talks then both will receive a light punishment. But if they both talk, they both receive a harsh punishment.

The dilemma is that both players realize that—rationally—they should implicate the other. But that would make them both worse off than if they cooperated and neither spoke. The essence of the dilemma is the fact that you do not know for certain what the other is going to do. Matt Ridley has pointed out that, in real life, “Broadly speaking, any situation in which you are tempted to do something but knew it would be a great mistake if everybody did the same thing, is likely to be a prisoner's dilemma”.<sup>16</sup>

Things change, however, if the scenario is iterated—that is, successive rounds of the dilemma are played and players remember what happened in previous rounds. Such iteration better reflects real life, in which social animals encounter each other repeatedly and remember what happened before. Whereas, in the classic Prisoner's Dilemma, defection is the only logical option, a pattern of mutual cooperation frequently emerges in the iterated version.

Frans de Waal has observed, “Humans and other animals share a heritage of economic tendencies—including cooperation, repayment of favors and resentment at being shortchanged”.<sup>17</sup> These tendencies are now being explored in the discipline known as behavioural economics. One of the best-known experiments in this field, and one replicated all over the world, is called the Ultimatum Game.<sup>18</sup> It neatly demonstrates how human behaviour departs from rationality when inequity is detected—a sizable number of people from a wide variety of cultures are prepared to punish others at a cost to themselves in order to prevent unfair outcomes or sanction unfair behaviour (see Box 2.3).

**Box 2.3 The Ultimatum Game**

In the Ultimatum Game, a pair of people, designated as proposer and responder, are given \$10 to divide between them. The proposer decides in advance what the split should be. The responder has two choices: they can accept the offer, in which case the money is split, or reject the offer, in which case both players walk away with no money.

If the proposer acted rationally in the classical utilitarian sense, they would keep \$9 for themselves and offer \$1 to the responder. And, if according to the same rationale, the responder would accept it, becoming \$1 better off in the process. But the game does not always work out this way. In practice, as James Surowiecki observed in his book, *The Wisdom of Crowds*, low offers are usually rejected:

Think for a moment about what this means. People would rather have nothing than let their “partners” walk away with too much of the loot. They will give up free money to punish what they perceive as greedy or selfish behaviour. And the interesting thing is that the proposers anticipate this—presumably because they would act in the same way if they were in the responder’s shoes ... this is a long way from the “rational man” picture of human behaviour.<sup>19</sup>

The most common offer by the proposer in the ultimatum game is, in fact, \$5.

The proposer’s action directly affects the responder in the Ultimatum Game. But a key aspect in the enforcement of many social norms is that people often punish violators not for what they do to the punisher, but for what they do to others. In fact, research has shown that an area of the brain called the insula is activated when humans feel cheated, and it can influence the part of the brain believed to be responsible for rational decision-making. This means that if we feel we have been cheated, our insula is activated and we may try to punish the cheater—even at personal cost. This “punishment principle” can even be activated against people who have cheated someone we know but not us personally.<sup>20</sup>

**THE WASON SELECTION TASK**

In 1966, psychologist Peter Wason devised a task to see if people would reason in accordance with the laws of logic. Participants in the task were presented with four cards on a table, each having a letter on one side and a number on the other. One card showed a vowel and one a consonant; of

the other two cards, one showed an even number and one showed an odd number. Participants were given the statement “if a card has a vowel on one side, then it has an even number on the other”, and asked which cards must be turned over to test the validity of the statement.<sup>21</sup>

Without going into detail about what makes responses right or wrong, suffice it to say that few participants made all of the correct choices in this test of logic.<sup>22</sup> In general, less than 25% of subjects spontaneously get tasks equivalent to this fully right. Some researchers report even lower average rates of success in their studies, as low as 9%.<sup>23</sup> Moreover, even formal training in logical reasoning does little to boost performance on tests of descriptive rules of this kind, even when these rules deal with familiar content drawn from everyday life.

#### Box 2.4 Doing the Wason selection task<sup>24</sup>

Try to complete the Wason selection task as follows: you have a job working for the United Nations in Geneva to study the demographics of transportation of UN workers and diplomats. You read a previous report on their travel habits that says: “If a person goes to Paris, then that person takes the train”.

The four words listed below have information about Geneva-based UN workers and diplomats. Imagine each of the four words is a card representing one person. One side of a card tells you where a person went, and the other side tells you how that person got there. The task is to indicate *only those cards(s) you definitely need to turn over to see if there are any people who violate this rule:*

- Paris
- Lausanne
- train
- car

From a logical point of view, the rule has been violated whenever someone goes to Paris without taking the train. The logically correct answer, then, is to turn over the *Paris* card (to see if this person took the train) and the *car* card (to see if this person went to Paris). The logical form of the problem is: *if P then Q*.

Some evolutionary psychologists have argued that, if humans had developed reasoning procedures specialized for detecting logical violations of conditional rules, then solutions would be intuitively obvious, but they

are not.<sup>25</sup> However, subsequent tests using an identical logical structure but rephrasing the problem in terms of a social scenario showed a much higher rate of success among participants.<sup>26</sup> What is striking is that people who ordinarily cannot detect violations of if-then rules can do so easily and accurately when that violation represents cheating in a social exchange situation (for example, “If you receive benefit A, then you must do task B”).

Researchers have tried many variations of this experiment. In general, they support the notion that we have specialized cognitive processes (called modules by some evolutionary psychologists) that our ancestors evolved for detecting cheaters in a social group.<sup>27</sup> But the original, more abstract version of the task does not activate those specific cognitive processes, even though it is the logical equivalent of the social problems. Our intuitive sense of economics, it would seem, concerns itself primarily with judging fairness of exchange, not absolute equivalency.

#### **MEMORY CONSTRAINTS**

Research suggests that when many individuals are involved, humans cannot accurately remember past interactions, inhibiting our ability to gauge future behaviour. In one experiment, pairs of participants played a computer simulation of the Prisoner’s Dilemma involving multiple players. Participants had to use their memory of past interactions to try and guess the future behaviour of players. The experimenters varied the number of iterations allowed and the overall group size. The results revealed that cooperation can evolve as a stable strategy even in large groups, but only when members have “sufficient interactions” to develop cooperative relationships and they accurately remember these past interactions.<sup>28</sup>

This sounds straightforward enough. But the researchers argued that when cooperation breaks down in larger groups—as it often appears to do—it must be because of an innate “mental-capacity constraint” on accurately remembering past encounters with other group members (indeed, there is other evidence for this constraint discussed in the next section). They explained that “cooperation can be sustained in a large group ... if players are able to base decisions about future play on the results of ... past play”.<sup>29</sup>

Constrained working memory results in individuals misremembering past events and responding incorrectly to problems. Misremembering past interactions, perhaps leading to a player not cooperating when they should have cooperated, inhibits the ability of players to make correct predictions about future behaviours. These memory mistakes make cooperation in larger groups much more difficult to establish and sustain.

### SCALING UP FROM INDIVIDUALS TO GROUPS

Cooperation can very quickly break down in simple iterated two-person games where players generally adhere to the rule “do what the other player did the previous round” (that is, cooperate or do not cooperate) if one player breaks the pattern. Yet, in the same manner, cooperation can be re-established quickly. However:

when the game expands to include more than two people, [such] strategies ... find themselves in difficulty ... . Groups are much more prone to defectors and [cheaters]; it is difficult to come up with strategies that strike the right balance between punishing these defectors and maintaining a good level of cooperation.<sup>30</sup>

So what about the consequences of this kind of strategy when the constituent “players” are not individuals, but delegations of individuals representing states? History shows us that individual tendencies of this type of reciprocity are easily scalable to group behaviour. This has resulted in many positive human activities, such as trade. The many blood feuds that have arisen in history are examples of the negative activities that can result.

Indeed, reciprocity in which cooperation is rewarded and non-cooperation or cheating is punished, even at cost to the punisher (often called “strong” reciprocity), is a common feature of social environments in which no central authority exists to impose order. Throughout human history, individual safety has been found in groups, and these groups have cooperated with other groups, or have retaliated in kind. This applies no less to the world stage. In looking at the strategies and institutions of the international community, Robert Axelrod and Robert Keohane observed that:

Achieving cooperation is difficult in world politics. There is no common government to enforce rules, and by the standards of domestic society, international institutions are weak. Cheating and deception

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are endemic. [Yet] World politics is not a homogenous state of war: cooperation varies among issues and over time.<sup>31</sup>

Note that we are not arguing that multilateral negotiators and the governments they represent are driven by intuitive cognitive strategies such as strong reciprocity. Clearly, at the conscious level, they are (usually) not. And, most of the time, when negotiating processes are functioning in line with the expectations of their participants, considerable cooperation and trust may be established. However, if a party is believed to be breaking a pattern of cooperation, and thus the trust extended to them, the impulse to punish that party may be quite strong.

This might help to make sense of the breakdown of the BTWC negotiations on a compliance protocol in 2001. Briefly, by way of background, after several years of work in the Ad Hoc Group of the convention's states parties, the US delegation declared in July 2001 that it rejected the draft protocol and the continuation of the negotiation process. Even though negotiations could have continued without the participation of the United States, many negotiators and their national authorities appeared to be outraged at its defection at what was considered a key juncture. The Ad Hoc Group process swiftly collapsed as mutual mistrust rapidly pervaded it.<sup>32</sup> A commonly held justification of the dismayed and even angry reactions of some negotiators was that allowing the United States to reject a negotiation such as this and in such a manner, without reaction from the other negotiating parties, would undermine multilateralism by encouraging others to act similarly in the future.<sup>33</sup> Of course, this does not rule out other explanations: a compliance protocol negotiated without the United States would be less likely to have brought on board those states most concerned about its capabilities and intentions, and this fact was not lost on any participant in the Ad Hoc Group at the time. A key defection by the United States allowed them to defeat it at less cost, in effect. Others were dismayed, but did not want to make a major disagreement worse, with potential negative consequences for other areas of multilateral cooperation. All of this makes sense, but such *realpolitik* does not account for the depth of emotion among many negotiators—at least some of it genuine—at the time, which mirrored the logic of strong reciprocity.

The problem with the logic of reciprocity in this case is that, however useful and natural it may be from an individual—or even an evolutionary—perspective, retaliatory behaviour makes little sense in terms of improving



collective security against biological weapons. (The BTWC regime has since recovered from the failed protocol negotiations, although it has not tried again to undertake work on a regime to ensure confidence in compliance with the treaty's prohibitions.<sup>34</sup>)

The good news is that the temptation to engage in retaliatory behaviour can be overridden. Human beings have other cognitive adaptations that contribute to our individual judgment, including a theory of mind (we discuss this next). Every day of our lives, human beings make use of these adaptations to perform the internal calculus that manifests itself in acts of tolerance, forbearance, and forgiveness of real or perceived slights, which ultimately enables us to cooperate in social groups at all.

## INTUITIVE PSYCHOLOGY

We are all amateur psychologists. We constantly interpret the actions of others. In view of what we have already discussed, the advantages of this for living and prospering in social groups are obvious. This theory of mind is key to any form of social exchange. Theory of mind is a term used by behavioural scientists to describe the ability to understand and approximate the mental states of others. Approximations of people's mental states can be made, for example, by observing their behaviour and expressions. Social animals, especially humans, are able to pick up on these cues. Critically, this allows us to grasp the influence of mental states on the behaviour of others and the fact that they can have different desires or beliefs from our own.<sup>35</sup>

Intentionality is a concept referring to states of mind, and our awareness of them. Simple intentionality could be an understanding such as one knowing that "she is happy". Intentionality can also be nested, or "ordered", for example one knowing that "he believes that she is happy". One way of illustrating the constraints on an individual's theory of mind concerns orders of intentionality. Consider the following sentence:

I suspect that you wonder whether I realize how hard it is for you to be sure that you understand whether I mean to be saying that you can recognize that I can believe you to want me to explain that most of us can keep track of only about five or six orders of intentionality.

Without seeing this sentence on paper, it would be difficult to work out what is going on. The sentence contains a hierarchy of no less than eight mental states. If we trace the orders of intentionality in the statement, it looks like this:

I suspect [1] that you wonder [2] whether I realize [3] how hard it is for you to be sure that you understand [4] whether I mean [5] to be saying that you can recognize [6] that I can believe [7] you to want [8] me to explain that most of us can keep track of only about five or six orders [of intentionality].<sup>36</sup>

The study of apes indicates that they too understand intentionality (to a lesser degree than most humans) and practice deception, which suggests they understand it to at least the second order.<sup>37</sup> It further suggests that theory of mind has been around a long time—it is a cognitive faculty at least as old as our last common ancestor several million years ago. And there is reason to believe that humans “are capable of keeping track of, at most, six orders of intentionality, after that they probably have to see it written down”.<sup>38</sup> The ability to handle more orders of intentionality means more potential for prediction of others’ motives and actions, and for consequent intrigue or other mischief.

### **GOSSIP AND GROUP SIZE**

Robin Dunbar has examined the relationship in primates between social group size and the neocortex ratio, which is the volume of the neocortex (the outer layer of the mammalian brain) measured against the volume of the rest of the brain. He found that as the neocortex ratio increased in each species, so did the average group size.<sup>39</sup> It is the neocortex that handles higher cognitive functions such as understanding language, processing emotions, making decisions and governing socially appropriate behaviour.<sup>40</sup> A larger neocortex thus implies greater capacity for managing social relationships. From the ratios established for other primates, Dunbar calculated an average optimal group size for humans of about 150.<sup>41</sup> An implication is that it is increasingly difficult for humans to remember the details of prior interactions within groups larger than this hypothetical benchmark, which tallies with the research we outlined in the previous section about cooperation breaking down in larger groups:<sup>42</sup>

We can be fairly sure that the constraints on social group size ... are not simply a consequence of memory capacity for faces. The limits on the number of faces that we can put names to appears to be much greater (around 2000 is the often quoted figure). Rather, the problem seems to lie with the number of relationships that we can juggle within our mental space.<sup>43</sup>

These observations are consistent with the claim that intelligence (and especially language) evolved in order to maintain large group size: the more individuals you associate with, the more demands are placed upon you to keep track of each individual and of the relationships between them. Combined with theory of mind, language offers an added bonus: one may also glean information about the state of mind and intentions of those beyond the conversation, by means of social gossip. Language and, in particular, social gossip fulfil a role in humans similar to that provided by grooming in other primates—as a means of forming bonds between members of a group.

What are the implications for multilateral negotiations? It seems that the purpose behind cognitive faculties for language is not simply to exchange information, for example “look out for the leopard”. A central purpose is also to enable social gossip, in order to develop and maintain social relationships.

Among multilateral negotiators there is a general awareness that much of the real work is done outside the formal negotiating chamber. Professional interaction may be conducted in two-person or small-group interactions behind closed doors, in the coffee bar or over a drink, for instance. In essence, this recognizes the difficulties of coordinating agreement among large groups of people, not least in developing a coherent theory of mind for all the individuals involved.

To put these difficulties in perspective, the CD commonly has about 120 participants; the participants' list of the March 2005 meeting of the CCW Group of Governmental Experts, for instance, contained more than 360. The December 2004 Meeting of States Parties to the BTWC listed 445 participants. (It should be noted that many participants listed in multilateral meetings for official reasons do not actively participate or even attend. Even so, the numbers involved are large.) Even if only ambassadors were

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counted, there would still be too many to get all of them together around a table over lunch in any of these processes.

Moreover, large numbers are not unusual when some 190 states participate in the work of the United Nations. And, of course, these numbers of participants do not include those negotiating factors that are essentially invisible—the many personnel in respective capital cities following a negotiation although not physically present at it, feeding instructions to their delegation and, in some cases, communicating bilaterally with other capitals.

Of course, it can be argued that only a fraction of the individuals associated with a negotiation are actually significant to its outcome in practice (although any one state can, in principle, block a consensus). Recall, though, that Dunbar's group size refers to *all* of an individual's social relationships, not only their professional contacts or, indeed, those related to a single multilateral negotiation. Average spare professional capacity, when this is all factored in, is actually much lower.

As human beings, we find trying to work in big group configurations unwieldy for a reason: they make social exchange more difficult because we find it harder to keep up in cognitive terms. Consequently, large group situations in multilateral negotiations have, in practice, necessitated formal mechanisms for managing social interaction—the diplomatic conference system, for example, which has evolved through tradition and precedent.<sup>44</sup> On the face of it, there are clear benefits to instilling order. But an implication of Dunbar's research is that not only are these types of formal environments inefficient in terms of the building of trust and exchanging information, they are bad for decision-making as a whole.

Indeed, there exists tacit acceptance among the disarmament community that the rote exchange of official statements in bodies such as the CD, the committee of the UN General Assembly that deals with disarmament issues—or, indeed, any contemporary disarmament body—has to be supplemented, or quietly supplanted, by unofficial or at least less formal forms of social exchange, such as coffee, lunches and receptions, in order to function. Perhaps most importantly, these types of informal social interaction enable more candid opportunities than the conference chamber for scrutiny of others' gestures, facial expressions and group associations. It

all contributes to the ability of individuals to understand the intentions of others—supplying data to our theory of mind.

### **SMALL GROUPS**

In light of this, it is perhaps no surprise that many successes in multilateral disarmament and arms control in recent years have been facilitated by work behind the scenes by small and often very discreet ad hoc configurations of individual negotiators. These groups do not replace formal work, but often play important roles in context setting, idea entrepreneurship and even substantial drafting of possible agreements later taken up by formal bodies.

Such efforts are not by any means limited to disarmament and arms control.<sup>45</sup> Small groups seem to be more effective in getting work done across the board in multilateral negotiations, probably because they are more natural environments for social exchange. They allow individual negotiators' intuitive psychological faculties to best make use of opportunities for cooperation. It is important to recognize, however, that such informal small groups do not operate, or indeed emerge, within a vacuum. Rather, they can usefully *supplement* multilateral processes.

Yet, small groups are not without problems. Psychologist Irving Janis looked at a number of case studies, including the 1986 Challenger Space Shuttle disaster and group decision-making that allowed it to happen, and coined the term *groupthink*.<sup>46</sup> The advantages brought about by the cohesion that informal small groups enjoy can be offset by a reluctance to raise difficult questions or otherwise break that cohesion. And, small groups may sacrifice just the perspective diversity that is needed to productively tackle a problem, or fail to include "difficult" actors in a negotiation in order to reframe the situation.

The Core Group of states spurring the Oslo Process to negotiate a humanitarian treaty dealing with cluster munitions also revealed the tensions inherent in small group work. This informal group, comprised of Austria, Ireland, Mexico, New Zealand, Norway, Peru and the Holy See, was instrumental in initiating the Convention on Cluster Munitions process from February 2007. But over the 15 months of the process other states became concerned about the influence of the Core Group and the level of transparency in the Oslo Process—rightly or wrongly. There were also

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concerns that it was not representative, for instance in terms of cluster munition possessor or producer states. By the time the negotiations on the treaty were held in May 2008, the role of the Core Group had receded, and in the final negotiations themselves, Core Group members pursued quite different national negotiating objectives on key parts of the treaty, although still sharing the general goal of banning cluster munitions that “cause unacceptable harm to civilians”.

### COGNITIVE ERGONOMICS

The size of a group can matter in multilateral work, and so does its degree of diversity. In one sense, these observations are probably no surprise to most multilateral practitioners. Nor will be a connected point: that informal social exchange is insufficient on its own to sustain a successful negotiation. The BTWC protocol negotiations, for example, failed; the CD remains in deadlock; both were or are characterized by extensive informal social exchange alongside formal meetings. In both of these negotiating contexts (and in many others) substantive or political differences have proved insoluble, despite both formal and informal efforts by negotiators.

One reason for this is, of course, because there simply may be no scope for a successful outcome. The substantive positions of those involved are too far apart—the gulf cannot be bridged because the costs of cooperating are simply too high, and no efforts to lower the costs of cooperating will make enough difference. This is often an explanation resorted to in situations of impasse or failure in multilateral negotiations.

A second reason why informal social exchange is not sufficient is that it must be supported by the procedural means to capitalize on the opportunities for building collective agreement provided by informal social exchange. Many multilateral negotiating forums have rigid and formal ways of doing things which are, in principle, designed to ensure fairness and safeguard the vital interests of participating states. Tradition and precedent accumulate, rigidifying them further. The problem is that such “due process” may be so rigid that it gets in the way of developing collective intentionality in human terms—terms that are inherently dynamic.<sup>47</sup> And the consolidation of process may serve to institutionalize inequity or certain advantages to certain participants, which as we discussed before is not necessarily good for the emergence of trust and cooperation.

Negotiators are heavily dependent on social transactions to do what they do, and their level of performance matters in making the negotiations work. Thus, multilateral environments that promote and facilitate contact in a manner that is in keeping with our natural cognitive abilities are likely to be more productive. For want of a better term, we have described such situations as having good cognitive ergonomics.<sup>48</sup>

### **COGNITIVE BIASES**

A third area in which human beings appear to have an evolutionary inheritance is shown by the existence of various cognitive biases. The mind works naturally in various ways, in what could be thought of as “standard operating procedures”. These procedures are mechanisms by which our minds make sense—rapidly—of the huge amount of information coming to us constantly from our environment. Such rapid assessments, and thus reactions, were a survival advantage. Danger would not wait for a sober evaluation of facts. However, these biases have a downside: in predisposing our cognition to certain quick pathways, they can distort our perception of and reaction to reality. These biases also assume certain inputs, which may or may not be coming from our environment. If we recall the Wason selection task discussed earlier, it shows—according to evolutionary psychologists—that each mental module has its own rules for processing information and its own knowledge base, and it does not have access to the rules or the knowledge base of other modules. Thus detecting violations of if-then logical problems is much easier if it activates our cheater-detection module. The manner in which information is presented to us affects our degree of comprehension and, consequently, our ability to make the best choices.

### **MISJUDGING PROBABILITY**

Pointing to our tendency to perceive—indeed, to impose—narrative and causality on the world, Nassim Nicholas Taleb argues that our minds are poorly equipped for dealing with non-linearity and randomness:

It is a fact that our brain tends to go for superficial clues when it comes to risk and probability, these clues being largely determined by what emotions they elicit or the ease with which they come to mind. In addition to such problems with the perception of risk, it is also a scientific

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fact, and a shocking one, that both risk detection and risk avoidance are not mediated in the “thinking” part of the brain but largely in the emotional one (the “risk as feelings” theory). The consequences are not trivial: It means that rational thinking has little, very little, to do with risk avoidance. Much of what rational thinking seems to do is rationalize one’s actions by fitting some logic to them.<sup>49</sup>

Taleb argued that “black swans” underlie almost everything about our world—highly improbable, unpredictable events that carry a massive impact, but which we do not acknowledge until after they have occurred. Even then, we often concoct explanations to make them seem less random, and more predictable. Taleb cited examples such as the attacks of 11 September 2001 and the success of Google.<sup>50</sup> We are biased cognitively to think unlikely events are essentially impossible events, and we are stunned when they happen.

A related problem is that once we have formed an interpretation of a situation, we can find it difficult to revise it or let it go, even when it is proven incorrect. In the preceding chapter, we mentioned how Philip Tetlock and his colleagues carried out an in-depth study that found an expert problem: acknowledged experts in fields relevant to many forms of policymaking could not predict outcomes very accurately or consistently. Various mechanisms of generating ex post explanations were found: experts were biased toward claiming credit when things went well, but when things did not it was because they were unlucky, they claimed, or not that far from the mark.

### **CONFIRMATION BIAS**

A common theme running throughout Tetlock’s large sample of experts’ forecasts was the tendency to interpret events to support their desires or beliefs. Evidence shows that we all share this tendency, called a confirmation bias, to seek out and process information that confirms our pre-existing thoughts. This bias comes up in the courtroom, in political debates and in the conference room.<sup>51</sup> One research study interviewed a policymaker who “spoke of writing a policy brief and then searching for supporting statements or evidence from the academic world to be inserted into the document because it was felt that this would add credence to the choices advocated in the document”.<sup>52</sup> Such behaviour is not unusual.



For example, if one believes that cluster munitions are a real humanitarian threat, then they will collect information showing the grave impact of these weapons. If, on the other hand, one prefers to sideline the cluster munitions issue, then they might search for information that shows that cluster munitions do not kill that many people when compared to other threats and thus should not be top of the list of things to worry about.

If you are trying to make a case for something then you will tend to present the facts from your point of view. The problem is that evidence has ways of surprising us, and more so if we have not collected and evaluated it objectively. Until 2006, Norwegian defence scientists were sure that Norway's artillery-launched cluster munitions met a standard of 99% reliability—that is, only 1 out of 100 explosive submunitions would fail to function as intended, and even then any risk would be neutralized through a built-in self-destruct mechanism. Norway, like others, believed manufacturers' claims. When Norwegian defence officials and scientists carried out objective tests of their own,<sup>53</sup> however, the evidence of greater hazard changed their minds, to the point where Norway took the weapon out of service and began critically evaluating the actual military utility of cluster munitions in view of this new information.<sup>54</sup> Moreover, the evidence Norway presented eventually had an impact on other governments, which had also depended on similar claims from cluster munition manufacturers.

#### **FALSE POLARIZATION, NAÏVE REALISM AND THE FIXED-PIE BIAS**

Our evolutionary inheritance not only affects our intuitive understandings of the world, but our basic perceptions as well. And, our perceptions play an important role in our interactions with others. For example, some talk about a sense of "common purpose" as important to negotiating, which could be defined as a willingness to work together or an atmosphere that encourages collaboration and cooperation. But perceptions and wrong assumptions can negatively influence this common purpose, stifling possibilities for cooperation and putting negotiators in the wrong frame of mind.

One misperception that is particularly relevant to negotiators is known as "false polarization". This means that we perceive the stance of an opponent on a particular issue to be extremely different from our own. In reality, these opinions may be much more similar than we think.

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For example, Argentina began work on several nuclear reactors from the 1970s. Western governments took this as a sure sign that Argentina's goal was to create nuclear weapons. Canada demanded that Argentina join the NPT and submit to IAEA safeguards. US President Carter's administration demanded that Argentina sign the Treaty of Tlatelolco. Argentina resisted these demands, confirming in the minds of some that it did have nuclear ambitions (perhaps they suffered from confirmation bias?). In reality:

Argentina had no such ambitions ... . In fact, the discriminatory nature of the international regime actually proved to be a prod for Argentina's drive for nuclear autonomy. And when Argentine–Brazil nuclear tensions surfaced, rather than falling back on the existing non-proliferation structures the two chose to build a new regional institution both to settle their differences and to make common cause against the international regime.<sup>55</sup>

Focusing on inferred ideological differences can lead parties in a negotiation to assume that their interests are incompatible and increase pessimistic feelings about the prospects of reaching a mutually beneficial agreement. This is important for negotiators to consider because not only does it reduce interest in finding common ground, it can even lead some parties to be unwilling to work for a compromise.<sup>56</sup>

How can we fall into this trap? One explanation for the false polarization effect is called "naïve realism". A naïve realist believes that they see the world clearly and accurately while those with differing opinions suffer from an ideological bias or a lack of information.<sup>57</sup> The hedgehogs characterized by Tetlock are especially susceptible to this kind of perception. In other words, naïve realism serves to underplay respect for valid differences in perspective and hampers efforts to clearly communicate between groups. It has also led to the misattribution of the words or actions of other parties, to the blaming of others for problems associated with a negotiation and even to doubting the sincerity of other parties—none of which promote successful collaboration.<sup>58</sup>

The "fixed-pie" bias, another stumbling block for policymakers, is the belief that the interests of negotiators are diametrically opposed and that gains for some must be at the expense of others. This can lead both sides to assume that a mutually beneficial agreement is impossible and that negotiating positions are fixed. But, as we showed in the third DHA volume,

the expectations and interests of states in reality are usually *not* fixed.<sup>59</sup> Negotiating situations in which a strong fixed-pie perception is widely held are more likely than others to produce agreements that neglect certain priorities and fail to integrate differing concerns into a fair agreement, if agreement can emerge at all.

Negotiators often work under conditions where they have less information than they would like. The trouble is, humans sometimes make inferences to fill in the blanks when lacking information—including inferences about the preferences or intentions of other negotiators based on perceptions that are subject to subtle forms of bias. These inferences can be incorrect and even misleading. Incomplete information coupled with the human tendency to fill in the blanks is a major reason the fixed-pie bias persists.

### **OUR OWN WORST ENEMIES?**

Cordelia Fine, in her book entitled *A Mind of Its Own*, summed up the plethora of inconvenient insights that modern research reveals about how cognitive constraints impact how we see the world. The human brain is:

An adroit manipulator of information, it leaves us staring at a mere façade of reality. Vanity shields us from unpalatable truths about ourselves. Irrationality clouds our judgment, leaving us vulnerable to errors and delusions—a situation only worsened by our pigheadedness. The emotions add a gloss of their own, colouring and confusing our opinions, while unobtrusively masterminding our behaviour and sense of being.<sup>60</sup>

And so on. In one sense it is terribly depressing. More importantly, where does it leave us?

An important consequence of these insights is that we should be rather more vigilant about the potential for these types of constraint to influence us, particularly in cognitively demanding situations such as negotiations. Fine, among others, argues that awareness of them should lessen their potential effects. The judgements (often incorrect) that we reach intuitively and effortlessly, Daniel Kahneman assures us, “can be modified or overridden in a more deliberate mode of operation”.<sup>61</sup> It certainly sounds promising with respect to correcting for problems in grasping non-intuitive aspects of

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reality such as probability and, more broadly, to avoiding *some* biases under favourable circumstances.

A problem with such a vigilant approach to cognitive constraints, however, is that in demanding situations, such as multilateral negotiations, negotiators' conscious minds are on other things. Some research indicates that making people "accountable for their judgments goes a long way towards focusing their vision of other people with greater clarity".<sup>62</sup> While this seems feasible in a controlled, experimental setting, it is less clear how this could be consistently possible in a complex real-life environment. Multilateral practitioners may form many judgments each day, and make important decisions under pressure: often, human beings can be fooled into substituting more reasoned, critical thought for rapid (albeit flawed) intuitive thought—sometimes that is what circumstances demand. This underlines just how important the cognitive ergonomics of negotiating environments are. Information needs to be communicated in ways that leverage human cognitive traits, rather than confounding them.

Multilateral negotiators are, on the whole, clever and educated people—while sometimes priding themselves as generalists, they in fact have highly specialized skills. But the smartness or expertise of negotiators is not at issue: it is rather the breadth of heuristics to which they have access.

## Notes

- <sup>1</sup> Desmond Morris, *Peoplewatching*, Vintage, 2002, p. 10.
- <sup>2</sup> See Steve Olson, *Mapping Human History, Unravelling the Mystery of Adam and Eve*, Bloomsbury, 2003, p. 29.
- <sup>3</sup> Richard Byrne, *The Thinking Ape, Evolutionary Origins of Intelligence*, Oxford University Press, 1995, p. 196.
- <sup>4</sup> Two books providing an excellent introduction to these questions are Matt Ridley, *The Origins of Virtue, Human Instincts and the Evolution of Cooperation*, Penguin, 1996; and Robert Wright, *The Moral Animal, Why We Are the Way We Are*, Abacus, 1994.
- <sup>5</sup> See Robin Dunbar, *Primate Social Systems*, Croom Helm, 1988; and Richard Byrne, *The Thinking Ape, Evolutionary Origins of Intelligence*, Oxford University Press, 1995.
- <sup>6</sup> Steven Pinker, *The Blank Slate, The Modern Denial of Human Nature*, Penguin, 2002, pp. 219–21.

- <sup>7</sup> Ibid., p. 221.
- <sup>8</sup> Nayef Al-Rodhan has described human beings as “predisposed tabula rasa”. See Nayef Al-Rodhan, *“Emotional Amoral Egoism”, A Neurophilosophical Theory of Human Nature and its Universal Security Implications*, LIT Verlag/Geneva Centre for Security Policy, 2008.
- <sup>9</sup> See Cordelia Fine, *A Mind of Its Own, How Your Brain Distorts and Deceives*, Icon, 2006, pp. 14–7.
- <sup>10</sup> Richard Dawkins describes the evolution of the eye in *The View From Mount Improbable*, Penguin, 1997, pp. 126–79.
- <sup>11</sup> In the mid-1960s, William Hamilton pointed out that an individual can ensure its genes are transmitted to the next generation in one of two ways, by reproducing itself, or by helping a relative who carries similar genes to reproduce more successfully. Provided the cost of helping a relative does not outweigh the gain, it pays an individual to act in a helpful way. See Richard Dawkins, *The Selfish Gene*, Oxford University Press, 1976, pp. 90–108.
- <sup>12</sup> Robert Trivers, “The Evolution of Reciprocal Altruism”, *Quarterly Review of Biology*, 1971, vol. 46, no. 1, pp. 35–57.
- <sup>13</sup> Note that altruism has a special meaning here: “To an evolutionary psychologist true altruism involves behaviour that promotes the inclusive fitness of another at a cost to oneself”. See Lance Workman and Will Reader, *Evolutionary Psychology: An Introduction*, Cambridge University Press, 2004, p. 371.
- <sup>14</sup> Robert Trivers, *Social Evolution*, Benjamin Cummings, 1985, pp. 393–4.
- <sup>15</sup> See P.E. Turner and L. Chao, “Prisoner’s Dilemma in an RNA Virus”, *Nature*, vol. 398, no. 6727, 1999, pp. 441–3.
- <sup>16</sup> Matt Ridley, *The Origins of Virtue: Human Instincts and the Evolution of Cooperation*, Penguin, 1996, pp. 55–6.
- <sup>17</sup> Frans de Waal, “How Animals do Business”, *Scientific American*, April 2005, p. 54.
- <sup>18</sup> See Vernon Smith, “Constructivist and Ecological Rationality in Economics”, *American Economic Review*, vol. 93, no. 3, 2003, pp. 465–508. For comparison of how people play the game in different countries, see Alvin Roth, Vesna Prasnikar, Masahiro Okuno-Fujiwara and Shmuel Zamir, “Bargaining and Market Behaviour in Jerusalem, Ljubljana, Pittsburgh and Tokyo, an Experimental Study”, *American Economic Review*, vol. 81, no. 5, 1991, pp. 1068–95.
- <sup>19</sup> James Surowiecki, *The Wisdom of Crowds: Why the Many Are Smarter than the Few*, Abacus, 2005, pp. 139–40.

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- <sup>20</sup> See Alan Sanfey, James Rilling, Jessica Aronson, Leigh Nystrom and Jonathan Cohen, "The Neural Basis of Economic Decision-Making in the Ultimatum Game," *Science*, vol. 300, no. 5626, 13 June 2003, pp. 1755–8.
- <sup>21</sup> See Peter Wason, "Reasoning", in B.M. Foss (ed.), *New Horizons in Psychology*, Penguin, 1966.
- <sup>22</sup> For a detailed account of the experiment, see Lance Workman and Will Reader, *Evolutionary Psychology: An Introduction*, Cambridge University Press, 2004, pp. 238–40.
- <sup>23</sup> See R.A. Griggs and J.R. Cox, "The elusive thematic material effect in Wason's selection task", *British Journal of Psychology*, vol. 73, 1982, pp. 407–20.
- <sup>24</sup> For a detailed account of the Wason selection task see Lance Workman and Will Reader, *Evolutionary Psychology: An Introduction*, Cambridge University Press, 2004, pp. 238–40.
- <sup>25</sup> Leda Cosmides and John Tooby, "Evolutionary Psychology, a Primer", Center for Evolutionary Psychology, University of California, Santa Barbara, 13 January 1997, <[www.psych.ucsb.edu/research/cep/primer.html](http://www.psych.ucsb.edu/research/cep/primer.html)>.
- <sup>26</sup> See R.A. Griggs and J.R. Cox, "The elusive thematic material effect in Wason's selection task", *British Journal of Psychology*, vol. 73, 1982, pp. 407–20. Griggs and Cox reported that among 32 undergraduate students, the success rate of solving Wason's four-card problem using abstract phrasing was about 1%. In the social scenario the correct response rate was 74%. Moreover, no evidence was found that getting the second task correct translated into any improvement in the first test.
- <sup>27</sup> See Leda Cosmides, "The logic of social exchange: Has natural selection shaped how humans reason? Studies from the Wason selection task", *Cognition*, vol. 31, 1989, pp. 187–276.
- <sup>28</sup> S.J. Cox, T.J. Sluckin and J. Steele, "Group size, memory and interaction rate in the evolution of cooperation", *Current Anthropology*, vol. 40, no. 3, 1999, p. 374.
- <sup>29</sup> Ibid.
- <sup>30</sup> Robert Winston, *Human Instinct*, Bantam, 2002, p. 335.
- <sup>31</sup> Robert Axelrod and Robert Keohane, "Under Anarchy, Strategies and Institutions", *World Politics*, vol. 38, no. 1, 1985, p. 226.
- <sup>32</sup> For a detailed history of the negotiations, see Jez Littlewood, *The Biological Weapons Convention, a Failed Revolution*, Ashgate, 2005.

- <sup>33</sup> This observation comes from John Borrie's discussions with negotiators and arms control diplomats involved in the process.
- <sup>34</sup> See John Borrie, "The Limits of Modest Progress: The Rise, Fall and Return of Efforts to Strengthen the Biological Weapons Convention", *Arms Control Today*, vol. 36, no. 8, 2006, pp. 18–22.
- <sup>35</sup> Lance Workman and Will Reader, *Evolutionary Psychology: An Introduction*, Cambridge University Press, 2004, pp. 126–9.
- <sup>36</sup> This quote is from Daniel Dennett, paraphrased in Robin Dunbar, *Grooming, Gossip and the Evolution of Language*, 2nd ed., Faber and Faber, 2004, p. 84.
- <sup>37</sup> Richard Byrne, *The Thinking Ape, Evolutionary Origins of Intelligence*, Oxford University Press, 1995, p. 134.
- <sup>38</sup> Robin Dunbar, *Grooming, Gossip and the Evolution of Language*, 2nd ed., Faber and Faber, 2004, p. 84.
- <sup>39</sup> See Robin Dunbar, *Primate Social Systems*, Croom Helm, 1988; and Robin Dunbar, "Co-evolution of Neocortical Size, Group Size and Language in Humans", *Behavioural and Brain Science*, vol. 16, no. 4, 1993, pp. 681–735.
- <sup>40</sup> See Louise Barrett, Robin Dunbar and John Lycett, *Human Evolutionary Psychology*, Palgrave Macmillan, 2002, pp. 316–20.
- <sup>41</sup> Leslie Aiello and Robin Dunbar, "Neocortex size, Group Size, and the Evolution of Language," *Current Anthropology*, vol. 34, no. 2, 1993, pp. 184–94.
- <sup>42</sup> S.J. Cox, T.J. Sluckin and J. Steele, "Group Size, Memory and Interaction Rate in the Evolution of Cooperation," *Current Anthropology*, vol. 40, no. 3, June 1999, p. 374.
- <sup>43</sup> Louise Barrett, Robin Dunbar and John Lycett, *Human Evolutionary Psychology*, Palgrave Macmillan, 2002, p. 247.
- <sup>44</sup> See G.R. Berridge, *Diplomacy, Theory and Practice*, 3rd ed., Palgrave Macmillan, 2005, pp. 164–9.
- <sup>45</sup> See Vanessa Martin Randin and John Borrie, "A comparison between arms control and other multilateral processes", in John Borrie and Vanessa Martin Randin (eds), *Alternative Approaches in Multilateral Decision Making, Disarmament as Humanitarian Action*, UNIDIR, 2005.
- <sup>46</sup> See Irving Janis, *Crucial Decisions: Leadership in Policymaking and Crisis Management*, Free Press, 1989, pp. 89–117.
- <sup>47</sup> For a discussion of collective intentionality, as opposed to individual intentionality, see J.R. Searle, *The Construction of Social Reality*, Allen Lane/Penguin, 1995, pp. 23–6.

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- <sup>48</sup> See John Borrie and Vanessa Martin Randin (eds), *Thinking Outside the Box in Multilateral Disarmament and Arms Control Negotiations*, UNIDIR, 2006, pp. 1–12.
- <sup>49</sup> Nassim Nicholas Taleb, *Foiled by Randomness, The Hidden Role of Chance in Life and in the Markets*, 2nd ed., Penguin, 2004, p. 38.
- <sup>50</sup> Nassim Nicholas Taleb, *The Black Swan, The Impact of the Highly Improbable*, Random House, 2007.
- <sup>51</sup> See Michael Shermer, “The political brain”, *Scientific American*, July 2006, p. 20.
- <sup>52</sup> Cheyanne Church, “Mind the Gap, Policy Development and Research on Conflict Issues”, International Conflict Research project, University of Ulster, 2005, p. 12.
- <sup>53</sup> Norwegian Defence Research Establishment, “FFI Facts: Cargo Ammunition”, Forsvarets forskningsinstitutt, February 2007, <[www.mil.no/multimedia/archive/00090/cargo-ammunition\\_90471a.pdf](http://www.mil.no/multimedia/archive/00090/cargo-ammunition_90471a.pdf)>.
- <sup>54</sup> Ove Dullum, “Cluster Weapons: Military Utility and Alternatives”, Norwegian Defence Research Establishment, February 2008.
- <sup>55</sup> Jacques Hymans, *The Psychology of Nuclear Proliferation*, Cambridge University Press, 2006, p. 142.
- <sup>56</sup> D.K Sherman, L.D. Nelson and L. Ross, “Naïve realism and affirmative action, adversaries are more similar than they think”, *Basic and Applied Social Psychology*, vol. 25, no. 4, 2003, p. 282–3.
- <sup>57</sup> *Ibid.*, p. 276.
- <sup>58</sup> R.J. Robinson, D. Keltner, A. Ward and L. Ross, “Actual versus assumed differences in construal, ‘naïve realism’ in intergroup perception and conflict”, *Journal of Personality and Social Psychology*, vol. 68, no. 3, 1995, pp. 404–17.
- <sup>59</sup> Rebecca Johnson, “Changing Perceptions and Practice in Multilateral Arms Control Negotiations”, in John Borrie and Vanessa Martin Randin (eds), *Thinking Outside the Box in Multilateral Disarmament and Arms Control Negotiations*, UNIDIR, 2006, pp. 55–87.
- <sup>60</sup> Cordelia Fine, *A Mind of Its Own, How Your Brain Distorts and Deceives*, Icon, 2006, p. 165.
- <sup>61</sup> Daniel Kahneman, “A Perspective on Judgment and Choice, Mapping Bounded Rationality”, *American Psychologist*, vol. 58, no. 9, 2003, p. 716.
- <sup>62</sup> Cordelia Fine, *A Mind of Its Own, How Your Brain Distorts and Deceives*, Icon, 2006, p. 165.





## CHAPTER 3

### THE VALUE OF DIVERSITY

#### INTRODUCTION

In Chapter 2 we looked at various cognitive constraints that can impede the performance of multilateral practitioners because of the effects of these constraints on how they perceive the world, including their encounters with each other. We also made the point that the complexity of the issues multilateral practitioners deal with, and the scale of their interactions, can be at odds with their intuitive predictive models of how and why things happen. The complexity of social situations can be cognitively overwhelming, and so practitioners often fall back on intuitive responses and precedent—we do what has been done before, in the hope that it will work in new situations.

In some instances, simple guidelines such as “do what was done before” can be of use in problem solving. However, using minimal information to solve problems or to make predictions does not solve all problems. Along with this, over-reliance on intuitive responses can create, exacerbate and perpetuate conflict, or impede the framing of collective responses in useful ways. So too can the institutional mechanisms multilateral practitioners create to help them manage their interactions, such as diplomatic precedent, procedural rules and orthodox negotiating practices. All of these can become obstacles to collective prediction and problem-solving activities if decoupled from what it is they are intended to help achieve. They must be tools, not artefacts—means and not ends. But this can be very difficult in multilateral environments in which there is not always a widely shared sense of what is to be achieved, and it is hoped that interaction and trust building, and perhaps contingency, will generate the emergence of collective intentionality. In this way, process takes on a value in itself that can be difficult to define, but which nevertheless can make participants backward looking and resistant to novel approaches.

Perhaps we should acknowledge that the predictive models used by individual human beings are highly fallible, and that institutions can actually act as obstacles to group prediction and problem solving. But are there models of effective group prediction and problem solving that can be used as templates for the design of institutions? After all, there is certainly no shortage of case studies of both successful and unsuccessful multilateral policy processes to draw from, and we have used several as illustrations.<sup>1</sup> But suspicion is justified about universal prescriptions for ensuring effective multilateral disarmament negotiations. No context is identical, and we have no way of knowing what effect minor differences (how minor they are, of course, being in the eye of the beholder) will have in the long run, even in very similar multilateral disarmament processes.

To improve the efficacy of multilateral processes, what we really need to identify are resilient *conditions* in which effective group prediction and problem solving are more likely to emerge. In this chapter, we will explore cognitive diversity and why it is of value, especially what it could mean in the context of multilateral arms control. Later in this chapter, we will make some recommendations that could help multilateral disarmament practitioners be more effective. We will conclude by showing how all of this joins up with efforts since the 1990s to introduce humanitarian and other perspectives into traditional arms control work.

In Chapter 1 we described different components of our “cognitive toolboxes”—perspectives, heuristics, interpretations and predictive models. Using this conceptual framework, it has been argued that cognitive diversity produces benefits in collective prediction and problem solving. Scott Page, for example, has cited a wide range of empirical evidence to indicate that cognitively diverse societies, cities and teams perform better than homogenous ones. But to understand what this means for multilateral disarmament practitioners, we first need to know what cognitive diversity is, what leads to it, and why it improves prediction and problem solving. As part of that, we need to look further at why the difference between perspective diversity and identity diversity (see Box 1.2 of Chapter 1) is important, and how it qualifies the generic argument that greater perspective diversity can add value to prediction and problem-solving tasks.

**Box 3.1 What is cognitive diversity?**

Cognitive diversity is the presence of diverse perspectives, heuristics, interpretations and predictive models brought to bear on prediction or problem-solving tasks. In crude terms, its net benefits are the gross benefits of having access to these tools, minus the costs of diversity; for instance, inefficiencies created by interaction structures or the difficulties of communicating and getting along.

**WHAT LEADS TO COGNITIVE DIVERSITY?**

Training and experiences are two sources of diversity. People trained differently acquire different cognitive tools. In fact, much of schooling consists of accumulating perspectives (think of the earlier example of polar versus Cartesian coordinate systems). Training also influences our interpretations—that is, the “boxes” we use to categorize what we see and learn. In turn, that contributes to the set of predictive models each of us carries around in our heads.

We tend to learn cognitive tools that help us make sense of our experiences. There is not much need for someone living on a South Pacific Island to acquire the cognitive tools for ice fishing, but it makes more sense for someone living in an Inuit community in the Arctic Circle. It follows that, if coming from differing sets of experiences, we have likely acquired and developed different toolsets in order to succeed at prediction and problem-solving tasks appropriate for our respective environments.

According to Page, there are two types of preferences:

- *fundamental* preferences about outcomes; and
- *instrumental* preferences about how we achieve those outcomes.

Experiences can also affect both types of preference diversity, that is, preferences about outcomes we want, and how we get what we want. By influencing the creation of our predictive models, experiences affect our instrumental preferences. Experience can also, over time, change our fundamental preferences. For example, a child may hate to eat mushrooms. But, when that child has grown into an adult, they may accidentally eat

some and discover that they do like mushrooms—or at least no longer detest them.

Another important point is that diverse fundamental preferences “need not imply diverse instrumental preferences and vice versa . . . . People who have different fundamental preferences might be said to have different *values*. People who have different instrumental preferences but the same fundamental preferences have the same values but different *beliefs about how the world works*”.<sup>2</sup>

These are useful concepts in thinking about multilateral disarmament processes. If the preferences of the actors concerned are fundamentally diverse, it is easy to see how the development of collective agreements can be thwarted. Often though, diverse instrumental preferences can (in contrast) be useful by positing different options for achieving a shared fundamental preference, if it exists.

Issues can arise if the structure of a multilateral process makes it too easy for work to be prevented—even when a shared fundamental preference exists. For instance, there is the CD, in which the consensus rule operates. Even if a shared fundamental preference to commence negotiations on a major agenda item issue seems likely to emerge, a practice has arisen among certain CD members of insisting that such a consensus should be contingent on consensus on other issues on which there is not a shared fundamental preference—this is termed “linkage”.

A pertinent question for multilateral practitioners to ask is whether difficulties in a negotiating or pre-negotiation situation are because of differences in the fundamental or instrumental preferences of those involved. Depending on the goal, they might be better going outside the existing structure to achieve the goal with those with whom they share similar fundamental preferences, although there can be costs to doing so. This is what happened in the case of the Ottawa Process on anti-personnel mines in the mid-1990s, and in the Oslo Process on cluster munitions, which emerged in 2007. But it has not happened in the CD, perhaps because the nature of the goal that is the preference of most members (negotiations on a treaty on fissile materials), which depends directly on the involvement and adherence of those few states with perhaps the most diverse fundamental preferences.<sup>3</sup>

However, sometimes when multilateral diplomats talk about the importance of compromise in negotiating agreements, what they are actually describing is the tension between instrumental and fundamental preferences. Therefore, another useful question to always ask is whether insistence on certain means (an instrumental preference) is getting in the way of progress toward an end (a fundamental preference).

Intuitively it makes sense that identities are an indirect source of diversity. After all, different cultures lead to different identities, and everyday routines and rituals create differences in how we structure information. But we need to be careful to distinguish diversity of perspective from diversity of identity, especially as identity is a slippery concept. “Cultural differences exist, to be sure, but they may be swamped by the variation that exists within cultures. Our identities also include our races, genders, physical abilities, sexual orientations, religions and even our training”.<sup>4</sup>

Some characteristics of our identities may be socially constructed, some biologically, although most are constructed by a combination of such factors. Attributes such as race and gender can shape our experiences; they can limit or guide our choices. But whenever identity comes up we have to keep in mind that people may differ in the tools they choose to acquire (or are permitted to acquire) because of their circumstances, but that does not imply a difference in the perspectives, heuristics, interpretations and predictive models they *could* acquire. It stands to reason that the effects of identity on experiences can be significant, but they are often hard to measure. The relevant issue for us is whether these identity differences translate into meaningful cognitive differences among multilateral practitioners. And that depends on context, which we will discuss later.

### **WHY IS COGNITIVE DIVERSITY IMPORTANT?**

Why should we be worried about perspective diversity in the first place? Well, recall that different perspectives engender different heuristics, interpretations and many predictive models. Another crucial point about prediction and problem solving is that we cannot know beforehand which cognitive tools will prove to be suited to a given task. “An event may create opportunity only for those minds representing the event in particular ways. Insights are often the recognition of a previously ignored dimension or causal relationship. They are new interpretations and new predictive models”.<sup>5</sup>

How do you create the best conditions to encourage such insights? By encouraging an environment in which there is a diverse range of perspectives, heuristics, interpretations and predictive models, and putting them in contact with one another and the challenge at hand. As we have discussed, there are many problems in international security for which there may be no predetermined “correct” way to proceed, especially in light of political uncertainties. The substance of challenges themselves—sometimes lumped arbitrarily into the disarmament or arms control domain, for example the illicit trade in small arms and light weapons—may have little in common with preceding issues, and so past experience in multilateral disarmament problem solving may be of little use. Louis Pasteur wrote, “Chance favours the prepared mind”, but—in fact—prepared *minds* is better. “Almost by definition, breakthroughs require serendipity. That serendipity arises from diverse preparedness”.<sup>6</sup> However, that preparedness has to be accompanied by an appreciation for, or at least open-mindedness about, the potential value of other perspectives.

As an example, let us examine the involvement of the International Committee of the Red Cross (ICRC) in the work of the BTWC. In 2001, the BTWC’s stewardship process ran into difficulty after negotiations on a protocol to improve confidence in compliance with its prohibitions collapsed, and an ensuing review meeting in late 2001 was suspended. This alarmed the ICRC, a major international humanitarian organization. Although traditionally a marginal actor in the BTWC’s work, the ICRC’s humanitarian concerns about the threat of biological weapons prompted it to come to grips with the complex nature of threats from poisoning and the deliberate spreading of disease in quite a different way from the approaches used in the BTWC arms control context.<sup>7</sup>

In September 2002, the ICRC launched a public appeal to:

- all political and military authorities to strengthen their commitment to the international humanitarian law norms which prohibit the hostile uses of biological agents and to work together to subject potentially dangerous biotechnology to effective controls.
- the scientific and medical communities, industry and civil society in general to ensure that potentially dangerous biological knowledge and agents be subject to effective controls.<sup>8</sup>

A corresponding ICRC initiative for a ministerial declaration to engage governments was treated with suspicion by some BTWC member states, despite the serious humanitarian implications of a biological weapons attack (in which the ICRC might be called on to help victims) and the acceptance of the ICRC's constructive role in other weapons-related multilateral processes, such as the CCW. Eventually, these states successfully resisted a ministerial declaration. Even so, the ICRC's raising of attention to these problems and engagement with many states did have a positive impact by helping to restore some momentum to the BTWC process.

Both more important and more successful was the second track of the ICRC's appeal—to engage with actual practitioners in science and medicine, rather than governmental elites—about the risks, rules and their responsibilities in preventing misuse of science for hostile purposes. This is where the ICRC put the bulk of its efforts, with the active support of many national Red Cross and Red Crescent societies.

Key to this success was the ICRC's concept of a “web of prevention”, drawing on the diverse expertise of its creators, who had a variety of backgrounds—medical, scientific, public health, legal, as well as diplomatic. The web of prevention concept developed by the ICRC was intended to help relate legal and ethical norms such as the BTWC to individuals and institutions in the life sciences by properly informing them of the risks, rules and responsibilities associated with preventing hostile use of their advances. This knowledge should help to motivate them to objectively assess and reduce risk in this sphere, and to take action accordingly. Such engagement was broken down into three main phases for actors in the life sciences:

- to acknowledge that minimizing risks from the hostile use of advances in the life sciences is of concern to them and part of their responsibility;
- to identify and implement the necessary actions within their own sphere of influence that will contribute to risk reduction and that complement actions being taken in other spheres; and
- ensure their actions are known among and complement the actions of others.

By drawing, in particular, on policy models developed in the public health sphere, the ICRC web of prevention resonated clearly with life science practitioners, for instance in academia, industry and defence, and has



been taken up by national scientific academies and medical and nursing associations around the world.

Eventually the concern in the Biotechnology, Weapons and Humanity (BWH) appeal of the ICRC and the approach it had taken with the web of prevention were taken up in the BTWC's expert work and, in recent years, the BTWC has broadened its participation in order to encourage participation from experts from public health, law enforcement and humanitarian fields.<sup>9</sup> The usefulness of these diverse perspectives has, to some extent, become more recognized in the BTWC membership process.

### **DIVERSITY TRUMPS ABILITY... SOMETIMES**

Page and his colleagues developed agent-based models, which allowed them to simulate group performance, in order to identify the conditions under which diverse individuals—of even randomly selected agents—perform better as a group than a group of the individually best-performing agents in a population.<sup>10</sup>

These conditions are:

- when the problem is difficult;
- when all of the potential problem solvers have some ability to solve the problem;
- when the “diversity condition” is satisfied (that is, some problem solver exists in the population who can identify an improvement, however small. Their improvement may create new opportunities for improvement by others with different perspectives, and so on); and
- when good-sized collections of problem solvers are drawn from lots of problem solvers (that is, the initial population of problem solvers needs to be large, and the collections of problem solvers working together must contain more than a handful).

It is important to note that the argument for diversity is not an argument against the value of expertise or ability. Rather, it argues for the value of including different kinds of perspective, and for a more open-minded view of what an expert is, in order to leverage a group's various abilities.

More research needs to be done in order to identify why and when diversity is beneficial. Diversity can have its drawbacks. As we shall discuss, problems linked to diversity include the potential for tensions and difficulties in communicating within the group. The “costs” of communicating are not taken into account in the modelling mentioned above that formed the basis for identifying these conditions. Another assumption of that model is that agents’ perspectives and heuristics are fixed over time. Yet we know that people can adapt to their environment and learn through experience. So there is further work to be done. But we know enough to take advantage of the benefits of cognitive diversity.

### **IDENTITY DIVERSITY VERSUS “FUNCTIONAL” DIVERSITY**

If you were, say, a diplomat participating in the CD, you might be tempted to think, “Sure, I buy the idea that cognitive diversity is good. But surely the CD *is* diverse. After all, we’re from 65 different countries, all with different national identities. Isn’t that diverse enough?”

The answer is: not necessarily. Experience in other group prediction and problem-solving contexts indicates that the evidence for the performance of more identity diverse groups over less identity diverse groups is not unequivocal. Page highlighted three reasons for this, and all are relevant to the multilateral disarmament context.

The first reason is, as we already mentioned, the link between identity diversity and cognitive diversity may not be that strong in a given context. In any case, when compared to other multilateral disarmament processes such as the NPT, the BTWC or the Anti-Personnel Mine Ban Convention, the CD is not as identity diverse: its membership is much smaller. The BTWC and Mine Ban Convention each have at least 150 member states, and the NPT has almost every state as a member—the CD has just 65 member states.

The CD’s smaller membership is not such a big deal in itself—a larger group does not guarantee greater diversity of perspective, although it is more likely to occur. Looking at the CD’s composition and its methods of work, however, the other multilateral disarmament processes mentioned above all allow representatives of NGOs and international organizations to participate in their work to various degrees, although they do not vote. The Mine Ban Convention is perhaps the most open, and the International

Campaign to Ban Landmines (ICBL), an NGO consortium, is generally recognized as having a special role in working with states to keep their commitments.<sup>11</sup> Landmine survivors are invited to come and to talk about their experiences on a regular basis to help keep multilateral practitioners connected to the world outside. Sometimes these actors have strikingly different perspectives. Not so in the CD: one NGO statement is allowed per year (from the Women's International League for Peace and Freedom), but a diplomat or CD official reads it out. The text of that statement is often critical, but one statement a year is easy enough to ignore. NGOs may attend certain meetings, but they have to sit in the public gallery separate from the state representatives, and are never permitted to speak. Overwhelmingly male, and overwhelmingly middle-aged or older, those participating in the work of the CD are almost entirely career diplomats representing national missions in Geneva, with an occasional speech from a visiting national leader or policymaker.

For a decade now, the CD has been unable to move forward on a treaty on halting production of fissile materials because two states, China and the United States, hold contradictory positions on a separate topic—whether or not to develop a treaty to prevent an arms race in outer space. This situation in the CD highlights the second reason why identity diverse groups may not be any more effective at problem-solving or predictive tasks: many identity diverse groups have considerable divergences of fundamental preference (although, of course, these states might argue that it is a question of instrumental preference, especially considering that such a treaty is a means to a certain end, that is, improvements in their respective levels of security, not an end in itself).

The consequences of divergences of fundamental preference are a particular problem in multilateral disarmament and arms control, where the consensus rule or practice usually holds sway. By exploiting procedural tactics, an obstructive few are able to—and often do—prevent the emergence of cooperation through formal channels that could yield security benefits to all. The general problem is that if there is evident need to negotiate a robust new legal norm (say, a treaty to ban cluster munitions on humanitarian grounds), in many cases it is the consequence of the self-interested behaviour of certain parties, in this case users of cluster munitions. Logically, these users, who perceive benefit from that behaviour, should then object to such a norm and prevent the consensus to act from emerging—and often do. It is relevant in this respect that the practice of making decisions by

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consensus is not the norm in multilateral domains beyond disarmament and arms control, like in international humanitarian law. In early 2007, a group of states faced with precisely this situation in the CCW launched the so-called Oslo Process to negotiate a humanitarian law treaty to ban cluster munitions “that cause unacceptable harm to civilians”.<sup>12</sup>

The third issue is that people whose identities differ often have trouble communicating and getting along. A criticism levelled at this point might be that multilateral practitioners—diplomatic negotiators, in particular—are professionally trained to try to get along, and their shared community of practice we discussed earlier should surely help to alleviate miscommunication. Moreover, there are practical mechanisms, such as the simultaneous interpretation of some formal meetings in the official United Nations languages, which also mitigate problems arising from linguistic and even cultural differences. Nevertheless, diverse identities can get in the way of appreciating the value of diverse perspectives. In Chapter 2 we introduced false polarization, naïve realism, and the fixed-pie bias, for instance. Because of someone’s identity we may assume that their interests are incompatible with our own and that can increase pessimistic feelings about the prospects for reaching a mutually beneficial agreement. Such misperceptions about identity can become self-reinforcing (especially if we fall prey to the confirmation bias) and then become a self-fulfilling prophecy. In sum: efforts to minimize cultural difficulties in identity-diverse environments do not necessarily deal with the cognitive difficulties.

Well-managed identity diversity can produce benefits. But only if it produces or correlates with the presence of diverse perspectives, heuristics, interpretations and predictive models that actually make up what we think of as cognitive diversity, and downsides such as those here discussed are outweighed.

## **COMMON GOALS AND COGNITIVE TACTICS**

It may seem obvious, but an important point is that, probably like all groups, diverse groups—including identity-diverse groups—should perform better when they have a common goal. This is not surprising in view of what we discussed about fundamental preferences. Nevertheless, common goals are sometimes lacking in multilateral disarmament and arms control processes, as we see in the CD. Indeed, lack of common goals may be viewed very

pragmatically: disarmament diplomats talk about “constructive ambiguity” in situations in which further progress in a given process looks to be stuck unless a formulation can be found that is elastic enough to stretch around diverse fundamental preferences. There is often the hope that, in time, the actors with the preferences in question will be persuaded to move them closer together.

But this is a risky tactic, and can come back to haunt a negotiation’s prospects for eventual success. The progress from the second-half of the 1990s until 2001 of the Ad Hoc Group to develop a draft protocol to the BTWC masked some markedly divergent fundamental preferences about what the protocol would be for. Should it be a verification protocol like the comprehensive 1993 Chemical Weapons Convention? Or should it be a partly voluntary mechanism, with few routine visits to relevant facilities, but stringent rules for investigations in cases of alleged biological weapons use? Or maybe should it be something less than that? For a long period, differences of fundamental preference were treated as differences of instrumental preference. But in July 2001 the elastic around these diverging preferences snapped when the United States rejected the process.

In contrast, the so-called Ottawa Process leading to the 1997 Anti-Personnel Mine Ban Convention had a comparatively simple goal—to prohibit anti-personnel mines. In part, this international goal emerged because of disappointment with the CCW’s attempts to revise its rules on mines and booby-traps in the mid-1990s, which fell short of a ban on anti-personnel mines. Experience from the CCW and early establishment of the goal in the Ottawa Process made it possible to identify actors in the process who did not share the fundamental preference of the majority of actors involved. Some of these actors (such as France, Germany and the United Kingdom) adapted their preferences to eventually support an anti-personnel mine ban by the end of the negotiating process in Oslo in September 1997. Others, such as the United States, did not. Procedural rules—of a kind not common to disarmament issues—prevented states in disagreement from holding up final completion of a treaty. Thus, the consensus rule could not be exploited by those who did not wish a complete ban.<sup>13</sup> A lesson here is that clear goals still have to be married to conditions that allow some perspective or hybrid of perspectives to dominate.

The BTWC draft protocol process and the Mine Ban Convention negotiations provide illustrations of a problem we have encountered in a

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range of multilateral negotiations—that of preference diversity. Differing preferences can, as we have already noted, seem insurmountable in a multilateral negotiation. Preferences can be presented as mutually exclusive, like the US and Chinese positions over the treaty on the prevention of an arms race in outer space. But, without underestimating these challenges, preferences are malleable over time, just like our individual perceptions and behaviour.

Crucially, different preferences often result in diverse perspectives. As we learned earlier, diverse perspectives are key to cognitive diversity. Because different fundamental preferences produce different assessments of the value of potential solutions, they can often lead to different ways of searching for those solutions. This does not sound terribly promising until we consider the following: by encouraging those diverse ways of searching for solutions, it is possible over time to modify initial fundamental preferences of actors as they develop a better sense of what an optimum solution could or should be. Group prediction and problem solving should be dynamic, iterative processes and (perhaps ironically) fundamental preference diversity can help this because, although producing more conflict in the process, it can increase the chance of finding better solutions.

In the third DHA volume, Rebecca Johnson identified what she described as “cognitive tactics”.<sup>14</sup> Johnson wrote in terms of norm shaping and reframing to the end of changing perceptions and practice in multilateral arms control negotiations—these ideas are consistent with the idea of processes in a cognitively diverse group affecting fundamental preferences:

The New Agenda Coalition, for example, used these tactics in its successful strategy from 1998 to 2000, which resulted in agreement on an explicit 13-paragraph programme of action for nuclear disarmament at the 2000 NPT Review Conference. Although cognitive tactics are also utilized for the purposes of bridge building or mediation, the New Agenda example was more than this. Representing their own stated interests in obtaining stronger commitments on disarmament, the New Agenda drew from the 1996 Canberra Commission and [International Court of Justice] advisory opinion, shaped their findings and repackaged them as part of a strategy to change the perceptions and positions of others and bring about a much stronger and more specific outcome than most had considered possible.<sup>15</sup>

Less widely known—but no less real—were the effects of the dynamic reshaping of fundamental preferences within the New Agenda Coalition itself. Although comprising of diplomats, there were diverse perspectives within the seven members of the New Agenda Coalition and the group was relatively open to the views of non-state experts. Over the course of the development of the New Agenda Coalition’s approach concerning the 2000 NPT review meeting, its partners’ own national (and individual) perspectives on nuclear disarmament-related issues were jointly and thoroughly cross-examined and sometimes subsequently modified.<sup>16</sup>

Also in our third volume, David Atwood underlined examples of other kinds of contributions non-governmental perspectives add to multilateral disarmament processes. He described a powerful role for NGOs—that of “‘third-party’ engagement in facilitating conflict transformation and settlement”, drawing from examples such as the negotiations of the 1993 Chemical Weapons Convention, the Mine Ban Convention and work on small arms and light weapons.<sup>17</sup> In this capacity, NGOs are able to:

- facilitate key-actor dialogue in support of multilateral negotiations;
- work in parallel with governments in promoting multilateral attention to key issues; and
- act as non-formal complements to official multilateral deliberative spaces.<sup>18</sup>

All of these roles can contribute to the kind of norm shaping and reframing that Johnson described in multilateral disarmament processes, and all serve to create more perspective-diverse prediction and problem-solving environments.

Nor are government representatives the only multilateral practitioners to benefit from cognitively diverse environments. Atwood pointed out areas in which the contribution of NGOs to disarmament and arms control issues could be enhanced—in effect by greater perspective diversity among themselves. Atwood noted that there is often little cross-fertilization between NGOs working in different areas—even among those dealing with different weapon systems within the overall arms control ambit.<sup>19</sup> We review the characteristics of NGOs that he identified below, as they reflect the problems of groups that are insufficiently diverse:

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- Limits to learning: because NGOs tend to specialize on particular issue areas, they tend either not to be aware of—or not to seek out—what lessons may be accumulating in other areas that could have some applicability on their own.
  - Reinventing the wheel: the failure to adequately examine and learn from experiences in other fields tends to lead to the reinvention of approaches and strategies which could have been carried over more efficiently from other fields. This is the diametric opposite of the problem of over-strict adherence to precedent sometimes seen among governments in the disarmament context.
  - Failure to collaborate across issue areas: the focused nature of NGO work may lead to obvious opportunities for collaboration with those working in other issue areas being missed. Atwood cited the ICBL and the International Action Network on Small Arms as guilty of this. Conversely, since that was written, both campaigns have developed strong links with the Cluster Munition Coalition (CMC) in international efforts to ban cluster munitions—a useful and logical collaboration.<sup>20</sup>
  - Missing possible synergy from joint action: comparing perspectives can lead to a mutual re-assessment of preferences—that there are things to be learned or done together of overall benefit. But these are easily missed.
  - Orthodox thinking: the perceived need to protect standards achieved and see them implemented, which can blind advocates to allied routes for action on other issues.<sup>21</sup> A recent example concerned the ICBL. Many member NGOs of the ICBL were concerned about cluster munitions, and were active in the CMC. But the ICBL was not formally involved in campaigning on cluster munitions early in these efforts, for fear it would detract resources and attention from Mine Ban Convention implementation issues. Eventually this changed, and the ICBL became an active member of the CMC in the Oslo Process.

In sum, there is no model or prescription for a successful multilateral disarmament or arms control negotiating process, just as there is no heuristic that works better than all others across all problems—something we discussed in Chapter 1. Nor is the inclusion of NGOs in negotiating work per se an instant ingredient for success or for perspective diversity. As we have maintained throughout, diverse identities are not a guarantee of diverse perspectives. To repeat what we said at the outset of this chapter,



to improve the efficacy of multilateral processes, what we instead need to identify are resilient conditions in which effective group prediction and problem solving are more likely to emerge.

The work of Page and others in the value of perspective diversity in this regard tallies with our observations of disarmament work over a decade at the multilateral level: that despite their many differences, diverse perspectives—whether incorporated into the mainstream of work as in the Mine Ban or Oslo Processes, or on the margins as in informal work in support of the 2001 Programme of Action on Small Arms and Light Weapons—seem to accompany progress where it is achieved. Resilient conditions seem to include perspective diversity.

Much more work is necessary if the framework Page and others developed, and which we have imported for exploratory discussion into the multilateral disarmament context, is to be validated to the satisfaction of all potential sceptics. Scholars in such fields do not and may never agree among themselves either. By introducing the idea to multilateral disarmament practitioners that perspective diversity is not just nice for the sake of representativeness, but could make a discernible difference to their collective performance, we would not pretend to have achieved this—and this volume poses at least as many questions as it answers. But that is the point. We now turn, finally, to some conclusions and recommendations for those practitioners.

## Notes

- <sup>1</sup> For several detailed studies, see the second and third DHA volumes.
- <sup>2</sup> Scott Page, *The Difference, How the Power of Diversity Creates Better Groups, Firms, Schools and Societies*, Princeton University Press, 2007, p. 240.
- <sup>3</sup> See John Borrie, “Cooperation and defection in the Conference on Disarmament”, in John Borrie and Vanessa Martin Randin (eds), *Thinking Outside the Box in Multilateral Disarmament and Arms Control Negotiations*, UNIDIR, 2006, pp. 89–108.
- <sup>4</sup> Scott Page, *The Difference, How the Power of Diversity Creates Better Groups, Firms, Schools and Societies*, Princeton University Press, 2007, p. 306.
- <sup>5</sup> *Ibid.*, p. 310.

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- <sup>6</sup> Ibid., p. 312.
- <sup>7</sup> For a history of those efforts, see Jez Littlewood, *The Biological Weapons Convention: A Failed Resolution*, Ashgate, 2005.
- <sup>8</sup> *Appeal of the International Committee of the Red Cross on Biotechnology, Weapons and Humanity*, International Committee of the Red Cross, 25 September 2002.
- <sup>9</sup> For discussion, see John Borrie, “The Dual-Use Dilemma in Life Science Research: the Approach of the International Committee of the Red Cross”, *Proceedings of the XVI Amaldi Conference on Problems of Global Security*, Accademia Nazionale Dei Lincei, 2007.
- <sup>10</sup> Lu Hong and Scott Page, “Groups of diverse problem solvers can outperform groups of high-ability problem solvers”, *Proceedings of the National Academy of Sciences of the United States of America*, vol. 101, no. 46, 2004, p. 16385.
- <sup>11</sup> The preamble of the 1997 Anti-Personnel Mine Ban Convention mentions the consortium, and the treaty’s meeting rules of procedure name it as an observer.
- <sup>12</sup> *Oslo Declaration on Cluster Munitions*, 23 February 2007.
- <sup>13</sup> For most countries, the “price of admission” to the Oslo negotiations in September 1997 was adherence to the “Brussels Declaration”—the notable exception being the United States, which insisted on participating in the Oslo negotiations anyway. See Robert Lawson, Mark Gwozdecky, Jill Sinclair and Ralph Lysyshyn, “The Ottawa Process and the International Movement to Ban Anti-Personnel Mines”, in Maxwell Cameron, Robert Lawson and Brian Tomlin (eds), *To Walk Without Fear, The Global Movement to Ban Landmines*, Oxford University Press, 1998, pp. 160–84.
- <sup>14</sup> See Rebecca Johnson, “Changing Perceptions and Practice in Multilateral Arms Control Negotiations”, in John Borrie and Vanessa Martin Randin (eds), *Thinking Outside the Box in Multilateral Disarmament and Arms Control Processes*, UNIDIR, 2006, pp. 55–87.
- <sup>15</sup> Rebecca Johnson, “Changing Perceptions and Practice in Multilateral Arms Control Negotiations”, in John Borrie and Vanessa Martin Randin (eds), *Thinking Outside the Box in Multilateral Disarmament and Arms Control Processes*, UNIDIR, 2006, p. 76.
- <sup>16</sup> John Borrie participated in the Geneva-based work of the New Agenda Coalition from 1999 until the middle of 2002 as a member of New Zealand’s delegation to the CD.
- <sup>17</sup> David Atwood, “NGOs and multilateral disarmament diplomacy, limits and possibilities”, in John Borrie and Vanessa Martin Randin

(eds), *Thinking Outside the Box in Multilateral Disarmament and Arms Control Negotiations*, UNIDIR, 2006, p. 40.

<sup>18</sup> Ibid., pp. 41–4.

<sup>19</sup> Ibid., p. 45.

<sup>20</sup> See Stephen Goose, “Cluster Munitions in the Crosshairs, In Pursuit of a Prohibition”, in Stephen Goose, Mary Wareham and Jody Williams (eds), *Banning Landmines, Disarmament, Citizen Diplomacy, and Human Security*, Rowman and Littlefield, 2008, pp. 217–39.

<sup>21</sup> David Atwood, “NGOs and multilateral disarmament diplomacy, limits and possibilities”, in John Borrie and Vanessa Martin Randin (eds), *Thinking Outside the Box in Multilateral Disarmament and Arms Control Negotiations*, UNIDIR, 2006, pp. 46–7.

## **CHAPTER 4**

### **CONCLUSION**

#### **SO WHERE DO WE GO FROM HERE?**

There is no way to guarantee success in multilateral disarmament negotiations. The way in which we individually frame the world around us in cognitive terms has implications for the effectiveness of our interactions in large and complex negotiating environments such as those found in multilateral disarmament work. Being conscious of these constraints we face may help to minimize their unconscious effects. But, if we are to be realistic, individual self-vigilance is not enough, nor is the monitoring of our peers if those peers are too similar in identity and outlook to ourselves. Instead, more resilient conditions for creating effective multilateral outcomes lie in perspective diverse environments. Aside from performing better at problem solving, functionally diverse groups seem to be more efficient at predictive tasks in challenging environments. In view of this, what do we suggest to help practitioners working in these environments?

#### **FUNCTIONAL DIVERSITY SHOULD BE PROMOTED**

For good reasons as well as bad, people in the multilateral disarmament and arms control community tend to look at issues in similar ways—and they share a community of practice that reinforces this. They rely on similar heuristics and perspectives. But, as discussed, when a group is composed of people with similar “toolboxes”, they are more likely to get stuck on the same problems. The introduction of diverse perspectives and heuristics increases the chances that an apparently inextricable problem can be seen in a way that makes it more tractable.

#### **DO NOT TREAT IDENTITY DIVERSITY AS FUNCTIONAL DIVERSITY**

Multilateral practitioners—diplomats in particular—are drawn from backgrounds that are often more similar than they might initially appear. Although there are practical limits to be considered, there is a strong case

for greater identity diversity in multilateral disarmament environments, some of which (like the CD) have much catching up to do with other areas of multilateral work in this respect. However, awareness is needed that institutions can be made up of identity diverse populations, while nevertheless reducing cognitive diversity through their professional cultures by discouraging alternative perspectives. This can be especially true in foreign ministries. This, combined with the fact that they are usually very hierarchical, can make conditions less than promising for promoting approaches in which diversity trumps ability, both internally and in the multilateral environments in which they operate.

Although they can sometimes resemble each other, identity and perspective diversity are not equivalent. Representativeness of perspectives—rather than representation of *all* perspectives—is key to creating conditions of functional diversity. This is especially important in small group work, as small groups are especially susceptible to domination by a single mindset, something which has to be balanced with their value as problem-solving “engines” for larger multilateral decision-making processes.

#### **DISTINGUISH THE FUNDAMENTAL FROM THE INSTRUMENTAL**

A useful question for multilateral practitioners to ask is whether insistence on certain means (an instrumental preference) is getting in the way of progress toward an end (a fundamental preference). This can clarify the importance of supporting or resisting a proposed course of action. Moreover, those seeking to achieve normative goals might even be better going outside of the existing structure to work together to achieve the goal with those with whom they share similar fundamental preferences.

#### **DO NOT COPY PERSPECTIVES THAT PERFORM BETTER—ADAPT THEM INSTEAD**

On the face of it, it makes sense to copy approaches that have worked in the past. But recall that some multilateral challenges categorized as falling within the purview of disarmament and arms control are radically different from some preceding arms control challenges and, what is more, they are complex. When responding to new international security problems, one approach cannot address all challenges. Templates only work when applied to the appropriate job.

The reality is that, by adapting itself to the specific requirements of one negotiating imperative and establishing that as a precedent, the disarmament community of practice makes itself unfit for other negotiating imperatives on significantly different issues. This does not mean that precedent, rules of procedure and existing institutions need to be wholly discarded as a resource for multilateral practitioners to frame and organize their endeavours. The Mine Ban Convention, for instance, has been a great inspiration to those involved in more recent international efforts to address the humanitarian effects of explosive remnants of war through CCW Protocol V and, beyond it, to new measures specific to cluster munitions. But such elements should inform rather than constrain the development of effective approaches. Established practice in multilateral disarmament decision making needs to be thought of as a guidebook rather than as an itinerary. One element that needs special and ongoing scrutiny in adapting established approaches is that of whose perspectives can be heard in a given process. Those involved in disarmament processes who arbitrarily exclude too many sources of diverse perspective hurt their own prospects.

#### **WHO TO INVOLVE DEPENDS ON THE CONTEXT**

A person's value in group prediction and problem-solving tasks directly depends on how different their perspective and heuristics are from others in the group. But what we have discussed in this book helps to put the notion of "expert" into perspective: while expertise may be necessary to understand a difficult issue, innovative and surprising solutions can be found by less-experienced individuals, precisely because they are not experts in the orthodox sense, and see a problem differently.

Recall that no heuristic can help to solve all problems. The reality is that the toolbox of heuristics each of us has is limited. Sometimes, therefore, more productive environments for prediction and problem solving are not necessarily those containing those most expert in other disarmament contexts, or the most senior (and therefore allegedly wisest). One of the benefits of experience is that it constitutes a data bank from which to recognize patterns in different contexts, but if those determinations are not critically evaluated—perhaps most thoroughly by those with differing perspectives—the advantages may be nullified.

### **LISTENING AND LEARNING SHOULD BE ENCOURAGED**

There is an old saying, “argue as if you are right, but make sure you listen as if you are wrong”. Statements of policy and national position are important in multilateral settings, but too much formality can strangle creative debate; that is, interactions leading to new, hybrid perspectives that take a group toward a problem-solving optimum. This, combined with various human cognitive biases explored in Chapter 2 (for instance, that we tend to interpret what we hear to better fit with what we were expecting to hear), does not always make such settings particularly conducive to reflection and interactions with others that will dispel polarization. Even if there is disagreement on fundamental preferences, it is worth fostering dialogue—provided the dialogue does not become an end in itself. Preferences, even fundamental preferences, are dynamic, and can change over time. As Daniël Prins put it in the third DHA volume: “The acceptance of differing perceptions, as well as the inclination to compare them sympathetically to one’s own, are prerequisites for better cooperation”.<sup>1</sup>

Learning should be encouraged because it enlarges the overall pool of cognitive tools available to a group, and a diverse pool is of more value than the tools alone: “When a collection of people work together to solve a problem, and one person makes an improvement, the others can often improve on this new solution even further. Problem solving is not the realization of a state but a process of innovation in which improvements build on improvements”.<sup>2</sup>

### **GROUPS SHOULD NOT ALL HAVE THE SAME FORMAT**

The logic of diversity’s benefits not only applies to group composition, it applies to groups in general. Making the composition of every group—or the structure of every process—similar is not necessarily positive. In Chapter 2 we looked at some advantages and disadvantages of differing group sizes in terms of cognitive ergonomics.

Diverse groups composed of diverse problem solvers are more likely to be effective in solving a given problem—even if some do fail. In the case of cluster munitions, for example, there have been two international processes underway to address this weapon’s humanitarian effects: the Oslo Process and the CCW Group of Governmental Experts. A small group of states, the so-called Core Group, worked to solve many of the

problems of shepherding the Oslo Process toward eventual negotiation on a humanitarian treaty by 107 states; the CCW has not functioned the same way. And, although the compositions of the CCW and Oslo Process overlap, the latter has many states participating which do not belong to the CCW, although not all of the major users and producers of cluster munitions have taken part. The CCW's work involves these states, and its mandate places more emphasis on military aspects of cluster munitions than the prime humanitarian imperative of the Oslo Process. There can be conflict between diverse groups of diverse problem solvers, but in the case of international efforts on cluster munitions, there is anecdotal evidence that at least some of those people involved in both the Oslo Process and the CCW recognize benefits in diverse approaches. The CCW would not have achieved a negotiating mandate without the existence of the freestanding Oslo Process, and to some extent the Oslo Process has benefited from CCW discussions over the years that have raised the level of awareness and expertise of multilateral practitioners on cluster munition issues. A key challenge for those in the CCW seeking a legally binding instrument there will be sustaining momentum now that the Oslo Process has resulted in a treaty.

#### **SOME DISSONANCE SHOULD BE ACCEPTED**

The principle of increasing diversity in multilateral disarmament and arms control work is nice in principle. But there are, of course, practical obstacles to its application. Some states are reticent about involving non-state actors. Multilateral meetings are expensive and hard to manage, and difficulties in communicating and getting along can be costly. Yet some dissonance has to be accepted if it can help the disarmament and arms control community reach better outcomes. Perspective diversity, be it even apparent contradiction or eccentricity, should be valued because a population will be better off if some of its members use diverse strategies. If one considers that diversity can trump ability then this makes perfect sense. There are system-wide benefits over time and in the face of uncertainty to being able to draw on more diverse perspectives.

#### **FINAL THOUGHTS**

Political scientists, especially international relations experts, have developed sophisticated theories to describe the effects of uncertainty in



the international system. Ken Booth and Nicholas Wheeler, for example, recently surveyed work on the pervasive security dilemma (mentioned in Chapter 1) facing states and their representatives, and have rightly argued that trust and building trust are critical ingredients to preventing, managing and resolving conflict.<sup>3</sup>

The idea behind this book has been to look at the problem of uncertainty in international relations from a rather different perspective. We have considered how highly demanding and complex multilateral environments such as those of disarmament and arms control negotiations may impact on collective performance because of the difficulties they pose for individuals. This is not to downplay the importance of differences of interest in preventing international cooperation: differing fundamental preferences may be so great between parties that the costs of cooperation are simply too high—there is, perhaps, “insufficient political will”. However, a major point to take from our analysis is that, although ostensibly considered rational, human beings are also subject to a range of cognitive constraints that can skew perceptions among those involved in trust-building efforts or lead them to accept intuitive cues that may be inappropriate.

There is a great deal more to be understood about the impact of cognitive factors in multilateral interactions, and our treatment of it only skims the surface. But it is clear that cognitive ergonomics are important and deserve more attention. If multilateral practitioners are to be effective in group prediction and problem-solving tasks such as multilateral negotiations, then it is important that these cognitive dimensions are acknowledged and, moreover, taken account of in deciding how such work is to be structured and tackled. It may, in turn, lower the transactional costs of cooperation in multilateral institutions—to the point that cooperation becomes viable in some contexts in which it otherwise would not have been.

One way our brains shape our individual outlook is by creating and imposing a narrative on what we experience. And this internal narrative is dynamic: it is continually being updated and the past rewritten, and further information we receive variously elevated, discounted or distorted. To memorize long passages of text, medieval monks were once taught to remember and structure information as if walking through a large house with rooms containing different objects. This is an optimistic mnemonic, considering that human memory more resembles a labyrinth, with walls

and hedges that open, close and move about while our backs are turned—and directed by a brain often trying to nudge us in certain directions.

Meanwhile, the predictive models of the world we each develop to enable us to sift information, find patterns and interpret the intentions of others are just that—simplifications of a complex reality that, in itself, defies narrative. This is not just a caution to bear in mind when reading the memoirs of diplomats about their triumphs and tribulations in international negotiations. It means our individual predictive models about the world can only be so accurate and so versatile. One problem is that we may see and impose narrative where none exists: in financial markets, for instance, there is increasing evidence that investor behaviour in financial markets reflects cognitive “risk algorithms” in stressful environments, rather than the actual rules of probability.<sup>4</sup> Emotions are a key part of human decision making, and this also applies to multilateral negotiations.

Another problem is that we may assume our internal predictive models apply in situations or to phenomena in which prediction according to these models is simply not possible. Complex social phenomena, such as demand for illicit small arms or assessing the risk of hostile use of new technologies, fall into this category. Moreover, large-scale multilateral negotiations may in themselves be complex phenomena. In such cases we need to be careful about distinguishing the intuitive heuristics we carry about in our heads from acquired heuristics like training and experience that may be better guides as to what to do.

Unfortunately, expertise also appears to have its limits—or at least the kind of expertise that depends heavily on individual evaluation and assessment. Individual analysts can only handle a limited number of factors at any given time, and this leads to a number of failings of the kind Ormerod and Riordan identified (see Chapter 1), such as not taking into account complexity, not making factors and their relationships explicit, or making deterministic predictions when there is no basis to do so. Moreover, we must grapple with over-confidence, belief defence and esteem protection, as Tetlock discovered in his study of experts. Nor is the reputation of an expert necessarily a useful guide, as those with the greatest reputations may have the most invested in their views of the world—views that are at odds with new conditions or impending challenges.

Just as our predictive models differ, so do our interpretations, heuristics and perspectives. And all perspectives have their limits. A crucial point Page and Hong's work on diversity has underlined, however, is that different perspectives are mutually reinforcing and in the right conditions can aid prediction and problem solving. There is no "best" perspective across all different situations and, what is more, there is unlikely to be one that is superior even across the subset of diverse themes represented in multilateral disarmament processes—let alone international security issues as a whole. There is no antidote for Rumsfeld's world of surprise: the threats to international security change, and with them so do the challenges for disarmament. Just as importantly, no one decision maker is an island, which is why it is important to ensure functional or perspective diversity in multilateral disarmament efforts.

In the long run, gains in multilateral disarmament work are achievable by paying more attention to creating the conditions in which more optimal solutions to prediction and problem solving can emerge, rather than to products of policy doctrine or accumulation of precedent. This necessitates a greater openness to innovation than we sometimes have seen in the community of practice of disarmament diplomats in the past, and greater support for ensuring functional or perspective diversity. Such diversity is key because how differently a person thinks about and would solve the problem at hand is an important predictor of their aptitude to improve the performance of a group as a whole, within the conditions discussed earlier. And differentness of perspective is contextual, which presents the question for those involved in multilateral disarmament work: do their institutions draw from a large (and therefore diverse) enough pool of different perspectives? In bodies such as the CD, in which there appears to be identity diversity but not a great deal of perspective diversity, and in which outside voices are almost entirely excluded, it is difficult to see how this could be the case.

Promoting greater perspective diversity in multilateral disarmament institutions is less radical than it might appear. For instance, while the CD is largely closed to non-diplomats, most other disarmament processes already allow some degree of civil society access. In the BTWC and NPT processes, this access tends to be facilitated in special, dedicated sessions. National governments sometimes allow a "civil society representative" or two to attend as a member of their delegation in international disarmament meetings. Perhaps the most diverse environments, however, are those

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in which NGOs (and international organizations) have been allowed continuous and general access to the work of the process—including the ability to add their perspectives and critique those of others, as in the Mine Ban Convention, the CCW and the Oslo Process. Far from resulting in anarchy, these processes show that most civil society actors understand that they are present as observers to contribute their views (even if some states are not particularly happy with what NGOs have to say) rather than to be decision makers, which is the province of states, and all seem to have benefited.

While formal rights or privileges for those with different perspectives in multilateral disarmament work should, on the whole, be welcomed, the point is to promote diversity because it adds value and not because it seems a nice thing to do. Some work, such as that of the Quakers in the Chemical Weapons Convention and Mine Ban Convention processes during the 1990s, was described by David Atwood as being “in the middle by being on the edge”<sup>5</sup>—it had no official status, but nevertheless aided the formal negotiators in such processes by creating alternative, informal environments in which diverse perspectives could reinforce each other. There will always be certain contexts in which states alone must negotiate, but these select instances (like the endgame trade-offs between state representatives in negotiations) should not be used as a reason to avoid the cognitive diversity more likely to put their negotiators in the position where an agreement is in near prospect, and can be collectively grasped.

Most famously, the humanitarian perspectives of deminers, landmine survivors and medical personnel among others were vital ingredients in international efforts leading to the Mine Ban Convention. And they have since contributed to progress on several other weapons issues such as small arms, explosive remnants of war and cluster munitions—even multilateral efforts in support of the ban on biological weapons as in the last few years states have relaxed in the BTWC process about non-state involvement in some aspects of its work. By this logic, other epistemic communities and perspectives could also contribute to the effectiveness of disarmament work—and to some extent we have seen this, for instance, through the work of the World Health Organization on firearm violence prevention and the involvement of the international development community in the 2007 Geneva Declaration on armed violence and development.<sup>6</sup> Seen in light of the arguments in this volume, “disarmament as humanitarian action”

can be seen as reflecting the generic value of diversity of perspective in multilateral disarmament work.

It should also not be underestimated that being moved by the plight of others is a powerful spur to encouraging people with diverse perspectives to “do the right thing”, even in multilateral disarmament contexts. Seeing security in human terms makes sense. And problems of human insecurity, augmented by the availability of weapons, are nearer our doorsteps in an increasingly interconnected world than we often imagine. For quite a while now, there has been tacit understanding among some diplomats that they benefit from these and other perspectives “outsiders” can bring to their efforts, although this has varied over time and across issue areas. And a range of NGOs have shown that they can make valuable contributions, though they are not immune to the problems of ensuring sufficient cognitive diversity among themselves. This book has been an attempt to introduce multilateral practitioners to some insights from other domains that show that there are good reasons for believing that diversity brings benefits for group prediction and problem solving, including in disarmament work, and to provide ideas of how to foster it. Diversity can be an important lever for improving their ability to tackle contemporary and future international security challenges, whatever those may be. That is perhaps as good as it gets in a world of “unknown unknowns”.

### Notes

- <sup>1</sup> Daniël Prins, “Engineering Progress, A Diplomat’s Perspective on Multilateral Disarmament”, in John Borrie and Vanessa Martin Randin (eds), *Thinking Outside the Box in Multilateral Disarmament and Arms Control Negotiations*, UNIDIR, 2006, p. 111.
- <sup>2</sup> Scott Page, *The Difference, How the Power of Diversity Creates Better Groups, Firms, Schools and Societies*, Princeton University Press, 2007, p. 340.
- <sup>3</sup> See Ken Booth and Nicholas Wheeler, *The Security Dilemma, Fear, Cooperation and Trust in World Politics*, Palgrave Macmillan, 2008, p. 1.
- <sup>4</sup> See Swissinfo, “Brain specialists look into risky business”, 14 March 2008, < [www.swissinfo.ch/eng/swissinfo.html?siteSect=105andsid=8853472](http://www.swissinfo.ch/eng/swissinfo.html?siteSect=105andsid=8853472)>.

- <sup>5</sup> David Atwood, “NGOs and multilateral disarmament diplomacy, limits and possibilities”, in John Borrie and Vanessa Martin Randin (eds), *Thinking Outside the Box in Multilateral Disarmament and Arms Control Negotiations*, UNIDIR, 2006.
- <sup>6</sup> For more information, see <[www.genevadeclaration.org](http://www.genevadeclaration.org)>.



## SELECTED FURTHER READING

Below is a short list of books and articles for those interested in reading further about the themes discussed in each chapter.

### FOREWORD

- Philip Ball, *Critical Mass: How One Thing Leads to Another*, Arrow, 2004.
- Paul Seabright, *The Company of Strangers: A Natural History of Economic Life*, Princeton University Press, 2004.
- Paul Ormerod, *Why Most Things Fail: Evolution, Extinction and Economics*, Faber and Faber, 2005.
- Frans de Waal, *Our Inner Ape: The Best and Worst of Human Nature*, Granta, 2005.

### CHAPTER 1: KNOWN AND UNKNOWN

- Robert Axelrod and Robert Keohane, "Under Anarchy, Strategies and Institutions", *World Politics*, vol. 38, no. 1, 1985, pp. 226–54.
- Ken Booth and Nicholas Wheeler, *The Security Dilemma, Fear, Cooperation and Trust in World Politics*, Palgrave Macmillan, 2008.
- Jake Chapman, *System Failure, Why Governments Must Learn to Think Differently*, 2nd ed., Demos, 2004.
- Gerd Gigerenzer, *Gut Feelings*, Penguin/Allen Lane, 2007.
- Jez Littlewood, *The Biological Weapons Convention: a Failed Revolution*, Ashgate, 2005.
- Paul Ormerod, *Butterfly Economics*, Faber and Faber, 1998.
- Paul Ormerod and Shaun Riordan, "A New Approach to the Analysis of Geo-Political Risk", *Diplomacy and Statecraft*, vol. 15, no. 4, 2004, pp. 643–54.
- Scott Page, *The Difference: How the Power of Diversity Creates Better Groups, Firms, Schools and Societies*, Princeton University Press, 2007.
- Robert Sapolsky, "A Natural History of Peace", *Foreign Affairs*, vol. 85, no. 1, 2006.



Philip Tetlock, *Expert Political Judgment: How Good Is It? How Can We Know?*, Princeton University Press, 2005.

### **CHAPTER 2: COGNITIVE CONSTRAINTS AND BIASES**

Robert Axelrod, *The Evolution of Cooperation*, Basic Books, 1984.

Robin Dunbar, *Grooming, Gossip and the Evolution of Language*, 2nd ed., Faber and Faber, 2004.

Cordelia Fine, *A Mind of Its Own: How Your Brain Distorts and Deceives*, Icon, 2006.

Malcolm Gladwell, *Blink: The Power of Thinking Without Thinking*, Penguin/Allen Lane, 2005.

Daniel Kahneman, "A Perspective on Judgment and Choice: Mapping Bounded Rationality", *American Psychologist*, vol. 58, no. 9, 2003, pp. 697–720.

Steven Pinker, *The Blank Slate: The Modern Denial of Human Nature*, Penguin, 2002.

Matt Ridley, *The Origins of Virtue: Human Instincts and the Evolution of Cooperation*, Penguin, 1996.

Nassim Nicholas Taleb, *Fooled by Randomness, The Hidden Role of Chance in Life and in the Markets*, 2nd ed., Penguin, 2004.

Nassim Nicholas Taleb, *The Black Swan: The Impact of the Highly Improbable*, Random House, 2007.

Frans de Waal, "How Animals do Business", *Scientific American*, April 2005, pp. 54–61.

Robert Wright, *The Moral Animal: Why We Are the Way We Are*, Abacus, 1994.


### **CHAPTER 3: THE VALUE OF DIVERSITY**

John Borrie, "Tackling Disarmament Challenges", in Stephen Goose, Mary Wareham and Jody Williams (eds), *Banning Landmines: Disarmament, Citizen Diplomacy and Human Security*, Rowman and Littlefield, 2008, pp. 263–80.

Scott Page, *The Difference: How the Power of Diversity Creates Better Groups, Firms, Schools and Societies*, Princeton University Press, 2007.

## ACRONYMS

BTWC	Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction; Biological Weapons Convention
CCW	Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects
CD	Conference on Disarmament
DHA	Disarmament as Humanitarian Action project
ICBL	International Campaign to Ban Landmines
ICRC	International Committee of the Red Cross
NGO	non-governmental organization
NPT	Treaty on the Non-Proliferation of Nuclear Weapons
UNIDIR	United Nations Institute for Disarmament Research



Success has been hard to attain in recent years in multilateral disarmament and arms control work. Political problems exist, but they are not the sole problem. Obstacles to progress can be the unintended consequences of past practice, or they can stem from the complex challenges those involved must deal with. Aspects of multilateral disarmament practice compound cognitive challenges that individuals face in managing their perceptions and interactions with others. While there is no way to ensure success in disarmament endeavours, multilateral practitioners can improve the chances by recognizing and harnessing cognitive diversity, as humanitarian perspectives in disarmament processes have shown. This book discusses practical suggestions to help achieve this.

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