PRINCIPLES OF COMPARATIVE POLITICS

WILLIAM ROBERTS CLARK • MATT GOLDER • SONA NADENICHEK GOLDER

THIRD EDITION

Principles of Comparative Politics

Third Edition


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GREENLAND (DENMARK)
Greenland Sea
Beaufort Sea
Baffin Bay
UNITED STATES
ICELAND
Gulf of Alaska
CANADA
Hudson Bay
Labrador Sea
NORTHERN IRELAND (UK)
IRELAND
UNITED KINGDOM
Bay of Biscay
ST. PIERRE-MQ. (FR)
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UNITED STATES
NORTH ATLANTIC OCEAN
PORTUGAL
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BERMUDA (UK)
MADEIRA (PORT)
CANARY ISLANDS (SP)
MOROCCO
WESTERN SAHARA (MOR)
MAURITANIA
MALI
CAPE VERDE
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LIBERIA
CÔTE D'IVOIRE
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Timor Sea
EAST TIMOR
Coral Sea
VANUATU
FIJI
WALLIS & FUTUNA ISLANDS (FR)
SAMOA
TONGA
NEW CALEDONIA (FR)
AUSTRALIA
NORFOLK ISLAND (AUSTRALIA)
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Principles of Comparative Politics

Third Edition

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To our most important students: Meaghan, Brian, Liam, Cameron, and Sean.

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Brief Contents

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Preface

This book began as a syllabus for an introductory comparative politics class taught by a newly minted PhD—one of the book's authors, Bill Clark—at Georgia Tech in the early 1990s. The class had three goals: (1) to introduce students to the major questions in comparative politics, (2) to acquaint them with the field's best answers to those questions, and (3) to give them the tools to think critically about the answers. The decision to write this textbook was born out of the frustration caused by our inability, ten years later, to find a single text that accomplished these goals. The intervening period, however, allowed us to conduct what turned out to be a useful experiment, because along the way, our frustration led us to gradually develop an ambitious syllabus from research monographs and refereed journal articles. The benefit of this approach has been our ability to respond flexibly to the changes in the discipline of political science and the field of comparative politics that have, for the most part, not made their way into textbooks. As a result, we have had the satisfaction of introducing many students to exciting work being done at the cutting edge of this field. And we learned that students were by and large up to the task. Nonetheless, we have also recognized the frustration of students confronting material that was not written with them in mind. The goal of this text is to try to maximize these upside benefits while minimizing the downside risks of our previous approach. We want students to be challenged to confront work being done at the cutting edge of the field, and we believe we have packaged this work in a way that is comprehensible to ambitious undergraduates with no prior training in political science.

THE APPROACH OF THIS BOOK

With these goals in mind, we have organized the book around a set of questions that comparative scholars have asked repeatedly over the past several decades:

- What is the state, and where did it come from?
- What is democracy?
- Why are some countries democracies whereas others are dictatorships?

- How might we explain transitions to democracy?
- Does the kind of regime a country has affect the material well-being of its citizens?
- Why are ethnic groups politicized in some countries but not in others?
- Why do some countries have many parties whereas some have only a few?
- How do governments form, and what determines the type of governments that take office?
- What are the material and normative implications associated with these different types of government?
- How does the type of democracy in a country affect the survival of that regime?

Using the latest research in the field of comparative politics, we examine competing answers to substantively important questions such as these and evaluate the proposed arguments for their logical consistency and empirical accuracy. At times our approach requires us to present substantial amounts of original research, although we believe that this research is closely tied to existing studies in the field.

The book itself is designed and organized to build upon the questions asked above, starting with a section that defines comparative politics. In Part I, after an overview of the book and its goals in Chapter 1, we define the parameters of our inquiry in Chapters 2 and 3 in a discussion of the fundamental questions of "What Is Science?" and "What Is Politics?" In Chapters 4 through 9 in Part II, "The Modern State: Democracy or Dictatorship?," we look at the origins of the modern state, measurements of democracy and dictatorship, the economic and cultural determinants of democracy and dictatorship, the issue of democratic transitions, and whether regime type makes a material difference in people's lives. We explore the varieties of democracy and dictatorship in Part III, beginning with a chapter exploring the varieties of dictatorship that we observe around the world. In Chapter 11 we present the problems of democratic group decision making and the implications of Arrow's Theorem. In Chapter 12 we look at the major types of democracies and the forms of government that they have, in Chapter 13 at elections and electoral systems, in Chapter 14 at social cleavages and party systems, and in Chapter 15 at institutional veto players. In Part IV, Chapter 16, we investigate the relationships between types of democracy and economic and political outcomes.

As we explain in greater length in the first chapter, we adopt a strategic approach to politics. We believe that the behavior of rulers and the ruled is most easily understood as the interaction between individuals seeking goals in an environment in which goal attainment is complicated by the choices of other actors. Game theory is a useful tool for understanding such interactions, and it will be used wherever we think it illuminating. We also believe that explanations should be confronted with as much potentially falsifying evidence as possible. Consequently, we make every effort to present students with information about rigorous empirical tests of the theoretical arguments we offer and try

to give them tools to begin to critically engage with such evidence themselves. We view comparative politics as a subfield of political science, which, like all of science, is about comparison. And the only bad comparison is one that shelters a hypothesis from disconfirming evidence. As the cover illustration suggests, one can compare apples and oranges. Indeed, the claim that "you cannot compare apples and oranges" seems contradictory. How would you support this claim without conducting such a comparison—an act that would contradict the very claim being asserted.

Of course, the usefulness of such a comparison depends on the question one is asking. In this book we make many comparisons across disparate contexts and attempt to use such comparisons to test claims made about the political world. In doing so, we highlight the similarities and differences among countries. We also aim to show the conditions under which some claims about the political world apply or do not apply. Policymakers and writers of constitutions are forced to make comparisons when forming expectations about the consequences of the choices they make. For scholars, exactly what should or should not be compared is a question of research design, not a matter of religion. In sum, there are no invalid comparisons, only invalid inferences.

METHODOLOGY

In addressing the substantive questions that form the backbone of this textbook, we introduce students to a variety of methods that have become central to the study of comparative politics. For example, students will be exposed to tools such as decision theory, social choice theory, game theory, experiments, and statistical analysis, although we have written this book under the assumption that students have no prior knowledge of any of these. Basic high school algebra is the only mathematical prerequisite. We show students how to calculate expected utilities, how to solve complete information games in strategic and extensive form, how to solve repeated games, how to analyze simple games with incomplete information, how to evaluate one-dimensional and two-dimensional spatial models, and how to interpret simple statistical results. Although the tools that we employ may appear sophisticated, we believe (and our experience teaching this material tells us) that students beginning their college careers have the necessary skills to learn them and apply them to new questions of more direct interest to themselves personally. Given the relative youth of the scientific approach to politics, we believe that students can successfully contribute to the accumulation of knowledge in comparative politics if they are given some basic tools. In fact, on more than one occasion we have made contributions to the literature through collaborations with our own comparative politics undergraduate students (Brambor, Clark, and Golder 2006, 2007; Clark and Reichert 1998; Golder and Lloyd 2014; Golder and Thomas 2014; Uzonyi, Souva, and Golder 2012).

PEDAGOGY

Although this book differs in content and approach from other comparative politics textbooks, we do appreciate the usefulness of textbook features that genuinely assist the reader in digesting and applying the ideas presented. To that end, we have created chapter-opener overviews that help orient the reader toward each chapter's main goals. To establish a common understanding of the most important concepts we discuss, we've defined each new key term in a box near its first mention. Lists of those same terms appear at the end of each chapter along with page references to aid in review and study. We have schematized a great deal of our data and information in tables, charts, and maps, thereby allowing students to better visualize the issues and arguments at hand.

Two important features are unique to this book and in keeping with our focus on methods and current research. The first is extensive class-tested problem sets at the end of each chapter. Our emphasis on problem sets comes from the belief that there is a lot of art in science and one learns an art by doing, not by simply watching others do. Developing a command over analytical materials and building a capacity to engage in analysis require practice and repetition, and the problem sets are meant to provide such opportunities for students. We, together and separately, have been assigning these problem sets and others like them in large introductory classes for several years now and find they work particularly well in classes with discussion sections. We have consistently found that students who seriously engage with the problem sets perform better on tests and appear grateful for the opportunity to apply what they have learned. We suspect they also perform better in upper-division classes and graduate school as well, although we admit that we have only anecdotes to support this claim. Graduate students who lead discussion sections in such classes seem to welcome the direction provided by the problem sets while also being inspired to contribute to the ever-expanding bank of questions. We believe that the best way to learn is to teach, and we have the distinct impression that this approach to undergraduate education has contributed directly to the training of graduate students. (A solutions manual for the problems is available via download at **https://edge.sagepub.com/principlescp3e**.)

The second important feature of the book is the set of online resources for students and instructors. New to this edition is a series of online tutorials that walk students through how to use many of the methods they come across in the book. If students want to get a better understanding of how to solve extensive or strategic form games, for example, or if they want to review spatial models or how to distinguish between valid and invalid arguments, they can watch one or more short videos on each of these topics. In addition to these new online tutorials, the free student companion website at **https://edge.sagepub.com/principlescp3e** also features quiz questions, flashcards, brief chapter summaries for each chapter, and links to important data for further research. Finally, to help instructors "tool up," we offer a set of downloadable resources, materials we've developed for our own classes over the years. These include test bank questions, PowerPoint lecture slides, downloadable graphics from the book, a glossary of key terms that can be used as handouts or for quizzing, and more at **https://edge.sagepub.com/principlescp3e**.

NEW FOR THE THIRD EDITION

We have made a number of changes in the third edition of the book. For example, the "Varieties of Dictatorship" chapter has been reorganized to focus on the two problems of authoritarian rule: (a) the problem of authoritarian power-sharing, and (b) the problem of authoritarian control. The "Cultural Determinants of Democracy and Dictatorship" chapter now includes a more extensive overview of cultural modernization theory and a discussion of new survey techniques that scholars are using to examine attitudes toward sensitive topics. We have added a detailed discussion of electoral integrity to the chapter on elections and electoral systems. We have also tried to incorporate a discussion of gender-related issues into various chapters and their Problems sections. For example, the "What Is Science" chapter includes a discussion of why diversity is important to science, and the "Consequences of Democratic Institutions" chapter examines how institutions, such as electoral rules, affect the descriptive and substantive representation of women. We have also added a new intuitive take on understanding statistical analyses and a clearer description of how to interpret regression results in Chapter 6. In addition to updating our empirical examples and our maps showing the geographic distribution of different institutions, we have also streamlined most chapters to highlight key explanations and offer a more coherent overview of the literature. The problem sets at the end of each chapter have been significantly expanded to allow students more opportunity to work through the theoretical, conceptual, and methodological material covered in the book.

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Given the long gestation of this text, we have accumulated many, many debts and would like to acknowledge just a few of them. Dong-Hun Kim, Korea University; Amy Linch, Pennsylvania State University; Will Moore, Arizona State University; Laura Potter, University of Michigan; Joel Simmons, Stonybrook University; Jeff Staton, Emory University; and various graduate students at the University of Michigan and Florida State University were kind enough to assign trial versions of chapters in their classes and offer us feedback and constructive criticism. In addition, André Blais, Sabri Ciftci, Courtenay Conrad, Charles Crabtree, Kostanca Dhima, Rob Franzese, Steffen Ganghof, Brad Gomez, Mark Hallerberg, Indriði Indriðason, Marek Kaminski, Kiril Kalinin, Özge Kemahlioglu, Masayuki Kudamatsu, Jerry Loewenberg, Monika Nalepa, Chris Reenock, Tyson Roberts, David Siegel, Mark Souva, Mike Thies, Josh Tucker, Tom Walker, Carol Weissert, and Joe Wright read portions of the manuscript and offered helpful comments. In addition to helping to produce the online tutorials that accompany this book, Charles Crabtree also created many of the maps showing the global distribution of different institutions and political outcomes. Cristina Crivelli provided additional questions for the problem sets at the end of the chapters.

We would also like to thank the reviewers CQ Press commissioned to vet the book at the proposal, manuscript, and post-adoption stages and who have helped shape this project over the past several years: Kathleen Bawn, University of California, Los Angeles; Charles Blake,

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We are hugely indebted to the entire team at CQ Press. Nancy Matuszak, Carrie Brandon, Elise Frasier, and John Scappini were all one could hope for in editors: insightful, patient, critical, encouraging, and honest coaches. We appreciate their efforts to keep the revisions process moving forward while allowing us to take the time to get it right, and Duncan Marchbank for his editorial assistance. Patrice Sutton did a wonderful job of copyediting the manuscript. Jane Haenel served as production editor and did a terrific job helping us find photographs and maps.

On a more personal note, we are grateful to the comparative politics scholars who inspired us and trained us at both the undergraduate and graduate levels (Neal Beck, André Blais, Maya Chadda, Mike Gilligan, Robert Kaufman, Anand Menon, Jonathan Nagler, Bing Powell, Adam Przeworski, Michael Shafer, Stephen Rosskam Shalom, Daniel Verdier, Richard W. Wilson, and Vincent Wright [and a couple of us would include Bill Clark in this list]). By declaring the truth clearly, while encouraging heresy, they have given us direction at the same time as giving us the freedom to grow. We are also grateful to New York University's Department of Politics, where much of this book was formed in us, and our current departments at Pennsylvania State University and Texas A&M University. They say that iron sharpens iron, and although we've been rubbed in uncomfortable ways at times, we are grateful for being shaped by such competent hands. Our thanks go out to our colleagues, teachers, and mentors of various stripes for their criticism, encouragement, inspiration, and companionship over the years, including André Blais, Robert Bates, Jenna Bednar, Fred Boehmke, Ted Brader, Lawrence Broz, Bruce Bueno de Mesquita, George Downs, Rob Franzese, Jeff Frieden, Mary Gallagher, Jen Gandhi, Mike Gilligan, Brad Gomez, Anna Gryzmala-Busse, Anna Harvey, Allen Hicken, Ron Inglehart, Stathis Kalyvas, Orit Kedar, Ken Kollman, Jack Levy, Michael Lewis-Beck, Jerry Loewenberg, Skip Lupia, Fiona McGillivray, Rob Mickey, Sara McLaughlin Mitchell, Burt Monroe, Will Moore, Jim Morrow, Rebecca Morton, Scott Page, Chris Reenock, Sebastian Saiegh, Rob Salmond, Shanker Satyanath, Chuck Shipan, Dave Siegel, Alastair Smith, Jeff Staton, George Tsebelis, Ashu Varshney, John Vasquez, Leonard Wantchekon, Libby Wood, Joe Wright, and Bill Zimmerman.

1 Introduction

My purpose is to consider if, in political society, there can be any legitimate and sure principle of government, taking men as they are, and laws as they might be. I shall try always to bring together what right permits with what interest prescribes so that justice and utility are in no way divided.

Jean-Jacques Rousseau, *The Social Contract*

OVERVIEW

- Political science is the study of politics in a scientific manner. Whereas international politics is the study of politics predominantly between countries, comparative politics is the study of politics predominantly within countries.
- In this chapter, we outline the central questions in comparative politics that we address in the remainder of this book. These questions are all related to the causes and consequences of democracy and dictatorship, as well as to the tremendous variety of democratic and dictatorial institutions seen in the world.
- We argue that attempts to engineer democracy, should they occur, should rest on foundations provided by the study of comparative politics.
- We also discuss why we adopt an explicitly cross-national approach to introduce students to the study of comparative politics.

On December 17, 2010, twenty-six-year-old Mohamed Bouazizi set fire to himself to protest his treatment by local officials who had confiscated the produce he had gone into debt to sell on the streets of Sidi Bouzid, Tunisia. While permits are not needed to sell produce on the streets of Sidi Bouzid, police and local officials had been harassing Mr. Bouazizi—apparently in attempts to extract bribes—ever since he left high school as a teenager to help feed his extended family. On this day, the police also confiscated the electronic scales that Mr. Bouazizi used to weigh the fruit he sold and, by some accounts, beat him and made slurs against his deceased father. Mr. Bouazizi appealed to the local governor's office and, when ignored, stood in traffic outside the governor's office, doused himself with gasoline, and lit himself on fire. He died—having survived eighteen days in a coma—on January 5, 2011. In the weeks that followed Mr. Bouazizi's self-immolation, mass protests, in which scores of demonstrators were killed, spread from his hometown to the capital city, Tunis. On January 15, after controlling the country for almost a quarter of a century, President Zine al-Abidine Ben Ali was forced to flee to Saudi Arabia, making him the first Arab leader in generations to leave office in response to public protests.

Over the next few months, expressions of discontent spread across the Middle East and North Africa (MENA) region. The first signs of contagion came in mid-January in the form of self-immolations in Egypt and Algeria, but in the following weeks mass protests would be held in more than a dozen countries across the region. For example, on January 23, protests spread to Yemen where thousands took to the streets in support of Tawakul Karman, an activist who was jailed after she called for an end to President Ali Abdullah's thirty-two-year control of the country. Organized protests, coordinated through social networking sites such as Facebook and Twitter, occurred across Egypt on January 25. In the weeks that followed, the Egyptian military showed a marked reluctance to open fire on protesters. Despite this, many protesters were injured or killed, frequently in clashes with bands of pro-regime thugs. Protesters were not placated when President Hosni Mubarak, who had ruled Egypt longer than any modern Egyptian leader, first fired his cabinet and then promised to step down before elections in the fall. Mubarak eventually resigned on February 11 and was tried and found guilty of corruption. On February 16, protests erupted in Libya—a month after Libyan leader Muammar al-Qaddafi had gone on television to bemoan the ouster of Tunisian president Zine al-Abidine Ben Ali. Within a few weeks, mass protests had turned into a full-scale insurrection that was aided by North Atlantic Treaty Organization (NATO) air strikes. On February 25, protests referred to as a "day of rage" occurred throughout the MENA region. These protests were followed in March by government crackdowns on protesters in both Saudi Arabia and Syria. By the end of March 2011, significant protests, frequently accompanied by violent government crackdowns, had occurred in seventeen countries throughout the Middle East and North Africa.

The fact that at least some of these popular movements led to the removal of long-standing dictators raised the prospect that we might be observing the beginning of a wave of liberalization, perhaps even a new wave of democratization, in a region that has long been dominated by resilient authoritarian regimes. A brief look at history, though, suggests that such optimism may have been unwarranted.

Beginning with a revolt in Palermo, Sicily, in January 1848, a wave of nearly fifty revolts spread across Europe, challenging dynasties that had ruled for decades in France, Austria, Prussia, and almost all of the lesser known states in Germany and Italy. This revolutionary period is known as the Spring of Nations. As with the 2011 Arab Spring, some of Europe's leaders were forcibly removed from power, some went into exile when their armies refused to fire on protesting citizens, and some used the coercive power of the state to put down rebellions. In many ways, the rebellions of 1848 shared a common set of causes with the revolts of 2011. For example, rapid changes in social structure brought about by the Industrial Revolution gave middle-class groups new power, often in coalition with working-class groups who were newly mobilized by economic crises. In many countries, rulers attempted to placate the masses by firing unpopular ministers, promising constitutional reforms, and adopting universal male suffrage. Although the rebellions often had local antecedents, they tended to share the goal of wresting power from the nobility and vesting authority in constitutional republics dedicated to the protection of individual liberties. In Frankfurt, for instance, a parliament known as the Frankfurt National Assembly wrote a constitution for what it declared to be the German Empire—a constitutional monarchy founded on eloquently expressed nineteenth-century liberal ideals including democracy and national unity.

Such changes brought about a wave of euphoria that expressed the hope that government was finally going to be put under the control of the people. Tyrants were to be sent packing, and rational self-rule was to replace tradition and prejudice. National self-determination movements would produce self-rule for oppressed groups long under the thumb of monarchies such as the Habsburg Empire. In nearly all instances, though, the hope produced by the 1848 Spring of Nations had turned to disappointment and recrimination by the autumn. A chilling example can be found in Austria, where the emperor's military forces, which had been cooperating with the "constituent assembly" formed in Vienna, put down the "October Rising" (the third wave of radical insurrection that year) by bombarding and then occupying the city. The constituent assembly was exiled, and many radical leaders were executed on the spot. Although Emperor Ferdinand I was convinced to step down, ceding his throne to his nephew Francis Joseph I, little else had changed. In the words of the historian Charles Breunig (1971, 1012), "to all intents and purposes the revolution in Vienna had been defeated by October, 1848."

The reversal suffered by reformers in Vienna was not unusual. By April 1849, the answer to the question that Tsar Nicholas I had posed to Queen Victoria—"What remains standing in Europe?"—was not, as he had suggested a year earlier, "Great Britain and Russia" but, instead, "almost everything." Revolution had swiftly been followed by reaction. Political reforms that seemed promising turned out, in practice, to change little (at least in the short term). Power remained vested in largely the same hands as before the revolutions of the previous spring.

In the previous 2012 edition of this book, we emphasized that the optimism expressed by some observers of the Arab Spring should be tempered by an understanding that "democratic" revolutions, like those in the 1848 Spring of Nations, are often followed by reaction and repression. We argued that regime change and political reform are difficult to predict, but that an understanding of such political change can be enhanced by the knowledge of the

economic and cultural determinants of democracy, the strategic interaction between autocratic rulers and reform-minded opposition groups, the institutional determinants of policy outcomes in autocracies and democracies, and the effect of constitutional design on democratic consolidation, party competition, fiscal policy, and ethnic conflict.

Since 2012, comparative politics scholars have attempted to explain why the Arab Spring has not blossomed into a new wave of democracy. Of the fourteen countries that experienced widespread uprisings in 2011, only three—Egypt, Tunisia, and Yemen—have seen an incumbent autocrat removed as a result of domestic political pressure.[1] And of the three countries that saw an incumbent autocrat removed, only Tunisia has made progress toward becoming a democracy. Brownlee, Masoud, and Reynolds (2015) argue that the authoritarian regimes in the MENA region were, for the most part, able to withstand widespread uprisings because so many of them had significant oil wealth and systems of hereditary rule. They claim that oil wealth and hereditary rule "were each individually sufficient for authoritarian continuity—unless external powers intervened on behalf of the opposition" (p. 61). Importantly, the reasons why oil wealth and hereditary rule might help dictatorial leaders fend off challenges from below have been well understood by comparative politics scholars for some time, as evidenced by the discussion of the "resource curse" in Chapter 6 and the consequences of monarchy in Chapter 10 of this book.

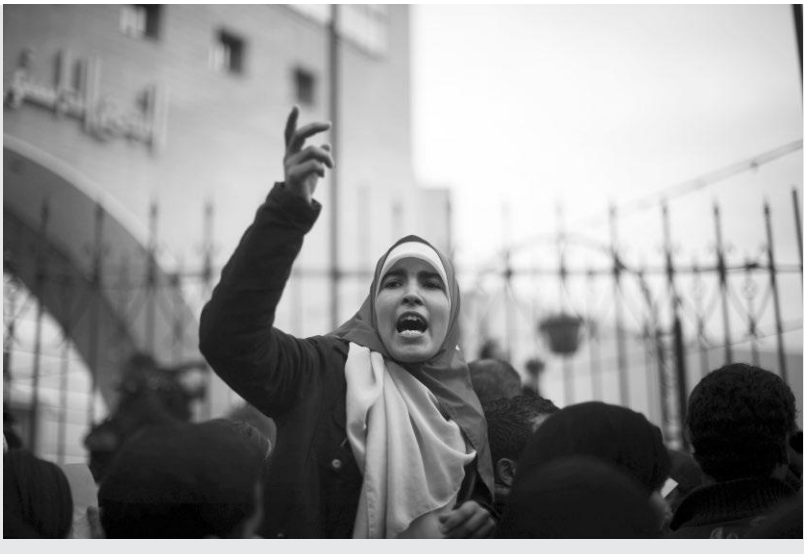


Photo by Christopher Furlong/Getty Images

Tunisian protesters demand the removal from office of government ministers associated with the ousted president in front of the ruling party's headquarters in Tunis on January 20, 2011.

Every generation seems to have its own motivation for studying comparative politics. The unfortunate truth is that each generation seems beset by a problem that is both devastatingly complex and extraordinarily urgent. For example, the Great Depression and the rise of fascism in Europe compelled comparative politics scholars in the middle of the last century to address two important topics. The

1. The removal of Muammar al-Qaddafi from his position as leader of Libya in 2011 was heavily reliant on foreign intervention. It was only thanks to the sustained aerial bombing campaign conducted by NATO forces as part of Operation Unified Protector that Libyan rebels were able to topple Gaddafi.

Box 1.1 WHAT IS COMPARATIVE POLITICS?

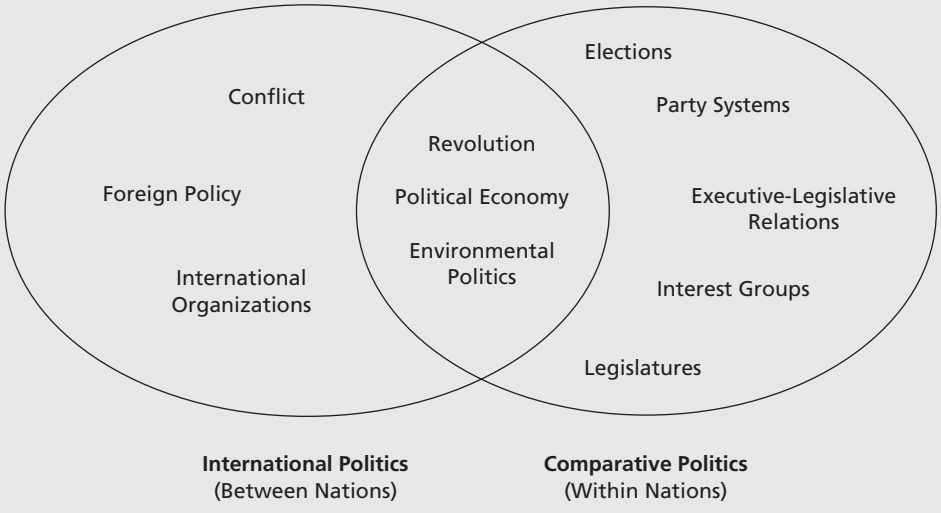
Traditionally, the field of comparative politics has been characterized by many related, but distinct, endeavors. An influential comparative politics textbook by Joseph LaPalombara (1974) is titled *Politics Within Nations*. LaPalombara's title distinguishes **comparative politics** from **international politics**, which Hans Morgenthau (1948) famously calls *Politics Among Nations*. This definition of comparative politics, with its complementary definition of international politics, has one of the desirable features of all good scientific typologies in that it is logically exhaustive. By defining comparative and international politics in this way, these scholars have exhausted the logical possibilities involved in the study of politics—political phenomena occur either within countries or between countries.

Comparative politics is the study of political phenomena that occur predominantly within countries. **International politics** is the study of political phenomena that occur predominantly between countries.

Still, all good scientific typologies should also be mutually exclusive. Whereas logical exhaustion implies that we have a place to categorize every entity that is observed, mutual exclusivity requires that it not be possible to assign any single observation to more than one category. Unfortunately, the typology just presented does not satisfy mutual exclusivity. A quick glance at today's newspapers clearly reveals that many contemporary political issues contain healthy doses of both "within country" and "between country" factors. As a consequence, the line between comparative and international politics is often blurred. This is particularly the case when it comes to studying how politics and economics interact. For example, ask yourself whether it is possible to fully understand American trade policy, say, toward China, without taking account of US domestic politics or to fully understand the ongoing crisis in the Euro zone without taking into account the domestic political situation in Greece. Similarly, many environmental issues involve factors both within and across a country's borders. In addition, because many violent antistate movements receive support from abroad, it is hard to categorize the study of revolutions, terrorism, and civil war as being solely in the domain of either comparative or international politics. Indeed, many insurgency movements have a separatist component that raises the very question of where the boundary between the "domestic" and "international" should lie.

Nonetheless, it is possible to retain the basic insights of LaPalombara and Morgenthau by simply saying that comparative politics is the study of political phenomena that are predominantly within country relationships and that international politics is the study of political phenomena that are predominantly between country relationships. This view of comparative politics, and political science more generally, is illustrated in Figure 1.1. As you can see, international politics addresses things like conflict, foreign policy, and international organizations that shape the relationships between countries. In contrast, comparative politics focuses on issues such as party systems, elections, identity politics, and interest group relations within countries like Brazil, China, France, and Nigeria. Scholars interested in political economy issues, such as migration, trade, central bank independence, and exchange rate policy, cross the divide between international and comparative politics.

FIGURE 1.1 One View of Political Science



Students in the United States may wonder where American politics fits into this description. In most political science departments in the United States, American politics is considered a separate subfield. Does the fact that American politics focuses predominantly on politics within the United States mean that it should be considered part of comparative politics? This is a question that, for some reason, generates quite heated debate among political scientists. Historically, a second traditional definition of comparative politics has been that it is the study of politics in every country except the one in which the student resides. Thus, according to this definition, comparative politics is the study of what economists often like to call "the rest of the world." This definition, however, seems rather silly to us because it means that the study

first was what governments can and should do to encourage stable economic growth. In other words, what, if anything, can governments do to protect their citizens from the devastating consequences of market instability? The second was how to design electoral institutions in such a way as to reduce the likelihood that political extremists who oppose democracy, like the Nazi Party in Germany's Weimar Republic, might be elected. Both of these topics remain central to the field of comparative politics today.

In the aftermath of World War II, decolonization and the onset of the Cold War combined to drive many comparative politics scholars to focus on the question of "political development." What, if anything, could be done to reduce political and economic instability

of Nigerian politics is part of comparative politics unless one happens to be studying it in Nigeria, in which case it is simply "Nigerian politics." We leave it up to you to decide whether you think American politics should be considered part of comparative politics or not.

In addition to the two definitions just outlined, comparative politics has sometimes been defined as the study of politics using the method of comparison. In fact, as seen in Box 2.2, "The Comparative Method: An Overview and Critique" in Chapter 2, scholars of comparative politics who seek to define their subject in this way typically have a particular type of comparative method in mind. This tradition, which dates back at least as far as Aristotle's attempt to classify constitutional forms, seeks to answer questions about politics by comparing and contrasting attributes of different polities (predominantly city-states in Aristotle's day but nation-states today). Although this third definition is, to some extent, descriptively accurate, it is not particularly useful. As we show in Chapter 2, comparison is central to any and all scientific endeavors. As a result, defining comparative politics in terms of a "comparative" method would make it synonymous with political science itself. If this is the case, it makes one wonder why there are two phrases—*comparative politics* and *political science*—to describe the same thing.

We believe that comparative politics is best understood as the study of politics occurring predominantly within countries. As such, it is a rather vast field of research. For reasons that we explain later in this chapter, we choose not to focus on the politics of a single nation or a particular collection of nations in this book. Instead, we try to understand political behavior through the explicit comparison of important national-level attributes. In other words, we compare domestic political behavior from a cross-national perspective. As an example of our approach, we prefer to ask why some countries have two parties (like the United States) but others have many (like the Netherlands) rather than examine the party systems in the United States and the Netherlands separately. By taking this approach, we do not mean to suggest that the study of politics within individual countries should be excluded from the field of comparative politics. Nor do we mean to imply that cross-national comparison is a more worthy endeavor than studying a single country. Having said that, we believe that a comparison of national-level attributes is a reasonable introduction to comparative politics and one that will set a broad framework for the closer study of politics within individual polities at an advanced level.

in poor and underdeveloped countries? Research conducted at that time frequently focused on the proper relationship between the government and the market, with the central concerns of the day perhaps being best summarized in the title of Joseph Schumpeter's 1942 classic *Capitalism, Socialism, and Democracy.* The Cold War between the United States and the Soviet Union only heightened the urgency with which scholars struggled to understand the causes and consequences of communist revolutions in China and Cuba, as well as the political turmoil in places like Vietnam and Chile.

By the 1970s, economic instability, brought on by the Middle East oil crisis, returned to wealthy industrial countries. As a result, many comparative politics scholars revisited

questions raised during the interwar years on their home turf of Western Europe. By now, however, the discussion had been narrowed somewhat because many scholars had come to accept the "postwar settlement" or "class compromise" that had essentially seen workers accept a capitalist economy and free trade in return for the expansion of the welfare state and other benefits. With the widespread acceptance of capitalist economies across Western Europe, researchers now turned their attention to how the specific variety of capitalism that existed in a particular country might influence that country's capacity to weather economic storms created elsewhere.

In the waning days of the twentieth century, attention turned to the fallout created by the end of the Cold War. Suddenly, dozens of countries in Eastern and Central Europe were negotiating the twin transitions from centrally planned economies to market-based ones and from one-party dictatorships to democracy. Now, in the twenty-first century, attention appears to be turning to the question of state authority. The Islamic State in Iraq and the Levant (ISIL), alternatively known as the Islamic State in Iraq and Syria (ISIS), proclaimed a worldwide caliphate in June 2014. In effect, ISIL now claims religious, political, and military authority over Muslims wherever they live in the world. Such a claim is a direct challenge to the primary organizing principle of the international system—sovereign states—that has been operative since the Peace of Westphalia in 1648. ISIL currently controls portions of Iraq and Syria, and has imposed Sharia law on the millions of people who live in these regions. The ensuing persecution, chaos, and violence, in combination with the fallout from the Syrian Civil War, have led many to flee the region, causing an immigration crisis in Europe.

As we discuss in Chapter 4, the "modern state" is understood as an organization that uses coercion and the threat of force to control the inhabitants in a given territory. ISIL's declaration of a worldwide caliphate, and, indeed, the behavior of violent insurgency groups around the world, constitutes a direct challenge to this conception of the modern state. It remains to be seen whether such developments constitute a lasting threat to the idea that a state is an entity that can successfully control the inhabitants in a well-defined territory. Recent developments suggest, though, that we should not take political order for granted. Research by anthropologists and archaeologists reminds us that the vast majority of our experience as a species has occurred within relatively small groups of hunter-gatherers and that violence within and between these groups was commonplace (Gat 2006). Societal order in large groups is something that needs to be explained, rather than assumed.

OVERVIEW OF THE BOOK

Political science is the study of politics in a scientific manner. It is easy to see that, as it stands, this definition of political science is not particularly informative. For example, what is politics? What is science? We explicitly address these questions in Chapters 2 and 3 of Part I. With these preliminaries out of the way, we begin to examine the substantive questions relating to the causes and consequences of democracy and dictatorship that are the

book's central focus. In Part II we contrast democracies and dictatorships. Specifically, we explore the origins of the modern state and ask two questions that have been central to the study of comparative politics. First, why are some countries democracies and others dictatorships? And second, does it matter? In Part III we turn our attention to the different types of democracies and dictatorships that exist around the world. In particular, we examine the sometimes dizzying array of institutional forms that countries can adopt. Finally, in Part IV, we investigate how different types of democracy affect government performance and the survival of democracy itself.

Our goal in writing this book is to provide answers that are relevant to the problems motivating the study of comparative politics today and that are reliable—that is, built on the best practices of contemporary political scientists. In what follows, we highlight some of the questions and issues that we address in the upcoming chapters. These issues have been of long-standing interest to comparative political scientists and remain vitally important for understanding the contemporary world.

State Failure

Although state failure has long been recognized as one of the key sources of political and economic instability around the globe, the horrific events of September 11, 2001, have lent a new urgency to the need to understand the conditions under which states fail and the conditions under which such power vacuums might foster international terrorism. The reason for this is that the September 11 terrorist attacks were planned from Afghanistan—a failed state in which the Taliban provided sanctuary for al-Qaida to train terrorists and plan attacks against various targets around the world. In Chapter 4 we define what political scientists mean when they speak of the "state" and describe what life is like in two failed states, Somalia and Syria. To understand how one might fill the power vacuum that exists in failed states, it is necessary to understand the historical development of the modern state. What distinguishes the modern state from other forms of political organization? What led to its development? The rest of Chapter 4 focuses on addressing these types of questions.

Economic Determinants of Democracy

In October 2001 the United States responded to the September 11 terrorist attacks by invading Afghanistan to overthrow the Taliban. In addition to trying to capture Osama bin Laden and destroy al-Qaida's terrorist infrastructure, one of the stated goals of this attack was to replace the Taliban with a more democratic form of government. In order to establish democracy intentionally and successfully in countries like Afghanistan and Iraq, however, it is important that we first understand the factors that encourage or discourage the emergence and survival of democracy. Similarly, to comprehend the prospects for democracy in the MENA region, we must take account of both the specific political background of the countries in this part of the world and the considerable body of theoretical and empirical evidence that comparative political scientists have compiled on the determinants of democracy.

In Chapter 6 we examine how economic development and the structure of the economy influence the likelihood that a country will become and remain democratic. Some scholars have argued that countries are more likely to democratize as their economies become more modern—that is, less reliant on natural resource exports, more productive, more industrial, more highly educated, and so on. Other scholars have argued that such modernization may affect the survival of democracy but does not influence the emergence of democracy. In other words, they argue that modernization helps democracies stay democratic but does not help dictatorships become democratic. Although debate continues over the precise relationship between economic modernization and democracy, the fact that most of the countries affected by the Arab Spring do not fulfill many of the basic requirements of "modernization" means that comparative politics scholars on both sides of the debate would reach essentially the same conclusion regarding the prospects for democracy in the MENA region—they are poor. On a related note, many political scientists have argued that democracy is unlikely to arise in countries whose economies are dependent on natural resource extraction. If you find such arguments persuasive after reading Chapter 6, then the vast reservoirs of oil found in countries like Iraq and Libya should be viewed as a cause for concern, rather than hope, in regard to attempts to build democracy in these countries.

Cultural Determinants of Democracy

Over the years, many scholars have argued that democracy is incompatible with particular cultures. Exactly which cultures are thought to be bad for democracy tend to change from one time period to the next, depending on which countries in the world are democratic at a particular point in time. For example, Catholicism was seen as a hindrance to democracy during the 1950s and 1960s when few Catholic countries in the world were democratic. As Catholic countries in southern Europe and Latin America became democratic in the 1970s and 1980s, the earlier view began to wane. Today, of course, the culture that is deemed most antithetical to democracy is Islam. Again, the basic reason why people commonly view Islam as bad for democracy tends to be that they do not see many contemporary Islamic democracies. In fact, this is one of the reasons why the rapid rise in mass movements in many Muslim majority countries during the Arab Spring caught many observers by surprise. In Chapter 7 we examine the theoretical and empirical evidence behind arguments that some cultures are more suited for dictatorship than democracy. In doing so, we suggest that the type of after-the-fact (post hoc) theorizing that leads people to conclude, for example, that there must be something about Islam that discourages democracy because there aren't many predominantly Muslim democracies in the contemporary world should be treated with considerable skepticism.

If, after reading Chapters 6 and 7, you believe that the economic and cultural factors in countries like Iraq and Libya make democratization feasible, you might begin to wonder whether military force is the best way to bring it about. We do not examine the attempts of foreign countries to impose democracy by force in any great detail, but we do examine the

process by which countries transition from dictatorship to democracy in Chapter 8. In particular, we look at bottom-up transitions to democracy, in which the people rise up as part of a popular revolution to overthrow the dictator, and top-down transitions, in which authoritarian elites introduce liberalization policies that ultimately lead to democracy. Our discussion in this chapter offers an explanation for why dictatorships frequently appear so stable, why popular revolutions are so rare, and why revolutions, when they do occur, nearly always come as a surprise even though they often appear so inevitable in hindsight. By focusing on the strategic interaction of elites and masses involved in top-down transitions, we also emphasize the important role that information, beliefs, and uncertainty can play in these types of democratic transitions.

What's So Good about Democracy Anyway?

Our time has been referred to as the "age of democracy." Even dictatorships spend a fair amount of time and energy paying lip service to the wonders of democracy. The benefits of democracy that many people speak of may be real, but political scientists like to reach conclusions on the basis of logic and evidence rather than conventional wisdom and ideology. As a result, we devote considerable effort in Chapters 9 through 11 to examining whether or not there is a sound basis for pursuing democracy in the first place.

In Chapter 9 we examine whether democracy makes a material difference in people's lives. Is economic growth higher in democracies than dictatorships? Do people live longer, healthier, and more educated lives in democracies than dictatorships? As we demonstrate, the picture that emerges from this literature is significantly more nuanced than the rhetoric that politicians around the world typically employ. Although democracies seldom perform poorly in regard to the level of material well-being that they provide their citizens, they frequently fail to outperform a substantial number of dictatorships.

One of the reasons why it is difficult to compare democracies and dictatorships and come up with clear-cut answers as to which perform better has to do with the fact that dictatorships come in many different forms. For example, personalist dictatorships, such as the one in North Korea under Kim Jong-un, function quite differently from, say, the hereditary monarchies of the Gulf states or the military juntas found in countries like Thailand. Accordingly, we devote Chapter 10 to examining how the institutional variation among dictatorships influences things like economic performance, regime stability, and the likelihood of democratic transitions.

In Chapter 11, we take a slightly different tack and examine whether the actual *process* of democracy has some inherently attractive properties that would make it morally or normatively appealing over and above any material benefits it might produce. The picture that emerges from the comparative politics literature on this matter may surprise you. The bottom line is that there is no support for the idea that there is an ideal form of political organization—and this includes democracy.

Institutional Design

If one were convinced that democracy was the best alternative for a country like Iraq, Egypt, or Libya, then the next logical question is how one should design such a democracy. Designing a democracy presumes that we know both how various democratic institutions work and what their consequences will be. In the remainder of this book, we examine what the comparative politics literature has to say in these regards.

In Chapter 12 we explore the significant differences that exist between parliamentary, presidential, and semi-presidential types of democracy. We pay particular attention to how governments form and survive in parliamentary and presidential democracies. In Chapter 13 we look at the dizzying variety of electoral systems that have been employed around the world and attempt to understand each of their strengths and weaknesses with respect to things like proportionality, ethnic accommodation, accountability, and minority representation. In Chapter 14 we examine party systems. In particular, we focus on how the choice of electoral system in a country combines with attributes of that country's social structure to determine both the number and types of parties that are likely to exist. In Chapter 15 we briefly examine other institutional ways in which democracies vary. Democracies can be federal or unitary, bicameral or unicameral, and they can differ in the extent to which they exhibit judicial independence. Federalism, bicameralism, and judicial independence can all be thought of as forms of checks and balances that create institutional veto players in a political system. As such, their causes and consequences are closely related, and it is for this reason that we consider them in the same chapter.

As Chapters 12 through 15 indicate, democracies around the world exhibit many different institutional forms. But do these different institutional forms produce different outcomes? This is what we examine in Chapter 16 in Part IV of the book. We begin by looking at the normative and material consequences associated with different types of democracies. Are the governments in some types of democracy more accountable, representative, and responsive than the governments in other types of democracy? What are the expected economic consequences associated with different types of democracy? We then review what the comparative politics literature has to say about how the institutions adopted by a country affect the survival of democracy. Many scholars have argued that the kind of ethnic and religious diversity observed in countries like Iraq is a destabilizing force in democracies. But do these types of divisions make democratic stability impossible, or are there institutional mechanisms that can be put in place that might mitigate the effects of ethnic and religious differences? In addition to examining how institutions might mitigate the effects of ethnic and religious diversity, we also look at whether a country's choice of democratic regime—parliamentary or presidential—influences the prospects for democratic survival. There is considerable evidence that parliamentary democracies survive significantly longer than presidential democracies. But if this is true, one might wonder, what explains the persistence of democracy in the United States? Comparative politics scholars have an answer to this question, but to appreciate it, we must be willing to travel through both time and space.

THE APPROACH TAKEN IN THIS BOOK

Many introductory comparative politics texts are organized around a sequence of individual country studies. Typically, one starts with Britain, before moving on to France and Germany. Next it's on to Russia, Japan, India, Brazil, and, nearly always, Nigeria. Occasionally, China and Mexico might make an appearance somewhere along the line. We believe that this approach has some limitations if the goal of an introductory class is to teach something other than descriptive information about a tiny fraction of the world's countries. The eight countries that make up the domain of a typical comparative politics textbook constitute little more than 4 percent of the world's 193 widely recognized independent states. Why should we focus on these countries and not others? The response from the authors of these textbooks might be that these countries are, in some sense, either the most important or the most representative countries in the world. We find the first of these claims—that they are the most important countries—to be displeasing and the second—that they are the most representative countries—to be questionable.

An introductory class in comparative politics has many goals. We believe that it should stimulate students' interest in the particular subject matter and introduce them to the principal concerns and findings of the field. It should also give students an insight into the extent to which there is consensus or ongoing debate concerning those findings. Consequently, we have endeavored to focus our attention on the questions that comparative politics scholars have historically considered vitally important and those on which there is some growing consensus. It is undeniable that the causes and consequences of democracy and dictatorship are a central issue in comparative politics. It is for this reason that they are a central concern of our book. Less obvious perhaps is a growing consensus regarding the causes and consequences of particular sets of autocratic and democratic institutions. We endeavor both to make this emerging consensus clearer and to provide the analytical tools required to critically engage it.

In light of the types of research questions that we want to address here, the traditional series of country studies found in most textbooks would not provide the most useful approach. First, very few countries exhibit sufficient variation across time with their experience of democracy to allow questions about democracy's causes and consequences to be answered by a single country study. Similarly, very few countries experience sufficient variation in their institutions across time to give us much leverage in gaining an understanding of their causes and consequences. For example, countries that adopt presidentialism or a particular set of electoral laws tend to retain these choices for long periods of time. In fact, when forced to choose those institutions again (for example, at the end of an authoritarian interruption), countries frequently make the same choice. It is for these reasons that comparisons across countries are important for understanding the research questions that are at the heart of this book—they provide the much-needed variation not often found in any one country.

Second, we—personally—do not possess the required memory and attentiveness to remember the relevant details of particular countries' institutions and cultures across many weeks, and we, perhaps incorrectly, do not expect our students to either. Overall, we are not

hopeful that we, or our students, can be expected in week ten of the semester when studying the intricacies of the Russian Duma to make comparisons with the Japanese Diet or the British House of Commons studied weeks earlier. Even if we could retain the relevant information across the course of a semester, it is not obvious that eight or ten countries would produce a sufficiently large variety of socioeconomic and institutional experiences to allow us to adequately evaluate the hypotheses that are central to the comparative politics subfield and this book. Given that our primary concern in this textbook surrounds institutional, social, economic, and cultural factors that remain fairly constant across time within countries, the most a comparison of a relatively small number of observations could accomplish is to provide a collection of confirming cases. In Chapter 2 we discuss why such a practice is problematic from the standpoint of the scientific method.

We also believe that the traditional approach adopted by most textbooks has the unfortunate consequence of creating a significant disjuncture between what comparative political scientists teach students and what these scholars actually do for a living. Comparative politics scholars do sometimes engage in descriptive exercises such as detailing how laws are made, how institutions function, or who has power in various countries. This is the traditional subject matter of most textbooks. However, it is much more common for comparative scholars to spend their time constructing and testing theories about political phenomena in the world. In reality, they are primarily interested in explaining, rather than describing, why politics is organized along ethnic lines in some countries but class lines in others, or why some countries are democracies but others dictatorships. Some textbook authors seem reluctant to present this sort of material to students because they believe it to be too complicated. However, we strongly believe that comparative political science is not rocket science. The fact that it is only relatively recently that the scientific method has begun to be applied to the study of political phenomena suggests to us that students should be able to engage the political science literature with relative ease. Indeed, we believe that, compared with other disciplines such as physics or mathematics, there is unusual room for students actually to make significant contributions to the accumulation of knowledge in comparative political science. As a result, one of the goals of our book is to introduce you to what comparative political scientists spend most of their time doing and to begin to give you the tools to contribute to the debates in our discipline.[2]

Key Concepts

comparative politics *5*
international politics *5*

2. Brambor, Clark, and Golder (2006, 2007); Clark and Reichert (1998); Uzonyi, Souva, and Golder (2012); Golder and Lloyd (2014); and Golder and Thomas (2014) are examples of original research published in scientific journals in which our own undergraduate students have played significant roles.

2 What Is Science?

The wrong view of science betrays itself in the craving to be right; for it is not his possession of knowledge, of irrefutable truth, that makes the man of science, but his persistent and recklessly critical quest for truth.

Sir Karl Popper, *The Logic of Scientific Discovery*

So I left him, saying to myself, as I went away: Well, although I do not suppose that either of us knows anything really beautiful and good, I am better off than he is—for he knows nothing, and thinks that he knows. I neither know nor think that I know. In this latter particular, then, I seem to have slightly the advantage of him.

Socrates, in Plato's *Apology*

Test everything. Keep what is good.

Saint Paul, *First Letter to the Thessalonians*

OVERVIEW

- Comparative politics is the subfield of political science that focuses primarily on politics within countries. In Chapter 3 we define and examine the nature of politics. In this chapter we define and examine the nature of science.
- Science is a strategy for understanding and explaining the social and natural world that emphasizes the use of statements that can be examined to see whether they are wrong.
- Scientific explanations should explain previously puzzling facts, be logically consistent, and produce (many) potentially falsifiable predictions.
- All scientific explanations are tentative. We accept some explanations as provisionally true when they have withstood vigorous attempts at refutation more successfully than competing explanations.

Consider the following five statements. What do they all have in common?

1. Science is a collection of facts that tell us what we know about the world.
2. A scientific theory is one that has been proven.
3. "The sun revolves around the earth" is not a scientific statement.
4. If my theory is correct, then I should observe that rich countries are more likely to be democracies. I do observe that rich countries are more likely to be democracies. Therefore, my theory is correct.
5. Politics cannot be studied in a scientific manner.

The common element in these statements is that they are all, in some sense, wrong. Science is not a collection of facts that tell us what we know about the world. Scientific theories cannot be proven; thus, a scientific theory is not one that has been proven. The statement that the sun revolves around the earth is a scientific statement (even though it is false). The argument outlined in statement 4 is logically invalid; therefore, I cannot conclude that my theory is correct. And finally, politics can be studied in a scientific manner. We suspect that many of you will have thought that at least some of these statements were correct. To know why all of these statements about science are wrong, you will need to continue reading this chapter.

Science certainly has its detractors, largely because of what was experienced in the twentieth century. Some horrendous things were either done in the name of science or "justified" on scientific grounds or, at a minimum, made possible by science. Although we should never close our eyes to the harm that is sometimes done with science, we believe that it is as much a mistake to blame science for what some scientists have done in its name as it is to blame religion for what some believers have done in its name.

But what is science? First and foremost, science is a method; however, it is also a culture. The epigraphs at the start of this chapter are meant to capture what we might call the "culture" of science. Some of the negative views of science come from what people perceive the culture of science to be—cold, calculating, self-assured, arrogant, and, perhaps, even offensive. We believe, however, that at its best, the culture of science displays the characteristics encouraged by the otherwise very different thinkers who are quoted. The scientific method is, at its very core, a critical method, and those reflective individuals who use it are much more likely to be humbled than emboldened. Sir Karl Popper ([1959] 2003) reminds us that science is not a static set of beliefs to be conserved and that all knowledge is tentative. Socrates reminds us that an acute awareness of our own ignorance is always the first step toward knowledge. Saint Paul offers hope that our willingness to test all of our ideas will leave us something good to hang on to. As we'll demonstrate in this chapter, science isn't about certainty, it isn't merely about the orderly collection of facts, and it isn't about invoking authority to protect our ideas from uncomfortable evidence. Instead, science is about asking

tough questions and providing answers that invite criticism. Science is about recognizing the limits of our knowledge without lapsing into irresponsible cynicism. And science is about using the best logic, methods, and evidence available to provide answers today, even though we recognize that they may be overturned tomorrow.

Comparative politics is a subfield of political science. But what exactly is political science? Well, it is the study of politics in a scientific way. How's that for a tautology? It is easy to see that, as it stands, this definition is not particularly informative. For example, what is politics? And what is science? In the next chapter we answer the first of these questions and seek to demarcate politics from other forms of social phenomena. In this chapter, though, we focus on the second question—what is science? Our goal is to provide an answer that resembles the way most practicing scientists would answer this question.

WHAT IS SCIENCE?

Is science simply a body of knowledge or a collection of facts, as many of us learn in high school? While there was a time when many scientists may have defined science in this way, this definition is fundamentally unsatisfactory. If this definition of science were accurate, then many of the claims about how the universe worked, such as those developed through Newtonian physics, would now have to be called unscientific, because they have been replaced by claims based on more recent theories, such as Einstein's theory of relativity. Moreover, if science were simply a collection of statements about how the world works, then we would not be able to appeal to science to justify our knowledge of the world without falling into the following circular reasoning:

"Science is a collection of statements about how the world works."
"How do we know if these statements are accurate?"
"Well, of course they're accurate! They're scientific!"

The body of knowledge that we call "scientific" may well be a product of science, but it is not science itself. Rather, science is a method for provisionally understanding the world. The reason for saying "provisionally" will become clear shortly. Science is one answer to the central question in epistemology (the study of knowledge): "How do we know what we know?" The scientist's answer to that question is, "Because we have subjected our ideas to the scientific method." Science, as Karl Popper indicates in one of the epigraphs at the start of this chapter, is the quest for knowledge. At this point, you might say that there are many ways to seek knowledge. Does this mean that meditation, reading scripture, and gazing at sunsets are all scientific activities? Although we agree that these are all ways of seeking knowledge, none of them is scientific. Science is a particular quest for knowledge. To use Popper's phrase, it is the "recklessly critical" pursuit of knowledge, in which the scientist continually subjects her ideas to the cold light of logic and evidence.

Although science is not the only route to knowledge, it may be unique in its emphasis on self-criticism. Scientists, like other scholars, can derive their propositions from an infinite number of sources. For example, Gregory Derry (1999) tells the story of how August Kekulé made an extremely important scientific breakthrough while hallucinating—half asleep—in front of the fireplace in his laboratory one night. He had spent days struggling to understand the spatial arrangement of atoms in a benzene molecule. In a state of mental and physical exhaustion, his answer appeared to him as he "saw" swirls of atoms joined in a particular formation dancing among the embers of his fireplace. In a flash of inspiration, he saw how the pieces of the puzzle with which he had been struggling fit together. This inspired understanding of the physical properties of organic compounds did not become a part of science that night, though. It did so only after the implications of his vision had withstood the critical and sober onslaught that came with the light of day. Thus, although flashes of insight can come from a variety of sources, science begins only when one asks, "If that is true, what else ought to be true?" And it ends—if ever—when researchers are satisfied that they have taken every reasonable pain to show that the implications of the insight are false and have failed to do so. Even then, however, the best answer is not the final answer—it is just the best "so far."

So, science is the quest for knowledge that relies on criticism. The thing that allows for criticism is the possibility that our claims, theories, hypotheses, ideas, and the like could be wrong. Thus, what distinguishes science from "non-science" is that scientific statements must be **falsifiable**—there must be some imaginable observation or set of observations that could falsify or refute them. This does not mean that a scientific statement will ever be falsified, just that there must be a possibility that it could be falsified if the "right" observation came along. Only if a statement is potentially testable is it scientific. We deliberately say "potentially testable" because a statement does not have to have been tested to be scientific; all that is required is that we can conceive of a way to test it.[1]

Scientific statements must be **falsifiable**. This means that they are potentially testable—there must be some imaginable observation that could falsify or refute them.

What sorts of statements are not falsifiable? Tautologies are not falsifiable because they are true by definition. For example, the statement "Triangles have three sides" is a **tautology**. It is simply not possible ever to observe a triangle that does not have three sides because *by definition* if an object does not have three sides, it is not a triangle. It is easy to see that this statement is not testable and hence unscientific. Tautologies, though, are not always so easy to spot. Consider the following statement: "Strong states are able to overcome special interests in order to implement policies that are best for the nation." Is this a tautology? This statement may be true, but unless we can think of a way to identify a strong state without referring to its ability to overcome special interests, then it is just a definition

A **tautology** is a statement that is true by definition.

1. Indeed, a statement can be scientific even if we do not currently have the data or the technical equipment to test it. Our upcoming discussion of Einstein's special theory of relativity illustrates this point quite clearly.

and is, therefore, unscientific. In other words, whether this particular statement is scientific depends on how strong states are defined.

Other statements or hypotheses are not falsifiable, not because they are tautological, but because they refer to inherently unobservable phenomena. For example, the claims "God exists" and "God created the world" are not falsifiable because they cannot be tested; as a result, they are unscientific. Note that these claims may well be true, but it is important to recognize that science has nothing to do with the truth or falsity of statements. All that is required for a statement to be scientific is that it be falsifiable. It should be clear from this that we are not claiming that "nonscience" is nonsense or that it lacks meaning—this would clearly be a mistake. Nonfalsifiable statements like "God exists" may very well be true and have important and meaningful consequences—our claim is simply that they do not form a part of science. Having defined science as a critical method for learning about the world, we can now evaluate the basic elements of the scientific method in more detail.

THE SCIENTIFIC METHOD

Although there is no **scientific method** clearly written down that is followed by all scientists, it is possible to characterize the basic features of the scientific method in the following manner.

The **scientific method** describes the process by which scientists learn about the world.

Step 1: Question

The first step in the scientific process is to observe the world and come up with a question or puzzle. The very need for a theory or explanation begins when we observe something that is so unexpected or surprising that we ask, "Why did that occur?" Note that the surprise that greets such an observation, and that makes the observation a puzzle worth exploring, implies that the observation does not match some prior expectation or theory that we held about how the world works. Thus, we always have a preexisting theory or expectation when we observe the world; if we did not have one, we could never be surprised, and there would be no puzzles.

Step 2: Theory or Model

A **theory** is a set of logically consistent statements that tell us why the things that we observe occur. A theory is sometimes referred to as a model or an explanation.

Once we have observed something puzzling, the next step is to come up with a theory or model to explain it. In what follows, we will talk of theories, models, and explanations interchangeably. Scientists use the word **theory** to describe a set of logically consistent statements that tell us why the things that we observe occur. It is important that these statements be logically consistent; otherwise we have no way of determining what their empirical predictions will be and, hence, no way to test them. Put differently, theories that are logically

inconsistent should not, indeed cannot, be tested, because we have no way of knowing what observations would truly falsify them.

The principle of the **uniformity of nature** asserts that nature's operating mechanisms are unchanging in the sense that if *X* causes *Y* today, then it will also cause *Y* tomorrow and the next day and so on.

Most philosophers of science assume that all phenomena occur as a result of some recurring process. The principle of the **uniformity of nature** asserts that nature's operating mechanisms are unchanging in the sense that if *X* causes *Y* today, then it will also cause *Y* tomorrow and the next day and so on. If it does not, then we should not consider *X* a cause. Be careful to note that the principle of uniformity is a statement not that nature is unchanging, only that the laws of nature do not change (although our understanding of those laws will likely change over time). This is an important principle, because if this principle is rejected, we must accept the possibility that things "just happen." That is, we must accept that things happen for no reason. Casual observation of the sometimes maddening world around us suggests that this may, indeed, be true, but it is the job of scientists to attempt to impose order on the apparent chaos around them. In the social world, this process often begins by dividing the behavior we observe into systematic and unsystematic components. The social scientist then focuses her attention on explaining only the systematic components.[2]

So what should theories or models look like? It is useful to think of our starting puzzle or observation as the end result of some previously unknown process (Lave and March 1975). We can then speculate about what (hidden) processes might have produced such a result. In effect, we try to imagine a prior world that, if it had existed, would have produced the otherwise puzzling observation before us. This prior world then becomes our model explaining the observation.

Notice that this process of imagining prior worlds is one place—but surely not the only one—where imagination and creativity enter the scientific process. What scientists do to stimulate this creative process is itself not part of the scientific method. Essentially, anything goes. Nobel Prize–winning physicist Richard Feynman, who himself spent a lot of time hanging out in bars and playing Brazilian hand drums, describes science as "imagination in a straightjacket"—it is imagination constrained by what we already know about the world (Feynman 1967). Consequently, he suggests that there is no point engaging in flights of fancy about things that we know cannot exist (like antigravity machines). Whatever means we use to stimulate speculation about a prior world, if we can show through logical deduction that *if* that prior world existed, it would have produced the puzzling observation we started with, then we have a theory, or model. Note that we have only *a* theory; we do not necessarily have *the* theory. This is why we continually test the implications of our theory.

The model that we end up with will necessarily be a simplified picture of the world. It is impossible to have a descriptively accurate model of the world as an infinite number of

2. This suggests that you should be wary of anyone who tells you that you need to know everything before you can know anything.

details would have to be captured in such a model. Pure description is impossible—models are always going to leave many things out. As with all arts, much of the skill of modeling is in deciding what to leave out and what to keep in. A good model contains only what is needed to explain the phenomenon that puzzles us and nothing else. If we made our models too complex, we would have no way of knowing which elements were crucial for explaining the puzzling observation that we started with and which were superfluous. The purpose of a model is not to describe the world but to explain it, so descriptive accuracy is not a core value in model building. Details are important only to the extent that they are crucial to what we are trying to explain. For example, if we are interested in explaining an aircraft's response to turbulence, it is not important whether our model of the aircraft includes LCD screens on the back of the passengers' seats. In fact, such inconsequential details can easily distract our attention from the question at hand. Another benefit of simple models is that they invite falsification because they make it very clear what we should not observe. The more amendments and conditions placed on an explanation, the easier it is for scholars to dismiss apparently contradictory evidence.

It is important to remember that models are always developed with a specific goal in mind. This means that we should evaluate models in terms of how useful they are for achieving that goal. As the late Dutch economist Henri Theil (1971) once said, "models should be used, not believed." To emphasize this point, it can be helpful to think of models as being similar to maps. Like models, maps are simplified pictures of the world designed for a specific purpose. Consider the subway map of any city. The subway map is always a simplification of the city and, indeed, an inaccurate simplification in the sense that it provides inaccurate information about the relative distances between, and geographic positions of, particular locations. Despite this, the map is incredibly useful if one's goal is to move efficiently around the city using the subway system—the purpose for which the map was designed. Of course, this map would be less useful if one's goal was to walk above ground from one location to another. As with a map, one must not judge the value of a model in some abstract sense but in terms of how well it helps us understand some particular aspect of the world and explain it to others.

Step 3: Implications (Hypotheses)

Once we have a model, the third step in the scientific process is to deduce implications from the model other than those that we initially set out to explain. Why do we say "other than those that we initially set out to explain"? Well, presumably the model that we construct will provide a logical explanation for the puzzling observation that we started with; after all, that is what it was designed to do! In other words, there is no way that a model can ever be falsified if only the observations that were employed to develop the model in the first place are used to test it. To actually test the model and allow for the possibility that it will be falsified, we will have to find other implications that can be deduced from it. We must ask ourselves, "If the prior world that we created to explain the phenomena that we originally found puzzling really did exist, what else ought to exist? What else should we be able to observe?"

As before, there is often room for incredible imagination here, because the complete list of logical implications of a model is seldom self-evident.

Good models are those that produce many different implications. This is so because each prediction represents another opportunity for the model to fail and, therefore, makes the model easier to falsify. This is good because if the model fails to be falsified, we gain more confidence in its usefulness. Fertile models—models with many implications—are also desirable because they encourage the synthesis of knowledge by encouraging us to see connections between ostensibly disparate events. Good models also produce surprising implications—they tell us something we would not know in the absence of the model. Models are not particularly useful if they tell us only what we already know. Surprise, however, is best appreciated in small doses. If every implication of a model is surprising, then either everything we thought about the world is wrong, or the model is.

Step 4: Observe the World (Test Hypotheses)

The fourth step is to examine whether the implications of the model are consistent with observation. Remember that the goal is not to dogmatically uphold the implications of our model or defend them in order to prove how right they are. On the contrary, we should try our best to falsify them, because it is only after a theory has withstood these attempts to overthrow it that we can reasonably start to have confidence in it. Although as many of the model's implications as possible should be tested, testing those that are most likely to be falsified is particularly important. Always submit a model to the harshest test that you can devise.

It is standard practice to stop and ask if other models—models that describe altogether different processes—might also explain the phenomena of interest. When this is the case (and it almost always is), it is incumbent upon the scientist to compare the implications of those other models with the implications of her own model. Although it is always the case that competing models have some of the same implications (otherwise they could not explain the same observations to begin with), it is typically the case that they will differ in some of their implications (otherwise they are not different models). The trick for a researcher is to identify these points of conflict between the different models and identify the relevant observations in the real world that would help her decide between them. This is what scientists refer to as a **critical test**. Ultimately, if a critical test is possible, observation will prove decisive in choosing between the models. This is because we know that there is only one world and the creative scientist has managed to get competing theories to say contradictory things about it—only one of the models can be consistent with the real world.

A **critical test** allows the analyst to use observation to distinguish between two or more competing explanations of the same phenomenon.

Step 5: Evaluation

If we observe the implications deduced from our theory, we say that our theory has been corroborated. Note that we cannot say that our theory has been verified or proven. This

Box 2.1

AN EXAMPLE OF THE SCIENTIFIC PROCESS

The Case of Smart Female Athletes

Because student athletes often miss classes to compete out of state, they frequently submit a letter from the athletic director asking for cooperation from their professors. Over the years, a certain professor has noticed through casual observation that women engaged in athletic competition frequently perform better academically than the average student. It is puzzling why female athletes would perform better in spite of missing classes. Can you think of a model—a process—that might produce such a puzzling observation?

You might start with the following conjecture:

- Female athletes are smart.

This is an explanation, but it is not a particularly good one. For example, it comes very close to simply restating the observation to be explained. One thing that could improve the explanation is to make it more general. This might lead you to a new explanation:

- Athletes are smart.

This model is certainly more general (but not necessarily more correct). Still, there are at least two problems with this model as things stand. First, it has no sense of process; it basically says that athletes share some inherent quality of smartness that leads them to perform better academically. In effect, this only pushes the phenomenon to be explained back one step; that is, we now need to know why athletes are smart. Second, the model comes close to being a tautology. It essentially says that athletes perform better academically because they are defined as being smart. This is problematic, as we saw earlier, because tautologies are not falsifiable—they cannot be tested; hence, they are not part of the scientific endeavor.

This might lead you to look for a new explanation or model that includes some sort of process that makes female athletes appear smart. You might come up with the following model:

- Being a good athlete requires a lot of hard work; performing well academically in college requires a lot of work. Students who develop a strong work ethic in athletics are able to translate this to their studies.

This is a much more satisfying model because it provides a process or mechanism explaining why female athletes might be more academically successful than other students. An appealing feature of the model is that the logic of the argument applies not only to female athletes but to any athlete. Indeed, it applies to any person involved in an activity that rewards hard work. Thus, we might generalize this model by removing the specific reference to athletes:

- **Work Ethic Theory:** Some activities provide a clear, immediate, and tangible reward for hard work—in fact, they may provide an external stimulus to work hard (coaches shouting through bullhorns, manipulating rewards and punishments based on effort, and

so on). Individuals who engage in these activities develop a habit of working hard and so will be successful in other areas of life as well.

At this point, you should stop and ask yourself whether there are any alternative explanations for why female athletes are successful. Can you think of any? One alternative explanation is the following:

- **Excellence Theory:** Everyone wants to feel successful, but some people go long periods without success and become discouraged. Those individuals who experience success in one area of their life (perhaps based on talent, rather than hard work) develop a "taste" for it and devise strategies to be successful in other parts of their life. Anyone who achieves success in nonacademic areas, such as athletics, will be more motivated to succeed in class.

Another alternative explanation is the following:

- **Gender Theory:** In many social and academic settings, women are treated differently from men. This differential treatment often leads women to draw inferences that certain activities are "not for them." Because many athletic endeavors are gender specific, they provide an environment for women to develop their potential free from the stultifying effects of gender bias. The resulting sense of efficacy and autonomy encourages success when these women return to gendered environments like the classroom.

We now have three different or competing models, all of which explain the puzzling observation that we started with. But how can one evaluate which model is best? One way is to test some of the implications that can be derived from these theories. In particular, we would like to find some new question(s) to which the three models give different answers. In other words, we would like to conduct a critical test that would allow us to choose among the alternative reasonable models.

We might start by wondering whether being an athlete helps the academic performance of women more than men. Whereas the Work Ethic Theory and the Excellence Theory both predict that being an athlete will help men and women equally, the Gender Theory predicts that female athletes will perform better than nonathletic women but that male athletes will have no advantage over nonathletic men. Thus, collecting information on how well male and female athletes perform in class relative to male and female nonathletes, respectively, would allow us to distinguish between the Gender Theory and the other theories.

But how can we distinguish between the Excellence Theory and the Work Ethic Theory? One difficulty frequently encountered when trying to devise critical tests is that alternative theories do not always produce clearly differentiated predictions. For example, we just saw that the Excellence Theory and the Work Ethic Theory both predict that athletics will help men and women academically. It turns out that these two theories have other predictions in common as well. The Excellence Theory clearly suggests that success in any nonacademic area of life is likely to encourage academic success. In other words, the Excellence Theory predicts

that academic success will be associated with success in other areas of life. The problem is that success in many of these nonacademic areas may require hard work. As a result, if we observe, for instance, accomplished musicians performing well in our political science classes, it will be difficult to discern whether this is because they learned the value of hard work in music and transferred it to political science (Work Ethic Theory) or because they developed a "taste" for success as musicians that then inspired success in political science (Excellence Theory). In effect, the Excellence Theory and the Work Ethic Theory both predict that academic success will be associated with success in other areas of life.

If we want to distinguish between the Work Ethic Theory and the Excellence Theory, we need to imagine observations in which they produce different expectations. Sometimes, this requires further development of a theory. For example, we might expand the Excellence Theory to say that those people who develop a taste for excellence also develop a more competitive spirit. If this is true, then the Excellence Theory would predict that student athletes are likely to be more competitive and will perform better than other students even when playing relatively frivolous board games. Since even the most driven athletes are not likely to devote time to training for board games, the Work Ethic Theory predicts that athletes will perform the same as nonathletes in such trivial pursuits. Thus, we could look at the performance of athletes and nonathletes at board games to distinguish between the Excellence Theory and the Work Ethic Theory.

The three critical tests that we have come up with and their predictions are listed in Table 2.1. All that is now required is to collect the appropriate data and decide which model, if any, is best.

It is worth noting that there is considerable overlap between the predictions of our three theories. This is often the case in political science settings as well. The crucial point is not that each theory should yield a complete set of unique predictions, but that our theories should have sufficiently many distinct predictions that we can use observation to help us make decisions about which theories to embrace, however tentatively. Table 2.1 lists just some of the predictions that might help us to distinguish between the three theories outlined above. Can you think of any more?

Table 2.1 Three Critical Tests

	Theory		
Question	**Gender**	**Excellence**	**Work ethic**
Will athletics help women more than men?	Yes	No	No
Is academic success associated with success in other areas of life?	No	Yes	Yes
Are female athletes more successful at board games than women who are not athletes?	Yes	Yes	No

important point is one that we will return to in more detail in the next section of this chapter.[3] The fact that we can never prove a scientific explanation is why we earlier called science a method for "provisionally" understanding the world. Our theory may or may not be true. All we can conclude, if observations are consistent with our theoretical implications, is that our theory has not yet been falsified; we cannot rule out that it will not be falsified the next time it is tested. As you can see, the scientific method is an inherently critical method when it is "successful" (when a theory's predictions seem to be borne out), because it is precisely under these circumstances that it is most cautious in the claims that it makes.

Although we cannot ever prove our theories, we can claim that some theories are better corroborated than others. As a result, we can have more confidence in their conclusions. One might think that a theory that has been subjected to multiple tests is better corroborated than one that has not been subjected to many tests at all. However, this is not always the case. If we keep testing the same implication over and over again, it is not clear how much an additional test actually adds to the degree to which the theory is corroborated. What really matters is not so much how many times a theory has been corroborated, but the severity and variety of the tests to which it has been subjected. This, in turn, will depend on the degree to which the theory is falsifiable. Again, this is why we like our models to be simple and have multiple implications. In general, we will have more confidence in a theory that has survived a few harsh tests than a theory that has survived many easy ones. This is why scientists often talk about the world as if it were black-and-white rather than gray. Bold statements should be interpreted not as scientific hubris but rather as attempts to invite criticism—they are easier to falsify.

What happens if we do not observe the implications deduced from our theory? Can we conclude that our theory is incorrect based on one observation? The answer is "probably not." It is entirely possible that we have not observed and measured the world without error. Moreover, if we believe that human behavior is inherently probabilistic, then we might not want to reject theories on the basis of a single observation. In a world in which our tests are potentially fallible, we should not relegate a theory to the dustbin of intellectual history the minute one of its implications is shown to be false. Instead, we must weigh the number, severity, and quality of the tests that the theory's implications are subjected to and make a judgment. And most important, this judgment should be made with an eye toward what would replace the theory should we decide to discard it. This is why some scientists say that it takes a theory to kill a theory. Further, if we do embrace a new theory and disregard an alternative, it should be because the new theory is more consistent with all of the implications of both theories. Developing a new theory that explains the facts that the old theory found

3. Many scientists, however, slip into the language of verification when reporting their results. Instead of simply saying that their test has failed to falsify their hypotheses or is consistent with their theory, they will claim that the test has shown that their theory is correct. For example, they might claim that their test shows that wealth causes democracies to live longer when, in fact, all they can conclude is that they were unable to falsify the claim that wealth causes democracies to live longer.

inconvenient without also explaining the many facts that the old theory accurately predicted is called *ad hoc* explanation. Because this practice does not expose the new theory to falsification as strenuously as it does the old theory, it is not consistent with sound scientific practice.

AN INTRODUCTION TO LOGIC

In the previous section, we talked in a rather casual way about constructing and testing scientific explanations. In order to better appreciate the important connection between theory construction and theory testing, it is useful to devote some time to the study of logic. The study of logic is, first and foremost, about learning to be careful about how we construct and evaluate arguments.

Throughout our lives, we are confronted by people trying to convince us of certain things through arguments. Politicians make arguments as to why we should vote for their party rather than the party of their opponents. National leaders provide arguments for why certain policies should be implemented or abandoned. Lawyers make arguments as to why certain individuals should be found guilty or innocent. Professors make arguments as to why students should spend more time in the library and in class rather than at parties. It is important for you to know when these arguments are logically valid and when they are not. If you cannot distinguish between a valid and an invalid argument, other people will be able to manipulate and exploit you. You will be one of life's suckers. In this section, we give you some tools to determine whether an argument is valid or not.

Valid and Invalid Arguments

What is an argument? An **argument** is a set of logically connected statements, typically in the form of a set of **premises** and a **conclusion**. An argument is **valid** when accepting its premises compels us to accept its conclusions. An argument is **invalid** if, when we accept the premises of an argument, we are free to accept or reject its conclusions. One way to represent an argument is in the form of a **categorical syllogism** that consists of a major premise, a minor premise, and a conclusion. The major premise is typically presented as a conditional statement, such as "If *P,* then *Q*." The "if" part of the conditional statement (in this case "If *P*") is called the *antecedent,* whereas the "then" part of it (in this case "then *Q*") is called the *consequent.* An example of a conditional statement is "If a country is wealthy [antecedent], then it will be a democracy [consequent]." The minor premise consists of a claim about either the antecedent or the consequent in the conditional statement (major premise). The conclusion is a claim that is thought to be supported by the premises.

An **argument** is a set of logically connected statements, typically in the form of a set of premises and a conclusion. A **premise** is a statement that is presumed to be true within the context of an argument leading to a conclusion. A **conclusion** in an argument is a claim that is thought to be supported by the premises. A **valid argument** is one in which, if you accept the premises, you are compelled to accept the conclusion. An **invalid argument** is one in which, if you accept the premises, you are free to accept or reject the conclusion. A **categorical syllogism** is a specific type of argument that consists of a major premise, a minor premise, and a conclusion.

TABLE 2.2 Affirming the Antecedent: A Valid Argument

	General form	Specific example
Major premise	If *P*, then *Q*	If a country is wealthy, then it will be a democracy.
Minor premise	*P*	The country is wealthy.
Conclusion	Therefore, *Q*.	Therefore, the country will be a democracy.

Four types of conditional argument can be represented with a syllogism—arguments that affirm or deny the antecedent and those that affirm or deny the consequent. Which of these four types of argument are valid, and which are invalid? Recall that a valid argument is one such that if you accept that the premises are true, then you are compelled to accept the conclusion as true. Let's start by considering what happens when we affirm the antecedent. An example is shown in Table 2.2.

The major premise states, "If *P* is true, then *Q* must be true." The minor premise says that "*P* is true." Together, these premises compel us to accept that the conclusion is true. As a result, the argument is valid. In other words, the major premise states, "If a country is wealthy [antecedent], then it will be a democracy [consequent]." The minor premise says, "The observed country is wealthy." It logically follows from this that the observed country must be a democracy. To see why this type of argument is valid, consider the general form of this argument in set-theoretic form. This is shown in Figure 2.1. The major premise indicates that the set of cases where *P* occurs is a subset of the cases where *Q* occurs. The minor premise maintains that *P* does occur. Figure 2.1 clearly shows that if the case in question is in *P,* as the minor premise affirms, then the case must also be in *Q.* Thus, the argument is valid—we are compelled to conclude *Q.*

FIGURE 2.1 Major Premise: If *P*, Then *Q*

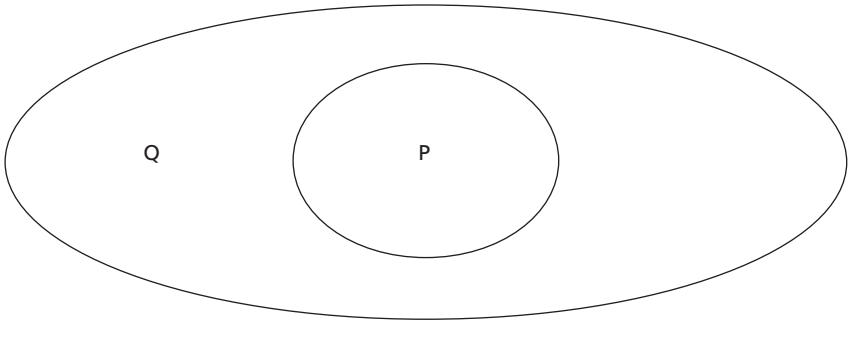


TABLE 2.3 Denying the Antecedent: An Invalid Argument

	General form	Specific example
Major premise	If *P*, then *Q*	If a country is wealthy, then it will be a democracy.
Minor premise	Not *P*	The country is not wealthy.
Conclusion	Therefore, not *Q*.	Therefore, the country will not be a democracy.

Now let's consider what happens when we deny the antecedent. An example is shown in Table 2.3. Once again, the major premise can be represented in set-theoretic terms by Figure 2.1. The difference from the previous example is that the minor premise now asserts that *P* is not the case; that is, it denies the antecedent. If we accept this, does it necessarily follow that *Q* is not the case, as the conclusion maintains? Figure 2.1 clearly illustrates that even if our case is not in *P,* it could still be in *Q.* As a result, it does not logically follow from observing "not *P*" that *Q* is not the case. Therefore, this is an invalid argument. This is because we can contradict the conclusion (not *Q*) without running into a contradiction with either the major premise or the minor premise. Since a valid argument compels us to accept its conclusion given that its premises are true, this is sufficient to demonstrate that arguments that deny the antecedent are invalid.

In the context of our running example, does it follow from the fact that the observed country is not wealthy that it will not be a democracy? Intuitively, we can imagine that there may be other reasons why a country is a democracy even though it is not wealthy. Indeed, one example of a nonwealthy democracy is India. An important point here, though, is that the argument is invalid, not because we can come up with an example of a real democracy that is not wealthy (India), but rather because we are not compelled to accept the conclusion based on the truthfulness of the major and minor premises. It may be confusing for readers that there is no direct connection between the factual accuracy of an argument's conclusion and the validity of the argument itself—a valid argument can have a conclusion that is factually false, and an invalid argument can have a conclusion that is factually true. If we restrict our attention only to whether the argument is valid as it applies to our democracy example, we must ask, "Does the major premise claim that wealth is the only reason why a country will be a democracy?" The answer is clearly no. The major premise states only what will happen if a country is wealthy. It makes no claim as to what might happen if a country is not wealthy. It is for this reason, and this reason alone, that the argument is invalid.

Now let's consider what happens when we affirm the consequent. An example is shown in Table 2.4. As before, the major premise can be represented in set-theoretic terms by Figure 2.1. The difference this time is that the minor premise now asserts that *Q* is the case; that is, it affirms the consequent. If we accept that the premises are true, are we compelled to accept the conclusion that *P* is the case? Figure 2.1 clearly illustrates that the fact that our

TABLE 2.4 Affirming the Consequent: An Invalid Argument I

	General form	Specific example
Major premise	If *P*, then *Q*	If a country is wealthy, then it will be a democracy.
Minor premise	*Q*	The country is a democracy.
Conclusion	Therefore, *P*	Therefore, the country is wealthy.

case is in *Q* does not necessarily mean that it is also in *P*. As a result, the argument is invalid—we are not compelled to accept the conclusion based on the premises.

In the context of our running example, an argument that affirms the consequent confuses necessity and sufficiency. Although the major premise states that wealth is sufficient for democracy—wealthy countries will be democracies—it does not assert that wealth is necessary for democracy. In other words, the major premise does not state that wealth is the only cause of a country's democracy. Consequently, we cannot make a valid inference from the fact that a country is a democracy to the claim that the country must be wealthy—it may be wealthy, or it may not be. Recall that to show that an argument is invalid, it is not necessary to show that its conclusion is false; we have to show only that it doesn't have to be true.

Finally, let's consider what happens when we deny the consequent. An example is shown in Table 2.5. As always, the major premise can be represented in set-theoretic terms by Figure 2.1. The difference this time is that the minor premise now denies that *Q* is the case; that is, it denies the consequent. If we accept that the premises are true, are we compelled to accept the conclusion that "not *P*" is the case? Figure 2.1 clearly shows that the fact that our case is not in *Q* necessarily means that it is not in *P*. As a result, the argument is valid—we are compelled to accept the conclusion based on the premises. In the context of our running example, the major premise indicates that all wealthy countries are democracies and the minor premise states that the country is not a democratic one. If these premises are both true, then it logically follows that our country cannot be wealthy.

Our brief foray into the study of logic indicates that if complex arguments can be broken down into categorical syllogisms, then it is possible to classify all arguments into one of four types according to whether they affirm or deny the consequent or antecedent. Two of these

TABLE 2.5 Denying the Consequent: A Valid Argument I

	General form	Specific example
Major premise	If *P*, then *Q*	If a country is wealthy, then it will be a democracy.
Minor premise	Not *Q*	The country is not a democracy.
Conclusion	Therefore, not *P*	Therefore, the country is not wealthy.