

## Process-Tracing in the Social Sciences

You know a conjurer gets no credit when once he has explained his trick; and if I show you too much of my method of working, you will come to the conclusion that I am a very ordinary individual after all.

—Sherlock Holmes (A. C. Doyle 2010: 33)

The essence of process-tracing research is that scholars want to go beyond merely identifying correlations between independent variables (Xs) and outcomes (Ys). For example, a strong statistical correlation has been found between democracy and peace (Oneal, Russett, and Berbaum 2004). Yet how do we know that mutual democracy was the cause of peace between two nations? How does democracy produce more peaceful relations? Answering these questions requires that we unpack the causal relationship between mutual democracy and peace to study the causal mechanism linking the two concepts.

Process-tracing in social science is commonly defined by its ambition to trace causal mechanisms (Bennett 2008a, 2008b; Checkel 2008; George and Bennett 2005). A causal mechanism can be defined as “a complex system, which produces an outcome by the interaction of a number of parts” (Glenan 1996: 52). Process-tracing involves “attempts to identify the intervening causal process—the causal chain and causal mechanism—between an independent variable (or variables) and the outcome of the dependent variable” (George and Bennett 2005: 206–7).

Investigating causal mechanisms enables us to go a step further when studying causal relationships, allowing us to “peer into the box of causality to locate the intermediate factors lying between some structural cause and its purported effect” (Gerring 2007a: 45). Yet process-tracing methods are argu-

ably the only method that allows us to study causal mechanisms. Studying causal mechanisms with process-tracing methods enables the researcher to make strong within-case inferences about the causal process whereby outcomes are produced, enabling us to update the degree of confidence we hold in the validity of a theorized causal mechanism. Process-tracing therefore represents “an invaluable method that should be included in every researcher’s repertoire” (George and Bennett 2005: 224).

Process-tracing methods have recently experienced a surge in popularity within qualitative social science, with numerous doctoral students and established scholars attempting to use process-tracing methods in their research (e.g., Bennett and Elman 2006a, 2006b; Elman 2004; Hall 2008; Jacobs 2004; Khong 1992; Lehtonen 2008; Owen 1994). Yet despite the widespread use of process-tracing in empirical research and an increasing body of methodological literature on process-tracing and causal mechanisms, we still do not possess a clear and coherent framework for how and when valid inferences can be made using process-tracing. We also lack a set of concrete guidelines for using the methods in practice. This deficiency has prevented process-tracing from fulfilling its potential of enabling us to open up the black box of causality using in-depth case study methods to make strong within-case inferences about causal mechanisms.

In this book, we seek to reveal how the trick is performed. In so doing, we show readers that process-tracing is an “ordinary” social science method, like many others, with comparative strengths and weaknesses. It is not a panacea, but when applied in appropriate research situations, it can enable us to make strong within-case causal inferences about causal mechanisms based on in-depth single-case studies that are arguably not possible with other social science methods.

### 1.1. Defining Process-Tracing

Process-tracing methods are tools to study causal mechanisms in a single-case research design. While scholars generally agree that process-tracing methods can be defined by their ambition to trace causal mechanisms, the existing literature retains considerable confusion about both the ontological and epistemological foundations of process-tracing methods and guidelines for what good process-tracing entails in practice. Basic questions such as what types of causal mechanisms are being traced and to what degree

process-tracing case studies can be nested in broader, mixed-method research designs have been left relatively unanswered. The resulting lack of coherent foundations and concrete guidelines has prevented the method from fulfilling its potential.

This confusion results partly from the literature's definition of process-tracing as a single research method. A lot of the murkiness about what process-tracing is and how it should be used in practice can be cleared up by differentiating process-tracing into three variants within social science: theory-testing, theory-building, and explaining-outcome. The three differ along several dimensions, including whether they are theory- or case-centric, the types of inferences being made, how they understand causal mechanisms, and whether and how they can be nested in mixed-method designs.

Theory-testing process-tracing deduces a theory from the existing literature and then tests whether evidence shows that each part of a hypothesized causal mechanism is present in a given case, enabling within-case inferences about whether the mechanism functioned as expected in the case and whether the mechanism as a whole was present. No claims can be made, however, about whether the mechanism was the only cause of the outcome.

Theory-building process-tracing seeks to build a generalizable theoretical explanation from empirical evidence, inferring that a more general causal mechanism exists from the facts of a particular case. Although this type of process-tracing is analytically useful, to our knowledge, the literature offers no guidelines about how to proceed with this approach.

Finally, explaining-outcome process-tracing attempts to craft a minimally sufficient explanation of a puzzling outcome in a specific historical case. Here the aim is not to build or test more general theories but to craft a (minimally) sufficient explanation of the outcome of the case where the ambitions are more case-centric than theory-oriented. This distinction reflects the case-centric ambitions of many qualitative scholars and echoes arguments found in the burgeoning literature on topics such as eclectic theorization (where the case is front and center) (Sil and Katzenstein 2010) and pragmatism as a research strategy (Friedrichs and Kratochwill 2009). Accounting for the outcome of a case usually requires an eclectic combination of different mechanisms, some of them case-specific/nonsystematic (see chapters 2 and 4).

We do not suggest this differentiation for its own sake. Instead, by identifying three variants, we can bring alignment between what we practice and what we preach, as these differences have important methodological impli-

cations for research design that are masked when we treat process-tracing as a single method.

## 1.2. How Process-Tracing Differs from Other Case Study Methods

Taken together, process-tracing methods can be distinguished from most other small-*n* case study methods by the types of inferences being made. Process-tracing seeks to make within-case inferences about the presence/absence of causal mechanisms in single case studies, whereas most small-*n* methods attempt cross-case inferences about causal relationships. These different inferential ambitions require different logics of inference, resulting in fundamentally different methodologies (see chapter 5).

Few case study methods enable within-case inference, and the most prominent alternative to process-tracing is what George and Bennett term the *congruence method* (2005: chapter 9). In the congruence method, based on the value of the independent variable (X), researchers test whether the prediction about the outcome that should follow from the theory is congruent with what is found in the case, investigated either temporally or other across aspects of the outcome(s) (181–204; Büthe 2002).

The congruence method is often used as a way of structuring a narrative of a historical process, testing predicted values of X and Y at different times during an empirical process ( $t_0, t_1, \dots, t_n$ ) (Büthe 2002). “In addition to presenting information about correlations at every step of the causal process,” this type of narrative case study “can contextualize these steps in ways that make the entire process visible rather than leaving it fragmented into analytical stages” (486). For example, Tannenwald’s (1999) study of the nuclear taboo involves congruence case studies where she investigates whether the observable implications of X (norms against using atomic weapons) measured as “taboo talk” or Z (material factors) measured as “materialist arguments” are present in decision-making processes within the U.S. government. She uses a historical narrative of four cases of nuclear use and nonuse and finds a strong correlation between the presence of taboo talk (X) and nonuse of nuclear weapons (Y) in three cases where nuclear weapons could conceivably have been used.

What marks the difference between the congruence method and process-tracing methods is the explicit focus on investigating causal mechanisms. Congruence investigates correlations between X and Y, whereas process-tracing investigates the workings of the mechanism(s) that con-

tribute to producing an outcome. Process-tracing methods go beyond correlations by attempting to trace the theoretical causal mechanism(s) linking X and Y.

Process-tracing case studies usually cannot be presented in narrative form, in contrast to what Rubach (2010) and others have argued. While evidence in the form of events or temporal sequences can be relevant in testing the presence of one part of a causal mechanism, depending on the type of observable implications that are predicted (see chapter 6), other types of evidence such as pattern evidence (e.g., the number of documents produced by different agencies) can be relevant for testing other parts of the mechanism. Process-tracing case studies should therefore usually be presented as a stepwise test of each part of a causal mechanism, especially in the theory-testing variant. For example, Owen's (1994) study of the democratic peace mechanism is presented as a step-by-step test of each part of his theorized mechanism instead of a narrative of events in the case (see chapter 5).

### 1.3. Themes of the Book

Process-tracing methods are used when we want to gain a greater understanding of the nature of causal relationships than can be provided by other social science case study methods, such as comparative cross-case methods. However, a key deficiency in the existing methodological literature on process-tracing is the absence of sufficient exposition of the logical foundations of the method or research design, especially with regard to how process-tracing differs from other qualitative case study methods.

This book rectifies this omission by exploring in detail how the ontological and epistemological foundations of process-tracing differ from those of other case study methods, such as congruence methods or structured, focused comparisons (for more on these two methods, see George and Bennett 2005). *Ontology* refers to our understanding of the nature of the social world—specifically, here, the nature of causality. *Epistemology* refers to arguments regarding how we should best study causal relationships in the social world. The argument that we present builds on Hall's (2003: 374) assertion that research methodologies and ontology need to be aligned: "Ontology is ultimately crucial to methodology because the appropriateness of a particular set of methods for a given problem turns on the assumptions about the nature of the causal relations they are meant to discover." As chapter 3

establishes, adopting the mechanistic and deterministic ontology of causality of process-tracing implies using quite different methodological tools for empirical analysis than if a regularity understanding of causality forms the basis for theorization. Further, the goal of making within-case inferences about causal mechanisms also implies that a different logic of inference is adopted than if we are using other small-*n* methods such as congruence (see chapter 5).

Chapter 2 explains the three distinct variants of process-tracing, elaborating on what elements they share as well as their crucial differences, which have important methodological implications.

Chapter 3 introduces the reader to the ontological debates within the philosophy of science that deal with the nature of causality to understand how the mechanistic and deterministic understanding of causality used in process-tracing methods differs from other social science methods—in particular, large-*n* statistical analysis and comparative case study research. We then explore different ways of investigating causal mechanisms, including tracing empirical processes, studying them as intervening variables between *X* and *Y*, and using mechanistic, system-oriented understandings. We contend that to take seriously the study of causal mechanisms, we should adopt the mechanistic understanding in process-tracing, conceptualizing causal mechanisms as a series of parts composed of entities engaging in activities. In so doing, we focus our analytical attention on the transmission of causal forces through the mechanism. The chapter concludes with a discussion of the different theoretical levels of mechanisms along with the question of whether mechanisms can be directly observed in empirical research.

Chapter 4 deals with questions relating to the theorization of causal mechanisms. How can causal mechanisms best be conceptualized in a manner that enables empirical analysis to capture the workings of mechanisms in a case study? How can causal theories of  $X \rightarrow Y$  be translated into causal mechanisms composed of a set of parts that describe the theorized process whereby an explanatory factor (variable or condition) produces an outcome? Further, how can we work backward from an outcome to build a sufficient explanation that details the causal mechanisms that produced that outcome? We discuss how theoretical concepts and causal theories should be conceptualized in process-tracing before turning to discussion of the specific challenges in working with each of the three variants of process-tracing.

In chapter 5, we discuss why mainstream inferential tools used in both

classical statistical analysis and comparative methods cannot be used to make within-case inferences. Here we continue the argument that methodology must be brought in line with ontology. In particular, we illustrate that the inferential tools used in other social science methods are not applicable in process-tracing, given that we are interested in making within-case inferences about the presence/absence of causal mechanisms. We then present the Bayesian logic of inference and how it can be adapted for use as a tool for making within-case inferences in process-tracing. The chapter concludes by discussing in more detail the types of inferences that can be made using different variants of process-tracing methods and, equally important, what types of inferences cannot be made.

Chapter 6 turns to the question of developing strong empirical tests that investigate whether a hypothesized causal mechanism is present in a single case. Based on the Bayesian logic of inference, our goal in process-tracing is to update our confidence in the presence of a mechanism in light of our empirical tests. To enable updating to take place, our empirical tests need to be designed in a manner that maximizes their inferential power. Each test details the case-specific predictions for what we should expect to see in the empirical record if each part of the hypothesized causal mechanism is present in the case.

Empirical material is then gathered to see whether the predicted evidence is present. However, “raw” empirical observations need to be evaluated for their content, accuracy, and probability before they can be used as evidence that enables us to update our confidence. We discuss the evaluation process in chapter 7, introducing Bayesian-compatible tools for evaluating empirical material. If there is a strong match between the predicted and found evidence for each part of the mechanism, we can infer with a certain degree of confidence that the hypothesized causal mechanism is present in the case based on the Bayesian logic of inference (Bennett 2008a).

Finally, chapter 8 broadens the picture, looking at questions of case selection and whether, when, and how the three variants of process-tracing can be embedded in mixed-method research designs. We discuss case selection for each of the variants, showing why existing prescriptions do not always apply. The chapter argues that the theory-building and -testing variants of process-tracing can be combined with other methods in mixed-method designs, whereas explaining-outcome designs cannot be meaningfully combined with other research methods. The key difference is that the former variants focus on systematic mechanisms, enabling their theories to communicate with those used in other methods, whereas the latter includes nonsys-

tematic, case-specific parts, the inclusion of which limits the generalizability of results.

Finally, the appendix presents a practical checklist for the use of the three different variants of process-tracing, walking through each step of the research process to offer guidelines and questions that can be used to structure a process-tracing analysis.



## The Three Different Variants of Process-Tracing and Their Uses

This chapter develops the argument that there are three different research situations in which process-tracing methods can be used, resulting in three distinct variants of process-tracing. In contrast, the state of the art treats process-tracing as a singular method, resulting in murky methodological guidelines. Whereas most case studies that use process-tracing employ a case-centric variant that we term the explaining-outcome process-tracing, most methodological works prescribe a theory-centric version of process-tracing that involves the deductive testing of whether a generalizable mechanism is present in a single case. The dissonance between what we practice and what we preach has resulted in considerable confusion about what good process-tracing is. We contend that clearer prescriptions can be developed when we differentiate process-tracing into three distinct variants.

We do not suggest this differentiation for its own sake. These differences have important methodological implications for research design that are masked when we treat process-tracing as a single method. We explore these implications throughout the rest of this book. For example, the three variants differ on key questions such as how causal mechanisms are understood, whether the purpose is to make inferences about whether a mechanism is present in a case or to account for a particular outcome, and whether they can be nested into mixed-method designs.

We first summarize the state of the art, showing that existing work on process-tracing treats it as a singular method. We then illustrate that there are three distinct research situations that call for different methodological tools, implying the need to differentiate the method into three distinct variants that reflect these different purposes. We conclude by briefly illustrating

each of the three variants, showing what we are tracing in each of them and how analysis proceeds.

## 2.1. The State of the Art—One Method

In their chapter-length presentation of process-tracing, George and Bennett (2005) mention the range of different forms of process-tracing as they have been used in practice. The authors argue that process-tracing has been used in a variety of ways, including both detailed narratives and case studies, where “at least parts of the narrative are accompanied with explicit causal hypotheses highly specific to the case without, however, employing theoretical variables for this purpose or attempting to extrapolate the case’s explanation into a generalization” (210–11). In other varieties of process-tracing, “the investigator constructs a general explanation rather than a detailed tracing of a causal process” (211). Yet in the rest of their chapter, George and Bennett treat process-tracing as a singular method, masking the differences that relate to the different uses.

More recent accounts also treat process-tracing as a single method, often defining it as a deductive tool to test whether causal mechanisms are present and function as theorized. For example Gerring (2007a: 172–85) describes a two-stage deductive research process where the analyst first clarifies the theoretical argument and then empirically verifies each stage of this model. Checkel describes process-tracing as the attempt to “trace the process in a very specific, theoretically informed way. The researcher looks for a series of theoretically predicted intermediate steps” (2008: 363). The end result is a middle-range theory. Bennett describes process-tracing as a method that involves “the examination of ‘diagnostic’ pieces of evidence within a case that contribute to supporting or overturning alternative explanatory hypotheses. A central concern is with sequences and mechanisms in the unfolding of hypothesized causal processes. The research looks for the observable implications of hypothesized explanations. . . . The goal is to establish whether the events or processes within the case fit those predicted by alternative explanations” (2010: 208).

Yet treating process-tracing as a singular method results in a large discrepancy between our prescriptions for good process-tracing (which rely on a relatively deductive variant of process-tracing) and what we do in practice (where many scholars want to use the method either to build theories or to account for particularly puzzling outcomes). The result of treating process-

tracing as one method is a set of murky methodological guidelines, along with confused students and practitioners.

## 2.2. The Three Different Uses of Process-Tracing Methods

Process-tracing methods have three distinct research purposes. As illustrated in figure 2.1, distinctions exist among having the research goal of testing whether a causal mechanism is present in a case, building a theoretical mechanism, and crafting an explanation that accounts for a particular outcome. There is a clear bifurcation overall between theory-centric and case-centric process-tracing, reflecting a choice between building/testing (relatively) parsimonious causal mechanisms that can be generalized across a bounded context of cases and focusing on explaining particular outcomes through the pragmatic use of mechanistic explanations to account for the important aspects of the case.

In theory-testing process-tracing, a causal mechanism is hypothesized to be present in a population of cases of a phenomenon. The researcher selects a single case where both X and Y are present, and the context allows the mechanism to operate. Here the goal is to evaluate whether evidence shows that the hypothesized causal mechanism linking X and Y was present and that it functioned as theorized. The ambition is to go beyond correlations and associations between X and Y, opening up the black box of causality to study more directly the causal mechanism whereby X contributes to producing Y (see section 3.3).

Theory-building process-tracing involves building a theory about a causal mechanism between X and Y that can be generalized to a population of a given phenomenon, starting from a situation where we are in the dark regarding the mechanism.

Third, and most common in practice, is the situation where we want to explain a particularly puzzling historical outcome. Here the ambition is not the theory-centric one of building or testing a generalizable theorized mechanism; instead, the aim is to craft a sufficient explanation of the outcome. Instead of studying mechanisms that cause war (Y), the analysis would focus on explaining a particular outcome such as World War I.

The bifurcation into case- and theory-centric variants of process-tracing captures a core ontological and epistemological divide within the social sciences. On the theory-centric side are both neopositivist and critical realist positions, where the understanding is that the social world can be split

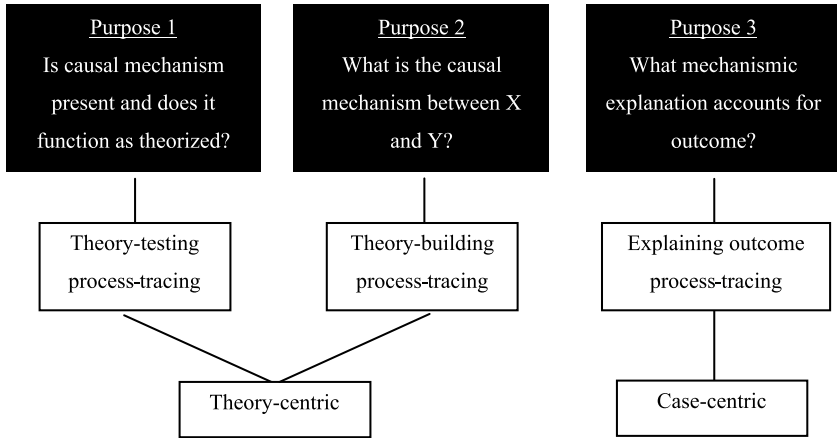


Fig. 2.1. Three different uses of process-tracing methods

into manageable parts that can be studied empirically (Jackson 2011). The ambition here is to build generalizable theories, irrespective of whether we have the more narrow ambition of working with midrange theories that are bound within specific contexts or the (perhaps unattainable) ambition to find law-like generalizations. As chapter 3 discusses, causal mechanisms in theory-centric studies are understood to be systematic factors, meaning that they can be generalized across cases that are within the context in which they are expected to operate (Falletti and Lynch 2009). Here, causal mechanisms are understood as relatively simple, parsimonious pathways whereby X contributes to producing Y, but they are not theorized as sufficient causes of Y by themselves.

Case-centric process-tracing methods operate with a different ontological understanding of the world. The philosophy of science offers many different paths to the case-centric position. One path is described by Jackson, who illustrates the difference between what he terms a dualistic ontology of mind-world relations where the world exists independent of its human observers and a monist ontology where “the objects of scientific investigation are not inert and meaningless entities that impress themselves on our (natural or augmented) senses or on our theory-informed awareness” (2011: 114). The monist ontology implies that instead of attempting what is perceived to be the mission impossible of building and testing law-like generalizations (theory-centric research), we should instead adopt a form of instrumentalism aimed at accounting for outcomes in particular cases.

Irrespective of the philosophical path to this position, case-centric re-

searchers agree that the social world is very complex, multifaceted, and extremely context-specific. This complexity makes the ambition of producing knowledge that can be generalized across many cases difficult, if not impossible. Instead, the ambition is to account for particularly puzzling outcomes.

Theories are used here in a much more pragmatic fashion—that is, as heuristic instruments that have analytical utility in providing the best possible explanation of a given phenomenon (Peirce 1955). Case-centric research scholars contend that it makes little sense to distinguish between systematic and case-specific parts, given the impossibility of generalization in the complex social world. Further, theories that are developed are much more eclectic, often including conglomerates of different mechanisms along with more case-specific mechanisms.

The ambition is not to prove that a theory is correct but instead to prove that it has utility in providing the best possible explanation. Explanations are case-specific and cannot be detached from the particular case (Humphreys 2010: 269–70) (see chapter 5).

### 2.3. The Three Variants of Process-Tracing

What are the core elements of each of the three variants of process-tracing? A number of commonalities exist across the three variants. For example, all variants share the goal of studying causal mechanisms. Ontological assumptions about the nature of causal relationships are also shared. These include the use of deterministic theorization and a mechanistic understanding of causation that focuses on the process whereby causal forces are transmitted through a series of interlocking parts of a mechanism to produce an outcome (see chapter 3). The three variants of process-tracing share a theoretical understanding of mechanisms as invariant; they are either present or not (see chapter 4). In addition, all three methods draw on a Bayesian logic of inference to make within-case inferences about the presence/absence of causal mechanisms (see chapter 5).

What differentiates the three variants is

- whether they are *theory-centric* or *case-centric* designs
- aim to *test* or *build* theorized causal mechanisms
- their understanding of the *generality of causal mechanisms* (from systematic mechanisms expected to be present in a set of cases [population] to case-specific mechanisms)

- the types of inferences being made, where theory-testing or -building variants make inferences about the *presence/absence* of a mechanism, whereas explaining-outcome process-tracing enables inferences about the *sufficiency* of the explanation to be made.

We now turn to a presentation of what each variant is actually tracing, illustrating a typical research process for each variant.

### *Theory-Testing Process-Tracing*

In theory-testing process-tracing, we know both X and Y and we either have existing conjectures about a plausible mechanism or are able to use logical reasoning to formulate a causal mechanism from existing theorization.

Figure 2.2 illustrates a simple abstract example of a theory-testing case study. The first step in testing whether a hypothesized causal mechanism was present in the case is to conceptualize a causal mechanism between X and Y based on existing theorization along with making explicit the context within which it functions. In this example, a two-part mechanism between X and Y is deduced, with each part composed of entities engaging in activities. This theorized causal mechanism then needs to be operationalized (step 2), translating theoretical expectations into case-specific predictions of what observable manifestations each of the parts of the mechanism should have if the mechanism is present in the case. In practice, theory-testing has inductive elements, especially regarding the operationalization of empirical tests, where we draw on existing empirical work to make case-specific empirical predictions about what evidence we should see if the theory is valid (see chapter 6).

Once the mechanism and context are conceptualized and operationalized, the analyst proceeds to step 3, where she collects empirical evidence that can be used to make causal inferences, updating our confidence in (1) whether the hypothesized mechanism was present in the case and (2) whether the mechanism functioned as predicted or only some parts of the mechanism were present. The bold lines in figure 2.2 illustrate the inferences made in theory-testing process-tracing, where we infer from the empirical evidence collected that a causal mechanism was present in the case.

The empirical analysis in step 3 proceeds stepwise, testing whether evidence indicates that each part of the mechanism was present. Most important, the evidence necessary to test whether the different parts are present can be very different, making evidence for the parts noncomparable with each other. Therefore, a case study usually does not read like an analytical

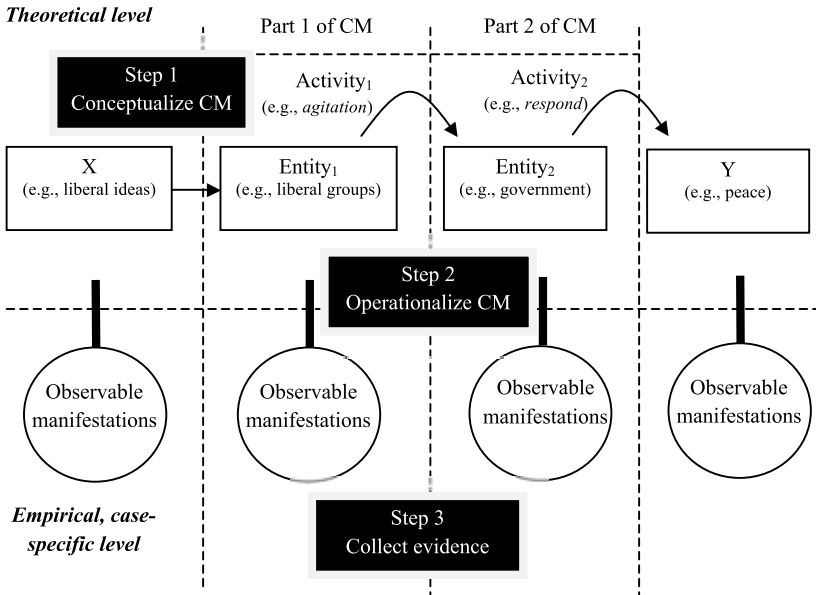


Fig. 2.2. Theory-testing process-tracing

narrative, in that while evidence in the form of events can be an observable manifestation of one part of a causal mechanism (depending on the type of observable implications that are predicted), other types of evidence, such as pattern evidence (e.g., the number of documents produced by different agencies) can be equally relevant (see section 3.3.).

What, then, are we actually tracing when we engage in theory-testing process-tracing? What is being traced is not a series of empirical events or narratives but instead the underlying theorized causal mechanism itself, by observing whether the expected case-specific implications of its existence are present in a case (see chapter 3).

Theory-testing process-tracing enables inferences to be made about whether a causal mechanism was present in a single case along with whether the mechanism functioned as expected. However, theory-testing process-tracing does not enable us to test the relative explanatory power of competing mechanisms against each other except in the rare situation where two competing mechanisms can be conceptualized so that they are composed of the same number of diametrically opposite parts with observable implications that rule each other out (see chapter 5). Further, given that we can make inferences only about whether a mechanism was present in the single

case, no claims about the necessity of the mechanism can be logically made. To do so requires cross-case analysis (see chapter 8).

### *Theory-Building Process-Tracing*

The second identifiable variant of process-tracing also has theoretical ambitions beyond the confines of the single case. In its purest form, theory-building process-tracing starts with empirical material and uses a structured analysis of this material to detect a plausible hypothetical causal mechanism whereby X is linked with Y. While it is mentioned as a possibility in the literature, this inductive, theory-building variant of process-tracing is surprisingly neglected. To our knowledge, the literature contains no attempts to show how it is done in practice.

Theory-building process-tracing is utilized in two different research situations: (1) when we know that a correlation exists between X and Y but we are in the dark regarding potential mechanisms linking the two (X-Y-centric theory building) as we have no theory to guide us; or (2) when we know an outcome (Y) but are unsure about the causes (Y-centric theory building). In the second instance, the analysis first traces backward from Y to uncover a plausible X, turning the study into an X-Y-centric analysis.

What is also being traced here is a theoretical causal mechanism that is expected to be present across a population of cases (i.e., it is a systematic mechanism). The core difference between theory-testing and -building process-tracing involves theory before fact versus fact before theory. In theory-building process-tracing, empirical material is used to build a hypothesized theory, inferring first that what is found reflects the observable implications of an underlying causal mechanism. A second leap is then made by inferring from these observable implications that they reflected an underlying causal mechanism. However, both variants share a focus on tracing a generalizable causal mechanism by detecting its empirical manifestations.

While theory-building process-tracing as an inductive method has some elements that overlap with explaining-outcome process-tracing, the key difference between the two is that theory-building process-tracing seeks to build a midrange theory describing a causal mechanism that is generalizable outside of the individual case to a bounded context (e.g., spatially or temporally bounded), whereas explaining-outcome process-tracing focuses on building a minimally sufficient explanation of the outcome in an individual case. Theory-building process-tracing studies do not claim that the detected causal mechanism is sufficient to explain the outcome.



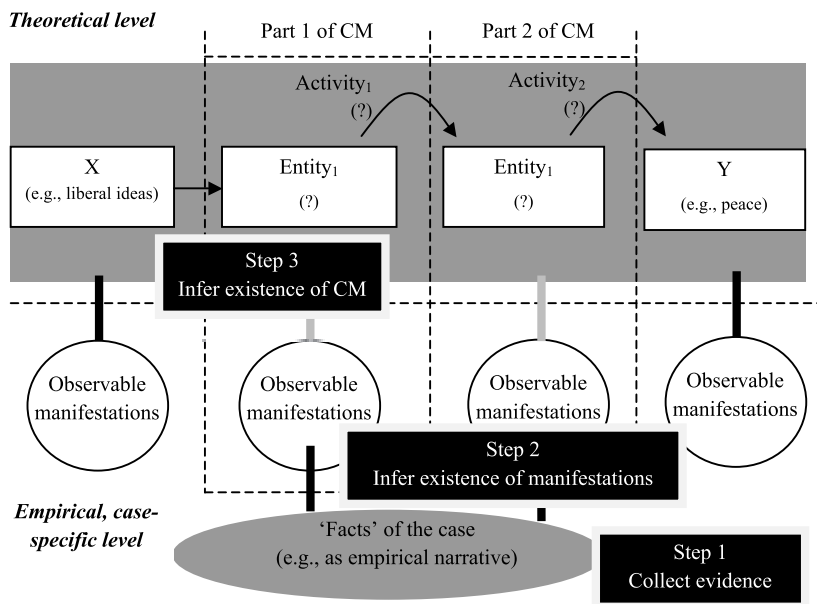


Fig. 2.3. Theory-building process-tracing. (Bold lines = direct inferences; shaded lines = indirect (secondary) inferences; shaded area = what is being traced.)

Figure 2.3 illustrates the basic framework of a theory-building process-tracing case study. After the key theoretical concepts (X and Y) are defined, theory-building proceeds to investigate the empirical material in the case (step 1), using evidence as clues about the possible empirical manifestations of an underlying causal mechanism between X and Y that fulfills the guidelines for a properly conceptualized causal mechanism (see chapters 3 and 5). This process involves an intensive and wide-ranging search of the empirical record.

Step 2 involves inferring from the observable empirical evidence that these manifestations reflect an underlying causal mechanism that was present in the case. Evidence does not speak for itself. Theory-building often has a deductive element in that scholars seek inspiration from existing theoretical work and previous observations. For example, an analyst investigating socialization of administrative officials within international organizations could seek inspiration in theories of domestic public administration or in psychological theories of small group dynamics while also reading more descriptive accounts of the workings of international organizations for plau-

sible causal mechanisms. Here, existing theory can be conceived as a form of grid to detect systematic patterns in empirical material, enabling inferences about observable manifestations. In other situations, the search for mechanisms is based on hunches drawn from puzzles that are unresolved by existing work. In step 3, the secondary leap is made from observable manifestations to infer that they reflect an underlying causal mechanism.

Figure 2.3 illustrates that theory-building process-tracing is examining an underlying theoretical causal mechanism, depicted as the shaded area that forms the backdrop of the theoretical level (X, causal mechanism, Y). In contrast to theory-testing process building, the empirical analysis itself, understood as the collection of the “facts” of the case, is two inferential leaps removed from the theorized causal mechanism (i.e., the inferences are indirect). This is illustrated by the bold lines linking the “facts” with observable manifestations (direct inferences) and the subsequent secondary inferential leap from these observable implications to the inference that parts of an underlying causal mechanism existed.

In reality, theory-building process-tracing is usually an iterative and creative process. Hunches about what to look for that are inspired by existing theoretical and empirical work are investigated systematically, with the results of this search forming the background for further searches. This means that steps 1 and 2 are often repeated before step 3 is reached.

### *Explaining-Outcome Process-Tracing*

The goal of many (if not most) process-tracing studies is to explain a particular interesting and puzzling outcome. While existing prescriptions for process-tracing speak almost exclusively about what we understand as the theory-centric variants, what most scholars are actually using is explaining-outcome process-tracing.

This type of process-tracing can be thought of as a single-outcome study, defined as seeking the causes of a specific outcome in a single case (Gerring 2006).<sup>1</sup> Here the ambition is to craft a minimally sufficient explanation of a particular outcome, with sufficiency defined as an explanation that accounts for all of the important aspects of an outcome with no redundant parts being present (Mackie 1965). This approach marks a significant departure from the two theory-centric variants. For example, in theory-testing process-tracing, no claims are made about whether the mechanism is sufficient; rather, inferences are made only about whether the postulated mechanism is present or absent in the single case.

While explaining-outcome process-tracing studies sometimes more closely resemble historical scholarship, this type of process-tracing is in our opinion still social science research, as the ultimate explanation usually involves more generalized theoretical claims than historians feel comfortable with. In addition, explaining-outcome studies often have theoretical ambitions that reach beyond the single case.

It is vital to note that the term *causal mechanism* is used in a much broader sense in explaining-outcome process-tracing than in the two theory-centric variants. First, whereas theory-testing and -building variants of process-tracing aim to test/build mechanisms that are applicable across a range of cases, crafting a minimally sufficient explanation almost always requires combining mechanisms into an eclectic conglomerate mechanism to account for a historical outcome (see chapter 3). Second, given that the ambition is case-centric and seeks to craft a minimally sufficient explanation of a particular outcome, it is usually necessary to include nonsystematic parts in the causal mechanism, defined as a mechanism that is case-specific.

Explaining-outcome process-tracing is an iterative research strategy that aims to trace the complex conglomerate of systematic and case-specific causal mechanisms that produced the outcome in question. The explanation cannot be detached from the particular case. Theorized mechanisms are therefore seen as heuristic instruments whose function is to help build the best possible explanation of a particular outcome (Humphreys 2010; Jackson 2011).

While explaining-outcome process-tracing as an iterative strategy most closely resembles abduction, which is a dialectic combination of deduction and induction (Peirce 1955), for our purposes it is more helpful to disaggregate two alternative paths that can be chosen when building the best possible explanation of an outcome—deductive and inductive paths, as shown in figure 2.4. This figure does not split the mechanism into parts, as the previous figures do, because of the complexity of a pictorial depiction of the parts of an overlapping, conglomerate mechanism.

The deductive path follows the steps described previously under theory-testing, where an existing mechanism is tested to see whether it can account for the outcome. This process is illustrated using black arrows for each of the three steps. The first arrow is where a theory is conceptualized as a mechanism. In the second step, empirical tests are developed that are then evaluated against the empirical record. Finally, the third arrow illustrates the stage where the analyst assesses whether a sufficient explanation has been crafted.

However, in most explaining-outcome studies, existing theorization cannot provide a sufficient explanation, resulting in a second stage of research



while ensuring that the evidence is best explained by the developed explanation instead of plausible alternative explanations. This is an iterative process where we update the model until it provides what can be thought of as the best possible explanation (Day and Kincaid 1994). We can never confirm a theory with 100 percent certainty; instead, we stop when we are satisfied that the found explanation accounts for the most important aspects of the outcome (see chapter 5).

## 2.4. Conclusions: A New Understanding of Process-Tracing

We need to differentiate process-tracing methods into three distinct variants to bring alignment between what we practice and what we preach. Common to all three variants is the ambition to trace causal mechanisms, although

TABLE 2.1. Summary of the Main Differences between the Three Variants of Process-Tracing

	Theory-Testing	Theory-Building	Explaining-Outcome
Purpose of analysis—research situation	<i>Situation one</i> Correlation has been found between X and Y, but is there evidence that there exists a causal mechanism linking X and Y?	<i>Situation two</i> Build a plausible causal mechanism linking X:Y based on evidence in case	<i>Situation three</i> Explain particularly puzzling historical outcome by building minimally sufficient explanation in case study
Ambitions of study	Theory-centric	Theory-centric	Case-centric
Understanding of causal mechanisms	Systematic (generalizable within context)	Systematic (generalizable within context)	Systematic, nonsystematic (case-specific) mechanisms and case-specific conglomerates
What are we actually tracing?	Single, generalizable mechanism	Single, generalizable mechanism	Case-specific, composite mechanism that explains the case
Types of inferences made	(1) Parts of causal mechanism present/absent (2) Causal mechanism is present/absent in case	Observable manifestations reflect underlying mechanism	Minimal sufficiency of explanation

the term *causal mechanism* as used in theory-testing and theory-building variants refers to relatively parsimonious mechanisms that are generalizable to a bounded population of cases, whereas in explaining-outcome process-tracing, mechanisms refer to systematic mechanisms, case-specific, non-systematic mechanisms (events leading to an outcome), and eclectic case-specific conglomerates of different mechanisms.

Table 2.1 summarizes the main points of difference across the three variants of process-tracing. There are three different purposes of process-tracing methods: (1) testing whether a generalizable causal mechanism exists in a case and functions as expected; (2) building a generalizable mechanism from evidence in a case; and (3) explaining a particular outcome. The methods differ regarding whether they are theory- or case-centric, along with what they are actually tracing and the types of inferences they enable.

The rest of this book addresses the commonalities and differences across the three variants of process-tracing with regard to their ontological and epistemological foundations (chapter 3), the practical guidelines for each stage of the research process from working with theories (chapter 4), and the types of inferences being made (chapter 5). The book also explores developing empirical tests (chapter 6), working with evidence (chapter 7), and answering questions of case selection and nesting case studies in broader, mixed-method research designs (chapter 8).