Strategies for Social Inquiry

Advances in Comparative-Historical Analysis

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The comparative sequential method

Tulia G. Falleti and James Mahoney

Although comparative-historical analysis (CHA) is often understood as the comparison of a small to medium number of cases (usually court cases or other macro units), we argue in this chapter that it may be more informative to say that this field involves the systematic comparison of sequences (Rueschemeyer and Stephens 1997). We suggest that a principal over-riding methodology of comparative-historical analysis is the comparative sequential method (see Falleti 2010, 20–4). This method is defined by the systematic comparison of two or more historical sequences. In CHA, the "cases" studied nearly always are decomposed into sequences of events, and CHA claims rest upon the inferences derived from the analysis and comparison of those sequences. To take a classic example, Barrington Moore’s (1966) cases in Social Origins of Dictatorship and Democracy include countries such as England, France, the United States, and Germany. But these cases were treated as types of sequences of events that unfold over time. These sequences were the central units of comparison, and they provide the main basis for inferences about the causes of dictatorship and democracy.

The comparative sequential method is an overarching methodological umbrella that can and must encompass more specific methods of case analysis and within-case analysis. The main cross-case methods include matching tools such as J. S. Mill’s methods of agreement and difference as well as more complex tools such as statistical analysis and qualitative analysis (QCA). The within-case methods include inductive tracing and modes of hypothesis testing such as hoop tests and causal analysis. In this chapter, we show how cross-case (in particular, methods) and within-case (specifically, process tracing) are put to use and compared to sequences of events in CHA. We argue that, depending on the kind of sequential argument, contrasting sets of methods are more

We thank Jacob Hacker, Verónica Herrera, Alan Jacobs, Rodria Snidal, Hillel Steiner, Kathleen Thain for helpful comments on earlier versions of this chapter.
appropriate — and more or less useful — as tools for analyzing sequences and carrying out causal assessment.

To briefly foreshadow our arguments, we contend that process tracing is especially valuable for establishing the features of the events that compose individual sequences (e.g., their duration, order, and pace) as well as the causal mechanisms that link them together. There is no substitute for process tracing when analyzing the events that make up the sequences and processes that are studied in comparative-historical research. For their part, cross-case methods are the basis through which CHA scholars compare and contrast sequences and processes. These methods are used to evaluate whether the specific features of a sequence (e.g., the ordering of events) affect outcomes of interest in previously hypothesized ways. As we highlight, the comparative sequential method brings together the literature on temporality with the literature on case-study methods of causal inference.

### Conceptual building blocks

We begin our explication of the comparative sequential method by introducing and defining the concepts that form the building blocks of this approach, emphasizing the distinctions between event and occurrence, and between sequence and process.

### Events, occurrences, sequences, and processes

Events are spatially and temporally bounded happenings that can be compared across cases (cf. Abbott 2001; Griffin 1992; Sewell 1996). They are defined by general characteristics specified by the investigator, such that all instances of a given event have certain features in common. Different events are marked by different characteristics, which can vary significantly, depending on their level of analysis (e.g., an assassination versus an international systemic change), their duration (e.g., an economic shock versus an economic depression), their scope of change (a coup versus a revolution), and so on. Events have a fractal character, such that more micro events are always embedded within any given event (e.g., Gryzmała-Busse 2011, 1281; Sewell 1996). By our definition, however, events are always happenings that have general characteristics that allow for them to apply to multiple cases. With an event, one can inquire meaningfully whether or the extent to which two or more cases experience the same event. Although some historical events may occur only once, are events, they could in principle have occurred multiple times.

By contrast, we reserve the term occurrence for a noncomparable happen that is, by definition, distinctive to a single case. The assassination of I Luther King Jr., the Great Depression, World War I, and the 1973 coup in Chile are examples of occurrences. An occurrence can be recast event by viewing it at a more general level of analysis. Thus, these occur could be viewed as events if recast as an assassination, a depression, and a military coup. Comparative-historical researchers often discuss rences in their historical narratives, but, when these occurrences an analytic weight in explanation, they are treated as events — that is, as in of more general phenomena that can be compared across units (C 2007).

Both events and occurrences take place against the backdrop of interact with — temporal and spatial contexts. The contexts in which events occur provide them with meaning and shape their causal A given occurrence or event may trigger a certain reaction or series of and ultimately an outcome in a given context but a different sequenc outcome in an alternative context (Falleti and Lynch 2009). For exam bipolar international context of the post–World War II period made th leftist ideologies and governments in the 1960s and 1970s in Latin Ar serious political threat in the eyes of large portions of the population.

that international context, many saw the military coups of that ti remedy to or a lesser evil than the threat of communism. However, s it pleasure of the new century, and in a unipolar international context, of the Left in Latin America does not invoke the same ideas of politics that could explain or justify military intervention.

A sequence is a temporally ordered set of events that takes place in context (cf. Abbott 2001; Aminzade 1992; Picerson 2004). For exam to oversimplify, Moore constructs the following sequence for Eng context of early modern Europe: royal peace (event A) → commerce of agriculture (event B) → destruction of traditional peasantry (even emergence of a strong bourgeoisie (event D) → parliamentary dep (outcome). The "case" of England is decomposed into events like t unfold over time in the narrative. Likewise, to use the example of J Wood's (2000) insurgent path to democracy, the following sequence led to pacted transitions to democracy in El Salvador and South Afri specific context of oligarchic societies with extra-economic coercion sustained mobilization from below (event A) → decline of profi
traditional economic sectors (event B) → change of elite's economic interests (event C) → negotiated transition to democracy (outcome).

In the narratives by Moore and Wood, events are presented as occurrences distinctive to particular cases. For instance, the development of capitalist agriculture in England is discussed by Moore as the Enclosure Movement, which was a singular occurrence. However, he makes it clear that the Enclosure Movement was a transition to capitalist agriculture. Likewise, in Wood's narrative, events such as sustained mobilization from below took different specific forms in El Salvador and South Africa. In El Salvador, sustained mobilization entailed a civil war led by the FMLN (Farabundo Martí National Liberation Front), whereas in South Africa labor militancy – not guerilla actions – constituted the ANC (African National Congress) as an insurgent counterelite (Wood 2000, 132). While the occurrences are distinctive in each case, they constitute the same event: sustained mobilization from below. When comparative-historical analysts assert that their arguments are consistent with nuanced historical evidence, they often mean that the events in their sequences encompass key occurrences from the societies under study.

Last, a process is a particular type of sequence in which the temporally ordered events belong to a single coherent mode of activity. Processes often describe transitions between states, including movement toward a new state or movement away from a prior state. Examples of social, political, and economic processes are democratization, social mobilization, privatization, flexibilization of labor, regulation, and decentralization (examples of natural processes are aging, photosynthesis, evaporation, and combustion). Like events, processes have a fractal character in that smaller, partial, or more restricted processes may be part of larger and more encompassing ones. For example, the process of suffrage expansion is part of a larger process of democratization.

Within a process, the researcher can identify the component events that unfold over time from the start to the end of the theoretically relevant period of analysis. The researcher can identify such events because they belong to a single coherent pattern of reproductive or transformative activity. Thus, the researcher can establish whether the temporal succession of events tends to reproduce the initial conditions and early characteristics of the unit of analysis or whether the events trigger reaction/counterreaction dynamics that considerably change the unit of analysis. In her study of postdevelopmental decentralization in four Latin American countries, Fuller (2010) identifies the specific policies and legal and constitutional changes of administrative, fiscal, and political decentralization, which are the three main component events of the process of postdevelopmental decentralization. She also explains process of decentralization had reproducing features in the cases of Brazil and Colombia but entailed a reactive logic in Mexico.

We contend that CHA is often fundamentally concerned with the question of sequences operating in particular contexts, whether these are of events that are part of a single underlying process or events that multiple processes. For instance, and to oversimplify again, part of narrative sequence for China is maintenance of traditional agriculture → lack of empowerment of the bourgeoisie (event B) and empo of the peasantry (event C) → revolution from below (event D) → denialist dictatorship (outcome). When one compares this sequence earlier sequence for England, one can start to see how Moore arrives at central insights, such as the necessity role of the commercialization of English culture (an event that refers to a process of economic transform—from strong bourgeoisie (which refers to a process of social class formation)—as well as the importance of a strong traditional peasantry) and revolution (social mobilization) for communist dictators. In Wood's case, the comparison of two dissimilar cases allows her to identify the common contextual factors (oligarchical societies with extra-economic coercion of labor) that triggered the common sequence of events (political mobilization from below and change in elites' interests) and that negotiated democratic transitions.

By elucidating the concepts of event, sequence, and process allows us to understand the basic units of comparison in much CHA. While CHA do make comparative statements about “whole pieces” (e.g., England vs. China), these comparative statements are grounded in more detailed comparisons of events, sequences, and processes. These comparisons are the basis through which CHA researchers make generalizations about the macro units under study.

**Types of sequences and processes**

Works of CHA vary in the kinds of sequences they construct and analyze. In classifying and analyzing ideal-typical sequential arguments, w
in four stages. First, we classify sequences according to whether their constitutive events are causally connected and distinguish between causal sequences and strictly temporal sequences. Second, we argue that the order and pace of events can be causally consequential for the outcome of interest. We thus also identify ordered and paced sequences to describe those sequences (whether causal or strictly temporal) in which event ordering and pace matter.

Third, we distinguish process-type sequences depending on whether the direction of initial steps helps establish the direction of the entire sequence. Do initial steps in a particular direction (e.g., toward a particular outcome) induce further movement in that same direction? We specifically distinguish between self-reproducing processes (the direction of early steps is followed) and reactive processes (the direction of the steps is not followed).

Finally, we distinguish three kinds of self-reproducing processes by taking into account the specific nature of reproduction. In particular, we consider whether the reproductive pattern involves a process of continuity, expansion, or diminishment. On this basis, we identify: continuous, self-amplifying, and self-eroding processes.

These distinctions are analytically and methodologically important because different sequences and processes must be analyzed in different ways, including often with distinct methods. For example, the ways in which process tracing can be most productively applied varies depending on the kind of sequence under analysis. Thus, we return to these distinctions in the next sections when we explore cross-case and within-case methods.

Causal and strictly temporal sequences

Most CHA studies formulate causal sequential arguments in which the events in a sequence are understood to be causally connected to one another. These causal chains start with an antecedent cause or condition (X) and, through a series of causally connected events (events A, B, C, and so on), culminate in a final outcome of interest (Y), as illustrated in the top left quadrant of Table 8.1. These types of sequential arguments can be thought of as pathway explanations. The nature of the causal linkages among events can vary: each event may be understood as necessary for each subsequent event, as probabilistically increasing the likelihood of each subsequent event, and part of conditions that are sufficient for each subsequent event.

Rustow’s (1970) theory of the origins of democracy provides a good example of a causal sequential argument, in which the earlier events are conditions for later ones. Rustow starts his model with national assistance as a necessary background condition (X) we can also think of this background condition as a text before the process of democracy takes off. The timing of the first stage of democratization is irrelevant; it may occur in the recent or in the distant past (Rustow 1970, 351). The democratization itself starts with the preparatory phase (event A), a prolonged and inconclusive political struggle among social classes.

Table 8.1 Types of sequential arguments in CHA

<table>
<thead>
<tr>
<th>According to type of linkage between events</th>
<th>According to temporal effects of events</th>
</tr>
</thead>
<tbody>
<tr>
<td>Causal</td>
<td>Ordered</td>
</tr>
<tr>
<td>Causally ordered sequences</td>
<td>Causally ordered sequences</td>
</tr>
<tr>
<td>X → A → B → C → Y</td>
<td>X → A → B → C → D → E → Y</td>
</tr>
<tr>
<td>~X → ~A → ~B → ~C → ~Y</td>
<td>~X → ~A → ~B → ~C → ~D → ~E → ~Y</td>
</tr>
<tr>
<td>(Ex.: Rustow 1970)</td>
<td>(Ex.: Rueschemeyer, Stephens, and</td>
</tr>
<tr>
<td></td>
<td>Stephens 1992)</td>
</tr>
<tr>
<td>Strictly temporal</td>
<td>Paced</td>
</tr>
<tr>
<td>Temporally ordered sequences</td>
<td>Temporally paced</td>
</tr>
<tr>
<td>A → B → Y</td>
<td>A → B → Y</td>
</tr>
<tr>
<td>B → A → ~Y</td>
<td>B → A → ~Y</td>
</tr>
<tr>
<td>(Ex.: Dahl 1971)</td>
<td>(Ex.: Dahl 1971)</td>
</tr>
</tbody>
</table>

Notes: → indicates causal relationship; ~ indicates lack of causal relationship.

In an excellent analysis of the comparative politics literature on democratization in relation to temporal and institutional arguments, Barrenechea, Gibson, and Terrell (forthcoming) cite Rustow’s work as examples of sequential arguments. We draw from their article to identify the early models of democratization as examples of causal and strictly temporal types of arguments.
CHA works also often encompass the analysis of sequences in which the events are not causally connected to each other, but the temporality of these events (their duration, order, pace, or timing) is causally consequential for the outcome of interest (see second row in Table 8.1). We call these strictly temporal sequential arguments.

Dahl (1971) provides excellent examples of strictly temporal sequences in his analysis of the historical events leading to democratization. Dahl asks: "Does sequence matter? Are some sequences more likely than others to lead to mutual security and thus to facilitate the shift toward a more polychylocal regime?" (31). His answer is a resounding yes. When the process of liberalization (or increased public contestation, event A) precedes the process of inclusiveness (or increased popular participation, event B), the resulting polychylocal regime is more stable (Y), as was the case in England and Sweden. On the contrary, "when the suffrage is extended before the arts of competitive politics have been mastered" (event B before A), the resulting political regimes are unstable and could easily reverse to authoritarianism, as was the case in Weimar Germany (Dahl 1971, 38 and following). But contestation does not cause participation, or vice versa (see also Grzymala-Busse 2011, 1275). Instead, Dahl argues that the order of these events is causally consequential for democratic stability as a result of an exogenous factor: the process of political socialization of the excluded social strata, which takes place between the time of increased elite competition and the time of increased popular participation (Dahl 1971, 36). In other words, Dahl suggests that elite competition causes political socialization and the moderation of the masses, a phenomenon that in turn facilitates political regime stability provided it happens before increased participation. Hence, the order in which participation and competition occur is consequential to the political regime’s stability, but competition does not cause participation (or vice versa).

Ordered and paced sequences

In both the causal and strictly temporal types of sequential arguments in CHA, the order and pace of the events may be causally relevant. Thus, we distinguish between ordered sequential arguments and paced sequential arguments. With ordered sequential arguments, the temporal order of the events in a sequence is causally consequential for the outcome of interest (Abbott 2001; Aminzade 1992; Falleti 2010; Jacobs 2008; Pierson 2004). Timing matters in the sense that the temporal relationship among events is consequential. For example, Smith (2007) makes an ordered sequential argument: the timing of oil wealth exploitation in relation to economic development and institutional building is consequential to regime stability. As he writes, "of oil wealth on politics and institutions is not a question of when, but rather of how" in relation to economic development and state institutions (193). Falleti (2010) makes a similar ordered sequential claim. He states that if political decentralization precedes administrative decentralization, the sequence of decentralization reforms, subnational governments to end up with higher levels of political and fiscal autonomy than if the events is the reverse.

The events in an ordered sequential argument may or may not be connected. Rueschemeyer, Stephens, and Stephens’s (1992) classic capitalist development and democracy provides a good example of an ordered sequential argument. In this pathway explanation, events are (for the most part) sufficient for each subsequent event. Eventually, the authors argue that capitalism, with its consequences of industrialization (event A) weakens the landed upper class (event B) and weakens the working and other subordinate classes (event C). Industrialization (event A) brings together in factories and cities, where they associate and organize (event D). Capitalism, moreover, improves the means of communication, facilitating nationwide organization (reinforcing the working class can successfully demand its own political representation (event E), which results in successful democratization (event F) (Rueschemeyer, Stephens, and Stephens 1992, 271–2).⁴ If the sequence is different, such that the weakening of the landed upper class helps labor class incorporation (i.e., event E preceded event B), the result is a highly unstable regime or a reversal to authoritarianism (as was the case in Argentina after working class incorporation with Peronism).

Paced sequential arguments are similar to ordered sequences except that the speed or duration of events — not their timing relative to one another — is causally consequential (Abbott 2001; Aminzade 1992; Grzymala-Busse 2011; Pierson 2004).⁵ For example, in Collier and Collier’s (1991) causal argument of regime type, the unusually extended duration of corporatist Mexico (slow event A) meant that this episode lasted

⁴ Rueschemeyer, Stephens, and Stephens (1992) also analyze transnational and state-society factors in their explanation of democracy.
⁵ One general category of paced sequential argument encompasses more fine-grained discussions of events in other work on transnationalism (e.g., Aminzade 1992; Grzymala-Busse 2011). For our purposes, this general category of paced sequential argument is useful, though we recognize that it is not a clear distinction.
Great Depression (event B), which in turn helps explain the radical form of party incorporation in Mexico (outcome ~ Y). That is, if the labor incorporation period had been shorter in Mexico (as in most of Latin America), it may well have been less radical in content. In her study of electoral system choice in the USA and Europe, Ahmed (2013) provides another example of a causal and paced argument. She argues that the time elapsed between industrialization and the electoral incorporation of the adult male population was consequential to the relative strength of labor organizations. Where suffrage was extended soon after industrialization (event B quickly follows event A), unions remained weak. The longer suffrage expansion (event B) was delayed after industrialization (event A), the more likely that workers would organize to achieve their political and economic goals (49). Skocpol’s (1979) classic work on the outcomes of social revolutions contains a strictly temporal and a paced type of argument. She argues that the pace at which revolutionaries consolidated state power affected the extent to which they transformed state, class, and societal structures. In Russia, revolutionaries were forced by circumstances to rapidly consolidate power, which implied a more thoroughgoing transformation than in France, where the revolutionary reconstruction of state power unfolded more gradually.

**Self-reproducing and reactive processes**

Whether causal or strictly temporal, ordered or paced, sequential arguments can be further differentiated depending on whether their events follow a self-reproducing or reactive logic. On the one hand, sequences may embody events that move consistently in a particular direction and that track an outcome over time. Adapting Stinchcombe’s (1968) terminology, we call these sequences **self-reproducing processes**. On the other hand, early events in a sequence may produce a series of reactions and counteractions that do not move the process in a consistent direction. With a **reactive process**, early events are followed by backlashes and reversals of direction, which in turn may trigger further backlashes and reversals, such that the final outcome of the sequence may appear unrelated to early events in the sequence (Mahoney 2000).

If a sequence of events is characterized by a **self-reproducing process**, the movement of initial events in a particular direction induces subsequent events that move the process in the same direction. Over time, it becomes more and more difficult to reverse direction or return to the original starting point (Hacker 1998, 2002; Pierson 2000; see also Thelen 1999, 2003). Although the events are linked by self-reproduction mechanisms, the underlying process may (1) remain unchanged (e.g., a background constant condition); (2) amplify (e.g., the concentration of elite power over time); or (3) ε institutional decay dynamics. These differences in reproductive Io us to distinguish three types of self-reproducing processes: **continuous**, **amplifying**, and **self-eroding processes**, represented graphically in Table 8.2.

<table>
<thead>
<tr>
<th>Type of process</th>
<th>Definition</th>
<th>Diagram of process</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Self-reproducing</strong></td>
<td>Initial events in a particular direction induce subsequent events to move the process in the same direction.</td>
<td>Continuous process</td>
<td>Jacobs (2010)</td>
</tr>
<tr>
<td></td>
<td>A → A → A → A → A</td>
<td></td>
<td>(1999)</td>
</tr>
<tr>
<td></td>
<td><strong>Self-amplifying process</strong></td>
<td></td>
<td>Arthur (1994)</td>
</tr>
<tr>
<td></td>
<td>A → A → A → A → A</td>
<td></td>
<td>(1985); 5:9</td>
</tr>
<tr>
<td></td>
<td><strong>Self-eroding process</strong></td>
<td></td>
<td>Otona (2011)</td>
</tr>
<tr>
<td></td>
<td>A → A → A → A → A</td>
<td></td>
<td>Rosenblatt</td>
</tr>
<tr>
<td><strong>Reactive</strong></td>
<td>Events are linked via reaction/counterreaction dynamics.</td>
<td></td>
<td>Collier and C</td>
</tr>
<tr>
<td></td>
<td>A → ~A → B → ~B → Y</td>
<td></td>
<td>(1991); Kik</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(2014)</td>
</tr>
</tbody>
</table>

In a **continuous process**, an early event is stably reproduced over leads to other events that maintain the underlying process in an almost continuously stable form. Scholars often formulate continuous arguments to characterize the perpetuation of longstanding policies such as social security in the United States (Jacobs 2010). Organizational changes can also be described as a continuous process (e.g., Skocpol; Other phenomena that are often analyzed as continuous processes include: cultural characteristics, institutional outcomes, and geographic features).

With a **self-amplifying process**, the initial events move the sequence in a particular direction, such that it becomes more and more likely that it will be expanded, increased, strengthened, or otherwise enhanced. The process (or its outcome) does not remain stable but increases becomes more prominent as a result of self-amplifying mechanisms. Examples of self-amplifying processes come from economic history. Evolutionary processes are often subject to self-amplification action and adaptation spreads within a population. The proliferation of the modern state has been explained in these terms (Spruyt 1994). I characterize self-amplifying processes with the expression **increas**

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6 At times, a continuous background process may become, in the words of Stöffer (2012), condition for change, combining with an intersecting sequence of events, at which juncture a process's logic of reproduction may change to a self-amplifying or self-eroding one.
In such processes, the probability of further steps along a given path increases with each move down that path (Arthur 1994; David 1985). Each individual step may be only a small change, but each step reinforces the direction of the prior one, and together the steps add up to a large cumulative effect.

With a self-eroding process, the logic of transformation is self-reproducing, but each event in the sequence serves to weaken, diminish, or undermine the configuration found in the early stages of the sequence. Each step down the path moves away from the established outcome associated with the early process and makes it increasingly less likely that the outcome or the process itself will be sustained. The status quo becomes harder and harder to maintain. Gradual processes of decay, drift, and exhaustion may be examples of self-eroding processes: in these sequences each event can feed into the next and diminish a prior pattern or process. For instance, the institutionalization of private property rights in Kenya was marked by a sequence in which the land titling process was rigged with fraud. Each fraudulent move triggered another fraudulent move and made the preservation of legal practices less and less likely over time, eroding the institutionalization of private property rights (Onoma 2010). Likewise, in Rosenblatt’s (2013) comparative study of political party vibrancy, the phenomenon of trauma—the shared experience of a revolution or a civil war—activates retrospective loyalty and enhances party vibrancy. However, trauma is marked by decreasing returns: as time goes by, the generation that suffered political trauma ages out and the new generation does not forge the strong bonds that previously kept the party vibrant.

Finally, sequences may also unleash reactive processes in which events are linked together via reaction/counterreaction dynamics (Mahoney 2000). Each event is a cause of each subsequent event because it triggers a reaction or a response to the prior event. The events in these sequences are transformative in the sense that they change and perhaps reverse prior events (Sewell 1996). Often, reactive processes entail causal chains in which the initial event and the final event seemingly bear little relationship to one another, yet they are connected by virtue of the reaction/counterreaction dynamics that compose the overall causal chain. For example, in Collier and Collier’s (1991) argument, the reactive sequences marking populist/post populist dynamics in Latin America moved countries from labor incorporation periods to party system regimes through a complex set of intermediary steps marked by reversals and backlashes. Riofrancos (2014) also makes a reaction/counterreaction sequential argument when analyzing the political interactions between indigenous movements and the state in Ecuador from the early 1990s to the present. In her explanation of the institutionalization of an extractivist discourse, Riofrancos traces the succession of political events that confront indigenous movements with the state and through discourse of extractivism evolves. In both examples, the basic logic of change is reaction/counterreaction.

Sequences and processes applied to the CHA of industrialization

Examples of several of the sequences and processes described above in Jack Goldstone’s (1998) work on the origins of the Industrial Revolution. In this work, the environmental sequence (event A) is a causal sequence in which each event is a logical cause to another event; at certain points (e.g., C → D), the sequence along via reaction/counterreaction dynamics, such that it has come to a reactive sequence. By contrast, the industrialization sequence (event e) is a self-amplifying process and exhibits positive feedback. Each causal chain serves to expand a process of industrialization that we with the invention of the steam engine. By the end of the sequences, the Industrial Revolution has amplified the point that a return to a preindustrial impossible. The example also contains a continuous process that repels the stable reproduction of a liberalizing culture open to technological innovation. The endurance of this background event is important as it influences the industrialization sequence at various points. Moreover, this continuous sequence intersects with the environments to produce the first steam engine (event M), which in turn is the industrialization sequence. This “coming together” or collision of determined sequences is common in comparative-historical research and is sometimes described as a conjuncture (e.g., Mahoney 2000).

The Goldstone example is an illustration of a sequential argument that the timing and duration of earlier events matter for subsequent events. For example, the long duration of context condition A (limited abundant coal, and cold climate) was essential for the environment to continue along its path. This event had to endure for England dependent on coal (event B), itself a long-run event, and eventually much of the coal supply (event C). Issues of duration, speed, and order affect the dynamics of self-reproducing sequences. For example, the timing of events is consequential in the self-amplifying industrialization process.

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2 At times, counterreactions may seek to preempt more radical change. Other examples of counterreactions can be found in the literature on the origins of social welfare provision analysis of social policy creation in Uruguay at the beginning of the twentieth century. Castiglione (2014) argues that the Uruguayan state sought to preempt or anticipate the mobilization of the working class.
that the development of railways and ships (event Q) could occur after the development of the first steam engine (event M). The more basic point is that issues of order and pace frequently are important to theories of sequences in CHA work.

Finally, the Goldstone example illustrates how a single-country case can embody multiple sequences and processes. It has long been noted in the literature on comparative politics that multiple observations may be contained within a single case, such that a comparative study of the multiple observations (Campbell 1953; George and Bennett 2005; Rueschemeyer 2003). Our point, however, is that one case can view the main "cases" of a comparative study in terms of sequences. This is certainly true for any history that systematically compares two or more sequences within a single case. With these studies, the sequences are units of analysis, not national or other spatial unit in which they are located. In turn, the sequences as units of analysis, it is possible to revisit CHA methods, which are often understood to apply mainly or exclusively in the macrospatial unit under analysis. A new example of this CHA methods comes into being by treating sequences and processes as units of analysis and comparison.

**Cross-case methods**

In this section, we consider how the kinds of sequences and processes in CHA analysis can shape the kinds of methods (or specific application method) that are most appropriate for assessing causal hypotheses. The most basic comparative techniques are J. S. Mill's method of difference and method of difference. As conventionally employed, the method matches cases that share a given outcome, and it eliminates a cause that is not shared by these cases. The rationale of this procedure is that the factor is not necessary for the outcome. By conventionally using the method of difference compares a case in which the outcome is present to a case in which it is absent. If these cases differ on causal factors, that factor is eliminated as a potential explanation. This eliminative procedure is that the factor is not sufficient for the outcome (Mahoney 1999).

When used in isolation, the methods of agreement and difference are useful instruments for small-N causal inference. Most simply,
methods may be able to discover that an individual factor is not necessary/sufficient for an outcome, they cannot establish that a given condition is necessary/sufficient. Small-N researchers thus normally must combine Millian methods with process tracing or other within-case methods to make a positive case for causality. Alternatively, they can attempt to use stronger variants of cross-case methods, such as QCA and statistical analysis (Lieberman, Chapter 9, this volume; Ragin 2000, 2008). However, these methods may require the analysis of a medium number of cases, such that the design is no longer a small-N analysis.

The application of Millian methods to sequential arguments has not been systematically explored, although we believe it is commonly used in practice. With ordered sequential arguments, one evaluates hypotheses about the relative timing of events by comparing two or more sequences. Normally, the design entails the use of the method of difference, but it can also be combined with the method of agreement. For example, Ertman (1997) hypothesizes that the early timing (before 1450) of sustained geopolitical competition for Latin Europe led these countries to develop patrimonial states (rather than bureaucratic states). If Ertman had only analyzed the Latin European countries, the resulting method of agreement design would have led him to depend on counterfactual reasoning to support his argument about the importance of timing. However, Ertman also carried out a method of difference design by comparing Latin Europe to the German countries, cases where bureaucratic states were created. In the German states, Ertman shows how the late timing (after 1450) of sustained geopolitical competition allowed leaders to take advantage of the latest techniques of state and finance and thereby develop more coherent bureaucracies. While this method of difference comparison does not clinch Ertman’s ordered sequential argument, it does make it more plausible and allows him to avoid a purely counterfactual argument.

The joint application of the methods of agreement and difference also can be used with paced sequential arguments. One compares cases that are matched on a number of dimensions but that experienced a causal process at a different speed or with events of varying durations. For example, Prasad (2012) uses the method of difference in conjunction with a paced sequential argument to explain why the United States did not develop a robust public welfare state whereas European cases did. She argues that the stunning endurance of US economic prosperity during the late nineteenth and early twentieth centuries, itself rooted in the vast material resources of the country, set the United States down a path that allowed the government to avoid building a welfare state to reconcile citizens to capitalism. At time, Prasad applies a method of agreement design to account for trends among the European cases, where sporadic and unrelentingly encouraged welfare state formation.

The matching logic of Millian-type methods furthermore is often used for the study of self-reproducing sequences. For instance, self-amplifying logic, scholars may employ time periods as their core construct of the phenomenon of interest that repeats across multiple periods. The method of agreement then be used in the search for a common source of the repeating factors that are not shared across each time period can be either nonessential. This logic applies well to famous examples of path dependency and technological standards, such as the QWERTY keyboard (DiMaggio 2002). The explanation of QWERTY, technological efficiency is claim possible explanation, given that efficiency was present only in the periods when QWERTY was first adopted. Thereafter, QWERTY is available alternative options, such that technological efficiency necessary for QWERTY’s reproduction over time.

When temporal sequences are analyzed as particular types of processes as the center of the analysis. One compares and contrasts the nature of democratization, nationalization, and so on. With such comparisons, how are the basis for the similarities and differences that exist across...
quite different sequence: British colonial strategy of rule “on the cheap” (event A) → empowerment of traditional chiefs and hands-off administration (event B) and maintenance of traditional agriculture (event C) and manipulation of ethnic divisions (event D) → patrimonial postcolonial state (event E). While Kohli certainly compares Korea and Nigeria, he does so by assessing the sequences of events in their colonial and postcolonial histories. The macro units differ because of the contrasting sets of events that constitute colonial and other processes in their histories.

CHA scholars employ different strategies when analyzing and aggregating events to compare sequences and processes. For example, Kohli’s (2004) approach is to examine how similar processes are constituted by contrasting forms of events across different countries. Thus, Kohli studies events across countries that are part of the same kind of colonial processes: colonial state building, colonial agricultural policy, and colonial political governance. These two countries differ because they sharply contrast in the events that constituted these processes, which also allows Kohli to generalize broadly about differences in processes of colonialism itself (e.g., intensive and transformative colonialism in Korea versus indirect and laissez-faire colonialism in Nigeria). Other scholars aggregate events based on their intensity or their temporal properties. For example, Skocpol’s (1979) comparative study of social revolutions compares processes such as international pressure across cases by exploring how events endowed those processes with different intensities and durations. The differences at the level of events allow her to generalize across cases about differences in the nature of the process of international pressure.

Finally, it bears emphasis that, even with Millian methods, the analysis of sequences usually demands a focus on combinations of factors, not individual factors. These combinations are often temporal configurations. For example, with ordered sequences, the analyst explores combinations of temporally ordered causal factors, such as AB versus BA, treating each combination as an individual factor for the purposes of using Millian methods. Likewise, analysts may distinguish two sequences with the same basic events (e.g., ABC) on the basis of the duration of those events (e.g., whether event B was long or short in duration). This kind of comparative analysis is like QCA in that it puts the emphasis on the effects of packages of variables or configurations, not the effects of discrete individual variables. However, unlike atemporal versions of QCA, it assumes that the causal contribution of each event within a combination depends on its temporal characteristics and its temporal position within the configuration.

Process tracing

Process tracing is the foundational method of within-case analysis. Yet, the literature on process tracing has generally not explicitly addressed literature on temporal analysis. Here we try to begin to correct this by linking process tracing to the analysis of sequences and the temporal unfolding of events as they unfold over time.

From the rapidly growing literature on process tracing (Beach and Bennett 2012b; Bennett and Checkel 2015; Kittel and Kuehn 2013), two broad approaches may be distinguished. The first mode of process tracing is an approach in which the analyst derives propositions and formulates theory from empirical observations (Hall 2013, 27). This mode of process tracing often used for the purpose of theory development through the inclusion of key events and through the specification of hypotheses about events connect together to form sequences and processes. This mode of process tracing embodies a deductive logic of inquiry, in which we deduce propositions from more basic premises and carry out (i.e., explicitly) process tracing tests. This mode is often used to test theories that were initially formulated from inductive process tracing theoretically. We discuss each logic in turn.

Inductive process tracing

Inductive process tracing is perhaps the most powerful method for formulating new theory. It is commonly used to identify the core sequences and processes at the center of most social science research. Inductive process tracing plays a large role in the construction of a conjunctural, and multilayered historical narrative, including — with the Goldstone (1998) example summarized above. Inductive process tracing is essential to the enterprise because the analyst cannot anticipate many of the key events that comprise sequences and process analytic importance. As a result, inductive analysis must be used in the historical-sequential arguments in most CHA studies (Bennett 2006, 263).

Inductive process tracing operates on two levels. At one level, for the discovery of specific events in a sequence that were not (i.e., novel theory generation). These discoveries may then lead
to reformulate key aspects of the originating theory. At another level, the inductive approach is particularly useful for pulling out and assembling events into coherent and connected sequences. Inductive process tracing allows the CHA researcher to go back and forth between theory and events to build a coherent sequential argument that can then be evaluated further using other within-case tests or comparisons to other cases.

Inductive process tracing furthermore works well for identifying the events that comprise specific kinds of processes. With self-reproducing sequences, an inductive process tracing approach can help the analyst assess the amplitude of change (or lack of change) between events. In these sequences, the order of events might be theoretically deduced in advance, but the understanding of the extent to which the unfolding of events leads to a continuous reproduction of the underlying process of interest, the amplification of that process, or to its self-erosion will most likely require an in-depth analysis of the events and direction (or trajectory) of the sequence. At least to some degree, the process tracing researcher must let the events and their effects "speak for themselves" when establishing the specific logic of self-reproduction. The occurrences and events themselves – as found in the established historical evidence – can make it clear to the researcher whether a reactive or reproductive logic is at work, and, if the latter, whether that logic involves continuity, amplification, or erosion. When formulating theory and building sequential hypotheses, therefore, the process tracing researcher might be best served by not deploying too-strict theoretical expectations that could act as blinders and straightjacket the interpretation of the process under study.

Strictly temporal sequences also lend themselves naturally to the application of this kind of inductive process tracing. With these sequences, researchers do not propose or presume causal connections among the events of interest. Nor do they explore the historical material to determine whether a specific piece of evidence is present in order to carry out a process tracing test. Instead, they situate events from the historical record into a larger (temporal or spatial) context and analyze whether the order in which they unfold is consequential for the outcome of interest. For example, Caraway's (2004) recommendation of "episodic analysis" for single-country studies of democratization presupposes this approach. For Caraway, each episode corresponds to the inclusion of previously excluded groups based on class, gender, or race. Inductive process tracing allows the researcher to "consider the sequencing of the extension of democratic citizenship, the extent to which previous expansions of the franchise affected the next round of democratization, and the extent to which transnational factors altered domestic debates" (455, emphasis added). This approach to temporal sequences facilitates a analysis of the unfolding of events and their cumulative or interact on the outcome of interest.

While inductive process tracing is significantly a tool for theorization, it has substantial implications for theory testing. In CHA, modes of research, the omission of essential variables or the missp of relationships among variables can cause serious problems for cazi. Inductive process tracing is a key instrument for avoiding omit bias and for formulating theories that are correctly specified. Both of CHA to generate new theory and the capacity of CHA to bui that can withstand intense empirical scrutiny depend on sound process tracing.

Process tracing tests

Process tracing tests – such as hoop tests and smoking gun tests a central mode of within-case analysis used with the comparative method (Bennett 2008; Collier 2011; Mahoney 2012; Rohlfling Evers 1997). These tests have a deductive logic in which an analy specific insights from a case with established principles and general to make a logical (deductive) inference about that case. When co inductive process tracing, deductive process tracing tests usually h focused purpose. They are often applied to specific links within i or deductively derived causal chains. They can be used to help controver links in a sequence are in fact causal. Process tracing also be used to determine whether specific hypotheses about on pace are correct.

All process tracing tests leverage specific pieces of evidence, typ from within a case. Scholars use the existence of certain events (or o certain events) as their evidence for making inferences (Benn Collier, Brady, and Seawright 2010; Mahoney 2010; McKeown 19 researchers often actively search for specific revealing pieces of very much the same way as a detective looks for key clues to solve a case. For some hypotheses, a specific piece of evidence from with the presence of some specific event) in effect must be present for the to be true. This kind of evidence allows for a hoop test: the hypoten 9 As Bennett (2008; Bennett and Collier 2006) points out, process tracing is closely analog inference in the sense that the discovery of evidence can lead us to update our substantive the validity of particular explanations (see also Humphreys and Jacobs 2013).
“jump through the hoop” (e.g., the event must be present) to warrant further consideration. Failing a hoop test in effect eliminates a hypothesis, but passing a hoop test does not confirm a hypothesis (though it can lend support for the hypothesis).

In other cases, the existence of a given event can strongly suggest the validity of a hypothesis. This kind of evidence allows for a smoking gun test: the evidence (e.g., the existence of the event) is strong proof that the hypothesis is correct. Passing a smoking gun test in effect confirms a hypothesis, though failing a smoking gun test does not disconfirm a hypothesis (but it can count against a hypothesis).

As an example of a hoop test, consider Luebbert’s (1991, 308–9) critique of Gerschenkron’s (1943) sequential argument about the origins of fascism in Germany. Gerschenkron links powerful landed elites to fascism via an electoral mechanism, arguing that landed elites are able to deliver rural electoral support to fascist parties by ensuring subordinate peasants support their candidates. Thus, the basic sequence is landed elites exercise control over peasantry (event A) → peasants vote for fascism (event B) → fascist electoral victory (outcome Y). Luebbert suggests that if Gerschenkron is correct, one should expect to observe rural electoral support for fascism in areas where landed elites predominate. In fact, however, Luebbert’s historical research shows that rural support emanated from the family peasantry, not peasants controlled by labor-repressive landed elites. He therefore concludes that Gerschenkron’s proposed causal sequence and event chronology cannot possibly be right: subordinate peasants did not deliver large number of votes for fascists in Germany.

A standard way of conducting hoop tests and smoking gun tests involves examining the intervening steps between X and Y. One can look for specific intervening events that should be present (or should be absent) to make the case that X causes Y. For example, in his comparative-historical explanation of failed industrialization in India, Chibber (2003) hypothesizes that the direct opposition of domestic capitalists blocked state managers from building the institutions that could sustain successful industrialization during the critical juncture of 1947–51. To test this hypothesis, he suggests that one should be able to find evidence that efforts by big industry (e.g., lobbying, personal pleas, slowing down investment) actually influenced state managers and changed the direction of state policy and institution building. The discovery of this evidence by Chibber amounts to passing a difficult hoop test, which lends support for his overall argument about the role of domestic capitalists as key cause of failed industrialization.

Process tracing tests often leverage the fact that it is easier to establish connections between temporally proximate events than between two distant events. For example, imagine that one seeks to show that labor demand for Y. The challenge is often to find a well-established causal chain in which a more proximate event E is necessary for Y. If one can show that X is necessary for E, one can make the logical inference that X also be necessary for Y (this inference takes the form of a smoking gun test). Likewise, if one knows that the proximate E is sufficient for Y, then one can reason that X must also be sufficient for Y. This is the kind of reasoning that Rueschemeyer, Stephens, and Stephens’s (1992) sequential explanation of capitalist development and democracy, discussed above, connects together temporally proximate sufficient links to make a long pelling causal chain; the overall claim that capitalist development is maternally sufficient for democracy is built from the sufficiency link chain.

To illustrate how this kind of sequence elaboration can work with a hoop test, it is helpful to return to the environmental causal sequence Goldstone example above (see Figure 8.1). How do we know the feature A (i.e., limited forest area, abundant coal near sea, and cold water connected to the outcome M (i.e., the development of the steam engine)? Goldstone persuades readers by appealing to the tight events that compose the middle of the sequence (i.e., B, C, D); in effect, he makes a logical inference about the connection between on the basis of his confidence in the validity of these intervening narrative suggests that the connection for each small step is highly intuitive, or even obvious. On this basis, he can deduce that it is likely that A is also connected to M.

Process tracing tests can also be used for hypotheses concerning ordering or pace. One possibility is to carry out a test with counterfactual thought experiment: one imagines a different ordering or a different pace. If that thought experiment makes it clear that a different outcome have followed, one has, in effect, carried out a smoking gun test. In an alternative order seems almost inconceivable. For example, in the narrative one cannot imagine the improvement of the steam engine first allowing for the invention of the steam engine. Likewise, Fal 57–8) counterfactually argues that if an initial political decision reform a reactive (instead of self-reinforcing) type of mechanism ensuing, the second type of decentralization reform to be adopted lil
be administrative (instead of fiscal) decentralization, leading to a lower degree of power for subnational officials.

Finally, process tracing tests are often used implicitly when scholars construct arguments about the mechanisms driving self-reproducing sequences. The processes underlying these sequences consist of causally connected events; in turn, the connections among these events can be evaluated with process tracing tests. Consider, for example, the self-eroding process that Onoma (2010) documents for property rights in Kenya. The erosion of property rights begins in the early postcolonial period with small-scale fraud carried out by common posing as real estate agents. These fraudsters are successful precisely because the colonial period left behind a relatively functional land rights system that established trust among individuals buying and selling property. In time, however, the process of fraud spreads as more and more common became active; it reaches a culmination point when high-level politicians themselves become key agents of land fraud. To establish that early episodes of fraud generated later ones, Onoma searches for and finds much evidence that criminals and, later, politicians learned from prior examples. In effect, Onoma shows that his hypothesis can pass a hoop test: if events did not show a process of copying and learning by example, the hypothesis about a self-reproducing cycle of fraud likely would be wrong. But the evidence is present, which, while not fully confirming his argument, adds support in its favor.

To conclude this section, process tracing — inductive and deductive — is an indispensable component of CHA work. It is a central tool that CHA researchers use for establishing causal linkages between events when constructing sequences. In conjunction with cross-case comparison, it is essential to the family of methods that compose the comparative sequential method.

### Conclusion

The comparative sequential method is the basic overarching approach used by CHA researchers to formulate arguments and make inferences. On the one hand, this method is a set of tools and concepts for constructing different types of sequences and processes. On the other hand, it encompasses a set of cross-case and within-case methodologies for making causal inferences. Thus, the comparative sequential method brings together two literatures that rarely are connected explicitly: the literature on temporality and the literature on case-study methods of causal inference. Elucidating the comparative method invites a conversation among these literatures.

First, concerning the temporal components of the comparative method, specific historical occurrences within cases are the stuff of the method. These occurrences are typically cast as more get which in turn form the building blocks of sequences. Sequences unfold within certain contexts, then are at the very heart of work. They are often the central units of analysis and the main of comparison. Comparative-historical work, including work of single national unit, is comparative in part because different events are systematically juxtaposed. Sequences themselves may or strictly temporal; they may be temporally ordered or temporal. Processes, a subset of temporal sequences, may also be differentiating whether they follow a self-reproducing or reactive to self-reproducing processes, further important distinctions concern their logic is continuous, self-amplifying, or self-eroding.

Second, concerning its methodological tools, the comparative method often involves the use of variants of Millian methods, but tools are usually applied to sequences and processes, not whole of causally understood. For some sequences, such as ordered sequen case comparison is essential to the analysis because it allows th to avoid having to depend on only counterfactual reasoning w causal inferences. The comparison of sequences and processes scores the fact that CHA is typically focused on combinations causal configurations — rather than individual variables viewed i

For within-case analysis, process tracing is the central method the comparative sequential method. For analytic purposes, we inductive and deductive applications of process tracing. Inducti process tracing are commonly used to identify key events and into coherent sequences and processes. Among other things, indu tracing allows the researcher to carry out an in-depth analysis of the events when the events are not presumed to be causally linked: they follow an ongoing process of self-reproduction, such as a or erosion. Process tracing tests, such as hoop tests and smoking are at the core of inductive purposes of process tracing. These tests are used in conjunction with causal sequences and reactive sequ that these kinds of sequences are composed of tightly coupled causal linkages can be established through specific pieces of data. Process tracing tests are often applied after the analyst has
inductive process tracing and initially specified tentative linkages among events in sequences.

CHA is a field that is centrally concerned with — indeed, centrally animated by — the study of both time and causality. These two components of CHA become thoroughly integrated and work together with the comparative sequential method. By fusing these two elements, the comparative sequential method arguably merits the distinction of being the principal overarching methodology for CHA in general.

References


